# ONSLOW WATER AND SEWER AUTHORITY
# WASTEWATER FACILITIES ANNUAL REPORT - 2019

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# ONSLOW WATER AND SEWER AUTHORITY
# WASTEWATER FACILITIES ANNUAL REPORT - 2019

## INTRODUCTION

Under the requirements of the North Carolina Clean Water Act of 1999, the Onslow Water and Sewer Authority (ONWASA) has prepared this Annual Report on the performance of all domestic/municipal wastewater treatment facilities and wastewater collection systems operated and maintained by ONWASA. The Annual Report provides basic physical and permit information for each facility, along with summaries of monthly activity and overall performance.

During 2019, ONWASA managed a total of five (5) treatment facilities and six (6) collection systems. This includes:

- The Hickory Grove Wastewater Treatment Plant, which is currently inactive and being evaluated for permanent closure.
- The Holly Ridge Wastewater Treatment Plant, with a collection system serving the Town of Holly Ridge and surrounding areas.
- The Northwest Regional Water Reclamation Facility, with a collection system serving the Town of Richlands and northwestern Onslow County.
- The Summerhouse Wastewater Reclamation Facility, with a collection system serving the Summerhouse at Everett Bay residential development.
- The Swansboro Wastewater Treatment Facility, with a collection system serving the Town of Swansboro and surrounding areas.
- The Springdale Area collection system, which sends wastewater to the City of Jacksonville for treatment and disposal.
- The Piney Green Road area collection system, which sends wastewater to Marine Corps Base Camp Lejeune for treatment and disposal.

ONWASA's continuing goal through wastewater collection and treatment is to protect public health and safety by minimizing the risk of contamination to surface and ground waters so they will continue to be available as a drinking water resource for future generations. We hope this information helps the reader to understand the effort ONWASA makes every day to manage and improve the wastewater treatment process

and are committed to providing you with this information because informed customers provide support to our continuing efforts.

A copy of this report is available for public review on ONWASA's website at www.onwasa.com as well as at ONWASA's Main Office, 228 Georgetown Road, Jacksonville, NC.

Questions about this report may be addressed to:

ONWASA
ATTN: Chief Operations Officer
228 Georgetown Rd.
Jacksonville, NC 28540

Or by calling ONWASA's Main Office at (910) 455-0722.

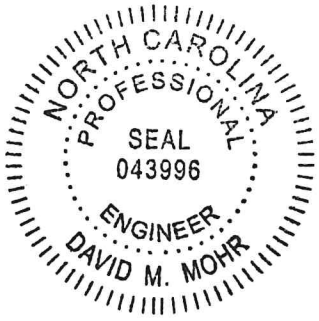
**CERTIFICATION**

I, David M. Mohr, PE, certify that the information contained within this report represents the configuration and operation of the above-referenced facilities for the reporting period. Data presented on treatment capacity and flow rates are based on readings taken at individual facilities and reported monthly to the North Carolina Department of Environmental Quality in accordance with their operating permits.

D. M. Mohr, PE
*Signing Official Signature*

09/10/2020
*Date*

Chief Operations Officer
*Signing Official Title*



## TREATMENT FACILITY INFORMATION
## HICKORY GROVE WASTEWATER TREATMENT PLANT

### Facility Description

The Hickory Grove Wastewater Treatment Plant is located adjacent to NC State Road 2335 (Easy Street), east of Jacksonville and within the Hickory Grove Subdivision. This facility is a wastewater stabilization lagoon permitted to treat 0.0225 MGD (million gallons per day) of wastewater from the surrounding development. Treatment equipment includes: a 2.9 surface-acre facultative treatment lagoon; a tablet-based chlorination system, and, a chlorine contact chamber with de-chlorination capability. The discharge point is into the Little Northeast Creek, which is classified C-NSW waters in the White Oak River Basin. There are no on-site employee facilities, so this location is monitored by staff from ONWASA's Swansboro Wastewater Treatment Plant.

### General Information

| | |
|---|---|
| Permit Number: | NC 0034991 |
| Permit Type: | NPDES |
| Facility Type/Operation: | Facultative Lagoon |
| Operator in Responsible Charge (ORC): | Mike Lutz |
| Facility Phone number: : | (910) 937-7574 |

### Performance During 2019

Operation of this facility was suspended in June 2015 when a new pump station and force main were completed to send all wastewater flow at this location to another treatment facility, the French Creek Advanced Wastewater Treatment Facility aboard Marine Corps Base Camp Lejeune. The operating permit remains open, however, pending approval by the NC Department of Environmental Quality (DEQ) of a plan to address any remaining sludge within the lagoon, formally close the facility and revoke the permit.

### Permit Violations During 2019

None.

### Comments

During 2019 an environmental engineering firm under contract with ONWASA completed a revised *Action Plan for Closure* and submitted it to DEQ for review and comment. This document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. Based on the results of new sampling/testing and initial comments from DEQ, we anticipate a modified plan will be approved in 2020 and construction work initiated on lagoon closure.

## TREATMENT FACILITY INFORMATION
## HOLLY RIDGE WASTEWATER TREATMENT PLANT

**Facility Description**

The Holly Ridge Wastewater Treatment Plant is located at 286 North Jenkins Street within the Town of Holly Ridge. This facility is a wastewater treatment lagoon with a permitted capacity of 0.260 MGD. Treatment equipment includes: a headworks with manual bar screen and grit chamber; influent flow measurement via an ultrasonic flow meter; a 1.82 million gallon capacity lagoon divided into four (4) treatment cells and a settling cell via floating curtain baffles; eleven (11) floating aerators/mixers to enhance sludge digestion; an ultraviolet (UV) disinfection system; a 22,400 gallon aerobic sludge digester with aerator and discharge pump; an effluent pump station with duplex 450 GPM pumps; and, 17,900 ft. of 8-inch diameter. force main to direct effluent to a spray irrigation site for final discharge. The spray irrigation site, located at 220 Dolph Everett Road, is a 0.240 MGD facility consisting of: a 13.30 million gallon storage lagoon; ten (10) spray fields totaling 93.42 wetted acres; and, an irrigation pump station with dual 700 GPM pumps and an effluent flow meter that distributes flow to almost 800 spray heads. There are no on-site employee facilities, so this location is monitored by staff from ONWASA's Summerhouse Wastewater Treatment Plant.

**General Information**

| | |
|---|---|
| Permit Number: | WQ0019907 |
| Permit Type: | Wastewater Irrigation System |
| Facility Type/Operation: | Grade 2 WWTP and Surface Irrigation |
| Operator in Responsible Charge (ORC): | Michael Lutz |
| Contact Phone (Summerhouse): | (910) 937-7574 |

**Performance During 2019**

| | |
|---|---|
| Permitted Capacity: | 0.240 MGD(1) |
| Average Daily Flow Treated: | 0.152 MGD |
| Percent of Permitted Capacity: | 63.3% |
| Maximum Daily Flow Treated: | 0.330 MGD (September 5th) |
| Total Gallons Treated: | 55,479,000 gallons(2) |
| Percent Change from 2018: | - 14.4% |

*Performance Notes:*

(1) *Actual treatment capacity is based on the spray irrigation permitted capacity of 0.240 MGD.*

(2) *Total Gallons Treated can vary significantly, depending on the flow volume diverted to the Summerhouse WWTP (see Comments).*

**Comments**

In May, a project to replace the six (6) existing floating aerators in the lagoon with a total of eleven (11) new floating aerators/mixers and an automated control system was completed

and put into service. The new aerators are designed to accelerate the digestion of sludge within the lagoon while reducing operating costs, as they use a much smaller motor and less electricity to accomplish the same task as the older aerators.

During 2019, an environmental engineering firm under contract with ONWASA completed work on a Capacity Evaluation Study of this facility. A copy of this document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. This study included an assessment of existing conditions at the plant, projections of future population growth and sewer demand in the service area, and the development of alternatives to address that future demand. These included the construction of a replacement treatment facility and the sending of all flow to a third party for treatment/disposal. In December, the ONWASA Board of Directors reviewed the alternatives presented and directed the engineering firm to conduct additional analysis on capital and operating expenses for selected alternatives before making a final recommendation on how to proceed. We anticipate making a final determination and initiating design work on the selected alternative by December 2020.

**Permit Violations During 2019**

The following is a list of all violations reported to NCDEQ under the operating permit for this facility:

| | |
|---|---|
| Month: | March |
| Violation: | Freeboard in storage lagoon less than 2 feet. |
| Cause: | Excessive rainfall prevented spraying. |
| Corrective Action Taken: | Resumed spraying once conditions permitted. |
| Known Environmental Impacts: | None. |

## TREATMENT FACILITY INFORMATION
## NORTHWEST REGIONAL WATER RECLAMATION FACILITY

### Facility Description

The Northwest Regional Water Reclamation Facility is located at 189 Mills Field Road, one mile southeast of the Town of Richlands. This facility utilizes a sequencing batch reactor (SBR) treatment process and high-rate infiltration basins for effluent disposal, with a permitted capacity of 1.273 MGD. Treatment equipment includes: an elevated headworks with fine screen/grit removal system; two 1,830,000-gallon SBR tanks with aeration equipment and axial flow jet motive pumps; a 822,000-gallon flow equalization basin with axial flow jet motive pumps; two rotating cloth disk filter assemblies with automated backwash for tertiary treatment, a membrane filtration system to generate reclaimed water for reuse; and a dual bank ultraviolet disinfection system with a sodium hypochlorite back-up and chlorine contact chamber. Treated effluent is sent via an on-site pumping station and force main to one of four (4) high-rate infiltration basins (totaling 6.99 acres) that are located immediately southeast of the plant. Waste sludge from the treatment process is sent to one of two 614,000-gallon aerobic sludge digesters for further treatment and eventual land application for disposal.

### General Information

| | |
|---|---|
| Facility Permit Number: | WQ0034367 |
| Permit Type: | High Rate infiltration and Reclaimed Water Bulk Distribution. |
| Facility Type: | Sequencing Batch Reactor |
| Operator in Responsible Charge (ORC): | Mark C. Young |
| Facility Phone: | (910) 937-7572 |

### Performance During 2019

| | |
|---|---|
| Permitted Capacity: | 1.273 MGD |
| Average Daily Flow Treated: | 0.339 MGD |
| Percent of Permitted Capacity: | 26.6% |
| Maximum Daily Flow Treated: | 1.098 MGD (September 6th) |
| Total Gallons Treated: | 123,200,500 gallons |
| Percent Change from 2018: | -14.0% |

### Comments

This facility was severely damaged in September 2018 as a result of localized flooding during Hurricane Florence. This included the failure of 30 electrical motors for pumps, aerators and other process equipment, along with the failure of electrical distribution and automated control systems. Both the disk filters and UV disinfection systems were also damaged and rendered unusable. During 2019, the plant was run in a manual mode of operation with a total bypass of the disk filter/UV systems and the installation of a

temporary disk filtration system in an adjacent outdoor parking area. Flooded motors and pumps were also rebuilt/replaced. Treatment processes and procedures have been modified several times to adapt to the damaged systems at the plant, and many of the permit violations noted below can be attributed to operating under extremely adverse conditions. In November a construction contract for the first recovery project, restoration of the existing disk filters and installation of a new, flood-resistant open channel UV system, was bid and awarded; work began in early 2020. Two additional projects, restoration of electrical distribution and automation systems, along with improvements to reduce risk in future flood events will be bid and start construction in 2020.

**Permit Violations During 2019**

The following is a list of all violations reported to NCDEQ under the operating permit for this facility; as noted above, many treatment and process control systems were damaged or inoperable during 2019 and that was a significant factor in the number of times permit limits were exceeded:

| | |
|---|---|
| Month/Day: | January 22nd. |
| Violation: | Daily Limit for fecal coliform exceeded. |
| Cause: | Contaminated sample. |
| Corrective Action Taken: | Review collection procedures. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | January 23rd. |
| Violation: | Daily Limit for BOD5 (biological oxygen demand) exceeded. |
| Cause: | Equipment damage/malfunction. |
| Corrective Action Taken: | Repair of affected equipment (pump). |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | February 18th and 27th. |
| Violation: | Daily Limit for fecal coliform exceeded. |
| Cause: | Not determined; possible equipment malfunction. |
| Corrective Action Taken: | Review treatment process and adjust. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | May 14th. |
| Violation: | Daily Limit for fecal coliform exceeded. |
| Cause: | Not determined. |
| Corrective Action Taken: | Review treatment process and adjust. |
| Known Environmental Impacts: | None. |

**Permit Violations During 2019** (cont.)

| | |
|---|---|
| Month: | May. |
| Violation: | Monthly Average Limit for phosphorus exceeded. |
| Cause: | Treatment process unbalanced. |
| Corrective Action Taken: | Temporary diversion of effluent to upset pond, adjust treatment process and re-treat. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | September 9th. |
| Violation: | Daily Limit for fecal coliform exceeded. |
| Cause: | Equipment replacement (effluent pump) caused contaminated sample. |
| Corrective Action Taken: | Divert flow to upset ponds, clean effluent chamber and re-treat. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | September 23rd. |
| Violation: | Daily Limit for Total Suspended Solids exceeded. |
| Cause: | Possible bypass of temporary disk filter assembly. |
| Corrective Action Taken: | Divert flow to upset ponds, inspect/clean disk filter assembly and re-treat. |
| Known Environmental Impacts: | None |

| | |
|---|---|
| Month/Day: | October 21st. |
| Violation: | Daily Limit for total suspended solids exceeded. |
| Cause: | Temporary disk filter assembly damage/bypass. |
| Corrective Action Taken: | Inspect/repair/clean disk filter assembly. |
| Known Environmental Impacts: | None. |

*Note: Monthly Average Limit for TSS also exceeded due to disk filter issue.*

| | |
|---|---|
| Month/Day: | October 23rd. |
| Violation: | Daily Limit for fecal coliform exceeded. |
| Cause: | Temporary disk filter assembly damage/bypass. |
| Corrective Action Taken: | Inspect/repair/clean disk filter assembly. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | November 20th and 26th. |
| Violation: | Daily Limit for total suspended solids exceeded. |
| Cause: | Temporary disk filter assembly bypass. |
| Corrective Action Taken: | Inspect/repair/clean disk filter assembly. |
| Known Environmental Impacts: | None. |

*Note: Monthly Average Limit for TSS also exceeded due to disk filter issue.*

**Permit Violations During 2019** (cont.)

| | |
|---|---|
| Month/Day: | November 27th. |
| Violation: | Daily Limit for BOD5 (biological oxygen demand) exceeded. |
| Cause: | Temporary disk filter assembly bypass. |
| Corrective Action Taken: | Inspect/repair/clean disk filter assembly. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | December 3rd and 26th. |
| Violation: | Daily Limit for total suspended solids exceeded. |
| Cause: | Temporary disk filter assembly bypass. |
| Action Taken: | Inspect/repair/clean disk filter assembly and effluent chamber, modify treatment process. |
| Known Environmental Impacts: | None. |

## TREATMENT FACILITY INFORMATION
## SUMMERHOUSE WASTEWATER RECLAMATION FACILITY

### Facility Description

The Summerhouse Wastewater Reclamation Facility is located at 351 Holly Ridge Road southeast of the Town of Holly Ridge. This facility utilizes a membrane bioreactor (MBR) treatment system and high-rate infiltration basins for disposal with a design maximum capacity of 0.400 MGD. Treatment equipment includes: a headworks consisting of two automated bar screens and a cyclone-style grit removal system; a 184,000 gallon aerated equalization basin supplying four MBR trains rated at 100,000 gallons per day each (currently only two trains are operational); and, an ultraviolet light post-treatment disinfection system with a sodium hypochlorite back-up. Treated effluent is then sent to one of two high-rate infiltration basins (totaling 7.1 acres) that are located within the Summerhouse at Everett Bay housing development. Waste sludge from the trains is sent to one of two 129,400-gallon aerated digesters for further treatment and eventual land application for disposal. .

### General Information

| | |
|---|---|
| Permit Number: | WQ0029945 |
| Permit Type: | High-Rate Infiltration System |
| Facility Type / Operation: | Grade 3 MBR with High-Rate Infiltration Basins |
| Operator in Responsible Charge (ORC): | Michael Lutz |
| Contact Phone: | (910) 937-7574 |

### Performance During 2019

| | |
|---|---|
| Permitted Capacity: | 0.100 MGD(1) |
| Average Daily Flow Treated: | 0.061 MGD |
| Percent of Permitted Capacity: | 61.0% |
| Maximum Daily Flow Treated: | 0.094 MGD (January 29th) |
| Total Gallons Treated: | 19,638,783 gallons |
| Percent Change from 2018: | - 30.1%(2) |

*Performance Notes:*

*(1) While design capacity for the Summerhouse facility is 400,000 gallons per day, only one of the two infiltration basins is suitable for use so actual treatment capacity was limited to a maximum of 100,142 gallons per day.*

*(2) Total Gallons Treated can vary significantly, depending on the flow volume diverted from the Holly Ridge WWTP (see Comments).*

### Comments

Due to the low number of completed homes in the Summerhouse at Everett Bay development, which is the sole source of wastewater flow for this treatment facility, and the limited capacity of the Holly Ridge Wastewater Treatment Plant, a portion of the

wastewater generated from the Holly Ridge collection system was diverted to the Summerhouse facility through a pump station on Jenkins Street and a 18,000 foot long force main that terminates at the plant.

In November a hydrogeologist began a capacity analysis of the high-rate infiltration basin now in use (Basin #2) to determine if it would support a higher flow rate. In the event this is verified by field testing, a permit modification request will be submitted to NC DEQ to approve a higher Permitted Capacity. In addition, an environmental engineering firm reviewed corrective actions for Basin #1, which was unusable due to an impervious (clay) layer on the pond bottom.

During 2019, an environmental engineering firm under contract with ONWASA completed work on a Capacity Evaluation Study of this facility. A copy of this document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. This study included an assessment of existing conditions at the plant, projections of future population growth and sewer demand in the service area, and the development of alternatives to address that future demand. These included the construction of a replacement treatment facility and the sending of all flow to a third party for treatment/disposal. In December, the ONWASA Board of Directors reviewed the alternatives presented and directed the engineering firm to conduct additional analysis on capital and operating expenses for selected alternatives before making a final recommendation on how to proceed. We anticipate making a final determination and initiating design work on the selected alternative by December 2020.

**Permit Violations During 2019**

The following is a list of all violations reported to NCDEQ under the operating permit for this facility:

| | |
|---|---|
| Month: | February |
| Violation: | Daily Limit for ammonia was exceeded. |
| Cause: | Equipment failure (blower motor). |
| Corrective Action Taken: | Motor replaced next day. |
| Known Environmental Impacts: | None |

| | |
|---|---|
| Month: | June |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | Sudden equipment failure (UV system). |
| Corrective Action Taken: | Repair completed same day. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month: | July |
| Violation: | Daily Limit for phosphorus was exceeded. |
| Cause: | Membrane fouling. |
| Corrective Action Taken: | Revised cleaning procedures for membranes. |
| Known Environmental Impacts: | None. |

**Permit Violations During 2019** (cont.)

| | |
|---|---|
| Month: | August |
| Violation: | Daily Limit for phosphorus was exceeded. |
| Cause: | Membrane fouling. |
| Corrective Action Taken: | Revised cleaning procedures for membranes. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month: | August |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | Adverse conditions during a plant restart. |
| Corrective Action Taken: | Flush effluent pit. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month: | October |
| Violation: | Daily Limit for ammonia was exceeded. |
| Cause: | Not determined. |
| Corrective Action Taken: | Divert flow to upset pond until in compliance and re-treat. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month: | December |
| Violation: | Flow to infiltration basin higher than permit limit. |
| Cause: | Conducting capacity testing. |
| Corrective Action Taken: | None; testing previously approved by NCDEQ. |
| Known Environmental Impacts: | None. |

## TREATMENT FACILITY INFORMATION
## SWANSBORO WASTEWATER TREATMENT FACILITY

### Facility Description

The Swansboro Wastewater Treatment Facility is located at 199 Williams Street, just outside the incorporation limits of the Town of Swansboro. This facility utilizes a conventional activated sludge treatment process and high-rate infiltration basins for effluent disposal, with a permitted capacity of 0.600 MGD. Treatment equipment includes: an aerated equalization basin and headworks with automatic bar screen and grit removal system rated at 1.5 MGD; two 300,000 gallon capacity oxidation ditches with aeration rotor assemblies; three secondary clarifiers; two rotating cloth disk filters with automatic backwash; and, an ultraviolet light post-treatment disinfection system with a sodium hypochlorite back-up. Treated effluent is then sent via an on-site pumping station and force main to one of four high-rate infiltration basins (totaling 15.24 acres) that are located six miles west of the plant on Parkertown Road. Waste sludge from the treatment process is sent to a 46,900-gallon aerated sludge digester and 315,000-gallon aerated sludge holding tank for further treatment and eventual land application for disposal.

### General Information

| | |
|---|---|
| Permit Number: | WQ0023261 |
| Permit Type: | High Rate Infiltration System |
| Facility Type: | Activated Sludge with Extended Air |
| Operator in Responsible Charge (ORC): | Michael Lutz |
| Contact Phone: | (910) 937-7574 |

### Performance During 2019

| | |
|---|---|
| Permitted Capacity: | 0.600 MGD |
| Average Daily Flow Treated: | 0.349 MGD |
| Percent of Permitted Capacity: | 58.2% |
| Maximum Daily Flow Treated: | 0.647 MGD (September 6th) |
| Total Gallons Treated: | 136,081,300 gallons |
| Percent Change from 2018: | - 9.9% |

### Comments

One of the two oxidation ditches was drained, concrete repairs were performed, and a spray-applied liner was installed to extend the service life of this structure.

An environmental engineering firm under contract with ONWASA completed work on a Capacity Evaluation Study of this facility. A copy of this document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. This study included an assessment of existing conditions at the plant, projections of future population growth and sewer demand in the service area, and the development of alternatives to address that future demand. These included the construction of a replacement treatment facility, expansion of the existing plant, and the sending of all flow to a third party (the French Creek WWTP aboard Marine Corps Base Camp Lejeune) for treatment/disposal.

In December, the ONWASA Board of Directors reviewed the alternatives presented and directed the engineering firm to conduct additional analysis on capital and operating expenses for selected alternatives before making a final recommendation on how to proceed. We anticipate making a final determination and initiating design work on the selected alternative by mid-2020.

**Permit Violations During 2019**

The following are all violations reported to NCDEQ under the operating permit for this facility:

| | |
|---|---|
| Month/Day: | March 13th. |
| Violation: | Daily limit for Total Suspended Solids exceeded. |
| Cause: | Plant upset (treatment process unbalance). |
| Corrective Action Taken: | Adjust treatment process. |
| Known Environmental Impacts: | None. |
| Month/Day: | March 18th and 20th. |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | UV system fouling. |
| Corrective Action Taken: | Cleaned and inspected UV system. |
| Known Environmental Impacts: | None. |
| Month/Day: | April 3rd and 4th. |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | UV system mechanical problem. |
| Corrective Action Taken: | Faulty equipment taken off-line and repaired. |
| Known Environmental Impacts: | None |
| Month/Day: | June 3rd and 5th. |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | UV system improper operation. |
| Corrective Action Taken: | UV system controls adjusted. |
| Known Environmental Impacts: | None. |
| Month/Day: | July 9th. |
| Violation: | Maximum Limit for Nitrate (NO3) exceeded in one groundwater monitoring well. |
| Cause: | Seasonal variation. |
| Corrective Action Taken: | None. |
| Known Environmental Impacts: | None. |

**Permit Violations During 2019** (cont.)

| | |
|---|---|
| Month/Day: | July 15th and 17th. |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | Sludge blanket over weir. |
| Corrective Action Taken: | None. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | July 24th. |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | Contaminated sample. |
| Corrective Action Taken: | Sample point modified. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | August 28th. |
| Violation: | Daily Limit for fecal coliform was exceeded. |
| Cause: | Probable contaminated sample. |
| Corrective Action Taken: | Additional sample tested and compliant. |
| Known Environmental Impacts: | None. |

| | |
|---|---|
| Month/Day: | September 6th. |
| Violation: | Application rate for infiltration basins exceeded. |
| Cause: | Excessive rainfall (Hurricane Dorian). |
| Corrective Action Taken: | None. |
| Known Environmental Impacts: | None. |

## COLLECTION SYSTEM SUMMARY

**Facility Description**

The ONWASA sanitary sewer collection system consists of four independent regional systems associated with treatment facilities operated by ONWASA, as well as two systems where wastewater is pumped to a third party for treatment and disposal. Existing facilities (mains, manholes and pumping stations) are of wide range of materials, ages and physical conditions since they were originally constructed by various local governments or private developers and later consolidated into ONWASA. The attached spreadsheet provides basic information on each regional system and the number of customers served.

**General Information**

| | |
|---|---|
| Permit Number: | WQCS00249 |
| Permit Type: | System-Wide Collection System |
| Operator in Responsible Charge (ORC): | Justin Sanderson |
| Contact Phone: | (910) 937-7560 |

**System Operation and Maintenance**

In addition to regular maintenance and cleaning of sewage pumping stations and force main air release valves, a total of 40,300 linear feet of gravity sewer main was cleaned at various locations throughout the system.

**Sewer Overflow Events**

Only one event resulting in a release of more than 1,000 gallons of wastewater to surface waters was reported in 2019:

| | |
|---|---|
| Month/Day: | July 22nd. |
| Regional Collection System Affected | Swansboro |
| Location: | West Corbett Avenue at Shore Drive. |
| Cause: | Failed gravity sewer main. |
| Corrective Action: | Removed failed section and replaced. |
| Estimated Volume: | 15,000 gallons. |
| Receiving Stream: | Hawkins Creek |
| Long-Term Environmental Impact: | None. |

**System Expansion**

A total of 17,000 LF of new sewer mains were added to various regional collection systems in 2019:

| *Collection System* | *Length* |
|---|---|
| Piney Green | 6,700 feet |
| Swansboro | 4,400 feet |
| Holly Ridge | 2,120 feet |
| Richlands | 2,070 feet |
| Springdale | 1,710 feet |

# ONWASA COLLECTION SYSTEM INFORMATION

*(Statistics as of 12/31/2019)*

| Name | Grade / Type | Total Piping Length (Feet) | Number of Pumping Stations | Number of Service Connections Residential | Commercial | Receiving Treatment Facility |
|---|---|---|---|---|---|---|
| Holly Ridge | Grade 1 / Domestic | 132,000 | 8 | 884 | 45 | Holly Ridge WWTP (1) |
| Piney Green | Grade 1 / Domestic | 120,000 | 10 | 1693 | 26 | French Creek WWTP (2) |
| Richlands | Grade 2 / Domestic | 317,000 | 17 | 1056 | 150 | Northwest RWRF |
| Springdale | Grade 1 / Domestic | 29,000 | 2 | 270 | 6 | City of Jacksonville WWTP |
| Swansboro | Grade 2 / Domestic | 260,000 | 33 | 1825 | 202 | Swansboro WWTF |
| Summerhouse | Grade 1 / Domestic | 58,000 | 5 | 354 | 5 | Summerhouse WWRF |
| | **TOTALS** | **916,000** | **75** | **6082** | **434** | |

Notes: (1) A portion of the flow from the Holly Ridge Collection System is sent to the Summerhouse WRF via force main interconnection.
(2) This facility is aboard Marine Corps Base Camp LeJeune.