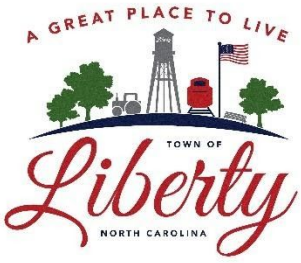

Town of Liberty, NC
Wastewater Treatment Plant
and
Collection System

2019 Annual Report

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I. General Information

Name of Regulated Facility

Town of Liberty

The Town of Liberty is permitted through the State of North Carolina to operate a spray irrigation wastewater treatment facility and operate the wastewater collection system.

Responsible Persons

Elix T. Fike is the treatment plant operator responsible in charge (ORC).
Kevin Coble is the collection system operator responsible in charge (ORC).

William Doerfer, Town Manager is the responsible person for the Town of Liberty facilities and can be contacted at (336) 622-4276.

Permit Number

Wastewater Treatment Facility Permit Number: WQ0003090
Wastewater Collection System Permit Number: WQCS00280.

The wastewater treatment facility is a spray irrigation system located at 7178 East Highfill Avenue. The treatment process consists of a manual bar screen, a lagoon, chemical treatment, and effluent pump station. The Town is permitted for 550,000 gallons per day of sewage. The sewage enters the plant and goes through the bar screen which removes all solids. The solids are removed and disposed of by Allied Waste. The flow then proceeds to a three (3) pump influent station that pumps the sewage to the lagoon. The lagoon is a natural occurrence system that separates the remaining solids from the liquid. The solids settle to the bottom of the lagoon with the water staying to the top. After a 45 day detention time, the water is then treated with chlorine to remove all fecal coliform bacteria. The next process is to spray the effluent onto the spray fields. We maintain one hundred eighty (180) acres of spray field. The spray fields are broken down into eight (8) zones. The Town of Liberty contracts the cutting and removal of the fields for hay.

The Town of Liberty collection system consists of approximately 25 miles of sewer lines. The lines vary in size from four (4") inch to twelve (12") inch in diameter. The collection system also consists of eight (8) lift stations that carry the wastewater to the treatment facility. Operators make daily checks on the outfall lines and lift stations. The public works crew along with contracted maintenance is responsible for the mowing and clearing of the outfall lines for easy access in case of any emergencies.

II. Performance

The Town's most recent Compliance Evaluation Inspection of the Wastewater Treatment Plant was August 6, 2018. The inspection mostly reflects compliance with Permit No. WQ0003090; however, the following items were noted to require attention:

1. The current permit is set to expire on August 31, 2024.
    a. The Town successfully renewed the permit that expired on April 30, 2019.
2. The well supplying water to the on-site restroom facilities is within the compliance boundary, and fails to meet setbacks to storage and treatment units as required by Permit Condition II. (11) (a.). Permit condition II (9.) states in accordance with 15A NCAC 02L .0107(d), no wells, excluding Division approved monitoring wells shall be constructed within the compliance boundary except as provided for in 15A NCAC 02L .0107(g). This office is in discussion with permit staff in Raleigh to determine what potential resolutions may be available related to these matters to achieve compliance with permit requirements.
    a. This issue has been resolved by redrawing the compliance boundary surrounding the well.
3. The treatment units (specifically the bar screen & influent lift station) do not meet the setback of 50 feet to any property line as required in Permit Condition II. (11) (b.).
    a. This setback requirement was not in effect at the time of issuance of our initial permit and does not apply under our new permit.
4. Several overhanging tree branches were observed around the perimeter of the irrigation fields, increasing the potential that an evenly distributed spray pattern may be impeded. Permit Condition (III). (3.) states a suitable year-round vegetative cover shall be maintained at all times, such that crop health is optimized, allows for even distribution of effluent and inspection of the irrigation system. Also, Permit Condition III. (4.) states adequate measures shall be taken to prevent effluent ponding in or runoff from the irrigation site. Adequately maintain the surrounding vegetation, as well as the on-site vegetation to promote even distribution of effluent, and prevent ponding and/or runoff.
    a. This issue has been resolved.
5. The 2019 Standard Soils Fertility Analysis (SSFA) dated November 19, 2019 results contained no recommendations based on the soil analysis.
6. Preliminary calibration measurements indicate application rates measured at the impact sprinkler heads (approximately 8.25 gpm) exceed design application rates (7.1 gpm). This discrepancy suggests the potential for runoff and/or over-application exists. Verify the total number of impact sprinklers in each zone and gallons per minute applicated per impact sprinkler to determine the accuracy of the reported total gallons applicated per event. Please perform the verification and complete calibration as soon as possible. Permit Condition III. (6.) states that all irrigation equipment shall be tested and calibrated at least once per permit cycle. Calibration of all irrigation equipment shall be performed no later than April 30, 2019.
    a. This issue has been resolved.

7. It was discovered during this inspection, that water levels in the monitoring wells are being erroneously reported. To accurately report water levels for each monitoring well, the depth to water in each well, measured from the surveyed point on the top of the casing shall be reported per Attachment C. As currently explained, the depth of water in the monitoring well (water level minus total well depth) has been inaccurately reported as a water level.
    a. This issue has been resolved.
8. Vegetation was observed growing on the liner of the facultative lagoon. If vegetation is allowed to continue to grow, roots could penetrate the liner compromising the liner's integrity. It is strongly recommended that the vegetative growth on the lagoon liner be prevented in order to reduce the possibility of adverse impact to the liner.
    a. This issue has been resolved.
9. A significant amount of Johnson grass was observed growing in the irrigation fields. Because Johnson grass is considered a weed, it does not currently have an accepted realistic nitrogen rate in North Carolina. If Johnson grass is allowed to become the predominance crop in the irrigation fields, application rates will need to be re-evaluated to ensure appropriate application rates are utilized. This could result in the facility becoming nutrient limited as opposed to hydraulically limited, necessitating the need for additional irrigation area. The current accepted plant available nitrogen (PAN) rate is based on fescue being the target crop.
    a. We have been taking measures to further limit the growth and spread of Johnson grass through various measures and will continue to work towards eradication.

All items continue to be monitored by the ORC.

It is our goal to continue to find ways to improve the operations of the Wastewater Treatment Facility and Collection System as we go forward.

Permit Limit Violations 2019

Month	**Violation**
January	NONE
February	NONE
March	NONE
April	NONE
May	MGD Violation
June	NONE
July	NONE
August	NONE
September	NONE
October	NONE
November	NONE
December	NONE

Monitoring and Reporting Violations

Violation	Corrective Measures. All measures have been met.
None	N/A
None	N/A

Overflows at the Wastewater Treatment Plant

Date	Amount (gallon)	Cause
1/01-1/07/2019	1,351,000*	I/I due to rainfall of 1.6" in 1 day
1/13-1/16/2019	588,750*	I/I due to rainfall of 1.5" in 1 day
1/20/-1/26/2019	1,177,500*	I/I due to rainfall of 1.8" in 1 day
2/23/2019	15,000*	I/I due to rainfall of 1.2" in 1 day
2/18-3/12/2019	12,814,740	I/I due to rainfall of 6.3" in 1 day
4/13-4/18/2019	1,029,600*	I/I due to rainfall of 4.3" in 1 day
4/13/2019	4,500*	I/I due to rainfall of 4.0" in 1 day

***This spill spanned 12/28/2018 - 01/07/2019 - estimated gallons spilled in 2018 only at 100 gallons per minute for 86 hours.**

Overflows in the Collection System

Date	Amount (gallons)	Location	Cause
1/24/2019	1,500	Kinro Rd Manhole #500B	I/I
2/18/2019	1,200	Kinro Rd Manhole #500B	I/I
2/23/2019	2,700	Kinro Rd Manhole #500B	I/I
3/21/2019	1,800	Kinro Rd Manhole #500B	I/I
4/12/2019	1,650	W. Kime Ave Manhole #401	I/I
4/12/2019	2,160	Kinro Rd Manhole #500B	I/I
4/13/2019	2,880	Starmount Outfall Line Manhole #601	I/I
4/13/2019	675	Johnson Lift Station Manhole #300	I/I
4/13/2019	4,680	W. Kime Ave Manhole #401	I/I
4/13/2019	11,040	Kinro Rd Manhole #500B	I/I

5/29/2019	850	S. Greensboro St.	Pipe Failure (Break)

Description of Corrective Measures

The Town of Liberty has completed a great deal of work to develop an action plan to come into compliance in our collection and treatment systems. In calendar year 2019, the town was awarded over $2.6 million in CDBG and Golden LEAF funding to complete repair and rehabilitation of our collection lines. By the end of the projects, we will have repaired nearly 20,000 linear feet of sewer lines. 2019 - though not as bad as 2018 did produce a significant amount of water and therefore overflows and SSO's; however we feel we have taken significant steps forward in correcting deficiencies in the system.

During the Spring and Fall of 2020 we will continue to seek grant and long-term loan funding to further rehabilitate the collection system. We expect to receive at least an addition $.5 - 1M in grant/loan funding this year to make further progress in our efforts.

The Town of Liberty is committed to providing sustainable and affordable wastewater collection and treatment services that contribute to the enhancement and livability of the Town residents and water and sewer ratepayers. The service we provide will continue to support the mission.

Liberty: A Great Place to Live

III. Notification

The Town of Liberty will add a notation on the next water bill about the availability of this report. The report will be at Liberty Town Hall for viewing at 239 South Fayetteville St.

The report will also be posted on the Town Website at http://www.liberty-nc.com, under Departments, Public Works, Wastewater Department.

IV. Certification

2019 Annual Report Certification Form

System Name: _____Town of Liberty_____

Wastewater Permit # WQ0003090 **Collection Permit # WQCS00280**

Report Year: 2019 **Population Served: 2,665**

The wastewater system operator named above hereby confirms that all provisions under the House Bill 1160 requiring the development of, distribution of, and notification of an annual report have been executed. Further, the system operator certifies the information contained in the report is correct and consistent with the compliance monitoring data previously submitted to the primacy agency by their NC certified laboratory.

Certified by: Name: William Doerfer_____ Title: Town Manager_____

Signature: e/s *William Doerfer*_____

Phone #: (336) 622-4276_____ Date: _____March 11, 2020___