



## 2022 Annual Performance Report Land Treatment Facility and Collection System

### I. General Information

<b>Facility/System Name:</b>	<b>Jacksonville Land Treatment Facility</b>
<b>Responsible Entity:</b>	<b>City of Jacksonville PO Box 128 Jacksonville, NC 28541-0128</b>
<b>In Charge Contact:</b>	<b>Brandon D. Davis, Plant Superintendent Thomas Johnson Jr., Utilities Maintenance Superintendent</b>
<b>Applicable Permits:</b>	<b>Non-Discharge Permit No. WQ0009267 Collection System Permit No. WQCS00268</b>

The City of Jacksonville's wastewater collection system is composed of approximately 300 miles of sanitary sewer lines and 45 wastewater pumping stations. Twenty-six of these pumping stations have on-site generators to provide power in the event of power failures and 16 of the pumping stations have standby connections, which allow them to be powered by portable generators during power outages. In addition, 37 of the pumping stations also have bypass connections that allow the use of portable bypass pumps that will redirect water flow if a power outage occurs. The City currently owns 5 portable generators and 3 portable bypass pumps.

The City's Utilities Maintenance Division staff consists of 29 employees and is responsible for maintenance, repair and the proper functioning of the sewage collection system and the maintenance and efficient operation of the wastewater pumping stations. This Division provides routine inspections of the City's manholes and is responsible for jetting sewer lines to clear blockages. This staff also provides preventive maintenance to all the wastewater pumping stations and generators to ensure optimum operation. A section within the Division is responsible for ensuring all privately owned grease traps are maintained within the City ordinance requirements. The Utilities Maintenance Division also has an Inflow & Infiltration (I&I) Analyst on staff to identify, document, and reduce inflow and infiltration into the City's collection system.

The Jacksonville Land Treatment Site (LTS) totals 7,400 acres of land and is responsible for the treatment and land application of the City's wastewater. The system is presently designed to treat 9.0 million gallons of wastewater daily via spray irrigation of 2,300 acres of primarily loblolly pine trees. Wastewater is transported 8 miles from Jacksonville to the LTS by a 36-inch diameter force main. The wastewater is treated with hydrogen peroxide for odor removal prior to flowing into the headworks facility. At the headworks facility, the influent (raw wastewater) passes through dual Huber Step Screens where material greater than 1/8 inch in size is removed. The wastewater then flows into an aerated grit and grease removal system where inorganic material and floating materials are removed. From there, wastewater flows into a series of aerated lagoons where biological treatment of the waste occurs. Secondary treated wastewater then flows into storage lagoons where it is held for irrigation. The storage lagoons have a capacity of 690 million gallons and provide storage of treated wastewater during periods of inclement weather and when spray irrigation is not feasible. The treated wastewater is chlorinated to eliminate harmful bacteria and then used to irrigate 2,300 acres of pine forest on the LTS property.

The irrigation fields have three classifications of soil types: Well-drained, Moderately Well-drained, and Seasonally Suitable. These irrigation fields are divided into 28 blocks and the annual hydraulic loading for each block is a permitted maximum ranging from 49.0 to 62.6 inches/acre, depending on the relative percentage of each soil type. As the pines mature and their ability to store nutrients decreases, the mature trees are harvested and used for pulp wood. Young seedlings are planted to repeat the cycle.

The Land Treatment Facility is staffed by one Plant Superintendent, one Lead Operator, six Wastewater Plant Operators, three Plant Maintenance Mechanics, one Plant Maintenance Worker, one Crew Leader, and three Equipment Operators. The Laboratory Section is also housed at the LTS and is staffed by the Supervising Chemist, assisted by two Laboratory Technicians, who performs all the required analyses and is responsible for the certification of the wastewater laboratory.



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### II. Facility Performance

The City of Jacksonville's Land Treatment Facility treated 1,517 million gallons of wastewater during the 2022 calendar year, at an average daily flow of 4.2 million gallons. The City was in compliance with all monitoring and reporting requirements during the 2022 calendar year.

### III. Collection System Performance

There was one (1) reported overflow from the collection system during the 2022 calendar year greater than 1,000 gallons in volume. The locations with overflows that exceeded 1,000 gallons were as follows:

August 21, 2022: 1364 Lejeune Boulevard (manhole #5135) approximately 3,900 gallons spilled. We recovered all with the exception of approximately 600 gallons. The SSO was due to debris in the line segment. It was removed and the line was cleaned.

The City maintained constant communication with NCDWQ after each of these events to ensure full compliance with Environmental Laws and Regulations. The City continues to identify and remediate inflow and infiltration, as well as rehabilitate wastewater infrastructure to prevent further overflows.

### IV. Summary

The City of Jacksonville's Land Treatment Facility and collection system performed excellently during the calendar year 2022. The total rainfall for 2022 was 50.2 inches at the Administration Building of the Land Treatment Facility and the total influent and effluent for 2022 was 1,517 million gallons and 1,251 million gallons, respectively. The City replaced 518 linear feet (LF) of 8-inch sewer pipe and 652 linear feet (LF) of 12-inch sewer pipe during 2022.

The City has ongoing maintenance programs to ensure the wastewater collection system continues to function effectively. The City utilizes cured-in-place lining, point repairs, and manhole lining to reduce or eliminate inflow and infiltration. Other measures include the rain stopper program, fats, oils, and grease management, and pump station maintenance. The rain stopper program is a continuous effort to insert rain stoppers in manholes to prevent or minimize overflows when heavy rainfall occurs. The Fats, Oils, and Grease (F.O.G.) Management Program attempts to mitigate blockages and other issues through ordinances, grease interceptors, cleaning and maintenance, as well as education and awareness efforts. In Jacksonville, there are 252 establishments with grease interceptors that must be cleaned every 30 days. They are also regularly inspected to ensure compliance. In addition, the City cleaned 184,415 linear feet (LF) of sewer pipe in the collection system during 2022. Lastly, the City has a program that evaluates and replaces pumps in wastewater stations that fail or are over 20 years old.

