

# 2011 City of Havelock Water Reclamation Report

NPDES Permit Numbers NC0021253, NC0078131

## WHERE DOES THE WATER GO WHEN IT LEAVES YOUR HOUSE?

After you wash dishes, take a shower, brush your teeth, or wash a load of clothes, the used water travels through a system of pipes to Havelock's wastewater treatment plant where impurities are removed before returning the water to the environment. The City of Havelock has some of the most stringent wastewater discharge limits in the state. During 2011; 99.6% of the *Biological Oxygen Demand* (BOD is a measure of the strength of the wastewater), was removed from the wastewater. The treatment process removed 99.8% of the suspended solids and approximately 93.2% of nitrogen and 88.8% of phosphorous was removed. The following chart indicates the high quality of the water returned to Slocum Creek during calendar year 2011.

Parameter Monitored	*NPDES Permit Limit Summer	NPDES Permit Limit Winter	Average for 2011 Calendar Year
Biochemical oxygen demand (BOD)	5.0 **ppm	10.0 **ppm	0.95**ppm
Total Suspended Solids (TSS)	30.0 **ppm	30.0 **ppm	0.38 **ppm
Total Phosphorous	0.7 **ppm	1.0 **ppm	0.58**ppm
Total Nitrogen (annual limit) Pounds (lbs)	21,400 lbs. (Per calendar year)		TOTAL 12,968 lbs.

\*National Pollutant Discharge Elimination System (NPDES)

\*\*parts per million (ppm)

## HOW HAVELOCK'S WASTEWATER IS TREATED

The City's wastewater collection system consists of approximately 73 miles of sewer lines, some as deep as 25 feet below ground. The system collects used water from the homes and businesses throughout the City and transports it by gravity lines, pump stations, and force mains to the wastewater treatment plant on Jackson Drive. Once at the treatment plant the wastewater enters a bar screen and grit removal system where rags, sticks, large organic particles, and grit are removed to prevent interference and excessive wear on other process equipment. The wastewater then is pumped up to the complete mix aeration basins for BOD (biological oxygen demand) removal, and then flows to three second-stage aeration basins where nitrification (conversion of ammonia to nitrate nitrogen) occurs. Next, the treated wastewater flows into two final clarifiers where biosolids settle to the bottom, and the clear treated water flows off the top of the clarifiers and travels to a set of three denitrification filters, which provide tertiary treatment (effluent polishing). As the water travels through the filters, any remaining fine particles are removed, and the nitrate nitrogen is converted to nitrogen gas. The clean water or effluent from the denitrification filters subsequently flows to the ultraviolet disinfection facility for the destruction of harmful microorganisms and then into a final reaeration basin for oxygenation. The flow is next measured and sampled by an automatic sampler which collects the treated water 24 hours a day, at a rate proportional to the flow, as the clean water returns to the environment entering the east prong of Slocum Creek.

## IS IT SAFE FOR THE ENVIRONMENT?

The City has taken a very proactive approach in its protection of the water environment. The overall performance of the Havelock Utilities Department was excellent, maintaining compliance with permit limits except for the following exclusions.

Date	Violation	Summary	Environmental Impact	Corrective Action
09/21/11	Sewage spill (9500 gallons)	A sanitary sewer spill occurred at the end of Shore drive. A Utility power surge and outage damaged vital pump station components.	No known impact	City repair crews responded immediately and initial clean up was done using the Cities vacuum truck. Lime was applied to disinfect the affected area. Damaged electrical components were replaced and the communications system was repaired and tested.

## WHAT CAN I DO TO HELP HAVELOCK TO CONTINUE TO IMPROVE WATER QUALITY?

- Limit your personal use of pesticides and fertilizers. Also, use and dispose of toxic chemicals properly. Take used motor oil to a recycling center.
- Prevent sanitary sewer overflows. Dispose of cooking oils and grease as a solid waste in your home garbage container. Never pour oil or grease into sink drains, garbage disposals, or toilets.
- Repair broken clean-outs and replace broken clean-out caps on your household sewer line as they occur. Make sure that none of your household gutters is transporting rainwater into the sewer system. Treating rainwater adds to every customer's cost.
- Dispose of solid wastes such as disposable diapers, paper towels, and personal hygiene products in your home garbage container.
- Use water wisely. Repair leaks in household plumbing promptly. Irrigate your lawn or garden only in the early morning or late evening hours. Do not let water continue to run while shaving or brushing your teeth.

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City of Havelock Water Plant Backwash Facilities Telephone: (252) 444-6420

City of Havelock Wastewater Collection System Telephone: (252) 444-6409

**Copies of this report are available at the City of Havelock Water Billing Office and at [www.cityofhavelock.com](http://www.cityofhavelock.com)**