

WASTEWATER DEPARTMENT



Purchased new Volvo Compact Excavator

We treated 936 million gallons of residential, commercial and industrial wastewater with an average flow of 2.56 million gallons per day (MGD). Removal rates of 96.7% for carbonaceous biochemical oxygen demand, 98.1% for total suspended solids, and 97.8% for ammonia have been achieved consistently through the treatment plant.

Our National Pollutant Discharge Elimination System (NPDES) permit was renewed on May 1, 2015 and expires on January 31, 2020. This permit is issued by the Ohio Environmental Protection Agency (OEPA) and gives permission to discharge from the City of Wilmington's wastewater treatment plant (WWTP) into Lytle Creek. The most notable change is we now have a phosphorus limit of 1.0 mg/l that we have to achieve compliance by October 31, 2018 and no later than July 1, 2030 we have to achieve the waste load allocation of 0.913 kg/day or 0.08 mg/l. The 1.0 mg/l limit we should be able to achieve through chemical addition, but to meet the 0.08 mg/l we will need to do a major upgrade of the wastewater treatment plant.

199.46 total dry tons of sludge was removed from the Wastewater Treatment Plant between March 1, and December 15, 2015. This is an average of 0.55 dry tons produced per day in 2015. This sludge was applied to farm ground as fertilizer.

The operation of the pretreatment program continues to be successful. The occurrence of upset, interference or pass-through violations is almost nonexistent. Multiple industrial wastewater effluent samplings and facility inspections are conducted each year.

The City of Wilmington “Storm Water Management Program” has started its second permit cycle that became effective February 3, 2015. The City is covered under Ohio EPA NPDES General Permit OHQ000003 associated with “Small MS4 NOI”. A revised plan must be submitted by the City before February 3, 2017.

The Wastewater Department continues to take the proactive approach to safety by conducting periodic safety meeting and enforcing the policies already in place. We believe the City’s greatest assets are its’ employees and the citizen they serve, and do not wish to jeopardize the health and well-being of either.

There were 6,954 feet of sanitary sewer rehabilitated by inserting a flexible PVC liner that was molded into the existing pipe. Through rehabilitation we are removing inflow and infiltration (I/I), which can put a strain on our sewer system during wet weather. This process also reinforces the structural integrity of the line.

We also rehabilitated two manholes using a process known as SpectraShield Liner System. This process is a patented polymeric lining system that will protect the manholes using a flexible urethane that stops infiltration and corrosion. It also protects wastewater infrastructure from damaging hydrogen sulfide and restores the structure to their original profile. By using this method verses dig up and replace we saved over \$20,000 due to one manhole being 30 feet in depth and the other being in a high traffic area.



SpectraShield Manhole

LABORATORY

The Wastewater Laboratory’s mission is to assure the public health and safety by affirming our compliance with the National Discharge Elimination System Permit, The Clean Water Act, and State of Ohio mandates. It is our goal to produce the most accurate data possible to protect our environment and to serve the community’s best interest.

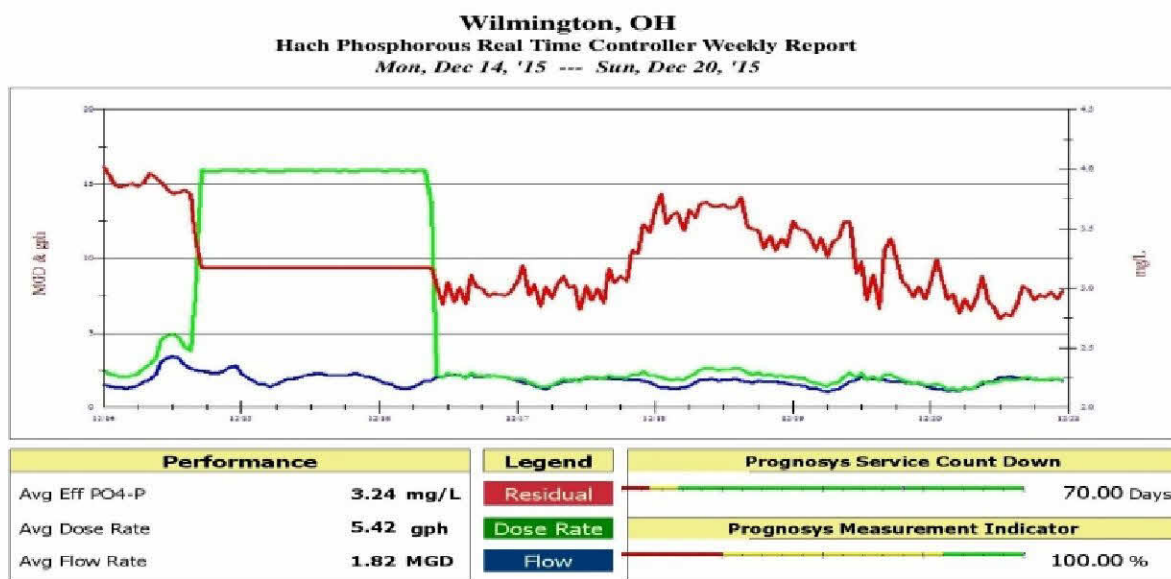
The lab results provide operational information to plant personnel ensuring adequate treatment is received. The data determines plant loadings, demonstrates the effects of the plant effluent upon the receiving stream and is used for future plant designs.

Our Lab utilizes a wide range of methodology to include wet chemistry, atomic absorption spectrophotometry, microbiology, gravimetric, bio-chemical,

specific ion, and colormetric test methods. The inherent advantage of an in-house laboratory is the ability to provide analytical results quickly and accurately.

Included in the components of our Quality Control/Quality Assurance Program is establishing analytical protocols for each parameter, determining detection limits, maintaining calibration and maintenance logs, and utilizing external certified samples, spikes, blanks, and duplicates as per protocol specification.

Precision and accuracy is maintained thru computerized spreadsheets used to determine the control limits for each parameter.



Phosphorus monitor/control graph

We purchased a phosphorus monitor/control system which gives us the ability to meet the current and future phosphorus permit levels with real time control of chemical dosing levels to prevent unnecessary over dosage of chemical. At the present time we are monitoring only.

MAINTENANCE

The maintenance and sewer crew employees were busy maintaining the operation and management of the sanitary and storm water collection systems, which consist of 76.8 miles of sanitary and over 100 miles of storm sewers, thirteen lift

stations, over 2,000 manholes, over 2,400 catch basins, driveway approaches, sidewalks, and curb replacements, and the following:

- 15 inspections of sanitary and storm line completed
- Replaced 600 ft. of curb on Mulberry St.
- Replaced 600 ft. of storm sewer on Mulberry St.
- 821 OUPS tickets processed
- Installed 30 ft. of 15-in. storm sewer
- Installed 380 ft. of 12-in. storm sewer
- Installed 460 ft. of 10-in. storm sewer
- Installed 400 ft. of 6-inch storm sewer
- 23,381 ft. of sanitary line televised
- 114,0921 ft. of sanitary line cleaned
- Hauled 450 tons of stone
- Cleaned 4,000 ft. of Lytle Creek
- Lined 2 manholes (SpectraShield)
- Replaced 19 catch basins (complete)
- Replaced 3 catch basins (partial)
- Replaced and set 2 manhole castings & lids
- Replaced 57 ft. of catch basin piping
- Poured 981 sq. ft. of concrete pad
- Replaced 155 ft. of aprons & gutters
- Replaced 3 drive approaches (417 sq. ft.)
- Replace 143 ft. of sidewalk
- Replaced 187 ft. of curb
- 4,381 ft. of sanitary line root treated
- Installed 574 ft. of 4-in. sanitary sewer
- Installed 100 ft. of 6-in. sanitary sewer
- Installed new gearbox on secondary clarifier #2
- Repaired secondary clarifier #1 scum line piping (dig up)
- Installed new 4" sludge transfer valve in the digester room
- Repaired two sludge transfer valves for sludge holding tanks (dig ups)
- Installed new updated communication computer chips at both David's Drive lift stations, Wexford lift station, and DP&L lift station
- Installed rebuilt blower, new intake silencer, and replaced 20' of cast iron piping to the septic receiving tank
- Installed rebuilt 100 hp contact tank blower motor #1
- Installed rebuilt 10 hp pump in the plant lift station
- Installed new drive shaft bearings and locking collars in storm flow #4. Also, purchased 13 new 24' flights for repairs on both storm flow tanks
- Rebuilt Flyght effluent sample pump (under warranty)

- Repaired and capped the sludge transfer line to drying beds #1 and #2 that is no longer in use
- Installed new pump guide rails in plant grease / scum pit.
- Installed rebuilt grit separator motor
- Rebuilt sludge holding tank #3 valve actuator
- Rebuilt automatic bar screen: new head shaft, bearings, chain, grease lines, and repaired flights
- Repaired and tested ferric chloride chemical addition system and equipment for future use
- Replaced 200' of wiring to primary clarifier #1
- Replaced various wear items on Gorman Rupp pumps in the plant and throughout the city lift stations including: mechanical seals, impellers, and wear plates, etc.
- Rebuilt U.V. system: 160 new lamps, 940 new o-rings, 12 new ballasts
- Installed new pump in fecal coliform bath in the lab
- New hydraulic pump on the Grasshopper zero-turn mower
- Installed new thermostat in towable air compressor
- Rebuilt carburetor on the Ford irrigation pump
- Installed new 5 hp motor on the Hobbs sludge sprayer
- New water pump on the 2008 Dodge Durango (truck 424)
- New EGR cooler on 2011 Ford F-350 (truck 415, under warranty)
- New tires on 2011 Ford F-350 (truck 415)
- Repairs to 2002 Ford F-150 (truck 421): all new brake system (pads, rotors, shoes, calipers, hoses, and rear brake lines), new front wheel bearings

Submitted by:

Harry J. McVey

Wastewater Department Superintendent