Tour #1
Tour the Western Wake Regional Water Reclamation Facility (WWRWRF)
3500 Reclamation Road, New Hill, NC
September 24, 2015 - Bus leaves promptly at 8:30

- Ten years in the making
- Spearheaded by the Towns of Apex, Cary and Morrisville—the Western Wake Partners
- Rated as an 18 million gallon per day, (MGD), wastewater treatment facility
- Designed to remove Biochemical Oxygen Demand, Total Suspended Solids, Total Nitrogen compounds, Total Phosphorous compounds, turbidity agents, and other undesirable constituents from Plant influent
- Releases highly treated and clean wastewater back to the natural environment
- On-site laboratory equipped with the latest technology for providing precise and accurate data

Wastewater treatment begins on-site with preliminary treatment, which consists of mechanical screening and grit removal of influent wastewater. Secondary treatment is provided through a five stage process, which is a modified version of the Virginia Initiative Process for biological removal of nitrogen and phosphorus. The WWRWRF has four separate trains that provide advanced secondary treatment. Clarification immediately follows the secondary treatment process basins. This is where treated wastewater effluent is separated from the microorganisms, in the form of solids, through a settling process. These biosolids are either recirculated back to the secondary treatment process basins or wasted to the solids handling process. Tertiary treatment of the effluent is provided through filters and then ultraviolet disinfection is utilized for final pathogen disinfection. Finally, the treated wastewater is aerated in the post aeration basin before being pumped to the Cape Fear River.

Effluent from the treatment process is pumped through an 11-mile pipeline to the discharge location, downstream of Buckhorn Dam on the Cape Fear River. Additional aeration of the final effluent is provided through a cascade aeration structure before final release to the Cape Fear River. A portion of the final effluent is conveyed to the WWRWRF reclaimed water facility for chlorine disinfection before further use in on-site plant processes and bulk water applications.

Solids drying occur when biosolids are thickened with gravity belt thickeners and dewatered with belt filter presses to reach a form solid consistency. The dewatered biosolids are stored temporarily prior to thermal biosolids drying which is accomplished through belt drying technology. The thermal biosolids dryer produces dried pellets, which are hauled offsite by an outside vendor to be applied as an agricultural soil amendment. The WWRWRF Solids Handling Facility produces Class A, Exceptional Quality biosolids in compliance with EPA 503 regulations, meaning the final product can be applied in a wide variety of beneficial reuse applications, virtually free of site and use restrictions.

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