



North Collier County Regional Water Reclamation Facility

Collier County - Naples, Florida

The North Collier County Water Reclamation Facility is an example of where master planning of a project can lead to phased expansion in an orderly fashion. In 1990, this facility consisted of a 1.5 MGD steel ring package plant, 1.0 MGD oxidation ditch with clarifier, and recently completed 2.0 MGD oxidation ditch with two clarifiers. At that time this facility was treating approximately 2 MGD. The plan developed by Hole Montes was to first optimize use of the existing tanks and equipment to achieve 8.5 MGD of capacity while doing so in a manner that it would fit into further expansion to provide a total future capacity of approximately 30 MGD.

The treatment standards for this facility required a fully nitrified effluent with less than 10 mg/l of nitrate as well as a filtered and disinfected effluent that would be suitable for public access reuse (less than 5 mg/l TSS with high level disinfection). The plan called for modification of the oxidation ditches to provide simultaneous nitrification and denitrification along with new aeration basins to be constructed in the Modified Ludzack Ettinger (MLE) mode to meet nitrogen removal limits. The photo (top right) taken in 2003 shows that the master plan has been followed and that the third major expansion project is taking the capacity to 24.5 MGD with room for expansion to 30 MGD when necessary. Collier County selected the team of Hole Montes and Hazen and Sawyer to design the first construction phase for expansion of this facility as identified in the Hole Montes master plan for this facility and has continued to use this team for the design and construction services for the next two expansion phases.

The first construction phase was to construct a new oxidation ditch and two clarifiers, new 8.5 MGD headworks expandable



to 30 mgd, junction boxes and flow splitting structures to allow all three oxidation ditches to operate as a single plant with the five clarifiers, new filters and disinfection systems, convert the 1.5 MGD steel ring package plant to aerobic sludge digestion, sludge dewatering system expandable to 30 MGD needs. All of the major structures that existed in 1990 were incorporated into the current facility in manners to make the most effective use of them toward the overall project objective. As this facility is surrounded by public park facilities and residential neighborhoods it includes odor control and noise suppression technologies.

The second construction phase included expansion to 17 MGD through expansion of the headworks; new aeration basins, blower building and clarifiers; new filters and chlorine contact tanks; and expansion of the sludge dewatering facilities.

The third construction phase includes further expansion of the headworks, new aeration basins and clarifiers, new filters and chlorine contact tanks, new aerated sludge digestion/holding tanks, and expansion of the sludge dewatering facilities.