

Wastewater Treatment Plant Background:

The Belvedere wastewater plant originally was very small – only about 40,000 gallons per day (gpd). In order to accommodate development growth and to move towards the wastewater needs of the old 1985 development “master plan” for the community, a new plant was built.

This old master plant established the boundaries of the wastewater system as; Sloop Point Road on the North, Hwy 17 on the West, the Intra Coastal Waterway on the East, and line drawn parallel to and south of Weathersbee Drive on the South.

Because of the plant’s location near the Intracoastal Waterway, disposal of the treated effluent had to be done in another way than direct discharge into surface water. Subsurface disposal similar to the old plant wasn’t practical because of the land space required. Since the plant was on a golf course it made complete sense to design the plant in such a way that the highly treated effluent could serve as a water source for the golf course’s irrigation needs. This was an environmentally friendly and logical decision to enable community growth.

This new plant was designed to process a maximum of 300,000 gpd and this new facility was constructed to this size and placed into operation in 1997. The state regulatory authority, the Division of Water Quality (DWQ) has a requirement for coastal area facilities to provide “duplicate essential treatment units”. The “Clarifier” is an integral component of the treatment process that physically separates out the solids and allows clear water to move forward to the filtration unit. This clarifier is considered an essential unit and had to have a duplicate for redundancy.

When the new facility was built, the old original plant was modified and used as the backup to the new clarifier of the new plant. However, by doing this, even though the new plant was capable and designed to treat 300,000 gpd, the permit was limited to 110,000 gpd because of the small size of this backup redundant clarifier. DWQ issued a permit dated January 21, 1997 limiting the plant to 110,000 gpd.

It is important to understand the whole process has two components: treatment and disposal. The treatment process all occurs on our property at our wastewater treatment plant and this facility processes raw wastewater from homes and business into a highly treated effluent that is then disposed of on the Belvedere Country Club golf course as irrigation.

On October 3, 2007, DWQ issued the permit for Belvedere Plantation Wastewater Treatment Plant (WWTP) in which a limited capacity was set at 216,000 gpd because of limitations with the disposal system pumping equipment. Again, the system was designed and approved initially for 300,000 gpd but limited to 110,000 gpd for treatment because of the backup clarifier size and limited to 216,000 gpd on the disposal side because of limitations with the pumping equipment.

As the flow increased in the plant over the years, we moved forward in 2006 with the planned project of replacing the backup clarifier with a larger one that would meet the redundancy requirements thereby remove the limitation and allow the treatment plant to be permitted at the full 300,000 gpd. The community opposed the backup clarifier replacement thinking that we were expanding the plant which was not correct. The county prevented us from obtaining the necessary zoning and we had to initiate a moratorium while we fought the matter in the courts. The court did finally order the county to issue the permit and construction has begun. It will be completed before the end of July 2012.

The installation of this replacement clarifier will not increase the plant's capacity – only remove the limitation and allow us to treat wastewater above the 110,000 gpd limitation.

Q: What about the outflow from the WWTP? Is it correct that sludge is different from treated effluent? We understand that there will be a limit of 2 truckloads of sludge per week hauled from the plant. What plans does the company have for dealing with treated effluent should we have a repeat of the rainy weather of 2010/2011 that prevented spraying the effluent on the country club's golf course and required trucking of the effluent?

A: Yes, they are different. Sludge is the excess "waste" solids from the biological treatment process. Sludge is a normal by-product process of any treatment plant and is removed for disposal.

Effluent is the clean water that leaves the treatment plant after treatment processes. At Belvedere, this highly treated water is temporarily stored in a holding reservoir beside the driving range and then is sprayed onto the golf course grounds for irrigation. This holding reservoir is designed to provide a 20-day buffer so there is room to store the effluent on days when the golf course may not wish to or cannot irrigate (such as during rain events or very cold weather).

It should be emphasized that it is obviously impossible to stop wastewater from coming to the plant as everyone has to use the sewer system. It also has to have a place to be disposed and when we had previous problems with irrigation on the golf course, we had no choice but to haul away this effluent to other disposal sites at a tremendous cost. The Belvedere golf course now has new owners and we are very fortunate to have a good relationship of which we did not enjoy with the previous owners. Jeff Broadbridge has been working with us closely to ensure careful management of the effluent disposal and fortunately we have not had to truck out treated water out while they have been owners.

We hope to identify supplemental solutions for disposal of the effluent but this has proven exceptionally complicated and challenging given the regulations and other restrictions.

Q: Was treated effluent ever sprayed on the lawns of houses across Country Club Drive from the WWTP?

A: Yes, it was determined that this line had been connected to the golf course irrigation system without being permitted. When we discovered this situation, Carolina Water Service, Inc. of NC (CWSNC) shut off the valve that took the effluent to residential lawns. CWSNC does not actually control the application of the effluent. This is done by the golf course management for obvious reasons.

Q: JLO received a call from a local real estate agent who said the owner of a lot she has listed for sale informed her that CWSNC has lifted their 'self-imposed moratorium on both water and sewer connections' in their service area. The agent asked for verification that this is true. Is there such a moratorium? Why both water and sewer? How are these related? What exactly is the service area for the WWTP?

A: The Company currently has a moratorium on additional connections of water and sewer within the service area.

As mentioned above, the county denied a zoning permit for the wastewater plant upgrade that prevented us from allowing more connections. This upgrade was to install the larger backup clarifier to allow the planned connections.

The water moratorium ~~is~~ is a separate matter in which we had also requested a zoning permit from the county for improvements at our well #1 facility in the water system. Our project involved the addition of another 150,000 gallon ground level storage tank (similar to our facility on Hwy. 17) and other modifications to the well that would allow us to pump more water to meet the existing demand and accommodate for the planned growth within the community. The county denied this permit based on community opposition and forced us to place a moratorium on water connections as the existing system was unable to accommodate more connections without the improvements.

We have obtained the necessary permits now and construction has also begun at the water facility.

Through our efforts, we are pleased to be able to anticipate lifting the moratorium by the end of August 2012. However, if someone is ready to physically build now, we are working with those requests on a case by case basis anticipating the moratorium will be lifted soon.

Q: What entities have the responsibility for ensuring that the drinking water supplied by CWSNC and the treated effluent that is sprayed on the golf course meet the criteria established by relevant rules/regulations? What is the procedure/process for the actual testing and what entity performs the test?

A.
Drinking Water:

In NC, all community water systems such as Belvedere Plantation Public Water Supply

System are strictly regulated by the NC Department of Environment and Natural Resources/Division of Water Resources/Public Water Supply Section (PWSS).

The drinking water sampling regulations are very complex. There are over 150 contaminants tested and the sampling protocols and frequencies vary considerably from weekly to multi-year. Sample locations may be from the distribution system or the source entry points.

CWSNC is responsible for collecting all samples and we use independent state-certified laboratories for analysis.

The independent labs report the results of each sample directly to the state. The Consumer Confidence Report (CCR), which provides information about the drinking water including any detections found in the last sampling, is mailed to our customers annually for the previous year. A copy of the 2011 CCR is attached.

Treated Wastewater Effluent:

In addition to many other field samples collected routinely throughout the treatment process, CWSNC collects samples of the treated effluent for independent analysis by a state-certified laboratory two times per month in the summer and one time per month in the winter. CWSNC reports the findings to DWQ in a monthly report.

The golf course takes effluent from the holding pond for application onto the greens and fairways. It is the responsibility of the golf course and CWSNC to ensure that the treated effluent is applied to meet regulations.

As the permittee, CWSNC is ultimately responsible for all compliance.