Anastasia Island Wastewater Treatment Facility

Four million gallons per day capacity
Wastewater Treatment Process
The First Step of the Process

- The return activated sludge flows to a point upstream of the plant where it meets the influent.
- The return activated sludge contains microorganisms which eat the waste (influent).
Definitions

- Influent—consists of household and industry waste.
- Sludge—the mixture that includes the microorganisms.
Microorganisms

These live microorganisms eat the influent (waste).
Influent

- This is the second step of the process.
- The influent travels through the mechanical bar screens which mechanically lifts the large particles up and into a dumpster.
- The dumpster is collected with a garbage truck and taken to a landfill.
Grit Removal Process

- This is the third step of the process.
- The mixture flows from the bar screens to the grit chamber.
- More particles and sand (grit) are removed during this step.
- The particles collect in a dumpster that eventually is deposited into a lined landfill.
Aeration Process

This is the fourth step of the process.

The mixture leaves the grit remover and flows to the aerators.

Air is added to this tank to encourage the microorganisms to eat.
Clarification Process

- This is the fifth step of the process.
- The mixture in the aerator flows to the clarifier.
- The sludge settles to the bottom.
- The water flows over the weirs and then travels to the chlorine contact chamber.
Another Picture of a Clarifier

- No air is introduced to the microorganisms in this stage. The microorganisms are full.
- The sludge on the bottom of the tank returns to the aerator.
An Empty Clarifier

Here you can see the arm that rotates.

The bottom arm pushes the sludge at the bottom of the tank to the pipe.

The top arm skims the surface and collects the particles to be disposed.
Disinfection Process

The water flows over the weirs in the clarifier and into this tank.

Chlorine is added to disinfect the water.

Traditionally, this is the last step.
Filtration Process

Any water used by the golf course, is pumped through the sand filter.

This step removes more impurities.
A Close-up View of a Sand Filter

Here you can see the sand.
Disinfection Process

- Chlorine is added to at least a 1.0 part per million.
- The water is then pumped to Marsh Creek golf course where it is used for irrigation.

Chlorine Gas Cylinders
Some of the water leaves the chlorine contact chamber and flows into the Intercoastal Waterway.

Chlorine Contact Chamber
Post Effluent
Clarifier Sludge Process

The sludge that settles on the bottom of this tank either flows to the aerator or to the digester.
Aeration Process

If the sludge returns to the aerator, the sludge will flow to the influent which is the food source for the microorganisms.

Air is introduced to keep the microorganisms content.
Digestion Process

When there are more microorganisms than the food source or the microorganisms are old, a valve is turned and the sludge flows to the digester. This process is called wasting.
Sludge Thickening Process

- The sludge leaves the digester and flows to the belt thickener.
- Polymer is added to remove some of the water.

Belt Thickener
Sludge Thickening Process

After the sludge leaves the belt thickener, it is pumped to a pit and then back to the digester.
Belt Dewatering Process

- The sludge is then pumped to the belt press.
- The sludge is forced between two conveyor belts and more polymer is added.
- This removes more water before the sludge is taken through the final process.
Enviro-process

After the process, the sludge is considered class AA which means it is exceptional quality sludge.

The sludge can be bagged and sold or applied to the land.
Telemetry

The telemetry system is used to monitor the entire system throughout the county.

Valves and pumps may be turned on or off at remote locations by using this system.
Summary Results for the Wastewater Process

The two products, (reuse water and sludge) after the final processes are complete, are reused in the environment.

The water is used as irrigation for the Marsh Creek golf course and for the Intercoastal Waterway.

The sludge is land applied or bagged and sold.

Both of these items contribute to the environment.

Dedicated Employees