



City of Inverness
 Grand Opening Ceremony
 Water Reclamation Facility
 Saturday, May 8, 2010, 10:00 am



FACILITY CONSTRUCTION FAST FACTS:

RECLAIMED WATER TRANSMISSION - POSPIECH CONTRACTING

- # OF MILES OF PIPE: 3.1
- 1 MILLION GALLONS PER DAY TREATMENT CAPACITY; EXPANDABLE AS NEEDED
- LOCAL COMPANIES EMPLOYED ON THE PROJECT
 - CENTRAL TESTING LAB, INVERNESS

WATER RECLAMATION FACILITY - ENCORE CONSTRUCTION

- COMPLETED 114 DAYS AHEAD OF SCHEDULE
- # OF PROJECT ACCIDENTS: 0
- AMOUNT OF CONCRETE: 4,000 CUBIC YARDS OR ENOUGH TO INSTALL 20.5 MILES OF SIDEWALK FROM INVERNESS TO BROOKSVILLE
- EMPLOYED 23 FULLTIME WORKERS
- EMPLOYED 3 TEMPORARY WORKERS DAILY
- LOCAL COMPANIES EMPLOYED ON THE PROJECT
 - B&F STUCCO, INVERNESS
 - CENTRAL TESTING LAB, INVERNESS
 - COMMUNITY LAND DESIGN, HERNANDO
 - AIR CARE HEATING & COOLING, LECANTO
 - KEN ADAMS DRYWALL, HOMOSASSA SPRINGS
 - SUNCOAST PLUMBING, HOMOSASSA SPRINGS

GENERAL OPERATING INFORMATION:

- NEW PLANT PRODUCES "ADVANCED" TREATMENT
 OLD PLANT ONLY PRODUCED "SECONDARY" TREATMENT
- WATER QUALITY LIMITS HAVE BEEN IMPROVED BY 83% *
- PLANT PRODUCES AN AVERAGE OF 600,000 GALLONS OF RECLAIMED WATER PER DAY

*BASED ON TOTAL SUSPENDED SOLIDS

OWNER:



ENGINEER:



CONTRACTOR:



OPERATOR:



CONTRACTOR:



PROCESS DESCRIPTION OF THE INVERNESS WASTEWATER TREATMENT PLANT

The 1.5 MGD Inverness WWTP is being upgraded to utilize a state-of-the-art Biological Nitrogen Removal (BNR) process to greatly improve effluent quality. The construction includes replacing the existing headworks equipment, and adding an odor control system. The existing clarifiers were upgraded, and two new clarifiers were added. The design also included the necessary filtration and disinfection equipment needed to treat the effluent to meet FDEP Public Access Reuse (PAR) standards.

The construction includes the addition of a new sludge handling facility, renovation of the administration building, a SCADA (supervisory control and data acquisition) control system and upgrading the plant to meet FDEP Class 1 reliability.

The SCADA system allows for remote operation and control of the treatment plant equipment. The SCADA system also monitors plant functions and sends alarms when operator adjustments to plant equipment are necessary.

The effluent from the WWTP will meet the highest standards for Public Access Reuse (Reclaimed Water). A new 1.5 MGD effluent pumping station will pump the reclaimed water through a three and a half mile, 16-inch and 12-inch distribution pipeline, to the Inverness Golf and Country Club where it will be used for irrigation.

THE HEADWORKS FACILITIES

The influent wastewater enters the WWTP through two lift stations and is screened through a headworks facility consisting of a mechanical bar screen and a vortex style grit separator before it is conveyed to the two aeration basins.

The headworks upgrade completely replaces the existing facilities. The new components include an elevated concrete structure, 3'-0" main and bypass channels, stainless steel mechanical bar screen with ¼ inch openings, screenings compactor/washer, manual bar rack with ½ inch openings, and a 9'-0" diameter stainless steel vortex type grit tank with grit pump and stainless steel classifier.

THE CARROUSEL AERATION SYSTEM

The Carrousel Aeration System is a two-stage biological treatment process that utilizes a nitrifying and a denitrifying activated sludge system including both anoxic (without oxygen) zone and oxic (with oxygen) zone processes. The combination of the anoxic basin and the aeration basin allows for continuous recycle of mixed liquor between the two basins.

The volume of the anoxic zone in each tank is 200,000 gallons and the volume of the oxic zone in each tank is 600,000 gallons.

THE FINAL CLARIFIERS

The flow from the aeration system enters the four final clarifiers. Each of the clarifiers has a 40 foot diameter. The side water depth of the existing clarifiers is 10 feet and 13 feet for the new clarifiers. The purpose of the clarifiers is to continuously remove all settleable activated sludge after aeration. The raking mechanism at the tank bottom collects the solids as they settle and concentrates the solids to the center of the clarifier which is pumped out as waste activated or return activated sludge several times a day. The clarified wastewater flows over the weirs to the disk filters.

Each set of two clarifiers will have an elevated scum well with stair access. Waste sludge from all the clarifiers will be diverted to the existing digester (sludge holding tank).

THE DISK FILTERS

The disk cloth media filter is a complete system for continuously removing particulates from a flow stream. The effluent flow from the Final Clarifiers enters the filter basin which contains a series of circular disk elements each covered with a specialized cloth media. The media traps particulates within the interior as well as the surface. The wastewater passing through the media collects in a center tube connected to the effluent.

The proposed upgrade includes two, eight section stainless steel rotating disk filters. The filters will be mounted in a concrete vault with stair access from the finished grade. Each filter will produce effluent wastewater with less than 5 mg/l total suspended solids (TSS) so it can be applied to public access reuse sites. At present, the public access sites that are scheduled for connection to the WWTP Reclaimed Water System are the Inverness Golf and Country Club. Wastewater that is not applied to the golf course will be applied to the existing wastewater treatment plant spray fields.

THE CHLORINE CONTACT TANKS

Wastewater flow from the disk filters will be disinfected with a 12% sodium hypochlorite solution. The chlorine solution will be added to the effluent of the final clarifiers and to the head of each chlorine contact tank.

The existing plant has one chlorine contact tank. The plant upgrade includes retrofitting the existing tank and adding two additional contact tanks. The total volume of all three tanks will provide 42 minutes of contact time for the facility when it receives the design flow of 1.5 MGD. The residual chlorine will be monitored and controlled by an analyzer at the end of the contact tanks.

THE EFFLUENT PUMP STATION

The effluent from the chlorine contact tanks will flow by gravity to the effluent pumping station where it can be pumped to either the existing spray irrigation fields or to the public access site (the IGCC irrigation system).

The existing plant has two 1550 gallons per minute effluent pumps. Part of the expansion of the wastewater treatment plant project includes replacement of the existing pumps, and the addition of a standby effluent pump and a jockey pump. The new pumps will increase the reclaimed water delivery system to 1850 gallons per minute.

THE STORAGE PONDS

The existing plant has two storage ponds. They are 1.89 million gallons and 4.57 million gallons. The plant upgrade will utilize the 1.89 MG pond as a reject storage pond and the 4.57 MG pond as a storage pond for reclaimed water. The plant upgrade will include pumping and automated piping changes relative to the two ponds. The project includes the addition of a reject water pump station to divert substandard wastewater back to the process for further treatment.