Overview

Andhra Pradesh Power Generation Corporation Limited (APGENCO) is a premier company owned by Govt. of Andhra Pradesh and is one of the largest power generating utility in the country. APGENCO has invited tenders for 2.0 MLD sewage treatment plant on EPC basis, for its staff colony attached to Rayalaseema Thermal Power Station at YSR Kaddapa Dist. Contract has been awarded to us i.e. M/S Eurotek Environmental Pvt Ltd, Vadodara through e-procurement procedure.

Design, Supply, Construction, Erection, Testing and Commissioning of 2MLD capacity of Sewage Treatment Plant (STP) including Civil works and E&M works etc on EPC basis complete with below limiting standard for treated effluent, with a performance guarantee of 2 years from the date of commissioning.

Collection of sewage from existing UGD:

Small inlet chamber of 1 M X 0.7 M X 0.6 M was constructed, to trap the sewage before it enters the existing septic tank. From that point sewage is fed through coarse bar screen to collection Sump.
Solution

Treatment Methodology Adopted
After detailed study of the existing site conditions we have proposed AWT Technologies, Canada, Advanced SBR technology. Advanced SBR technology is being widely used all over the world and well proven both in India and abroad. AWT's Advanced SBR system treats every batch of influent in a Sequencing manner continuously with following advantages:

- Less Foot print
- Low total power required to run the plant
- Ability to fully automate the plant
- Less Maintenance and associated breakdown times
- Option of Process or Diffused Aeration

Collection Sump (Under Ground)
A collection sump is constructed with 9M DIA and 3.5 M depth and the inlet sewage is let in through a coarse bar screen to block derbies and solid floating matter. To avoid septicity of incoming sewage, 2 No's of 7.5 HP each Aspirator type of mixers are provided on float mount assembly with rail mechanism to address the level fluctuations in the tank.

Pretreatment Units - Manual Screen, Oil & Grease Trap, Grit Chamber (Above Ground)
From the collection sump the Sewage is pumped to the collection tank and the bar screen, Oil trap and Grit removal chambers (4 x 1.5 x 1 M) and enters into distribution chamber.
Advanced Sequential Batch Reactor Units:
Bio-selector Zone and Anoxic/Aerobic Zone:

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ASBR reaction Tank:

The ASBR utilizes a simple repeated time-based sequence of operation, which incorporates:

- **FILL – AERATION** (for biological reactions)
- **SETTLING** (for solids-liquid separation)
- **DECANTING** (to remove treated effluent)

Completion of these three operations in the sequence described above constitutes a cycle, which is then repeated.

Process Aeration System:

The Triton Process aeration system Make: Aeration Industries Inc , USA capable of higher oxygen transfer efficiency with good horizontal mixing is provided in the ASBR tank on easily retrievable float mounting and rail mechanism to address the fluctuations in the water level of ASBR tank. The system provided is having following merits over conventional aeration systems.

- EPA-defined "Fine Bubble" Aeration, less than 2.2mm in size
- O2 Transfer efficiency (1.83kg/KWH) from 5 HP to 75 HP and superior Mixing (1ft/Sec) from 1.8 m to 10m deep.
- Negligible noise levels - Only 60 Decibels
- No VFD’S Requirement – Individual Turn down Capability.
- Low speed (750 RPM) operation ensures extended aerator life.
- No membranes are used in the systems, so no Choking or settling Issues.
- No gearbox, aerosols, splashing, or released pathogens into the air and eliminates odors.
Decanting Mechanism:
Electrically actuated variable speed moving weir decanters is provided in ASBR tank, the decanting mechanism, control mechanism with PLC has been supplied by AWT Technologies, Canada.

The decanter functions under a controlled (but variable) constant lowering rate. During aeration and settlement, the decanter collection weir will be situated (parked) above the top water level of the reactor. The decanter will automatically operate as a high level overflow in the event of an emergency. The drive mechanism is designed for a continuous duty, variable speed mode of operation thereby producing a uniform flow rate until the decanter weir reaches BWL at the end of the decanter phase, thereby maximizing settling time.

Control Room and Control Panel:
Control and electrical panel is provided to control all the electromechanical items such as pumps, decanter, aerators and mixers. The same is incorporated in panel room specifically constructed for the purpose.

Result
The performance of the STP plant is very good, the quality of treated water exceed the design parameters and the treated water is successfully used for secondary uses like

Solution Providers
Questions on how we can help and solve the challenges you’re facing with your diffused aeration system? Contact us at 040 – 46245555 or 040 – 46245510 for more information. Together we can create most innovative solutions for your wastewater challenges.