



AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

SUCCESS STORIES

PLANT NAME AND LOCATION

STEPHEN D. PEURIFOY WWTP - STOCKBRIDGE, GA

DESIGN DAILY FLOW / PEAK FLOW

1.5 MGD (5678 M³/DAY) / 1.9 MGD (7192 M³/DAY)

AQUA-AEROBIC SOLUTION

DUAL-BASIN AquaSBR® SYSTEM, (2) AquaABF® FILTERS, (2) Aqua-Jet® AERATORS (for Pre-Equalization Basin)

AquaSBR® SYSTEM MEETS STRINGENT PHOSPHORUS LIMITS WITHOUT CHEMICALS

The Stephen D. Peurifoy WWTP located in Stockbridge, Georgia began its operation in 1976 with a 0.5 MGD extended aeration package plant. The extended aeration system was utilized until 1992 when the plant had reached its treatment capacity and the city was in need of an updated treatment system.

The City of Stockbridge began investigating other treatment systems which could handle its increased capacity and more stringent effluent requirements. They considered few different technologies but ultimately chose a dualbasin AquaSBR system. The AquaSBR system was chosen because of its ability to handle peak flows and to meet future stringent effluent phosphorus limits without chemical addition. Another advantage was its low life-cycle cost.

Start-up of the dual-basin AquaSBR system began in 1992. The main treatment objectives of the system are nitrification, phosphorus removal, and TSS removal. According to the Chief Operator, Brad Holtsinger, "We have been pleased with the system's performance and would recommend it to other facilities".

Stephen D. Peurifoy's AquaSBR system is preceded by a bar screen and grit removal and is followed by a surge basin, (2) AquaABF® sand filters, and a UV disinfection system.



Aerial view showing the 2-basin AquaSBR® system; a closeup of the system in operation is shown to the left.

The plant is proud to have received several awards in recognition of its treatment efficiency. Stephen D. Peurifoy won the GWPCA (Georgia Water Pollution Control Association) Gold Award in 2002 and 2003 for being 100% in compliance in all parameters of their permit. The plant was also featured at the GWPCA Annual Conference in 2003 and has received the annual Outstanding Plant Performance Award from Aqua-Aerobic Systems nine times.

AquaSBR® SYSTEM PROCESS

The AquaSBR system operates on a simple concept of introducing a quantity of waste to a reactor, treating the waste in an adequate time period, and subsequently discharging a volume of effluent plus waste sludge that is equal to the original volume of waste introduced to the reactor. This "Fill and Draw" principle of operation involves the basic steps of Fill, React, Settle, Decant, and Sludge Waste. The system may be designed to include seven individual phases of operation but the inclusion or duration of any individual phase is based upon specific waste characteristics and effluent objectives.

Where nutrient removal is required, a simple adjustment to the SBR's operating strategies permits nitrification, denitrification, and biological phosphorus removal. Optimum performance is attained when two or more reactors are utilized in a predetermined sequence of operation.

DESIGN CHARACTERISTICS

The dual-basin AquaSBR system for the Stephen D. Peurifoy WWTP was designed for an average daily flow of 1.5 MGD and a peak flow of 1.9 MGD. The system would meet the city's current treatment objectives and future stringent limits for phosphorus removal. The AquaABF filters further assist in reducing TSS prior to the UV disinfection process.

AVERAGE OPERATING DATA (2004)

LOADING	DESIGN INFLUENT	AVG INFLUENT	PERMIT EFFLUENT	AVG EFFLUENT
AVG Flow mgd	1.5	0.64	----	----
Peak Flow mgd	1.9	0.72	----	----
BOD ₅ mg/l	250	251	6	2.9
TSS mg/l	250	221	20	1.6
NH ₃ - N mg/l	20	14.5	1.4	0.38
Total P mg/l	5	7.4	0.3	0.2



Stephen D. Peurifoy's (2) AquaABF® Filters.

AquaSBR® SYSTEM ADVANTAGES

- Tolerates variable hydraulic loads
- Controls filamentous growth
- Tolerates variable organic loads
- Provides quiescent settling
- Separation of aeration and mixing
- Lower installation costs
- Return activated sludge pumping eliminated
- Small footprint
- Simple to expand or upgrade
- One company accountability

AquaABF® FILTER ADVANTAGES

- Continuous filtration, even during backwash
- No backwash or washwater holding tanks required
- As little as 6" headloss through filter; will not force solids through media
- Surface mat filtration - no mudball formation
- Continuous static head above media prevents air entrapment under porous plate
- Only 1-2% of daily flow required for backwash
- High mechanical reliability /low maintenance; no pipe galleries or air blowers
- Lower capital cost and installation cost
- Fully automatic / minimal operator attention