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Gold Kist selects filter

Fuzzy Filter system helps processor comply with government regulations

When Gold Kist's poultry processing plant managers in Sanford, N.C., undertook a major upgrade of their wastewater treatment system a few years ago, their choice for tertiary filtration was the Fuzzy Filter, compressible media filter developed by Schreiber, Trussville, Ala.

The Fuzzy Filter is one component of a high-volume, high-tech wastewater treatment system at Gold Kist. The plant processes 174,000 birds each day and uses 5.5 gallons of water per bird, says Bruce Morgan, wastewater department manager.

In order to meet National Pollution Discharge Elimination System permit requirements, the plant's treatment system is complex. The treatment system includes an anaerobic lagoon that is lined and covered for odor control. Methane is collected and burned through a gas burner. The plant has a Schreiber process, activated sludge system, which consists of a 2.5 million-gallon aeration basin, four 60 horsepower blowers, an ammonia analyzing system controlling the blowers to achieve nitrification-denitrification, a 500,000-gallon clarifier, and a 6-by-6-foot Fuzzy Filter.

"After the Schreiber process, we have a backwash pumping system, a chlorination system, a reuse pumping system, a dechlorination system, effluent flow measurement, effluent sampling and step aeration before final discharge to surface waters," Morgan says.

"In addition to discharging to surface waters, we also have a 130-acre spray irrigation facility. We treat our sanitary wastewater in a lagoon system, chlorinate it and then it is held in a storage lagoon for spray irrigation."

The Fuzzy Filter is an integral part of the process, which results in direct discharge of up to 1 million gallons per day into a nearby river and application of up to 400,000 gallons per day on the spray field.

"We knew Schreiber had built many wastewater treatment systems at poultry processing plants," says Morgan. "We chose the Fuzzy Filter because Schreiber impressed us with their commitment to develop a filter that would work in this application and they were willing to guarantee it would work."

The Fuzzy Filter, which has a square configuration with a small footprint, operates in an up-flow design, achieving an exceptionally high rate of solids removal through the use of 1.25-inch diameter spherical balls composed of a compressible synthetic fiber.

The low density and high porosity of this media results in more solids captured per volume of media. Because the filter media is compressible, the total porosity of the filter bed can be altered to suit influent characteristics by mechanically compressing the media.

The filter media also is different from conventional filter media in that the fluids to be filtered flow through the media as opposed to flowing around the media as in sand and anthracite filters. This allows the Fuzzy Filter to handle hydraulic loadings of 30 G.P.M./ft2 of media or more as opposed to other filtration systems that are typically limited to loadings of 2 G.P.M./ft2 to 6 G.P.M./ft2.

The Fuzzy Filter media is cleaned in an air scouring/washing cycle.

Advantages of the Fuzzy Filter include: high flow rate; low operating cost; ease of installation; dramatic space savings; completely enclosed structure; low wash water usage; high solids capacity; flexibility through media bed compression; no media loss; and media life of more than 10 years.

All these features are what make Morgan pleased with the Schreiber product's performance at Gold Kist. He isn't alone with his praise.

"There isn't a week that goes by that a client doesn't remark favorably on the Fuzzy Filter," says Alan Vogt, industrial applications, Schreiber L.L.C.

In addition to an innovative product, Schreiber is also known for its willingness to work with clients before, during and after installation of its products. "Schreiber thoroughly described to us what they wanted to do here and did it for what they said it would cost. There were no surprises," Morgan says. "They trained us to operate the system, and to this day they support the operation with advice and data analysis."

"Our approach to marketing the Fuzzy Filter is to use pilot units to demonstrate performance and to validate applications, so clients can be sure of our filter's suitability before making the capital investment to purchase one," Vogt explains.

The Fuzzy Filter has applications in many different situations, Vogt says, including: tertiary wastewater treatment; water reclamation/reuse; wet weather flows C.S.O./S.S.O. (Combine Sewer Overflow/Sanitary Sewer Overflow); and pre-filtration for membrane systems.

"It can also take heavy solids loadings such as primary clarifier effluent with total suspended solids in the range of 70-80 mg/L. In certain applications chemicals may be added for phosphorus removal."

The Fuzzy Filter is available in sizes ranging from 18-inch-square to 8-foot-square units. In addition to the up-flow filters, the Fuzzy Filter is also available in down-flow configurations, both gravity and pressurized.

Schreiber makes a variety of other water treatment products, including those in use at the Gold Kist plant.

"It is a system that works well and helps us meet the strict requirements of our N.P.D.E.S. permits," Morgan says.

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