

## Filter and dryers system converts biosolids to marketable end product

### Problem

The Western Wake Regional Water Reclamation Facility in North Carolina's Research Triangle region needed to meet strict nitrogen and phosphorus standards for permitted discharge to the Cape Fear River and for reclaimed use at the plant.

### Solution

Plant personnel chose an advanced five-stage biological treatment process for biological removal of nitrogen and phosphorus, followed by secondary clarifiers. The clarified effluent flows by gravity to eight **HSF2220-2F Hydrotech Discfilters** from **Kruger USA**, followed by UV disinfection. Biosolids are dewatered with belt filter presses and dried with BioCon dryers. The Class A product is sold and transported off site by a nutrient management company and applied as an agricultural soil amendment.



#### RESULT:

The Hydrotech Discfilters treat 15.3 mgd average and 47.5 mgd peak flows. Two wet biosolids cake silos, two BioCon dryers, a dry-product handling and storage process including a pelletizing and screening system, and an inert gas and dust collection system complete the process. The two-dryer system is designed for a build-out capacity of 14 dry tons per day. The dryers minimize the amount of biosolids handled and provide a desirable and marketable product. **919/677-8310; www.krugersusa.com.**

## System lowers the costs of managing biosolids on Navy base

### Problem

Naval Air Station Jacksonville is the largest Navy base in the Southeast and the third-largest in the nation. To meet the Navy's aggressive energy reform targets, the base searched for technologies to reduce energy consumption.

### Solution

The base hired **NuTerra Management** to implement its **CleanB system** into the wastewater treatment plant. A unit was installed to treat waste activated sludge to Class B standards before dewatering.



#### RESULT:

The project substantially reduced energy consumption and lowered overall biosolids costs by eliminating aerobic digestion. The solution produced Class B biosolids suitable for land application. **904/819-9170; www.nuterra.green.**

## Bar screens keep large solids out of treatment plant

### Problem

The West Point Treatment Plant in Seattle, Washington, treats up to 90 mgd during the dry months and up to 440 mgd during the rain/storm season. The facility had six climber-style bar screens with 5/8-inch bar spacing. Over time the bars bent, allowing larger material to pass through and creating maintenance issues. By permit, the county was mandated to have no identifiable plastics going to the wheat fields; the existing screens needed to be replaced.

### Solution

King County and design engineer CDM Smith decided on **ProTech-tor Multi-Rake Bar Screens** from **Kusters Water** with 6 mm and 10 mm bar spacing due to their reliability, low maintenance, and easy-cleaning bar rack. The screens include multiple rakes typically spaced on 5-foot centers that clean the bar rack every five seconds at the highest speed setting. This increased cleaning frequency is advantageous, particularly under higher flow conditions. If there is damage to the bar rack, each individual bar can be quickly and easily replaced by maintenance personnel with simple hand tools.



#### RESULT:

The screens were placed into service in the summer of 2014, and plant operators have indicated improved screening removal efficiencies, as well as improved performance of downstream processes. **800/264-7005; www.kusterswater.com.**

## Conversion of suction-tube-type clarifiers to spiral-blade clarifiers rectifies clogging and seal issues

### Problem

The City of Lake City, Florida, operated a pair of 60-foot-diameter secondary suction tube (organ pipe) clarifiers from 1974 to 2013. In their later years the clarifiers required high maintenance, exhibiting frequent suction tube clogging and sludge return box seal failures.

### Solution

**Ovivo USA's Clarifier Rebuild Group** replaced the clarifier components with new-style spiral-blade clarifier systems using a center manifold device (CMD). The existing tank's piping used the typical centrally and concentrically located return activated sludge (RAS) pipe within center support/influent columns. The CMD allows the sludge collected by the spiral blades to be withdrawn through the existing under-tank RAS piping without modification.



#### RESULT:

The project saved the expense of digging into the reinforced concrete of the tank bottom to relocate the RAS collection port and its connection to the existing piping layout. The clarifiers have been reliable and consistently perform better than the original units. Since no tank modifications were required, the clarifiers could be converted to the new-style mechanisms without any construction delays for under-tank piping changes. **512/834-6000; www.ovivowater.com.**

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