

# Monterey One Water Improves Performance BioDoc™ Turnkey Saves Time and Money



CASE STUDY

**Location:** Monterey, California  
**Owner:** Monterey One Water  
**Agent:** MISCOwater

## Problem

Monterey One Water (M1W) is a regional wastewater treatment plant that currently serves approximately 250,000 residents of coastal municipalities and agencies in Monterey County, California. Demands on the plant's treatment capacity have grown since the Monterey, Pacific Grove, and Seaside Sanitation Districts formed it in 1972. The plant now treats over 18.5 million gallons per day (mgd) of wastewater from all of the county's coastal municipalities that are responsible for treating sewage. Its design capacity is 29.6 mgd.

The plant's treatment chain includes six rotary-arm trickling filters that use plastic, fixed-bed media to create the biofilm that helps treat organic matter within the water. Although the plant has more capacity than it is currently using, the hydraulic rotary distributors for its trickling filters are aging. These filters are also inefficient compared with newer motor-driven rotary distributors.

## Analysis of Alternatives

M1W could have opted to simply replace its hydraulic rotary distributors, which are still available on the market. However,

M1W evaluated the operational and performance gains it could achieve using the motor-driven technology.

WesTech had provided the plant's existing hydraulic rotary distributors, which have been in place for an estimated 20 years. These rotary distributors continuously spray wastewater across the plastic media that supports the trickling filters' biofilm. The rate at which the distributors perform this task is called the dosing rate. The hydraulic power of the wastewater determines the speed at which the rotary distributors turn, which determines the dosing rate.

While WesTech still provides hydraulic rotary distributors, pioneering research by Orris E Albertson indicated that the speed of the rotary distributor in trickling filters has a measurable effect on the biofilm's efficiency. Inspired by Albertson's findings, WesTech Engineering created the BioDoc™ Rotary Distributor, which uses a motor drive to control the distributor's speed and therefore the dosing rate.

Based upon WesTech's excellent reputation at the plant and its own thorough evaluation, M1W had already determined that the BioDoc was the best choice for achieving the performance and operational gains it anticipated.



Testing of Nozzle Under Deck

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## Solution

MIW did not issue requests for proposals (RFPs). Instead, its plant engineer reached out directly to WesTech via MISCOwater, WesTech's agent in the area. "They really like the BioDoc and the method and how we work," explains Ross Sanovich, the WesTech Applications Engineer who worked with MISCOwater and the plant's engineer to deliver a turnkey solution for MIW.

## Implementation

WesTech submitted its proposal for providing two BioDoc Rotary Distributors in January 2018. The plant approved the project in February, and WesTech had the units onsite by June.

The WesTech-MISCOwater engineering team installed the two units in existing, hexagonal MIW trickling filters, each of which is 78 feet in diameter. Because the BioDoc rotating distributor is round, the engineers configured a nozzle at the end of each rotary arm that sprays outward under the lip of the tank to reach into the corners of the hexagon. This ensures even wastewater distribution across the entire media bed and demonstrates WesTech's ability to adapt its equipment to meet customers' needs.



Each of the BioDoc motor-drive units has a variable frequency drive (VFD) with its own control panel, and each control panel communicates directly with a master control panel that includes a programmable logic controller (PLC). The PLC, in turn, communicates with the plant's supervisory control and data acquisition (SCADA) system. This allows operators to monitor and control the rotational speed based on the dosing rate calculated by the influent flow. In case of a power interruption or failure, the

BioDoc can be operated as a hydraulic rotary distributor to support the plant's continued operation.

The plant's new BioDoc rotary distributors also support a daily flushing cycle to improve media cleanliness and, therefore, oxygenation.

## Results

The two BioDoc units were fully installed and operational by the end of July 2018 – just one month after delivery. Both BioDoc units are running well. "We know that MIW is very pleased with the end product," says Richard Gndt, Project Manager for MISCOwater. Indeed, MIW has a third replacement scheduled for the near future.

"This solution highlights what we can do," says Sanovich, referring to the relative ease of replacing virtually any trickling-filter rotary distributor with a BioDoc.

It also highlights WesTech's ability to work with its agents as turnkeys, which can save customers both time and money. "The most important aspect, in my opinion, was the communication," Gndt explains. "Answering questions correctly and quickly during the design phase and during construction were key."



*BioDoc in Operation*