

## WavTex™ Installation

### Black Butte Ranch, Oregon

Black Butte Ranch, nestled at the base of the iconic Black Butte Mountain, has been a top destination for nature lovers and relaxation seekers for over 50 years. This serene Oregon retreat now features Entex Technologies' cutting-edge WavTex Integrated Fixed-Film Activated Sludge (IFAS) system, ensuring enhanced wastewater treatment capabilities to meet the seasonal demands of this popular vacation spot.

During the peak summer season, Black Butte Ranch experiences increased flow rates due to the influx of visitors, while winter brings significantly lower flows. In winter, only one treatment train operates, handling an average flow of 60,000 gallons per day (gpd), with occasional peaks of up to 150,000 gpd. These peak flows have posed operational challenges, particularly with elevated mixed liquor suspended solids (MLSS) concentrations, which overwhelm the clarifiers and disrupt the nitrifying bacteria responsible for critical treatment processes.

The Black Butte Ranch wastewater treatment plant (WWTP) consists of two treatment trains, each featuring anoxic and aerobic zones, a central clarifier, and solids digestion. Entex Technologies has installed five aerobic WavTex modules in "Plant 2," the larger of the two trains. These modules, equipped with an integrated coarse bubble aeration grid and innovative self-buoyant EnTextile media sheets, are designed to boost performance in the aerobic zones.

By supplementing the suspended biomass with fixed-film WavTex modules, the WWTP will be able to maintain consistent MLSS concentrations, even during peak flow events. This upgrade will prevent clarifier overload, protect nitrifying bacteria from wash out, and reduce the risk of solids breakthrough—ensuring stable treatment performance year-round.

With the installation of WavTex technology, Black Butte Ranch can now transition seamlessly to its winter operational plan, while safeguarding treatment quality even during peak flow events. This enhancement ensures that the Ranch can continue providing an exceptional experience for its visitors, with wastewater treatment that supports both sustainability and efficiency.

#### Application

Overwhelmed WRF due to peak flow events during winter months (AAF 60,000 gpd Peak 150,000 gpd)

#### Entex Solution

Install five WavTex™ modules in the existing aerobic tank

#### Effluent Target

- $\text{NH}_3\text{-N} < 1 \text{ mg/L}$



WavTex Modules Upon Installation in Aerated Tank, before tank is refilled



View of Black Butte Mountain