



Customer Success Story

Customer Details



Client: Mt. Tabor Estates

Location: Cabot, AR

Application: Residential Development

Product: MBBR

About Our Customer/Problem

Mount Tabor Estates located near Cabot, AR, is a charming and serene residential community that seamlessly blends modern living with natural beauty. Nestled amid rolling hills and lush greenery, the neighborhood offers a peaceful retreat from the bustle of city life while still being conveniently close to local amenities and schools. Known for its spacious homes and scenic surroundings, Mount Tabor Estates provides a perfect setting for families and individuals seeking tranquility, community spirit, and the picturesque landscapes of central Arkansas.

The wastewater treatment plant within the Mt. Tabor development was initially designed for a smaller community and has recently struggled to manage the increased wastewater from the growing number of residents.

This strain on the infrastructure raised concerns about its capacity and ability to meet stricter Ammonia limits.

In response, the Grand Prairie Bayou Two Public Wastewater Authority prepared to launch a crucial initiative to upgrade its treatment facility. The primary goals of the project were to increase the facility's capacity to accommodate future population growth and ensure compliance with upcoming effluent regulations. The Wastewater Authority was seeking an experienced partner with innovative products and technologies to manage increased wastewater flows while meeting stricter effluent standards efficiently and within budget. The community reached out to Lemna Environmental Technologies (LET) to provide a solution to their problem.

Our Recommendation: LemTec™ Moving Bed Bioreactor Process

Lemna proposed a solution leveraging the community's existing MicroFAST system, which would continue to effectively reduce biological oxygen demand (BOD) and total suspended solids (TSS) from the wastewater. To address the more complex issue of ammonia, Lemna's innovative LemTec™ Moving Bed Bioreactor Process (MBBR) was introduced. This MBBR system utilizes thousands of small, polyethylene carriers that move freely within a tank.

These carriers provide a massive surface area for two types of beneficial bacteria to grow: heterotrophic bacteria that consume organic matter and autotrophic bacteria that specifically target ammonia. This combination of existing and new technology creates a robust and efficient biodegradation process within the wastewater treatment system. The MBBR system is also designed for reliability and ease of operation, utilizing blowers and diffusers for aeration and screens to keep the carriers contained within the treatment basin.

Design Parameters

Constituent	Influent	Effluent
BOD	20 mg/l	20 mg/l
TSS	20 mg/l	20 mg/l
H3	50 mg/l	2 mg/l

Air Temperature	Fahrenheit
Winter Air Temperature	39° F

Results

The Grand Prairie Bayou Two Public Wastewater Authority was thrilled with the solution provided by Lemna Environmental Technologies (LET), which offered a cost-effective answer to their wastewater issues. The post-installation effluent data charts after the July 2023 installation revealed outstanding results, with BOD, TSS, and ammonia levels well within acceptable thresholds.

This success not only restored the community's confidence in their discharge system but also ensured full compliance with regulatory standards. Additionally, the installation of the MBBR system effectively safeguarded local natural resources and prepared the community for future population growth.

Data Results

GRAND PRAIRIE BAYOU TWO PUBLIC WATER AUTHORITY-MT. TABOR ESTATES WWTF (AR0052299) 001 - Nitrogen, ammonia total [as N] - Effluent Gross - Concentration

Late/Missing Reports Timeline

Non-Numeric Value Timeline

