



Customer Success Story

Customer Details



Client: Bloomfield, Missouri

Location: Bloomfield, Missouri

Application: BOD, TSS, and Ammonia Treatment

Product: LemTec™ Biological Treatment Process



* Designed by TownMapsUSA.com

About Our Customer/Problem

Located in the rural heartland of Missouri, the small town of Bloomfield faced a challenging decision regarding its wastewater treatment needs. With a population of around 2,400 residents, the existing treatment plant was struggling to meet increasingly stringent discharge limits on key pollutants and would soon be unable to accommodate the city's growth.

Recognizing that securing the town's wastewater treatment capacity for decades to come was critical to its future vitality, the city government sought a solution that would be affordable, sustainable, and straightforward to operate.

After reviewing various options, the town partnered with wastewater treatment experts at Lemna Environmental Technologies (LET) to deliver an innovative solution tailored to Bloomfield's unique requirements and budget. Through close collaboration, LET designed a system that would allow the town's wastewater treatment plant to meet rigorous effluent standards for years ahead while preparing for expansion - thereby securing the community's infrastructure for future generations.

Our Recommendation: LemTec™ Biological Treatment Process

Taking into consideration the unique objectives of the city, LET custom tailored a treatment design based on their parameters. By implementing cutting-edge integrated lagoon technology and sophisticated modeling techniques, we were able to deliver a tailor-made solution that exceeded all expectations. This entailed fitting a brand new LemTec Biological Treatment System into two lagoon basins with a polishing reactor at the effluent end.

The initial basin was strategically divided into three cells with a customized LemTec™ Reverse Miter Hydraulic Baffle developed by Lemna, which ensured minimal short-circuiting between each cell. The first cell was a complete mixed zone. It utilized high-rate diffusers and an aerated, vigorously blended environment ideal for the rapid removal of BOD5 by heterotrophic bacteria.

The complete mix cell was followed by two partial mix cells that utilized low-rate diffusers for optimal BOD5 removal, requiring lesser aeration and mixing. The second basin consisting of a settling cell with a detention time of 3.5 days was added along with low-rate diffusers to enhance aeration. To stabilize temperatures, filter sunlight, and prevent surface disturbances, all the cells were fitted with modular insulated covers.

A polishing reactor equipped with additional blowers and aeration equipment was added after the treatment lagoons to target and treat any lingering BOD and ammonia.

Design Parameters

Constituent	Influent	Effluent
BOD	400 mg/l	45 mg/l
TSS	350 mg/l	45 mg/l
NH3	40 mg/l	1.7 mg/l

Air Temperature	Celsius
Coldest Month	35° F

Results

The city of Bloomfield was thrilled with the success of the LET solution in addressing all their concerns. Effluent data graphs display excellent sampling results from the lagoon system's installation, specifically for BOD, TSS, and Ammonia levels.

The city can now discharge wastewater with complete confidence and comply with permit regulations while protecting their natural resources. Due to our team's comprehensive approach, we completed the project to the highest standard, making an enormous impact on the city's wastewater needs for years to come.

Data Results

