



## Customer Success Story

### Customer Details



**Client:** Montezuma, IN

**Location:** Montezuma, IN

**Application:** Municipal Refurbishment

**Products:** Lemna Polishing Reactor, Low-Rate Diffuser, and Segmented Cover



### About Our Customer and Problem

Montezuma, IN is a charming town located in Parke County, Indiana. Known for its scenic beauty and small-town charm, Montezuma is a popular destination for outdoor enthusiasts and history buffs alike. With a population of around 1000, the town is home to several parks and nature preserves, including the beautiful Turkey Run State Park and the Wabashiki Fish and Wildlife Area.

The town was recently faced with a challenge when the polishing step at their wastewater treatment plant was falling short of its nitrification performance.

The polishing reactor was a key component of the facility's capability to finish BOD removal and fully nitrify ammonia in the effluent from the upstream biofilter to meet discharge standards. It appeared that insufficient blower output was resulting in solids accumulation and algae growth in the reactor media, resulting in insufficient nitrification.

To address these issues, the town turned to Lemna Environmental Technologies (LET), an industry leader in wastewater treatment solutions, to troubleshoot the performance issue and offer a cost-effective solution.

### Our Recommendation: Polishing Reactor Refurbishment and Segmented Cover

Taking into consideration the goals of the client, LET collaborated with the city and provided a customized wastewater treatment solution. The solution needed to extend the useful life of their equipment for many years to come all within the strict parameters of their budget.

The primary solution after diagnosis was to provide new pressure relief valves for the two blowers. This ensured that they were again capable of providing adequate air flow and pressure to the aeration diffusers below the polishing reactor media to ensure proper oxygenation and sloughing of solids. Following that, replacement of the media with new, higher density media maximized the performance of the reactor.

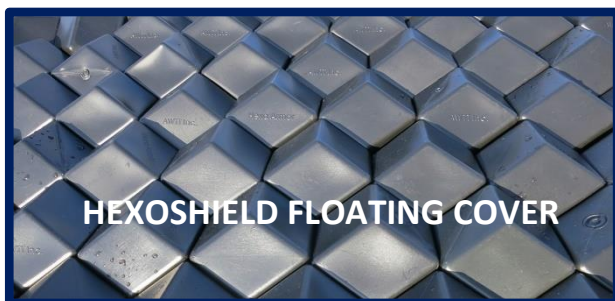
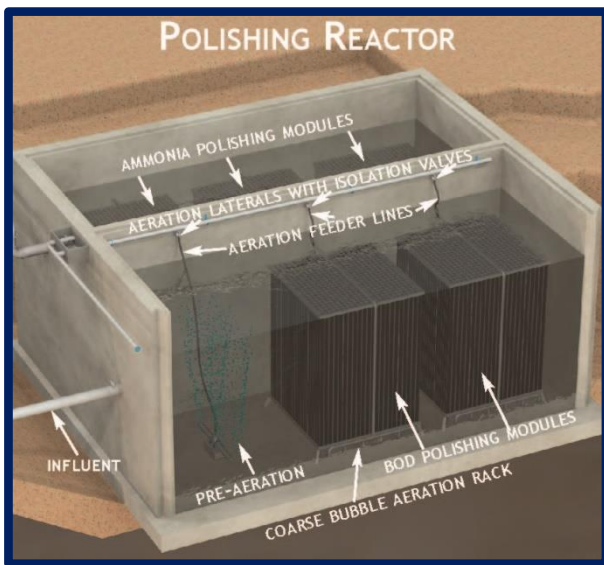
Additionally, a new, state-of-the-art LemTec™ low-rate, fine-bubble diffuser and Hexoshield floating cover ensured sufficient dissolved oxygen was available and sunlight was blocked to prevent algae growth on equipment below the water surface. The floating cover also helps to stabilize temperatures throughout the year.

The town not only needed the installation to require minimal downtime and process interruption, but it also needed it to require a minimum usage of large equipment as they would perform the installation using their own resources. LET worked closely with the town and operational staff during the project planning and installation to ensure success.

## Design Parameters

Constituent	Influent	Effluent
BOD	25 mg/l	10 mg/l
TSS	10 mg/l	10 mg/l
NH3	5 mg/l	1.6 mg/l

Temperatures	Fahrenheit
Influent Wastewater	43° F
Ambient Air	28° F



## Results

The Lemna solution has exceeded the town of Montezuma's expectations, addressed all concerns, and resulted in exceptional sampling data from the facility. The new Lemna Polishing Reactor (LPR) system has significantly improved the effluent quality for BOD and ammonia.

As a result, the community can now discharge into the local waterway with confidence, as they now meet their permit requirements while also preserving their natural resources for future generations. The comprehensive approach that LET adopted ensured that the project was completed to the highest standards, significantly enhancing the city's wastewater treatment capabilities.

