



optAER[®]

FINE-BUBBLE AERATION & IN-LAGOON UPGRADES



Criteria	optAER [®]
Effluent Quality	
Total Suspended Solids (TSS) 25 mg/L	●
cBOD ₅ 25 mg/L	●
Advantages	
Intensifies treatment within existing footprint	●
Stops odors including those from spring turnover	●
Desludge less thanks to aerobic sludge digestion	●
Applications	
Facultative ponds for municipal or industrial	●
Old or underperforming aerated lagoons needing to improve treatment	●
Algae/pH control	●
Water reuse requiring TSS/turbidity reduction	●

Problem

Your lagoon has served your community or company well for so long but now modern regulations or sludge build-up make it untenable. You don't want to give up on your existing infrastructure, and more mechanical solutions require higher level operations training.

The Nexom Answer

optAER fine-bubble aeration and in-lagoon upgrades turn your lagoon into a modern treatment plant for BOD and TSS reduction, all with the lowest O&M requirements of any alternative. Here's why:

- **Reduces TSS and BOD** to <25 mg/L by intensifying treatment within the existing footprint
- **Simple** to run, with bi-annual oil changes on blowers the most frequent task.
- **Digests sludge internally**, improving performance and requiring less frequent manual desludging.

How optAER works

In a typical optAER lagoon, oxygen dissolves into the full wastewater column thanks to the slow rise and vast surface area of the fine bubbles, helping ensure bacteria can flourish at all levels of the lagoon. The bubble rise creates a downward flow between diffusers, improving solids settling. Optional components can be integrated to manage flow and retention time, deter algae and waterfowl, and more.

Designed to be better

optAER's floating laterals make it easy to maintain or replace diffusers from a boat at the surface without dewatering the basin, and self-tensioning systems make sure the laterals and diffusers stay where you need them. Plus laterals are designed for cold applications, including being frozen into the water surface.



technologies for cleaner water

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optAER helps Rocky Mountain House give its lagoons new life

If you drive northwest from Calgary, you'll reach the confluence of the Clearwater and North Saskatchewan Rivers and the site of Rocky Mountain House, Alberta. In 2009, the town's wastewater treatment plant (WWTP) found itself in need of an upgrade when its current system became unable to consistently comply with its BOD and TSS limits.

With its lagoons located in town, the town initially explored transitioning to a mechanical plant and/or moving a new WWTP outside town, but those projected costs forced the town to look for a more affordable system that would keep them compliant.

Engineers from Rocky Mountain House and Stantec chose to upgrade the existing three-cell lagoon system using the Nexom optAER system, maintaining the lagoons' simplicity at a fraction of the costs of conventional mechanical treatment facilities to construct and operate. The process also needed to provide consistent performance in winter water temperatures that can be less than 1°C.

The optAER system was built to meet 10-year hydraulic and loading requirements (combined flows at 3,333 m³/day) and, after install in 2013, average monthly effluent cBOD and TSS numbers have been consistently below the targeted levels.

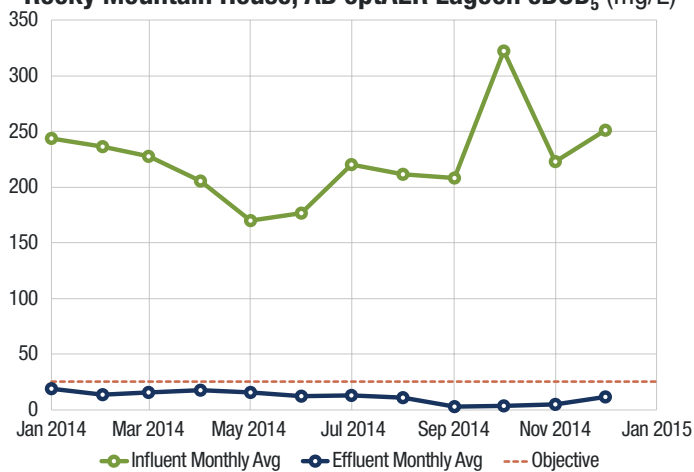
In 2018, due to an unexpected population boom, Rocky Mountain House again approached Nexom to increase the system's capacity. Nexom added additional diffusers, laterals and a fourth blower to increase the system's abilities to reduce TSS and BOD.

Nexom knows treatment

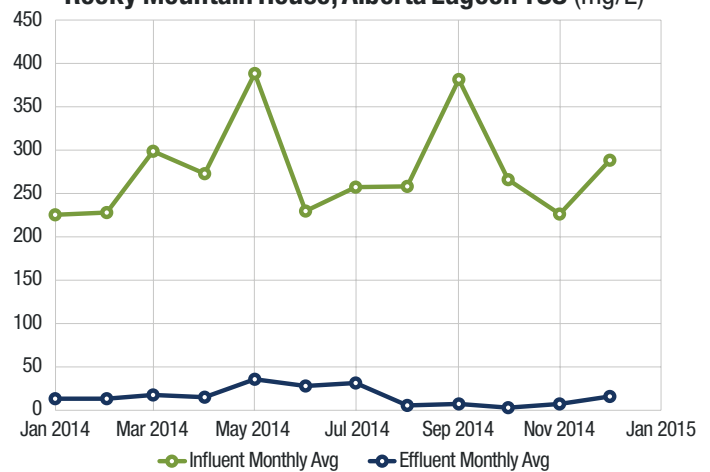
The Nexom team has specialized in biological treatment for 25 years, covering 700+ projects across the U.S and Canada. Our engineers are the leading experts in a range of technologies and invented SAGR cold lagoon nitrification, which enables some of the coldest populated regions in the world achieve full nitrification.



Rocky Mountain House, AB optAER Lagoon cBOD₅ (mg/L)



Rocky Mountain House, Alberta Lagoon TSS (mg/L)



UPGRADING WITH OPTAER IS EASY AND EFFECTIVE

1

We walk you through exactly what project details we need. Call 888-426-8180 or email info@nexom.com.

2

We supply design-ready drawings, proprietary technologies, and responsive support.

3

You never worry about your lagoon's cBOD, TSS, or nutrient limits again.