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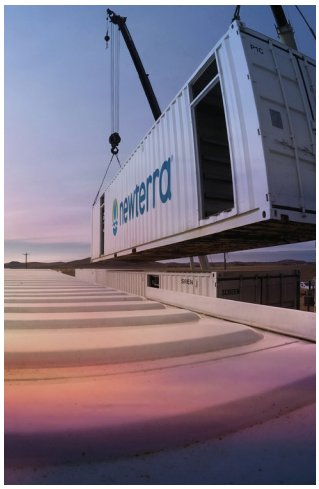
Case Study



Decentralized Wastewater Treatment

Killdeer Receiving/Treatment Facility

Industry: Regional Wastewater Receiving/Treatment Facility
Location: Killdeer, North Dakota
Capacity: 100,000 GPD (380 m^3/day)
Installed: December 2014

Newterra designed and built a complete, modular Membrane Bioreactor (MBR) system for a regional wastewater treatment facility with the capacity to process up to 100,000 gallons of transported domestic sewage per day.

Project Background

A greenfield lodge was being built in rural North Dakota to service the demand for short term housing brought on by the expanding oil industry. The company turned to Newterra early in the process to design a modular treatment system that could easily be dropped into place on the site and meet the stringent requirements for both discharge and reuse.

Situated two miles west of Killdeer, North Dakota, with easy highway access, this regional wastewater treatment facility receives and treats domestic sewage from authorized haulers within the surrounding area. Additionally, clean effluent is resold to water haulers in the area for irrigation, water for fracking and other uses. The system automatically collects information for both deposits and withdrawals, and bills the customer accordingly. The unique aspect of this project includes automated pay stations at the wastewater plant and clean water storage area, allowing waste hauling companies to deliver their wastewater to the facility and pick up fresh water at any time of the day.

The MBR (Membrane Bio-Reactor) process employs a biological treatment unit followed by final filtration with MicroClear™ Ultrafiltration membranes. This produces near potable water quality effluent that is stores in a pond for resale or discharge to the river. The system employs a sludge treatment system, so the only discharges from the plant are dry sludge and clean water.

The final system was fully modular and pre-manufactured, tested and delivered in 11 standard ISO shipping containers. This allowed for easy on-site installation, which took about two days on site to set all the containers. The containers were mounted on piles, interlocked then skirted to give a pleasant look and to shelter the system from the frigid winter winds. System commissioning took about one week after all the external piping was installed and power connected.

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