The La Conner resort is an 88-RV site that needed to improve operations and ensure continued regulatory compliance.

Odor Problem Begone

The majority of wastewater in the U.S. is treated in large-capacity centralized treatment facilities; however, there are many more small water systems in the U.S. than large systems. Smaller systems typically have significant cost inefficiency due to economies of scale and fewer resources as a result of a much smaller revenue base. The combination of these two economic issues results in basic treatment infrastructure and processes, plus corresponding increased risks for failures, inefficient treatment, odor problems and challenges meeting permitted discharge levels.

By Klauss Voss

RV resort keeps odor and contaminants in check using new treatment solution

ARTICLE SUMMARY

Challenge: A small Washington state RV resort needed to address odor emanating from its septic tank and lift station sites, as well as elevated nitrates, solids and BOD levels in its effluent lagoon.

Solution: The resort dosed its septic tanks weekly with BiOWiSH treatment solution.

Conclusion: Within one month, the problematic odor was nearly eliminated. Ongoing influent and effluent water sampling has shown improved BOD, TKN and TSS levels.

BiOWiSH is a new technology that is capable of reducing the need for heavy aeration of wastewater systems while simultaneously increasing the decomposition of solids and other organic materials present in the system. Faster decomposition rates lead to reduced sludge production, increased hydraulic capacity and lower operating costs, making this a viable solution for boosting wastewater treatment systems in areas of rapidly growing populations and areas struggling with conventional technology.

BiOWiSH is a biocatalyst made up of a proprietary blend of enzymes, cofactors and nutrients that speeds up biochemical reactions at a rate faster than unaided processes or current technologies. It accelerates the breakdown of organic waste and odorous emissions into harmless end products such as carbon dioxide, nitrogen gas and water. The technology has been adapted for the wastewater industry in the form of a product called BiOWiSH-Aqua, which is delivered as a fine granular media and contains active microbes.

Test Site

In order to improve operations and ensure continued regulatory compliance, the operators at one small water system—the Equity Life Properties La Conner RV resort in northern Washington—opted to test BiOWiSH in its onsite wastewater treatment system.

The La Conner resort is an 88-RV site with sewer connections, 23 cabins, six onsite public restrooms, a family center, trading post, adult lodge, spa and dump station, for a total of 330 wastewater collection sites. Prior to the new treatment, site operators had issues with odor at the septic tank and lift station sites along with elevated levels of nitrates, solids and biochemical oxygen demand (BOD) in the effluent lagoon.

Six septic tanks and one effluent lagoon make up the wastewater system at the La Conner resort. Sewers throughout the park collect in tanks with grinder pumps, all discharging to six septic tanks in series—first to five 1,000-gal tanks, then to a final 20,000-gal tank. The final tank discharges to a lift station, where wastewater is pumped uphill to the effluent storage lagoon.

The aerated lagoon discharges to an adjoining spray field between April and October. The lagoon measured 250 ft long by 75 ft wide by 7 ft 9 in. deep at the start of the trial. The estimated volume of the effluent lagoon is roughly 550,000 gal.

Treatment Application

The BiOWiSH treatment process requires preactivation for 24 hours in a bucket or other separate container of water, left uncovered to allow oxygen flow. Doses to ponds and lagoons can be tossed or sprayed over the surface, while doses to septic tanks can be applied through the septic tank lid or through a toilet or pipe cleanout.

The ratio of treatment solution to water is 1 to 5 mg/L for most treatments. Initial results can be improved with a more concentrated dosing.

Results

By the end of 30 days of weekly septic tank dosing, maintenance personnel reported that odor at La Conner resort was almost completely eliminated.

Following the introduction of the first shock dose of BiOWiSH, the influent water sample at the lift station showed a dramatic spike in BOD relative to the baseline samples collected the previous month, suggesting a rapid reactivation of sludge in the tank series that moved volatile solids downstream as they broke down. During influent water sampling in the following months, however, values for BOD, total Kjedahl nitrogen (TKN) and total suspended solids (TSS) all dropped below baseline levels.

In addition, effluent water quality data at the aerated lagoon following the start of the application showed BOD, TKN and TSS at or near 12-month lows, even when compared to the same months during the previous year.

Finally, sludge buildup on the bottom of the effluent lagoon was reduced by 38%. WWD

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