

Case Study: Restoring Anaerobic Lagoon Performance at a Rendering Facility in Kentucky

Executive Summary

This case study outlines the successful remediation of organic overloading and solids accumulation at a (KY) rendering facility through the use of Drylet's BioDredger product. This overloading and accumulation presented itself in inefficient wastewater treatment performance and wastewater-related odors. Using a strategic emergency and maintenance dosing program coupled with operational improvements, the lagoon demonstrated substantial reductions in Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS), visual improvements, and reduced community odor complaints.

Background

Facility: Rendering Facility Kentucky

Lagoon Type: Anaerobic Timeline: 2022–2025

Key Challenges:

- Organic overloading and Solids Accumulation
- Elevated COD, TSS, and ammonia levels
- Inefficient downstream wastewater performance
- Community odor complaints

Drylet Intervention

Product: Drylet's BioDredger

Strategy: Emergency & Maintenance Dosing

- Initiated regular weekly dosing beginning in early 2024 after emergency dose responses in 2022 and 2023. Emergency dosing is ~1,000 pounds of Biodredger. Maintenance dosing is two 25 pound buckets on a biweekly basis.
- Continuous application from early 2024 to current

Results

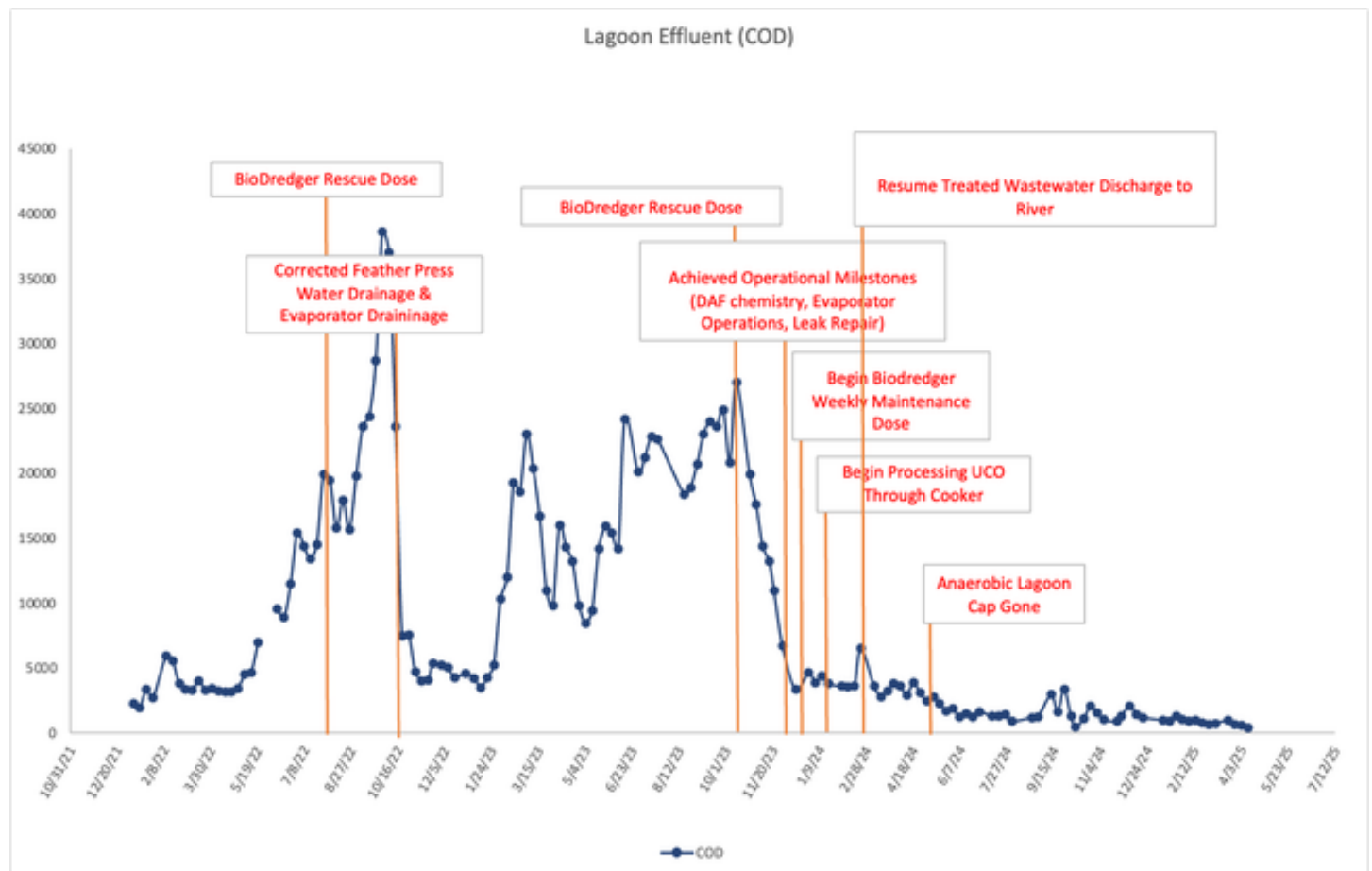
Effluent Improvements (Based on Weekly Samples)

- COD and TSS demonstrated most significant reductions
- Data supported by overlayed graphs marking milestones of BioDredger application
- Graphs illustrate consistent performance improvement post-treatment

Facility GM Quote:

*"We have been able to run for some time without dosing any chemicals directly into the lagoon. Our pH is staying around 7.3-7.5. On all our analysis' that we have received from sample testing at the lab, we are not showing a spike in acidifiers that would cause concern. **I think that with the work that we continue to do here at the facility with not allowing grease to go down the drain, and the maintenance dosing, we have been very thrilled with the results we are seeing. We have now maintained dischargeable water for just over a year***

now. The cap on the lagoon is completely gone, and you can walk around the lagoon and see the activity out there.”



Anaerobic lagoon effluent COD concentrations overlayed with major timeline events and changes within the facility

Visual Improvements

- Side-by-side satellite/aerial images and field photos to showcase sludge reduction and improved water clarity (from June 2022 to February 2024)
- Lagoon condition from September 2021 (Before), October 2023 (During), and April 2025 (After)



June 2022

February 2024



October 2023



April 2025

Operational & Cost Benefits

- Sludge reduction led to avoided dredging costs
- Resuming direct discharge in compliance with discharge parameters
- Mitigated odor led to improved community relations and avoidance of enforcement action
- Mitigated costs following emergency dosing was significant (i.e. reduced chemical dosing) \$79k/mo.

Community & Regulatory Response

- Complaints to local governmental bodies and state environmental agency subsided following treatment and resuming effective wastewater treatment
- Fewer odor reports; positive feedback from local stakeholders

Conclusion

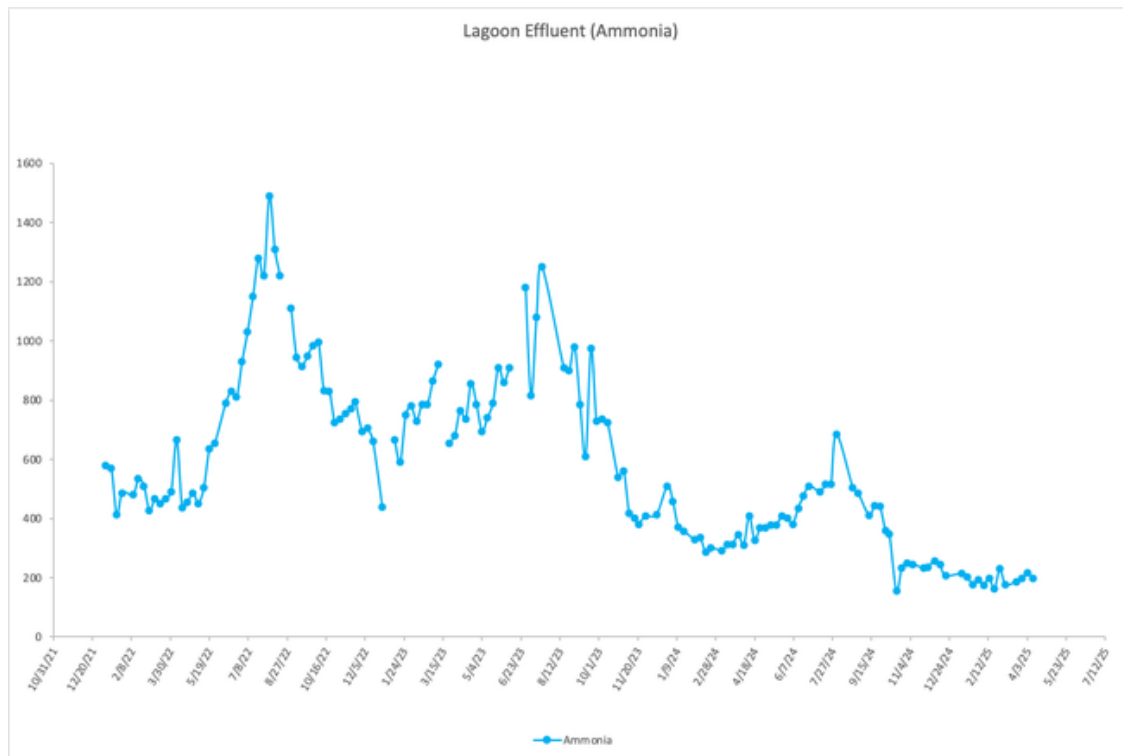
Drylet's BioDredger, alongside operational improvements, effectively remediated anaerobic lagoon issues at the site. The results demonstrate how biological maintenance dosing offers a sustainable alternative to mechanical dredging and chemical treatment.

Learn More

Watch how Drylet's award-winning biocatalyst works to remediate biowaste: <https://youtu.be/vnkvIwoCoMI?si=Rxf0wCv9qhS1iedd>

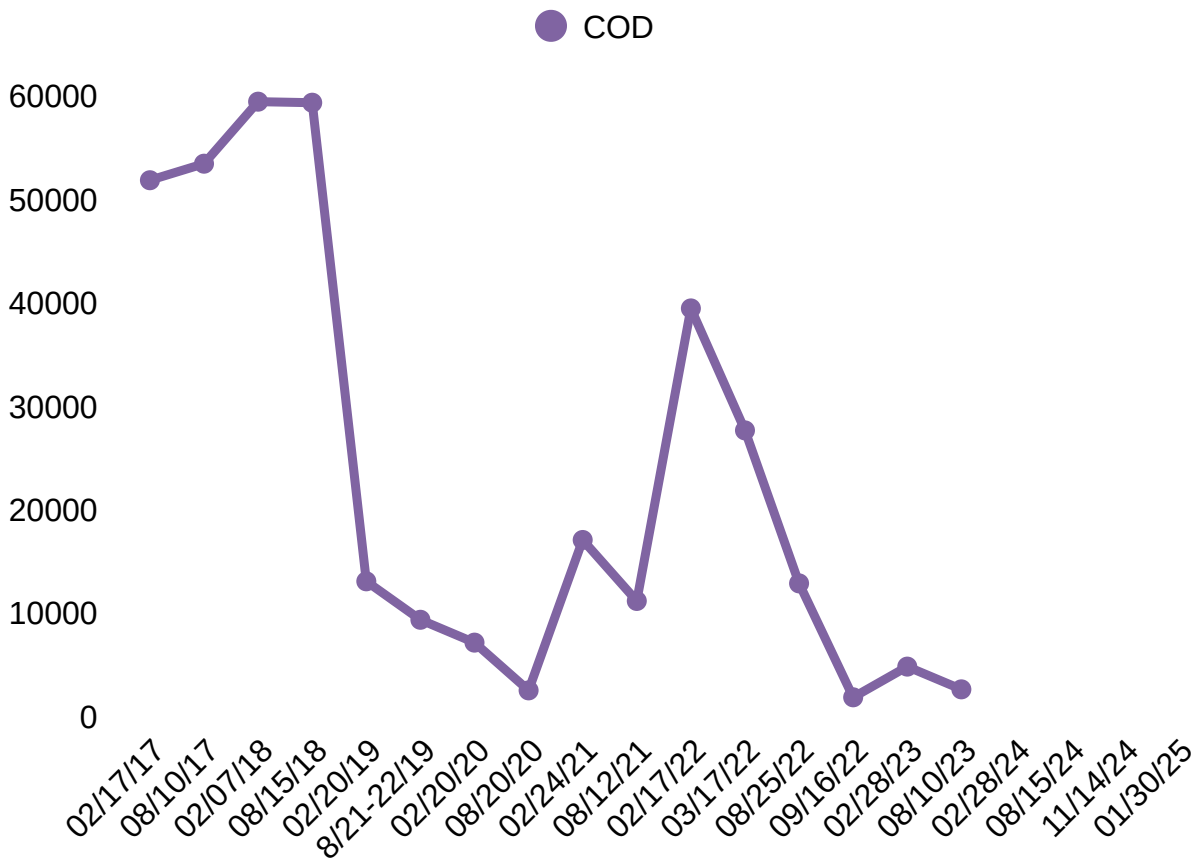
Appendix A: Anaerobic Lagoon Effluent Ammonia

The ammonia trend from late 2021 through 2025 clearly illustrates the facility's challenges and progress. A dramatic rise in effluent ammonia in mid-2022 coincides with a period of overloading, as reflected in the influent COD and TSS charts. This peak—nearing 1,500 mg/L—was indicative of severe anaerobic stress and solids buildup. Following the implementation of a BioDredger maintenance dosing program in 2023, ammonia levels began to decline steadily. By early 2025, levels had stabilized at below 200 mg/L, representing a sustained improvement in lagoon health and biological performance, as well as facility operational improvements.



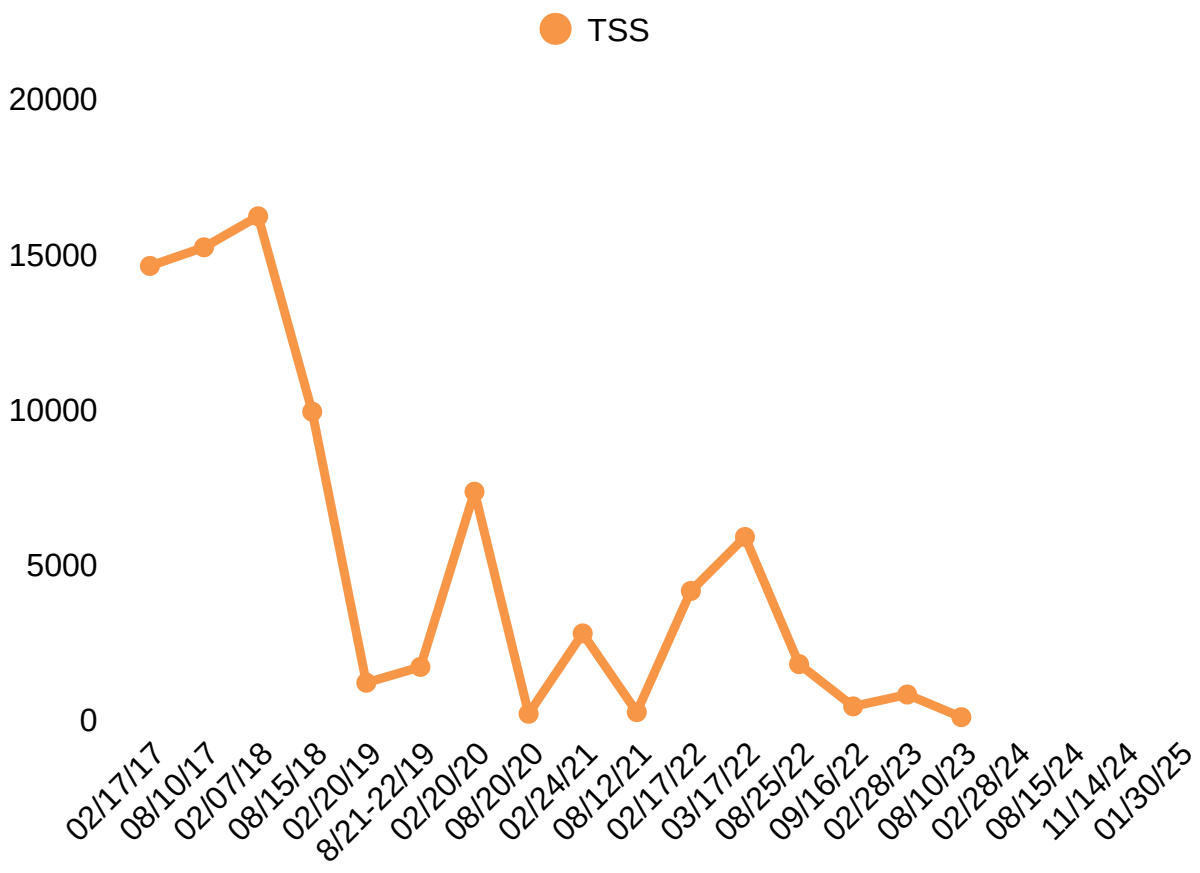
Appendix B Narrative: Plant Effluent to Anaerobic Lagoon – COD

This influent chart shows two major overloading events—one through 2017 - 2019 and another in 2022 – 2023, These high-organic loading events overwhelmed an anaerobic lagoon capacity and led to elevated effluent BOD/COD. The sharp decline following 2023 reflects upstream improvements and the beneficial impact of BioDredger, which enhanced biological activity and helped restore equilibrium.



Appendix C Narrative: Plant Effluent to Anaerobic Lagoon – TSS

TSS trends closely mirror COD, with peaks during the same overloading windows. In both events, excessive TSS contributed to solids accumulation in the anaerobic lagoon and reduced treatment efficiency. Post-2023, TSS values dropped significantly, indicating better pretreatment and improved operations. This corresponds with visual observations and photos showing significant solids reduction during and after BioDredger dosing.





Ready to Improve Wastewater Performance?

Every wastewater system faces unique challenges. Whether you're dealing with sludge accumulation, excess solids, odors, FOG, treatment inefficiencies, or rising operating costs, Drylet's biological treatment solutions can help improve performance while reducing operational costs.

Schedule a Free Technical Assessment

Our technical team will review your wastewater system, discuss current challenges, and recommend practical solutions based on your specific operating conditions.

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