

San Luis Obispo Water Resource Recovery Facility



Nanobubble Technology Assists During Wastewater Treatment Plant Upgrade

Since the fall of 2019, the San Luis Obispo Water Resource Recovery Facility (WRRF) in California has undergone a significant construction project. This endeavor has been primarily driven by the necessity to comply with a new discharge permit issued by the State Water Resources Control Board. The new permit mandates adherence to stricter effluent limitations, requiring the facility to upgrade its infrastructure and processes. Additionally, the assets and infrastructure reaching the end of their lifecycle prompted the need for modernization. The upgrade also aimed to maximize the production of recycled water and expand community benefits such as education programs and odor control initiatives.

The upgrade plan was structured into two distinct but interconnected stages to accommodate the nature of the plant's processes. The initial phase focused on enhancing the liquid treatment train to meet new regulatory deadlines. This phase was crucial due to specific mandates, including the reduction of nitrates and trihalomethanes (THMs) within a specified timeframe. THMs, resulting from the reaction between chlorine used in water disinfection and natural organic matter, pose health risks at elevated levels. Hence, the construction sequencing prioritized liquid treatment to ensure compliance with governmental requirements.

Challenges During Construction

As the liquid treatment phase progressed successfully, challenges emerged with the solids treatment train, which was still under active construction. The increased volume of solids generated from the upgraded liquid treatment processes affected the existing solids treatment infrastructure. This unanticipated surge in solids posed operational challenges, leading to issues like foul odors, impacting nearby areas.

Recognizing the urgency of addressing operational challenges and ensuring regulatory compliance, the WRRF sought external assistance. The facility collaborated with Moleaer Inc., a company specializing in industrial scale nanobubble technology for water treatment. Moleaer swiftly responded to the facility's needs, deploying nanobubble technology to mitigate odors and enhance treatment efficiency.

"As soon as we were ready, Moleaer came in. Their unit came exactly as promised. It had cam lock fittings on the suction side, and a cam lock fitting on the discharge side. Their technician placed it in the location and connected the cam lock fittings, turned it on, and spent a little time going through startup. He invited all our operators and maintenance technicians to be there, watch the setup, and explained some things that we'd need to check for daily," stated Patrick McGrath, the plant's supervisor.



San Luis Obispo Water Resource Recovery Facility

Implementation and Benefits of Nanobubble Technology

The collaboration with Moleaer facilitated seamless integration of the technology into the facility's operations, ensuring minimal disruptions.

"We've worked with nanobubbles before, and it was pretty operator-intensive," explains McGarth, "However, Moleaer's field services technician showed our team how easy Moleaer's system is to use."

"I don't think we ever had to make a call. We would monitor it daily and everything stayed in range. It was a straightforward solution. All in all, we worked with a handful of manufacturers. We've done multiple pilot projects offering a range of solutions, and most have said their solutions were plug-and-play, but we have not found that to be the case. Moleaer's technology was hands-off with fast deployment and easy operation."

The deployment of nanobubble technology proved instrumental in mitigating odors and optimizing treatment capacity within the bioreactors. The innovative solution provided immediate results, demonstrating its effectiveness in addressing operational challenges amidst ongoing construction activities.

"In addition to addressing odor, nanobubbles were also helping us create aeration efficiencies inside of the bioreactors, because we're still optimizing our new system and our blowers, seeing how much air we could push through the diffusers and the new aeration system."

Conclusion

The San Luis Obispo WRRF's experience exemplifies the importance of innovation and collaboration in modernizing wastewater treatment processes. By leveraging advanced technologies like nanobubbles and adopting a proactive approach to operational challenges, the facility sets a benchmark for efficiency and resilience in the industry. Moving forward, continued collaboration with technology providers and a focus on sustainable practices will be essential in achieving long-term success in wastewater treatment.

Disclaimer: The opinions expressed within the content are solely the staff's and do not necessarily reflect the opinions and beliefs of the City of San Luis Obispo.



Learn more about how nanobubbles help improve wastewater treatment efficiency. Talk to an expert today!

info.moleaer.com/moleaer-background-information

The information and data contained herein are deemed to be accurate and reliable and are offered in good faith, but without guarantee of performance. Moleaer assumes no liability for results obtained or damages incurred through the application of the information contained herein. Customer is responsible for determining whether the products and information presented herein are appropriate for the customer's use and for ensuring that customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Specifications subject to change without notice. Copyright © 2024 Moleaer. All trademarks stated herein are the property of their respective company. All rights reserved. This document is confidential and contains proprietary information of Moleaer Inc. Neither this document nor any of the information contained herein may be reproduced, redistributed or disclosed under any circumstances without the express written permission of Moleaer Inc. Rev. 04-12-2024 R2