



Microvi MNE for Consistent Enhanced Biological Phosphorus Removal (EBPR)

Phosphorus is a common pollutant found in municipal wastewater and discharge limits are decreasing. Conventional biological and chemical technologies for phosphorus removal cannot reliably meet these limits and produce solid waste. Furthermore, the removed phosphorus may not be recoverable.

Enhanced biological phosphorus removal (EBPR) is the conventional biological treatment process by which polyphosphate accumulating organisms (PAOs) take up and store more P than they need for regular cell function. When oxygen is present, the PAOs take up orthophosphate and the produced sludge must be disposed of to remove P from the system.

Using the MNE platform, activated sludge from an EBPR plant in Nevada was encapsulated and then used to treat primary wastewater from a municipal plant in the Bay Area. Orthophosphate was treated to ≤ 0.1 mg-P/L consistently over up to nine months of operation. Up to 70% of the removed phosphorus could potentially be recovered in a liquid stream. Metagenomic testing proved that the MNE technology retained PAOs in the system throughout the study. The MNE biocatalysts also generated minimal solids, demonstrating a potential solution to the conventional technologies' limitations.

Project Details

Issue: Reliable removal of phosphorus with recovery potential

Solution: MNE™ EBPR biocatalysts

Key Results:

- Orthophosphate removal from 7-9 mg-P/L to ≤ 0.1 mg-P/L
- Potential recovery of 40-70% of the removed phosphorus
- Technology consistent at lab scale (2L) and pilot scale (151L)

CONTACT US TO LEARN MORE →

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