

## **Title: A Novel Aeration Technology Improves Effluent Quality and Sludge Digestion in Water and Wastewater Management**

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### **ABSTRACT (200 words - Current=184):**

E M Fluids has developed a technology that alters the properties of water on a large scale with minimal energy input. Devices are solar-powered, self-contained systems that enhance the gas transfer rate across the air-water interface — achieved without chemicals or mechanical agitation. Using a pre-calibrated signal (<1W), key physicochemical properties of water are altered resulting in a doubling of gas transfer rate across the air-water interface.

Globally, the EMF aeration device has been deployed at many water and wastewater sites with each achieving reduced biomass accumulation, reduced algal booms, accelerated organic sludge digestion in-situ and improved water quality. For example, deployments with SANEPAR (a Brazil Utility), reported digesting up to ~5400m<sup>3</sup> of sludge in 5-months; an OPEX savings close to half a million USD. Other deployments also report prompt elimination or reduction of malodour and an improvement in water quality parameters such as P, N, BOD, COD, TS, and TSS.

The EMF solution helps maintain cleaner, more efficient lagoons and freshwater bodies with minimal effort and infrastructure. Its compact, energy-efficient design also minimizes operational costs, making it an ideal, low-maintenance solution for long-term water and wastewater management.