Industrial Applications of Anaerobic Digestion

Principle Investigator

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Collaborators

Industry – AECOM (Engineering Overview), Hawaii American Waters (Host WWTP), RealGreen Power (Technology Provider), Pacific Biodiesel (Produce Biodiesel from grease trap waste and fryer grease), Diacarbon Energy (Biochar producer)

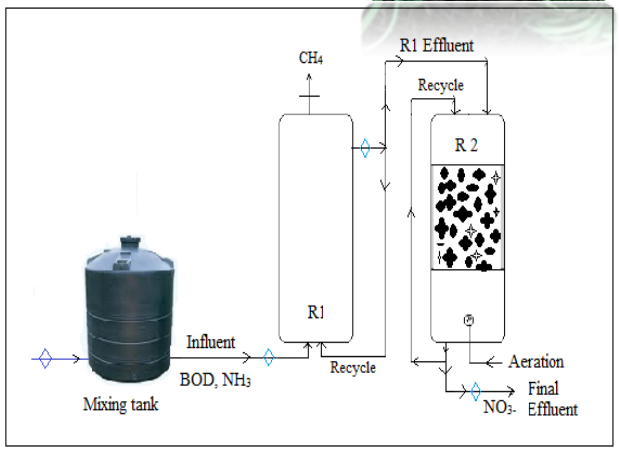
Academic - Roger Babcock (UHM Civil Engineer with extensive expertise in operation of WWTP

Application I: Anaerobic digestion applied to primary clarifier effluent at WWTP

OBJECTIVE: To evaluate the application of anaerobic digestion on clarified primary sewage effluent to reduce the overall amount of energy required for sewage treatment .

SYSTEM: Hybrid anaerobic packed bed –trickling filter reactor

Goals: Effluent BOD_5 < 10, TSS < 20, NH_4 < 2, TN<17



◊ Sampling points

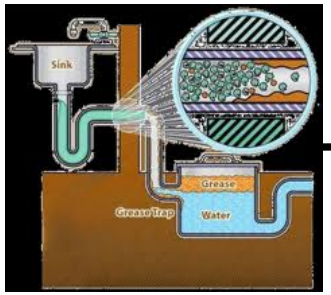
R1: Reactor 1 (High rate anaerobic), R2: Reactor 2 (Trickling filter)

Application 2: Anaerobic digestion of wastewater separated from grease trap waste

Goal: To evaluate the application of anaerobic digestion to the treatment of wastewater *separated from* waste trap grease as a means reduce concentration of pollutant discharge (i.e. chemical oxygen demand (COD) and total suspended solids (TSS)) and to produce methane gas for on-site energy use.

SYSTEM: Anaerobic packed bed reactor

GOALS: Reduction in pollutant levels by 90% and methane production that approaches theoretical maximum of 0.35 m3/Kg COD reduced.



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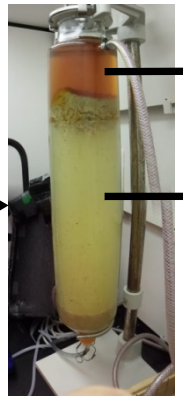

Brown grease for biodiesel

Separated wastewater treated by HNEI system