OVIVO Worldwide Experts in Water Treatment

Municipal
BIOSOLIDS MANAGEMENT

DigestivorePAD™

ANAEROBIC DIGESTION + POST-AEROBIC DIGESTION

HOW WE CREATE VALUE

Reduced biosolids management costs – up to 30% increased VSR

Improved nutrient removal – reduced total N and P in the sidestream

Odor reduction – due to 95% to 98% ammonia removal

Improved dewaterability – due to improved VSR

Struvite stabilization – Reduced struvite scaling

Easy Retrofits – Utilizing existing tanks

Based on DC Water Patent No. US 7,833,415 B2

THE CHALLENGE

Do you have these biosolids management issues?

- High biosolids management costs due to lack of volatile solids reduction
- Issues meeting total nitrogen and phosphorus effluent limits
- Reduced plant efficiency and high O&M costs due to struvite scaling formed in piping, pumps, and dewatering equipment
- Odor issues in the dewatering building or at your land application sites

OVIVO'S SOLUTION

Ovivo brings its extensive experience and expertise in the areas of anaerobic digestion as well as aerobic digestion to offer utilities a revolutionary concept, DigestivorePAD™.

DigestivorePAD is a simple, easy-to-implement but a comprehensive solution to many common problems associated with biosolids management. Ovivo's DigestivorePAD process consists of anaerobic digestion followed by post-aerobic digestion. Aerobic digestion, operating in conjunction with anaerobic digestion, provides enhanced volatile solids reduction, increasing performance by 20% to 30%. Increased volatile solids reduction results in reduced biosolids management costs and improved dewaterability of biosolids.

DigestivorePAD uses anoxic and aerobic conditions in the post-aerobic digestion to create nitrification and denitrification environments. This results in more than 95% ammonia nitrogen removal and more than 90% total inorganic nitrogen (TIN) removal in the side stream. This is especially beneficial for utilities facing stringent nitrogen discharge limits. Almost complete removal of ammonia reduces the nuisance odor which is a common operational issue.

DigestivorePAD also reduces the struvite scaling issues by removing a key component required for its formation, the ammonium content. Further, the post-aerobic digestion step strips sludge off CO_2 and stabilizes the pH so that any struvite formed remains in the sludge. This results in significantly reduced phosphorous levels in the sidestream.

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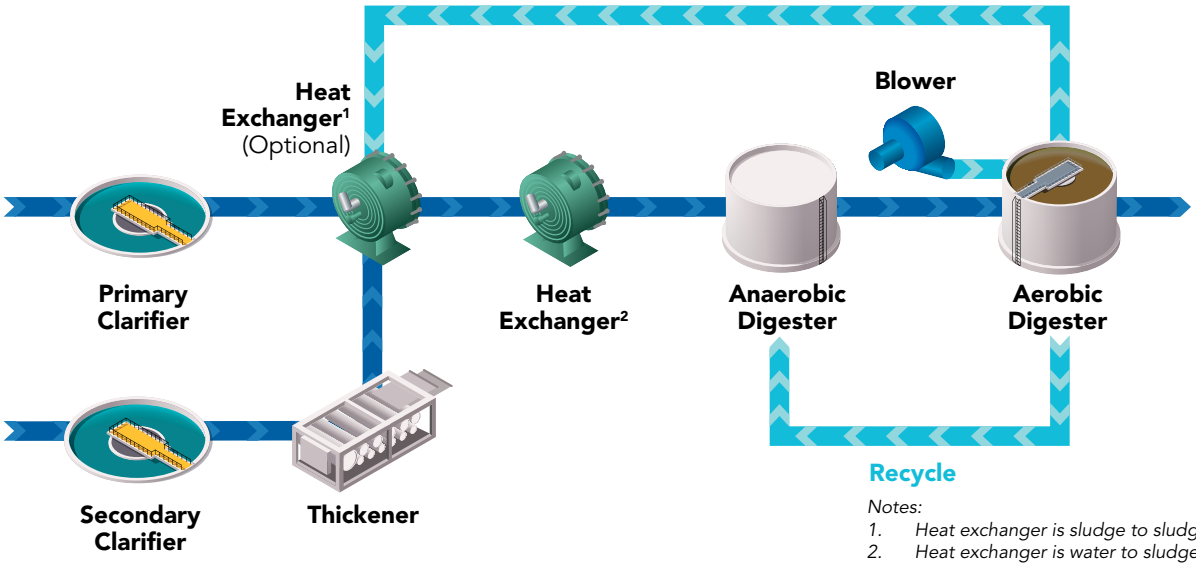
TYPICAL DigestivorePAD™ PROCESS FLOW DIAGRAM



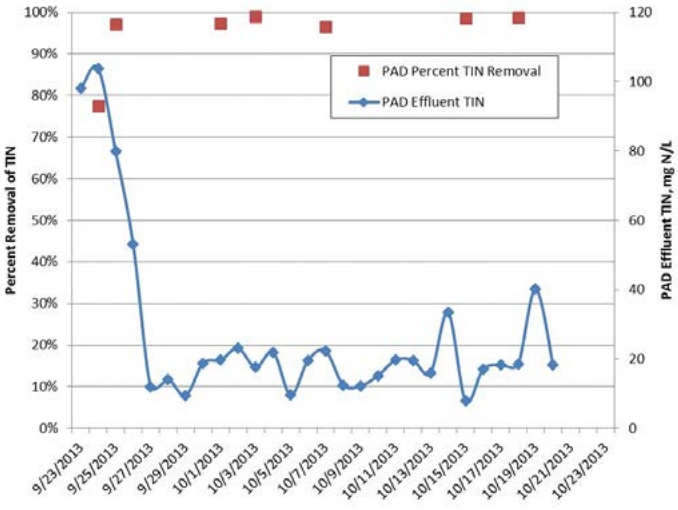
Notes:
1. *Heat exchanger is sludge to sludge (Optional)*
2. *Heat exchanger is water to sludge*

SPOKANE COUNTY REGIONAL WRF DigestivorePAD™ (BASED ON DATA PROVIDED BY CH2M)

VSR Results

Parameter	Acceptance Test
Anaerobic Digester Influent Volatile Solids, *kg/d (lb/d)*	11,600 (25,500)
Anaerobic Digester Effluent Volatile Solids, *kg/d (lb/d)*	3,920 (8,650)
PAD Effluent Volatile Solids, *kg/d (lb/d)*	2,330 (5,140)
Anaerobic Digester VSR	66.2%
Post-Aerobic Digester VSR	40.6%
DigestivorePAD VSR	79.9%

Nitrogen Removal Results



**Results achieved without chemical addition*

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