



ULTRA LOW WASTE FILTER

Achieving 0.075 ppm Total Phosphorous

Overview

After receiving an estimate for \$3.5 million, a village in the upper mid-west searched for alternate solutions to reduce the Total Phosphorous (TP) levels in their lagoon effluent to less than 0.075 ppm. The village's public works director engaged AquaPyr to conduct an onsite demonstration utilizing chemical feed and ultra low waste filtration to achieve desired TP levels with a more economical approach. The village also sought to validate that ultra low waste filtration would not require acid cleaning as they have observed in a neighboring village utilizing mesh disk filters for TP control.



RAW WATER – Fe DOSED – FILTRATE – WASTE

Objectives

- Review Process Reliability & Simplicity
- Achieve <0.075 ppm TP Effluent Quality
- Confirm 'Ultra Low' waste volumes
- Validate Cleaning Efficacy without Acid Washing

Details

Objective	Status	
Reliable Operation	✓	Simple to operate Resilient to Process Upsets Consistent, Repeatable Cleaning Intuitive Control System
Effluent Quality	✓	Average Feed TP Range = 2 to 3 ppm Average Effluent TP = < 0.075 ppm Average Reduction = 97%
Waste volumes	✓	< 0.8% of Feed Flow
Cleaning Efficacy	✓	Demonstrated Effective Cleaning During High Solids Loading & Polymer Over Feed – Without Acid Washing

Results

The AquaPyr ULWF achieved effective TP reduction utilizing a simple, reliable filtration process. The ULWF showed excellent resilience to high TSS loading and polymer over feed situations. Ultra low waste volumes avoid the need for expensive, complicated Backwash Water Management Processes. Initial estimates for a turnkey solution based on the AquaPyr ULWF are less than 25% of original estimate received by the village.