



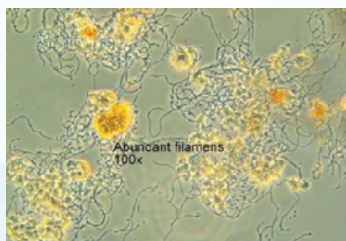
## BioPro ULTRA Leads to Improvements at Municipal Wastewater Treatment Facility with History of Upsets

### Background

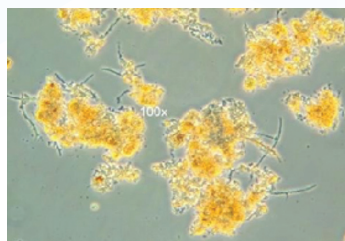
A municipal wastewater treatment facility with a history of upsets was dosed with BioPro ULTRA. Results indicated improved effluent quality as well as reduced chemical and sludge handling costs estimated at \$76,000/ yr.

The facility treated an average of 2.5 million gallons per day (MGD), with over 60% coming from nearby industries. Biochemical Oxygen Demand (BOD) ranged between 200-700 mg/L. Historically, operation at sludge ages >5 days resulted in Microthrix parvicella foaming which overflowed the aeration basin. Conversely, in the colder months, running a short sludge age has led to challenges with nitrification and ammonia removal.

Prior the case study, a microscopic evaluation and treatability test study demonstrated that BioPro ULTRA had the potential to improve treatment.



MLSS 100x Prior To Case Study



MLSS 100x End of Case Study

### Applications

Baseline performance data was collected for 120 days prior to initial dosing of BioPro ULTRA. Dosing was conducted for 42 days according to the treatment schedule outlined here.

DATE	DOSAGE
Week 1	0.33 mg/L
Week 2	0.66 mg/L
Week 3	1.0 mg/L
Week 4	1.5 mg/L
Week 5	1.0 mg/L
Week 6	1.0 mg/L

### Objectives

To demonstrate improved plant performance with BioPro ULTRA over a 6 week period:

- Reduce Microthrix parvicella foaming
- Increase sludge age without bulking / foaming
- Reduce the effluent ammonia spikes
- Reduce effluent TSS
- Reduce effluent BOD
- Reduced chemical cost
- Reduced labor cost (sludge hauling)

### Results

- Approximately **50% reduction** in effluent TSS and BOD
- Effluent ammonia concentrations remained **under 1 mg/L** during the case study (In previous months, it had spiked as high as 10 mg/L)
- Sludge age was increased from 5 days to 8 days without increase in Microthrix parvicella foaming
- Microscopic evaluation during the case study showed significant reduction in filamentous bacteria after 30 days of application

Estimated labor savings:

**\$24,500/year**

+ 15% Reduction in lime costs for sludge stabilization, saving approximately:

**\$21,500/year**

+ Estimated polymer savings, approximately:

**\$30,000/year**

Total estimated annual savings in operational costs, approximately:

**\$76,000/year**