

CASE STUDY

# Biotifx® Ultra Program Leads to Improvements at Municipal Wastewater Treatment Facility with History of Upsets

## SUMMARY

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

## BACKGROUND

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.

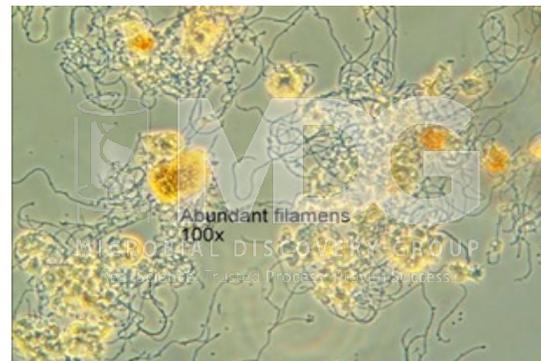
## OBJECTIVES

The objective was to demonstrate improved plant performance with Biotifx® Ultra over a 6 week period:

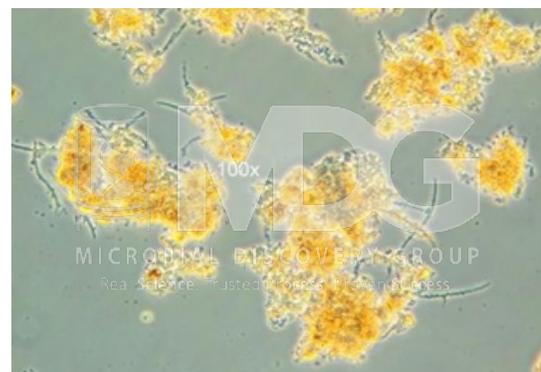
- Reduce *Microthrix parvicella* foaming
- Increase the sludge age without bulking and foaming
- Reduce the effluent ammonia spikes
- Reduce effluent TSS
- Reduce effluent BOD
- Reduced chemical cost
- Reduced labor cost (sludge handling)

## METHODS

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



MLSS 100x Prior To Case Study



MLSS 100x End Of Case Study

Week #	Dosage (mg/L)
1	0.33
2	0.66
3	1.0
4	1.5
5	1.0
6	1.0

## MICROSCOPIC EVALUATION AND TREATABILITY TESTING

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Prior the case study, a treatability study demonstrated that Biotifx® Ultra had the potential to improve treatment.

## RESULTS

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- Approximately 50% reduction in effluent TSS and BOD
- Effluent ammonia concentrations remained under 1 mg/L during the case study
  - In previous months, this had spiked as high as 10 mg/L
- Sludge age was increased from 5 days to 8 days without increase in *Microthrix parvicella*
- Microscopic evaluation during the case study showed a significant reduction in filamentous bacteria after 30 days of application
- Estimated labor savings of \$24,500/ year
- 15% reduction in lime costs for sludge stabilization (~\$21,500 per year)
- Estimated polymer savings of approximately \$30,000 per year
- Total estimated annual savings of approximately \$76,000 per year in operational costs