Matthew Landauer

Project Abstract - Minnesota Specialty Yeast LLC., a subsidiary of Lallemand Inc.

INTERN
Matthew Landauer
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PROJECT FOCUS
Water, Chemicals

ADVISOR
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COMPANY
Minnesota Specialty Yeast LLC., a subsidiary of Lallemand Inc.

COMPANY DESCRIPTION
Minnesota Specialty Yeast (MSY) is a subsidiary of the Canadian company Lallemand and develops specialty yeast products for the food and agriculture industries. Their facility in Hutchinson, MN, uses a continuous fermentation to produce up to 7.5 million tons of yeast per year. MSY can consume 1.8 million gallons of well water per day (GPD) in cooling their fermenters and other plant processes.

INCENTIVE

MSY wanted to reduce their consumption of well water to stay ahead of environmental regulations and increase the longevity of their current wells. Additionally, MSY used phosphoric acid in their microbial treatment procedure which send around 25 lbs of phosphorous to the sanitary sewer per treatment; in 2018 MSY had performed 52 microbial treatments.

GENERAL APPROACH

Previous MSY and MnTAP work had explored alternative chemicals and procedures for the treatment. Phosphorus reduction was explored in the microbial treatment process. Sulfuric acid and phosphoric acid are used to decrease the pH in the fermenters to make the conditions inhospitable to microbes other than yeast. Both acid feed tanks are adjusted to a target pH level at the inlet to the fermenter.

FOCUS OF RESEARCH / RECOMMENDATIONS

Through modeling and lab testing, it was found that a higher sulfuric acid feed rate would allow the acid feed stream to reach the desired pH while decreasing reliance on phosphoric acid. Alternative operating schemes utilizing both existing and proposed equipment were investigated in order to determine optimal process settings for full scale testing based on laboratory findings for phosphorous reduction.