

INDUSTRIAL TREATMENT PLANT

Ammonia Reduction; Odor Elimination; Solids Reduction in a Vegetable Waste

An industrial WWTP processing vegetable waste from Lamb-Weston and J.R. Simplot. Potatoes are processed year around with asparagus, peas, corn, beans, carrots and pasta processed summer and fall.

Treatment Process:

After primary solids are removed, 25,000 to 60,000 lbs of BOD is sent to the wastewater treatment plant. Wastewater is treated in three aerated basins with 42 MG total capacity, two settling basins with 33 MG capacity and a 43 MG polishing pond prior to final discharge. The first settling basin is continuously dredged with the sludge pumped to a 14 acre constructed reed bed. During April, May and three weeks in July, the first coarse bubble aeration cell, which provides 60% of the plants aeration, was off-line for repairs, greatly increasing downstream loading.

BYO-GON PX-109® Treatment Program:

BYO-GON PX-109® was originally used for odor. After odor was eliminated during the summer/ fall processing season, a program based on influent BOD loading began in March with goals to improve treatment and reduce effluent ammonia.

BYO-GON PX-109® is a precursor to enzymatic action, stimulating a broad population of microorganisms. By turning on biological switches and starting reactions that were not taking place due to limiting environmental conditions, we increase the metabolism of naturally occurring microorganisms. This pushes treatment toward more stable levels with a greater reduction to organic material in the waste stream. The product increases the activity of facultative organisms which can utilize chemically bound oxygen, thereby reducing DO demand. These biological processes take 3 sludge ages to become thoroughly established in the biomass.

Results:

The loading based program reduced effluent ammonia levels. As the graph shows, ammonia decreased by over 80% in the final effluent for the summer season and 97% during the peak loading period. The overall treatment in the plant improved significantly. DO increased while all other parameters are lower when compared to the baseline year.

The impact on ammonia was dramatic. Ammonia decreased in the aerated basins by 82% and in the settling basins by 87%. BOD decreased by 40% in the aerated basins and 73% in the settling basins, while the DO increased by 164% and 347% respectively.