



Intern: Daniel Johnson

Major: Chemical Engineering

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Company Background:

Purina Animal Nutrition LLC is a small industrial facility specializing in the production of mineral premix and tubs of nutrient supplemented molasses. The plant processes approximately 200,000 pounds of molasses each day in a process that is used in only a handful of other locations in the world. Purina acts as a leader among animal feed providers, producing the highest quality animal feed.

Project Description:

Purina Animal Nutrition LLC is very responsive towards taking steps towards becoming a leader in developing environmentally sustainable practices. The main goal during the summer of 2017 was to examine the tub plant’s wastewater outfalls. In doing this, it was possible to pinpoint the particularly serious outfalls and investigate methods to mitigate water pollution. This will have an added benefits of simplifying the ability to expand the Fremont Wastewater Treatment Plant as new industry enters Fremont. As secondary tasks, water and electricity were analyzed in an attempt to reduce overall usage throughout the plant.

Pollution Prevention Benefits:

Throughout the course of the summer, a number of pollution prevention opportunities were developed to reduce emissions, water use, and energy use throughout the plant. The majority of savings come from the reduction and treatment of various wastewater outfalls. A few of these recommendations carry little to no capital cost, while providing relatively significant savings. There are several recommendations that require a larger capital input but the savings from these opportunities lead to short payback periods. Additionally, the data collected has allowed the plant to become cognizant of when and where waste is occurring. An estimate of the total benefits of implementing all of the opportunities outlined in this report is shown in *Table 1*.

Table 1: Pollution Prevention Benefits

P2 Category	Annual Cost Savings	Annual Reduction of Resource
Wastewater	\$26,500	141,000 lbs. contaminants
Water	\$27,100	8,800,000 gallons
Electricity	\$12,600	180,000 kWh
Salt	\$6,600	42,000 lbs.
Total	\$72,800	