HUFFMAN ENGINEERING INC.

THE *POWER* OF RECYCLING

CITY OF FREMONT WASTEWATER

Food processing plant Lincoln Premium Poultry, a subsidiary of Costco, was expanding in the city of Fremont bringing new jobs and economic impact to the city. In this case the addition of a new chicken plant in town both necessitated additional treatment and made the water a rich methane source. In general, anything organic will increase the amount of methane that could be harvested. Because of the additional runoff from the new plant and additional organic matter, this customer needed to look at their capacity for handling additional waste.

Most wastewater applications include some type of digestor basin(s). In these basins wastewater is stirred, and possibly heated, with a mixture of bacteria (usually referred to as bugs) that eats the waste products and produce gas including methane. These basins always give off gas from the surface which is one of the causes of the smell at a wastewater plant.

METHANE HARVESTING

95% OR MORE SENT BACK TO THE POWER GRID

Methane Harvesting usually involves covering the digestors with an expandable cover similar to a balloon that captures the gases and directs them to a scrubbing system so that the cleaned gas can be used in the plant or fed back into the grid.

3 Lagoons used in the Plant	Huffman Engineering Automation
Strip out solids and scrub out hydrogen sulfide (H2S)	Controls on the pump and heat exchanger to warm the lagoon to keep the bacteria (bugs) alive
Dehydrator to remove Water (H2O) leaving Methane (CH4) and Carbon Dioxide (CO2)	Controls on the blowers to pull the gas off the lagoons and the feeder that feeds off the gas into the conditioning system
Gas Compressor to bring Methane (CH4) and Carbon Dioxide (CO2) to utility grid pressure and force the gas through a membrane system to remove CO2	Controls on the meter monitoring the amount of gas processed and the amount of gas that is sent to the flare (if it does not meet quality parameters) or back to the power grid (if it meets the quality standards)
Heated to specs so that 95% or more can be sent back to the power grid	Controls to allow the flare (pilot light) to burn gas that does not meet quality standards or burn raw biogas from the lagoons