Solid Waste Diversion, Water Recovery and Cost Savings in Food Manufacturing

Client
LiDestri Foods, Inc. (LiDestri) is a privately owned food manufacturing company specializing in contract and private label manufacturing. The main products manufactured consist of tomato based sauces and salsas and as a result, significant quantities of tomato paste and diced tomatoes are used as raw materials in the production process. This project focused on the Lee Road manufacturing facility in Rochester, NY.

Opportunity Area
At the Lee Road manufacturing facility, the estimated annual water usage is approximately 65 million gallons per year and wastewater discharge is about 50 million gallons per year. The total combined cost of water usage and wastewater discharge (including a wastewater surcharge due to higher Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) in the wastewater) is roughly $465,000 per year. In addition, an estimated $12,000 is spent annually to dispose large heavy plastic totes in which raw ingredients are received at the facility.

Objectives
The objective of this assessment had multiple focus areas, including (1) evaluating alternatives to reduce or eliminate the landfilling of plastic totes from the facility (2) developing a baseline profile of water usage for the food manufacturing operations (3) identifying opportunities for water recovery for reconditioning and reuse (4) identifying cost effective methods to reduce or eliminate the organic content from the wastewater, thereby reducing or eliminating the wastewater surcharge.

Work Performed
NYSP2I researched alternative use options for the plastic totes to avoid landfill disposal. In collaboration with LiDestri, a baseline profile of water usage for the food manufacturing operation was also developed. The feasibility of water recovery and organic solids recovery from wastewater was investigated. Cost savings and payback analyses were performed for all of the work performed.

Results
- The study found an opportunity to ship the baled totes to JBI, Inc. in Buffalo, a plastic waste-to-energy company, that can convert the plastic into fuel. This could result in a net savings of $4,200 per year.
- Up to 66% or 108,700 GPD of total daily water usage (an estimated 164,250 GPD) could potentially be recovered. At a 75% recovery efficiency, this could result in the recovery of 81,525 GPD of water for reuse and an annual savings of $61,144.
- There is an opportunity for LiDestri to separate and concentrate the organic content from their wastewater to 23% solids concentration using a Gas Energy Mixing (GEM) system manufactured by Clean Water Technology. The solids could be sent to CH4 Biogas, a company that operates an anaerobic digester in Wyoming County. This benefit could result in an annual cost savings of approximately $72,000 for LiDestri.