Lean, Energy & Environment (LE2) Assessment for HP Hood

Client
The main products at this facility are cottage cheese and cream cheese, which are supplied to large grocery chains and retailers. Because of the rural location, there is no publicly-owned treatment works (POTW) and waste is instead handled through an on-site aerobic digestion system.

Opportunity Areas
HP Hood currently operates an aerobic system to treat wastewater generated from plant operations prior to discharging effluent under a New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) permit. However, disposal of the 1.6 million gallons per year of sludge via transport to other sites is costly. There is an opportunity to significantly reduce the volume of such waste by up to 90% by diverting some of the waste volume to secondary use applications, or by utilizing anaerobic treatment technology. Therefore, anaerobic treatment (with gas recovery) to treat selected high strength wastes was evaluated to determine its economic viability. Also, retrofitting the existing aerobic system for higher efficiency oxygen transfer was evaluated to determine the potential for energy cost reduction.

Objectives
Identify energy, disposal cost and environmental impact reduction opportunities within HP Hood’s LaFargeville, NY plant. Apply innovative or underutilized technologies to achieve measureable reductions in one or more of these areas.

Work Performed
Electricity and water use rates were analyzed from 2009 and 2010. Waste characterization and volume data were obtained for the plant waste water effluent and solid waste streams. These data sources were used to conduct analyses of electricity demand reduction options, as well as to estimate the potential benefits of converting the existing on-site aerobic digestion facility to an anaerobic system capable of producing useable biogas.

Results
By implementing the recommended improvements, the following annual reductions are estimated:

- Un-quantified electricity cost reduction by implementing improvements in the existing aerobic treatment system: dissolved air sensors providing feedback control to variable-frequency drives on the 125 HP air compressors
- $200,000 in solid waste disposal costs (for aeration basin sludge and ultra-filtration concentrate)
- Un-quantified electricity reduction through conversion of biogas produced by installation of flexible membranes over existing aeration basins

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