BURKE CORPORATION

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COMPANY PROFILE
In 1957, Burke Corporation started processing meat toppings for the pizza industry. Today, Burke still specializes in producing beef and pork pizza toppings and also produces taco meats, chicken strips, barbequed beef, meat balls, and many other customized meat products. As Burke Corporation continues to expand, the company maintains their long standing quality and customer centered approach through ensuring fully cooked meats are processed and delivered to the customer in a timely manner.

PROJECT BACKGROUND
Producers in the food industry use large amounts of water in their production of products. Historically, Burke has taken many measures to optimize and conserve water use, and was recognized for their efforts in 2010 and 2011 by their parent company, Hormel Food Corporation. They also received the Governor's Iowa Environmental Excellence award for their water efforts in 2013. This year, Burke Corporation teamed with the Pollution Prevention Intern Program to develop strategies to further reduce water consumption at the plant and assist with meeting corporate reduction goals for water and natural gas.

INCENTIVES TO CHANGE
The food production industry is one of the largest water-using industries due to the amount of water that is needed to process and cook the product, and sanitize the equipment. Additionally, the consistent need for hot water significantly increases energy usage. The increasing utility demand has led Burke to set a goal to reduce water usage at the plant by 5 percent and natural gas usage by 3 percent as compared to 2014.

RESULTS
Timed Automated Ball Valves: Installing timed ball valves on the oven and steam chamber belt washers would allow the belt washers to run more frequently in smaller time intervals than the current manual wash method. The frequency at which the belt washers need to run depends on the type of product that is on the line. Multiple settings can be utilized to ensure that the belts are sufficiently cleaned during production while minimizing water usage. This automated approach to cleaning the conveyor belts could significantly reduce water use.

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
TIMED AUTOMATED BALL VALVES	$16,482	1,079,193 GALLONS 7,200 THERMS	RECOMMENDED
FLOOD BAR NOZZLES	$17,706	1,159,400 GALLONS 7,735 THERMS	RECOMMENDED
UPDATE NOZZLES ON SPRAY BARS	$87,141	5,705,807 GALLONS 38,069 THERMS	RECOMMENDED
ADDITIONAL SPRAY BAR ON OVEN BELT WASH	$965	63,217 GALLONS 422 THERMS	RECOMMENDED
FLOW METERS	$37,912	2,482,380 GALLONS 16,562 THERMS	RECOMMENDED

Flood Bar Nozzles: The flood bars use hot water to keep catch pans under the conveyor belts clear of coagulated grease. Adding flat spray nozzles to the flood bars could reduce the flow through the flood bars while effectively covering a larger area across the width of the catch pans. Estimations show that the addition of nozzles could reduce Burke's annual water use by more than 1.1 million gallons.

Update Nozzles on Spray Bars: Spray bars are used in multiple areas of the plant to keep the conveyor belts clean. Water can be saved by ensuring the types of nozzles used on each spray bar are accurately rated for the appropriate water pressure and flow. By ensuring nozzles are correctly applied and supplying the optimum amount of water needed to effectively clean the conveyor belts, Burke can save more than 5.7 million gallons of water annually.

Additional Spray Bar on Oven Belt Wash: After the product circulates and is removed from the belt, small amounts of residual protein can stick to the belt. The residual proteins can build up on the conveyor belt as it continuously rotates through the oven. Adding a second spray bar to hit the belts with water before reentering the ovens would reduce the amount of time the residual proteins remain on the belts and make the cleaning process more efficient. Optimizing the efficiency of the belt cleaning process, could reduce water use by more than 63,000 gallons annually.

Flow Meters: Flow meters strategically placed around the plant could allow Burke to localize and better monitor areas with high water use. Flow meters are an integral part of creating a wastewater prevention plan and help to hold employees accountable for water use. By sub-metering and more closely monitoring the plant's water use, Burke can save about 2.5 million gallons of water annually.

ESTIMATED CONVENTIONAL AIR POLLUTANTS DIVERTED IN METRIC TONS
For Recommendations in Recommended Status

TOTAL FOR ALL SECTORS						
CO_2	NH_3	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
308.16	0.03	0.48	0.12	0.05	0.56	0.44

ESTIMATED GREENHOUSE GASES DIVERTED IN METRIC TONS

TOTAL FOR ALL SECTORS			
$MTCO_2e$	CH_4	N_20	CFC
1,055.07	105.36	12.91	1.55