WEST LIBERTY FOODS

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COMPANY BACKGROUND

West Liberty Foods was founded in 1997 by the Iowa Turkey Growers Cooperative and harvested 5.5 million turkeys in 2011. The company has facilities in West Liberty, Sigourney and Mount Pleasant, Iowa, and Tremonton, Utah. The West Liberty location is also home to a research and development center and a state-of-the art quality assurance lab. In addition to harvesting and processing turkeys, West Liberty Foods processes all types of cooked, processed and ready-to-eat meat products.

PROJECT BACKGROUND

West Liberty Foods is committed to preserving natural resources. The company is ISO 14001 certified, and two of West Liberty Foods' Iowa facilities have become third party verified as landfill-free, with the third facility expected to become certified as landfill-free later this year.

West Liberty Foods has hosted interns through the Pollution Prevention Intern Program on two previous occasions. Through these projects, the company has reduced energy usage and examined opportunities to convert and reuse cooking oil. This year's intern conducted a water balance to determine where and how water was being used, then examined possible reduction and reuse opportunities.

INCENTIVES TO CHANGE

In 2011, West Liberty Foods used more than 300 million gallons of water and spent over $2 million on water-associated costs. Sending wastewater to the municipal treatment plant accounted for the majority of these costs. The facility is also experiencing a strain on its own wastewater pretreatment facility.

In addition to the environmental impacts of conserving water, this project will result in a reduction in the amount of wastewater passing through the on-site pretreatment plant and will improve the effectiveness of the pretreatment process. The reduction of wastewater going to the municipal treatment facility would result in substantial economic savings.

RESULTS

Water Leak Detection and Repair Program: West Liberty Foods was losing 2.75 million gallons of water annually to leaks. Two leaks accounted for a large portion of the loss. One of these leaks was on a condenser unit that had corroded; the other was due to a loose valve on the bird wash system. Many smaller leaks occurred off of the high pressure lines as a result of loose valves. To identify and keep future leaks to a minimum, the intern recommended a weekly audit and repair plan.

Offal Screen Wash: The screen wash on the tumble filter in the offal room has four spray heads but only one is working properly. High pressure wash hoses are being used to wash off the screen, further adding to the increased water usage. Replacing the spray heads would save one million gallons of water per year and alleviate the need for additional manual washing.

Pumps Off Nights and Weekends: Fresh water cooling pumps were found to be running continuously during idle production hours. Turning these pumps off when not needed would save 2.67 million gallons of water per year.

Picker Wash: Two pipes provide water for washing feathers into a trough. One is supplied from reuse water and the other uses potable water. The pipe coming from the potable water source, located under the first picker, could be turned off without affecting the process.

Scalder Recapture: The scalder is currently losing water to overflow at a rate of 1.8 gallons per turkey. The U.S. Department of Agriculture (USDA) regulation for the scalder is 0.5 gallons per turkey. The discrepancy is due to the turkeys pushing water out of the scalder as they leave. This can be resolved by creating a catch basin for the water and pumping the water back into the scalder.

Chiller Overflow Recapture: The chiller has a similar problem as the scalder. The USDA regulation for the chillers is 1 gallon per turkey and presently the overflow rate at West Liberty Foods is 3.2 gallons of water per bird. The water that leaves the chiller with the turkeys goes down the drain. Instead sending the water down the drain, the company could redirect the water back into the chiller and the overflow could be controlled at 1 gallon per bird.

Conductivity Reduction: The evaporative condensers that West Liberty Foods employs for cooling the plant use 80,000 gallons of water a day. By treating the makeup water, the cycles of concentration can be increased, which would increase the amount of time the water stays in the condensers before being blown down. Treatments explored were water softeners, reverse osmosis and deionizer units.

CONVENTIONAL AIR POLLUTANTS AND GREENHOUSE GASES DIVERTED IN STANDARD TONS

Total for all sectors					
CO_2	SO_2	CH_4	N_2O	CFC	PM_{10}
1786.48	0.29	1064.58	557.42	1.56	0.21

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
WATER LEAK DETECTION AND REPAIR PROGRAM	$20,145	2.75 MILLION GALLONS OF WATER	IN PROGRESS
OFFAL SCREEN WASH	$7,340	1 MILLION GALLONS OF WATER	RECOMMENDED
PUMPS OFF NIGHTS AND WEEKENDS	$14,680	2.67 MILLION GALLONS OF WATER	RECOMMENDED
PICKER WASH	$9,762	1.33 MILLION GALLONS OF WATER	RECOMMENDED
SCALDER RECAPTURE	$41,398	5.64 MILLION GALLONS OF WATER	RECOMMENDED
CHILLER OVERFLOW RECAPTURE	$74,134	10.1 MILLION GALLONS OF WATER	RECOMMENDED
CONDUCTIVITY REDUCTION	$40,223	5.48 MILLION GALLONS OF WATER	FURTHER ACTION NEEDED