

Frito-Lay Topeka, Kansas

Intern: Emily Robbins

Major: Civil and Environmental Engineering

School: University of Kansas

The Company

Frito-Lay, Inc. is one of the world's largest snack-making companies. The site in Topeka has 11 different production lines that make 14 varieties of chips. Close to 134 million pounds are produced annually. The site opened its doors in 1971 and currently employs 750 people, with 700 at the plant and 150 in the traffic department.

Project Description

P2 intern Emily Robbins focused mainly on thermal efficiency projects at the Frito-Lay plant in Topeka. The plant is currently operating at 85% of the company standard for natural gas efficiency, and their goal is to improve to 95%. A line-by-line analysis of steam and natural gas was completed for all sub-metered lines to determine if any specific line was using more resources than necessary for production. Before Robbins arrived, no thermal efficiency analysis had been completed. Insulation was needed throughout the plant, so an insulation audit was completed and the savings were analyzed. Air hand dryers were evaluated as an alternative to paper towels for sanitation needs.



The intern as Chester Cheetah for a Keep America Beautiful Event.

Incentives for Change

Rising fuel costs, scarcity of resources, concern for global warming, and other environmental issues have made conservation and consumption reduction increasingly important. The Frito-Lay plant in Topeka is the sixth largest of the 39 sites in the United States and uses large amounts of natural resources, natural gas being one of them. The current price the plant pays is \$7.73 per mMBTU for gas, and this is projected to rise to \$12.50 per mMBTU. If Frito-Lay can reach the goal of 95% efficiency of the company standard, they can save approximately \$360,000 at the current rate of \$7.73 per mMBTU and more than \$580,000 at the projected rate of \$12.50 per mMBTU.

Projects Reviewed for P2 potential

Insulation Audit

It was determined that many areas throughout the plant needed insulation to improve thermal efficiency. A thorough audit was completed in the processing areas and boiler room. The intern then took this information and completed a cost and energy savings analysis using a program called 3E Plus. This program determined the cost and energy savings per foot for each type of pipe or flange. This data was used to determine the savings for the entire insulation audit.

Air Hand-Dryer Evaluation

Paper towels were identified as a waste stream in the plant and air hand dryers were evaluated as an alternative. Two brands were identified as high-efficiency (more than

85% more efficient than standard hand dryers) and high-performance hand dryers – the Dyson Airblade and the Xlerator. Company representatives for both dryers came to the plant and gave product demonstrations. Customer feedback and information obtained from these demonstrations allowed the intern to analyze both options thoroughly.

Project	Annual Cost Savings	Environmental Results	Status
Boiler room insulation	\$39,000	24,000 therms	Recommended/In progress
Production lines insulation	\$23,000	14,000 therms	Recommended/In progress
Other insulation areas (CIP, North Mech. Room, Corn Cook, Wheat Cook)	\$21,600	13,300 therms	Recommend/In progress
Cook kettle insulation	\$49,300	38,450 therms	More research necessary
Hand dryers – Dyson Airblade	\$6,700	9.6 tons landfill waste	Recommended/In progress
Hand dryers – Xlerator	\$6,300	9.6 tons landfill waste	Not recommended

Conventional Air Pollutants and Green House Gases Diverted in Standard Tons

	SO2	CO	NO _x	VOC	PM
Total for all sectors	N/A	N/A	N/A	N/A	N/A
	CO2	CH4	N2O	CFC	
Total for all sectors	290	N/A	N/A	N/A	

*CO2 diverted excludes cook kettles

