CUSTOMER: Kraft Heinz Company
LOCATION: Muscatine, Iowa, USA

BACKGROUND: The Kraft Heinz plant in Muscatine was established in 1893 and makes a variety of ketchup, gravy and sauces. The facility has a 600,000 sq. ft. (5,5742 m²) distribution center and exceeds 1 million sq. ft. (9,2903 m²) of total space.

Armstrong International’s operations and maintenance service began in 2000. Currently, Armstrong owns on-site utility assets including steam, compressed air and wastewater pre-treatment. The boiler house produces a peak of 310,000 lb/hr (140 t/hr) of steam and 15,000 cfm (2,5485 m³/h) of compressed air.

SCOPE OF WORK: Armstrong provides 24/7 operations and maintenance of the steam, compressed air, wastewater systems with a full-time, on-site staff that includes a site supervisor and five operator/technicians. In addition, Armstrong provides energy engineering and turnkey project management. Armstrong has overall responsibility for these systems including system safety, environmental compliance, reliability, efficiency, and reporting.
**BENEFITS:** Overall utility consumption significantly reduced while avoiding $4 million in capital upgrades. Additionally, Kraft Heinz Company received an up-front payment for their power plant assets. The facility is billed for all utility services on a variable basis correlated to product produced while Armstrong reviews and pays all municipal utility bills.

Overall Features and Benefits:
- Operations and Maintenance risk transferred to Armstrong International
- During the first 15 years of service, there have been zero interruptions in utility delivery to the customer. Safe operations demonstrated with zero OSHA recordable Incidents since 2003.
- Management of water chemistry programs and monitoring of specific utility consumption via Armstrong statistical process control software.
- Implemented lubrication best practices; synthetics, micron filtration and oil analysis. This resulted in greater than 50% reduction in compressor lubrication costs and oil waste.
- Armstrong installed two new 75,000 lb./hr. boilers increasing boiler efficiency from 78% to 84.5%.
- The compressed air system was upgraded with two new 1000 CFM oil flooded compressors, new refrigerated air dryer, pressure controls and additional air storage to improve air quality, quantity, and stabilize pressure.
- A 750 gallon/minute Waste Water Pretreatment System capable of solids removal and pH neutralization was constructed to prevent pH exceedances going to the city waste water system.
- Lighting upgrades in a 125,000 sq. ft. warehouse were completed to save electric and improve lighting conditions.
- A water reclaim and heat recovery savings project was designed and implemented. Water that was previously lost to a clear water drain, is now reclaimed and used to generate steam. This project not only saves water it saves fuel as the reclaim water is 140 degrees vs. the typical 55 degree city water.
- A reverse osmosis system installed to replace dealkalizers. Boiler blowdown was reduced from 13% to 2% while cleaning up the boiler internals. To date, the reverse osmosis has saved the facility over $250,000 in salt and fuel usage.
- Variable Frequency Drives were installed on feedwater and condensate pumps, annually saving approximately $10,000 in electrical consumption.

Total Utility Savings from baseline ~
- Fuel $8,800,000 (1,500,000 MMBTU)  
- Water $950,000 (2,200,000,000 gallons)  
- Waste Water $5,500,000 (1,400,000,000 gallons)

Armstrong continues to provide best in class utility optimization and operation to identify utility savings opportunities while focusing on equipment and system reliability.