

# ACUMENT GLOBAL TECHNOLOGY

## COMPANY BACKGROUND

Acument Global Technologies is an internationally accomplished competitor in the mechanical fastening and assembly solution industry. Serving more than 150 countries, Acument's net sales exceed \$1.8 billion. Acument adheres to a continuous improvement program and a Lean Manufacturing process to continue to ensure the growth of the company. Acument Decorah Operations' customers include a large telecommunications company and major vehicle and tools manufacturers. Current processes at Acument Decorah Operations include heading, threading, shaving, grinding, heat treating, and painting.

DECORAH



PHILLIP MANN  
MECHANICAL ENGINEERING  
IOWA STATE UNIVERSITY

## PROJECT BACKGROUND

Acument Decorah Operations has hosted Pollution Prevention Program interns for five summers, and is interested in continuing the success it has experienced with the program. Each intern decreases the environmental footprint of Acument and provides annual cost savings. This year, the Decorah plant is focusing on waste heat reclamation and soap/water reuse.

## INCENTIVES TO CHANGE

With rising prices of gas and water, environmental projects become even more important for sustainability and the growth of the company. Reduction at the source can be overlooked, as it is often not readily apparent. Locating these sources and finding feasible alternatives or solutions to implement will provide the host company with large annual savings.

## RESULTS

**Wash Treatment Systems:** Most parts must pass through a wash treatment before they are packed. A majority of the parts wash machines were over-specified for the rated temperature for the type of soap they were using. Testing to find the most efficient temperature on these machines determined the natural gas and electricity that could be saved by operating closer to specifications. In addition, several machines had an excess concentration of soap. Using proportioners and cutting down on overuse will save Acument money on soap purchases and on wastewater treatment costs.

**Soap Analysis:** The soap currently used for the wash processes is a basic, inexpensive heavy-duty cleaner. Several tests were conducted to determine if more advanced or different soaps could perform better. Testing showed that low-temperature cleaners were appealing but not capable of the cleaning power of the current soap. However, a different alkaline soap showed positive results in cleaning better than the current soap at lower concentrations. This cleaner costs less and can be operated at lower concentrations to save on wastewater treatment as well.

**Waste Heat Recovery:** In the heat treating section at Acument, two furnaces and several other heaters exhaust an immense amount of heat through the roof. To conserve on energy and to recover the otherwise lost heat, a waste heat generator was investigated. Acument's exhaust qualifies it for a 50 kWh waste heat generator that would allow it to produce part of its own energy with a rate of return of about two years. If the project works at the Decorah Acument site, other sites with heat treat will begin their own waste heat projects

## Wastewater Recovery

Under the current wastewater treatment system, a large amount of wastewater is sent to drain, treated or hauled off-site. Some water is merely used to cool or heat and then sent to drain without any sort of contamination or recycling. To cut down on the water use and treatment costs, a wastewater recovery system was recommended. The new system uses a reverse osmosis, hydrophilic cycle to distill and recover 95 percent to 98 percent of all water used. Not only does this drastically cut down on water consumption, but also on treatment and hauling costs.



Air Pollutants Diverted in Tons

	Total for all sectors
SO2	3.917
CO	0.468
NOX	1.876
VOC	0.23
PM	0.099

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	734.03
CH4	64.78
N2O	0.347
CFCS	9.0

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
WASH TREATMENT SYSTEMS	\$62,800	4,350 GAL SOAP 2362 CCF NATURAL GAS 61,800 KWH	RECOMMENDED
SOAP ANALYSIS	\$11,000	1500 GALLONS SOAP	IMPLEMENTATION IN PROGRESS, TESTING CONTINUES
WASTE HEAT RECOVERY	\$39,900	420,000 KWH	IN PROGRESS
WASTEWATER RECOVERY	\$24,160+	8,701,880 GALLONS	RECOMMENDED