Acument Global Technologies, Camcar LLC

COMPANY BACKGROUND

Acument Global Technologies is the world's leading mechanical fastener manufacturer. Acument's Decorah Operations produces screws, bolts, rivets and washers by cutting metal wire and forming it with a series of punches and dies. In Decorah, Acument produces about 7 million fasteners a day for industries such as automotive and electronics. Acument employs 490 people, is ISO 14001 certified, and adheres to Lean Manufacturing principles.

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PROJECT BACKGROUND

Acument wanted to eliminate single-pass cooling in their heat treat furnaces. City water was being used to cool bearings and then discarded, uncontaminated, back to the city. Acument wanted to recapture and reuse this cooling water in hopes of saving water. The company also wanted to evaluate their waste oils and explore recycling options to conserve oil.

INCENTIVES TO CHANGE

As an ISO 14001 certified company and an adherent to Lean Manufacturing principles, Acument is continuously striving to lessen their environmental impact. According to Acument's internal environmental management system, the company seeks to reduce hazardous and non-hazardous waste and minimize emissions. This summer, Acument attempted to pursue this goal by reducing water and oil consumption.

RESULTS

Heat Treat Water Reclamation

Single-pass cooling is used to cool bearings supporting a conveyor belt in furnaces used for hardening parts in Acument's heat treat area. Heat treat operates 24 hours a day, 7 days a week, and requires nearly 18 gallons of water per minute for cooling. This could be eliminated by closing the cooling loop and purchasing a dry fluid cooler to remove the heat from the water between each pass. By installing this equipment, Acument can save 8.4 million gallons of water and $23,500 in saved incoming water and sewer expenses every year.

Quench Oil Recovery

When parts are heat treated they are dropped in quench oil and then rinsed to remove the oil from crevices in the fasteners. The oil is then skimmed off the top of the wash tank, separated from excess water, and collected. Every day, 12.5 gallons of quench oil are collected off the wash tanks in the heat treat area. The water content is too high to put the oil directly back in the quench tank, but if the water is eliminated from the oil it can be reused, saving Acument more than $16,500 and 3,100 gallons of oil every year.

Cutting Oil Recycling

When parts are shaved, the cutting oil often gets trapped in the shavings and drawn out of the machine into the shavings collection bin. By adding valves to the bins, using a forklift with more of a tilt, and waiting longer for each bin to drain, an additional 9 gallons of oil were collected each day. After these changes, the 11.5 gallons collected each day is enough to enroll in a recycling program with the oil manufacturer. By recycling the oil, nearly 3,000 gallons of oil and

almost $7,000 will be saved each year, due to the price difference between recycling and purchasing new oil.

Dual-Purpose Lubricant Substitution

Two different oils are often used in heading machines: one for the gears and chains, and one for the die and parts being formed. When these two oils mix the oils become contaminated and need to be replaced or the machine can be damaged and production decreases. Acument is currently testing a new dual-purpose lubricant in five machines. This oil will eliminate the potential for cross-contamination and, in turn, will increase the usable life and allow for the oil to be reused once the particulate matter is settled out. If, after testing, the oil is placed in every applicable machine and the oil life in each machine is extend by 50 percent, estimate, an estimated savings of $104,000 and 11,000 gallons of oil would be seen every year. This does not include potential savings from settling and reuse.

Project	Annual Cost Savings	Environmental Results	Status
HEAT TREAT WATER RECLAMATION	$23,500	8,400,000 GALLONS WATER	RECOMMENDED
QUENCH OIL RECOVERY	$16,500	3,100 GALLONS OIL	RECOMMENDED
CUTTING OIL RECYCLING	$7,000	3,000 GALLONS OIL	IN PROGRESS
DUAL-PURPOSE LUBRICANT SUBSTITUTION	$104,000+	11,000+ GALLONS OIL	IN TESTING

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	0.36
CO	1.15
NOX	0.33
VOC	0.38
PM	0.06

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	582.4
CH4	163.6
N2O	70.5
CFCS	2.4