

Clow Valve

CASE
SUMMARY

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CLOW VALVE COMPANY

Oskaloosa, Iowa
Mahaska County

Intern: Michael Strong
Major: Industrial Technology
School: Iowa State University



The Company

Clow Valve Company is a wholly owned subsidiary of McWane, Inc., providing a complete line of fire hydrants and valves to the waterworks industry. Clow Valve Company operates at two locations in Oskaloosa, Iowa, and Corona, California. The Oskaloosa plants include iron and brass foundries, and a machine shop where product is machined, assembled, painted, warehoused, and shipped.

Project Background

The pollution prevention internship focused on options for the beneficial reuse of foundry molding sand and the general reduction of waste generated at the foundry and the machine shop.

Incentives to Change

Clow Valve Company (Clow) is dedicated to manufacturing a product with the least amount of adverse environmental impacts as possible. Both facilities at Clow currently dispose of waste that has reuse and/or recycling potential. By addressing these waste streams, Clow will be able to realize both monetary and environmental benefits.

Results

Four potential pollution prevention opportunities were identified and researched during the internship. These opportunities were: the in-process recycling of foundry molding sand, the treatment of hazardous arc-melt dust, the beneficial reuse of pallets, and the use of high efficiency lighting. These opportunities will result in a reduction of waste generated, a decreased demand for finite resources, and purchasing and disposal cost savings.

The Clow foundry uses a green molding sand system that produces a large amount of spent sand per year. With the purchase of a thermal sand reclamation system, the foundry could reduce the waste sand generated by up to 90%. The reclaimed sand would be reused in the original process resulting in a 90% decrease in sand purchasing. The results of this would be 12,500 tons of sand annually diverted from the landfill, where it is currently being used as beneficial cover, and sand purchasing reduced by 8,820 tons annually. The reduced purchasing and disposal costs would result in savings of \$280,000 dollars per year.

Through the process of melting iron for the foundry castings, the foundry's arc-melt furnaces generate 260 tons of hazardous dust per year. This dust is currently treated and disposed of by an outside contractor. If the hazardous dust were to be chemically treated as it leaves the furnaces, the resulting non-hazardous dust could be disposed of at the local landfill. This process would result in cost savings of \$50,000 annually and have a return on investment in approximately two years.

BUSINESS

The feasibility of a pallet recycling project was researched for the Clow machine shop, where it has been implemented, and recommended for the foundry. Currently, scrap pallets generated at both facilities are disposed of at the local landfill. A pallet refurbisher and mulch supplier has been contacted and is willing to take all the pallets generated. If implemented at both facilities, 377 tons of pallets would be diverted from the landfill each year. This would also reduce disposal costs by more than \$25,000 annually.



The possibility of using high efficiency Metal Halide lighting fixtures and lamps to replace the current mercury vapor lighting in certain areas of the machine shop was also investigated. The proposed Metal Halide lamps and constant wattage ballasts can produce twice the amount of lumens per watt as Mercury Vapor fixtures. In three of the areas being considered, a savings of 32,000kWh would result. The reduced utility and maintenance costs for the areas would save the machine shop \$3,800 annually.

Total of all opportunities from Clow Valve Company:

- ◆ 12,877 tons of waste diverted from the landfill per year
- ◆ 8,820 tons of natural resources saved per year
- ◆ 32,000 kWh of energy saved annually
- ◆ \$358,800 in savings per year

GOVERNMENT

BUSINESS

ACADEMIA