Holcim

CASE SUMMARY 11

HOLCIM (U.S.) INC.

Mason City, Iowa
Cerro Gordo County

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Major: Masters in Industrial Manufacturing and Systems Engineering
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The Company

Holcim is one of the world's leading suppliers of cement, as well as aggregates (gravel and sand), concrete and construction-related services. From its origins in Switzerland, the group has grown into a global player with strong market presence in more than 70 countries on all continents. Holcim employs close to 50,000 people.

Holcim (US) Inc., formerly Holnam Inc., is a wholly-owned subsidiary of Holcim Ltd. and is one of the largest suppliers of portland and blended cements and related mineral components in the United States. It has 14 plants and more than 70 distribution terminals across the country, 2,400 employees and generates revenues of $1.1billion. The company is headquartered in Dundee, Mich. The Mason City plant is a manufacturing facility and has approximately 170 employees.

Project Background

One of Holcim's environmental goals is to continuously seek ways to eliminate or reduce the consumption of natural resources and find ways to recycle or reuse materials. The internship was focused on reducing the energy costs in compressed air systems and some other pollution prevention opportunities.

Incentives to Change

- Environmental: The energy conservation project was aimed at reducing the consumption of electrical energy in the compressed air system and thereby conserving natural resources used for the generation of electricity.
- Economic: With increasing competition, it was essential for the company to cut expenses and at the same time ensure high production levels. Conserving energy in the compressed air system was one of many options.
- Waste Reduction: By undertaking various pollution prevention and energy efficiency projects, Holcim portrays a commitment towards waste reduction.

Results

Significant environmental benefits and cost savings can be achieved at Holcim Inc. Two main pollution prevention and waste reduction options were explored. The results, along with three smaller options, are discussed below:

Compressed Air Leaks

The cost of leaking compressed air is often considered insignificant. However, the following results show that appreciable energy savings can be realized by repairing the leaking air lines. Fixing the air leaks would result in an energy reduction of 1.2 million kWh/yr, leading to cost savings of $30,177 per year.

Compressed Air Lances

The plant uses compressed air lances to cool the outer shells of the kilns. Replacing the compressed air lances with fans would result in energy reduction of approximately 1.27 million kWh/yr, leading to a cost savings of $31,949 annually.

Grinding Aid Spillage Prevention

Preventing spillage of approximately 5,510 lbs/yr of grinding aid would result in raw material savings, labor costs savings, and absorbent costs savings of $2,757/yr. The prevention of grinding aid spillage also ensures compliance with spill regulations and ensures the safety of workers.

Spill Prevention, Control & Counter Measure Plan and Oil Drum Management

The United States Environmental Protection Agency (U.S. EPA) promulgated regulations that established procedures and required equipment to prevent the discharge of oil from non-transportation-related facilities into or upon the navigable waters of the United States. The Spill Prevention Control and Countermeasure (SPCC) plan has been prepared for petroleum and other liquid storage.

Preventive Maintenance of Bag Houses

Review of the Preventive Maintenance Schedule was carried out to ensure the proper operation and maintenance of air pollution control devices. The review was based on the plant's Operation and Maintenance Plan (O & M Plan), which is prepared in accordance with the National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.

Project Summary Table

Pollution Prevention Opportunity	Incentives	Raw Material Saved	Energy Reduction	Cost Savings	Status
Repair of compressed air leaks	Reduced energy consumption	—	1.2 million kWh/year	$30,177/year	Implementation in progress
Replacing compressed air lances by fans (kiln 2)	Reduced energy consumption	—	923,360 kWh/year	$23,080/year	Implementation in progress
Replacing compressed air lances by fans (kiln 3)	Reduced energy consumption	—	354,780 kWh/year	$8,869/year	Implementation in progress
Grinding aid spillage prevention	Safety and reduced spills	5,510 lbs/ year	—	$2,757/year	Implemented