General Electric

CASE SUMMARY 8

GE INDUSTRIAL SYSTEMS

West Burlington, Iowa
Des Moines County

Intern: Ori J. Sivan
Major: Civil/Environmental Engineering
School: University of Iowa

The Company

General Electric (GE) employs over 300,000 people making it one of the world's largest corporations. General Electric owns the popular network television station NBC as well as a variety of investment institutions. GE manufactures a wide range of products from electric generators, to small appliances, and even specialty plastics. The GE Burlington facility belongs to GE's Industrial Systems, which specialized in products that are used to distribute and control electrical power.

General Electric Switchgear Division in Burlington, Iowa, has been supplying that nation with their high quality switchgears since 1961. In simplest terms, switchgears act like a fuse box in a house; switchgears are used for commercial and industrial electrical distribution. GE switchgears play an integral role in the distribution of power at industrial facilities worldwide; Georgia-Pacific (paper mill) and Con Ed New York (power plant) are just two examples of GE Burlington's domestic customers.

Project Background

In the manufacturing of switchgears many components must be plated or coated. These processes contribute an excessive amount of heavy metals into the waste stream. In addition to the heavy metals such as zinc, silver, and tin, the waste management system must handle toxins such as lead, hexavalent chromium , and cyanide, which are all dangerous and expensive to deal with.

Incentives to Change

The high cost of treating and disposing of heavy metals, as well as the risk of exceeding permitted levels of metals in the wastewater leaving the plant, led GE Burlington to seek a pollution prevention intern. In addition to the hazardous waste issues, GE Burlington was long overdue for a conventional solid waste audit. This audit allowed GE Burlington to assess the efficiency of its current solid waste management program (cardboard, and office paper recycling) as well as identify new possibilities (steel, plastic, and fiber barrel recycling).

Results

The recommendations offered by the pollution prevention intern show that economics and environment needs not be contradictory goals. Opportunities identified will allow GE to defer up to 10,500 gallons of hazardous waste from disposal facilities. The implementation of these opportunities will bring about cost savings totaling $70,000. The removal of lead and hexavalent chromium from the production process is an important decision that will affect GE's ability to remain competitive in an increasingly environmentally conscious market.

P2 opportunity	Waste Reduced	Incentives	Cost savings	Status
Lead/chrome 6 replacement in E-Cost and Zinc Line	2,145 gallons of hazardous waste	The true incentive is removing the marketing fallout that exists using lead/chrome-6.	Wastes: $5,000 Marketing advantage: $20 million	Recommended, not implemented
Cyanide-silver destruction	4,020 gallons of hazardous waste	Aside from the averted cost of disposal, the recovered silver can be sold	$45,000 in combined savings and sale of recovered silver	Silver system implemented. Cyanide system will be implemented.
Silver reclamation (Vipo)	990 gallons of hazardous waste	Silver is a valuable commodity that is easily recoverable. Reduces high silver content in water.	$5,830 in combined savings and sale of recovered silver	Implemented
Compactor	3,550 gallons of hazardous waste	Hazardous material is hauled off site by the barrel. By compacting, GE reduces volume sent to dump site.	$11,500 savings from reduced payments to waste disposal company	Recommended, not implemented
Electronic flow meter	N/A	Reduce variability for future water conservation programs	N/A	Recommended, not implemented
Parts washer replacement	N/A	As of now, four systems are serviced by Safe-T-Kleen at high cost. New parts washer reduces wastes through on-site recycling (microorganisms).	$6,000 in savings from reduced maintenance costs	Recommended. Trial period to begin shortly.
Solid Waste Projects				
General recycling	70 tons of paper recycled per year	Different recyclers offer different services. GE can compare the services to determine the most beneficial.	$2,400 in savings from switching recycling services	Implemented
Barrel recycling	More than 1,500 barrels — steel, plastic and fiber	Barrels are a major manufacturing by-product. They are either compacted and landfilled, or hauled by Safe-T-Kleen at a high cost.	More than $5,000 in savings from steel barrels removed from waste removal service	Implemented
Spool recycling	1,400 spools annually	Spools are made of wood and fiber (cardboard) and had been landfilled prior to the project. A relationship forged with a local composter has allowed for GE to divert the waste from the landfill.	N/A	Implemented