Case Study: Ford Motor Company/Twin Cities Plant

DfE

ISO 14001 Environmental Management System (EMS) Benefits

Manufacturers are expanding their management systems beyond the quality focus of ISO 9000 to include environmental performance by becoming ISO 14001 certified. The Ford Motor Company-Twin Cities Assembly Plant is one of the first Minnesota manufacturing facilities to implement this type of expansion. In this case study, learn how the ISO 14001 environmental management system (EMS) has enabled the facility to achieve a number of significant benefits

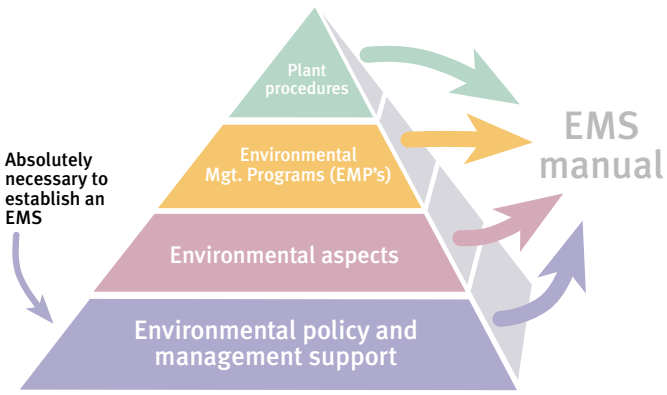
Background

The Ford Motor Company-Twin Cities Assembly Plant (TCAP) has 2,000 employees who produce approximately 160,000 Ranger trucks per year. The 2.2 million square foot plant, constructed in 1925, has the unique capability of producing its own electricity through an onsite hydroelectric power generator.

When the ISO 14001 Standard was released in 1996, Ford headquarters immediately recognized the benefits of improved environmental performance and required all of the company's plants to establish the standardized ISO 14001 environmental management system (EMS). The implementation was so successful that Ford now requires its suppliers to certify their own facilities. TCAP was initially certified in March 1998.

How it works

The ISO 14001 EMS at Ford is based upon a foundation of an environmental policy and management commitment. An integral part of the system is identifying environmental "aspects." Aspects are elements of a plant's activities, products or services that can positively or negatively interact with the environment. Trained Ford employees identify these environmental aspects and then rank them based upon the plant's activities, products or services being; subject to regulation, addressed in the company business plan, or subject to high environmental load charges.



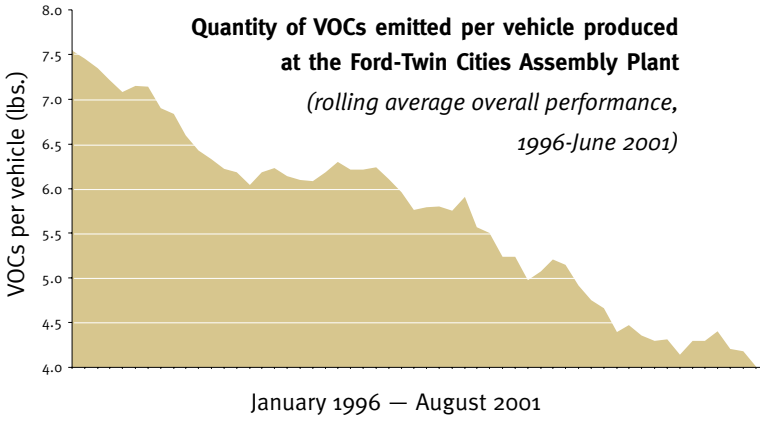
The ISO 14001 EMS system at the Twin Cities Ford Motor Company plant is based upon environmental policy and management support.

Ford's Environmental Management Program (EMP)

Aspects that employees rank as significant are included in a summary plan to manage, improve, or control these environmental concerns. Specific company procedures are then created or modified to meet the goals of the plan, called the Environmental Management Program.

Continual improvement

To meet the continual improvement requirement of ISO 14001, employees regularly look at new ways to be more efficient and to identify opportunities to reduce waste at the plant. The EMS has empowered employees to become active participants in identifying and implementing improvements. These Environmental Management Programs (EMP) have yielded significant cost and environmental savings. The plant has also established new relationships with suppliers and the local utility, and supports an overall corporate citizenship with the community.



Benefits of an ISO 14001 EMS

Under the EMS, a group of ISO 9000 and 14001 trained employees at Ford formed a Cross Functional (or Core) Team to meet regularly. In addition to addressing quality issues, they identify objectives and targets, or ways to minimize environmental impact. Many benefits have occurred since implementing the ISO 14001 Certified EMS:

- Previously a change in paint color required cleaning painting equipment with solvents prior to use of the new color. Now, a paint block is assigned only one color for a substantial reduction in solvent and paint waste. In addition, Ford installed meters on the cleaning solvent transfer pumps used to clean paint from application equipment, established a daily review of solvent usage, improved transfer efficiency in the paint application, and now uses reformulated paint that contains less VOCs.

  Since 1996, there has been a 49 percent reduction in solvent usage and a 45 percent reduction in volatile organic compound emissions (VOC lb./unit). As a result of these reductions, the company has saved approximately $129,000 annually.

- At TCAP's wastewater pretreatment plant, measurements were taken to optimize batch treatment dosing, a work practice was revised, and employees were retrained. The result is an overall reduction in chemical usage and waste filter press sludge production.

  Wastewater pretreatment plant improvements have resulted in a 33 percent reduction in hydrogen sulfate, a 9 percent reduction in sodium hydroxide, and an 8 percent reduction in iron chlorate use. An 18 percent reduction in filter press sludge waste was also achieved. As a result of these reductions, the company has saved $60,000 in costs as well as $32,000 in waste management.

- A partnership was developed between the local power company and the Ford hydroelectric plant. An automated control system was installed and the power distribution system and water gate mechanics were all upgraded to improve the electrical production of the hydroelectric plant.

  Since 2001, the facility's hydroelectric power plant has increased its electrical output by approximately 17 percent, with no increase in waste. Ford estimates that it saves $750,000 annually in costs as a result of this improvement.

Consistency

One of the significant benefits the EMS brought to Ford's Twin City facility is a consistent approach to environmental issues, regulatory compliance, and pollution prevention. For example, information is readily available and easily tracked during routine compliance inspections. Because the Environmental Management System is common to all Ford facilities, it also creates accountability and consistency within the corporation.