

March 1998  
Number 55*Governor's Pollution Prevention Award, 1997 Recipient***Ford Motor Company,  
Ohio Assembly Plant**

*Ford is being  
recognized for:*

- ◆ *using water-based or low volatile organic compound solvents and reducing solvent use from 4000 pounds per week to less than 100 pound per week,*
- ◆ *Cleaning and recycling drums and residual material, reusing 2600 drums,*
- ◆ *improved use of materials with approaching expiration dates to reduce cost of disposal, and*
- ◆ *reusing shipping containers and increasing recycling of cardboard and wood, saving more than \$225,000 in 1996.*

The Governor's Awards for Outstanding Achievement in Pollution Prevention have been presented since 1986. Ford Motor Company's Ohio Assembly Plant was one of seven recipients to receive the Award in 1997. These awards recognize outstanding commitments to improve Ohio's environment through pollution prevention. Evaluation criteria for the awards include: the reduction of waste at the source, recycling or recovery of materials, cost-effectiveness, ability of the program to serve as a model for others, and effectiveness in promoting pollution prevention as the preferred long-term approach.

**Ford Motor Company**

Ford Motor Company's Ohio Assembly Plant in Avon Lake, Ohio (Ohio Assembly Plant) performs body, paint, and pre-trim operations for the Mercury Villager and Nissan Quest mini-vans and the Econoline van. The plant produced approximately 310,000 vehicles in 1996 and employs some 3400 Ohioans.

**Pollution Prevention Activities**

Responding to the Ohio Prevention First Initiative, Ford pledged to reduce off-site waste shipments by seven percent from their 1993 levels by the year 2000. The Ohio Assembly Plant has already achieved these goals including elimination of the use of ozone-depleting substances several years ahead of government mandates. In 1994, the Ohio Assembly Plant established a formal waste minimization and pollution prevention team as part of Ford's overall pollution prevention efforts. The team's implemented measurement systems, surveys and benchmarks which monitored reduction goals and helped improve environmental performance. In 1996 alone, the Ohio Assembly Plant reduced waste by 16 percent.



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## **Total Fluids Management**

Fluids represented the Ohio Assembly Plant's largest waste stream. Ford initiated many efforts to improve fluid management. Hose cleaning now uses solvents low in volatile organic compounds. Cleaning processes collect more overspray to recycle. Maintenance chemicals, including cleaners and strippers were replaced with water based alternatives. An inventory tracking system was developed for water treatment chemicals. Ford conducted a trial program to dry sludge for recycling.

## **Solid Waste Management**

Ford consolidated disposal operations with a single vendor. Contract terms provided incentives for the vendor to work with Ford to minimize waste. The profitability of the contract was a function of the waste generated per vehicle. The less the waste per vehicle, the greater the profit to the vendor. The vendor provided an on-site person three days per week to support waste minimization activities.

## **Empty Drum Management**

Drums, used throughout assembly, were disposed of in landfills with residue still in them. Drums are now cleaned using innovative cryogenic equipment. The residue is reused on-site. Drums are melted at Ford's Cleveland Casting plant for use in engine blocks.

## **Expired Materials Project**

Disposal of expired materials could cost the Ohio Assembly Plant up to \$10,000 per month. An inventory tracking system was implemented to ensure use of materials approaching the end of their shelf life. In addition, suppliers were contacted about the possibility of extending the product's shelf life.

## **Expanded Purge Solvent Recovery System**

In 1996, the Ohio Assembly Plant expanded its purge solvent recovery system for the paint shop. This reduced solvent use through simultaneous color blocking techniques which reduced the purges required and the solvent used. A vendor installed solvent savers and cleanup nozzles in paint shops to further reduce solvent use.

## **Ford's Greening Program**

This program expanded the use of returnable containers and improved Ford's efforts to recycle cardboard and wood from containers. The Ohio Assembly Plant is designated as a Ford pilot site to accelerate the use of returnable packaging. Additional balers and compactors were purchased for recycling. A revenue sharing project further reduced the cost of off-site disposal and led to a 12% increase in the amount of waste recycled in 1996 compared to 1993.

## **Other Pollution Prevention Efforts**

Fluorescent bulbs, a small but environmentally important waste stream, are now recycled. Spent batteries are also recycled. Ford also began testing mechanical filters as a replacement for sock filters in phosphate wash tanks.

## **Environmental Benefits**

Ford's partnerships with suppliers and vendors represent a dramatic transition in the waste disposal business. The solid waste service vendor earns more money, not by disposing of more waste, but by helping Ford reduce waste. Ford has demonstrated how to purchasing services that actually solve a problem instead of simply paying to get rid of a problem.

As a result of the fluids management efforts, solvent use dropped from 4000 pounds per week in 1992 to less than 100 pounds in 1996. Sludge drying allowed 359 tons of sludge to be used by concrete companies.

Because of new drum management procedures, all drums were reclaimed or recycled in 1996.

The expired materials project eliminated waste from materials left unused past their expiration date.

Expansion of the purge solvent recovery system and the installation of solvent savers and cleanup

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nozzles is expected to reduce solvent use by 20-30%.

Reuse of shipping containers eliminated them as source of waste. Cardboard recycling increased from 25% in 1993 to 37% in 1996.

Fluorescent bulb recycling reduced the risk of mercury releases. The use of mechanical filters for phosphate eliminated 200 cubic yards of nonhazardous waste in the form of sock type filters. Battery recycling eliminates risks of chemical releases and liability.

## Economic Benefits

Fluids management realized savings of \$100,000 in the first year. The inventory tracking system has reduced compliance costs by providing ready access to chemical information on site.

As part of the unique solid waste reduction arrangement, economic benefits are shared with vendors.

Drum management saved over \$47,000 in cleaning costs and recycled over 2600 drums in 1996.

Eliminating waste due to expired materials saves an estimated \$120,000 annually.

Reductions in solvent use have led to savings in solvent purchases and reduced waste disposal costs.

Ford's Greening Program generated savings of approximately \$25 per ton whenever containers are reused and waste is reduced. Total savings exceeded \$225,000 for 1996.

Replacing sock filters in the phosphate wash tanks saved approximately \$7000.

## Health and Safety Benefits

Fluid management, drum management, and purge solvent recovery decreased worker exposure to potentially hazardous substances during production and disposal. Reduction in solid waste disposal decreased occupational risks in packaging and transportation activities.

## Management Commitment

Ford incorporates reduction goals and pollution prevention activities in business plans and daily endeavors. Employees are trained in environmental improvement. Ford performs assessments of the environmental impact of major programs and devotes resources to research process changes and environmental projects. Ford also provides incentives for suppliers and contractors to reduce waste. Ford is pursuing a goal to achieve ISO 14001 certification for all Ford facilities by May 1998. ISO 14001 certification means that a

facility's attention to environmental compliance and impact meets criteria established in an international agreement. Ford participates in the American Automobile Manufacturers Association Auto Project to reduce the generation and release of 65 persistent toxic substances that harm water quality in the Great Lakes. Ford has reduced releases of these substances by 22% since 1991.

## Transferability

Ohio Assembly Plant shared its pollution prevention activities at the Northeast Ohio Chapter of the Air and Water Management Association and a Lorain County Solid Waste Management District Seminar. Partnerships with vendors can serve as models demonstrating the use of economic incentives to help achieve pollution prevention goals.

## For More Information

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This is one in a series of documents Ohio EPA has prepared on pollution prevention. For more information, call the Office of Pollution Prevention at (614) 644-3469.

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*The Office of Pollution Prevention was created to encourage multi-media pollution prevention activities in Ohio to reduce risk to public health, safety, welfare and the environment. Pollution prevention stresses source reduction and, secondarily, environmentally sound recycling while avoiding cross media transfers. The Office analyzes, develops, and publicizes information related to pollution prevention and increases awareness of pollution prevention opportunities via education, outreach, and technical assistance programs for business, government, and the public.*

Office of Pollution Prevention WWW address: [www.epa.state.oh.us/opp](http://www.epa.state.oh.us/opp)