United States
Environmental Protection
Agency

Office of Pollution
Prevention and Toxics
Washington, DC 20460

June 1992

EPA

Pollution Prevention News

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To be added to our mailing list, please write:

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New Form R Issued

A new reporting form (Form R) for the Toxics Release Inventory (TRI) has been approved by the Office of Management and Budget and is being mailed to facilities that have previously reported under Section 313 of the Emergency Planning and Community Right-to-Know Act. The new form includes reporting elements required by the Pollution Prevention Act as well as other changes. Eleven chemicals have been delisted, while another seven chemicals (all CFCs/halons) have been added to the toxic chemical list for 1991.

Because of delays in finalizing the new form, EPA will not bring enforcement action for late submission of the new form against facilities that file accurate and complete Form R reports for 1991 before September 1, 1992. Facilities should use the new form and discontinue reporting on previous versions in order to ensure that the data collected are consistent.

The new form requires reporting of source reduction and recycling activities related to the toxic chemicals for which releases are being reported. Facilities are required to provide current and prior year data, and estimates for the next two years, for the quantity of each chemical released, the quantity used for energy recovery on or off-site, and the quantity recycled on or off-site, and the quantity treated on or off-site, as well as current year data on the quantity released to the environment in a one-time event.

The form asks facilities to identify source reduction activities, which can include a variety of actions in the categories of good operating practices, inventory control, spill and leak prevention, raw material modifications, process modifications, cleaning and degreasing, surface preparation and finishing, and product modifications. The form also asks how such activities were identified. When the data are compiled next spring, the new Form R should provide the first nation-wide summary of pollution prevention activities in industrial facilities.

The toll-free EPCRA Information Hotline can be reached at 1-800-535-0202.

TRI Shows Further Reductions

Industrial releases drop 11 percent from 1989 to 1990

Industrial releases of toxic chemicals declined by 600 million pounds, or 11 percent, from 1989 to 1990, according to initial results of the 1990 Toxics Release Inventory (TRI). EPA Administrator William Reilly said, "I continue to be encouraged by the downward trend in TRI data." TRI reports covering the 1990 calendar year were submitting by 23,648 industrial facilities, which released a total of 4.8 billion pounds of toxic chemicals, including 2.2 billion pounds released directly into the air (down 14 percent from 1989), 440 million pounds released to land (down 3 percent from 1989), and 197 million pounds released into surface water (up 2 percent from 1989).

The top five industrial manufacturing categories for total release were: chemical manufacturing (1.6 billion pounds), primary

(Continued on page 8)

National News

Prevention Takes Off at New Denver International Airport

Dave Duster, EPA Region 8
Jill Piatt, New Denver Airport Office

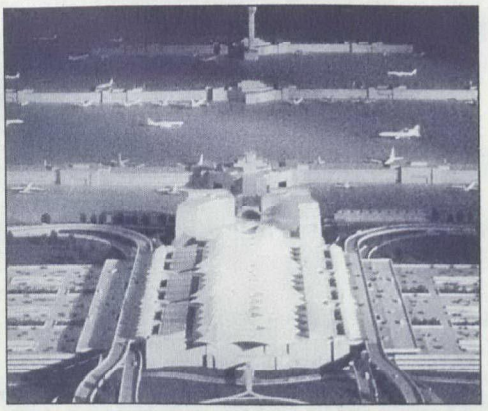
The new $2.7 billion Denver International Airport (DIA) will not only be the largest airport in the country, but also the first such facility to incorporate pollution prevention measures into its design and construction. With a commitment by the City of Denver to build the airport in a manner that preserves air, water, and groundwater resources, EPA has loaned a full-time staff person and Agency resources to provide regulatory and technical assistance to the city's New Airport Office. What follows is a brief rundown of the prevention measures included in the airport's design.

The most significant waste generated at any airport is stormwater runoff of chemical de-icing agents. Ethyleneglycol, commonly known as "antifreeze" is the most common de-icing agent and presents a sewage disposal cost of approximately $500 per ton. At the new airport, the City will be installing a glycol recycling system which will include centralized de-icing pads. The pads will contain all glycol-contaminated runoff in a centralized area and also should help minimize the time required to de-ice prior to takeoff. The City hopes to recycle as much as 95 percent of the glycol-contaminated storm water.

Air emissions from the central heating and cooling plant will be reduced through source reduction and recycling. Boilers will be equipped with low NOx burners combined with flue recirculation, resulting in an 84% reduction in NOx emissions over conventional systems. To reduce the volatile organic compounds (VOCs) associated with fueling operations, above ground fuel storage tanks with a capacity of 5,000 barrels will incorporate floating roofs into their design. The tanks will also be equipped with Phase II vapor recovery. These measures will cut VOC emissions 95 percent.

To prevent air pollution buildup, several design features are planned for the DIA parking structure and roadways. The parking area will be separated into three distinct, free-standing structures with breaks between the structures and the terminal building to allow for natural ventilation. Road access to the terminal will be constructed in a stepped manner to eliminate stacking of roadways and the potential for trapping carbon monoxide.

Energy conservation features of the new airport include the use of natural gas driven chillers for cooling in order to reduce peak energy demands during the summer months. During the winter, the terminal and concourses will use outside air for cooling. Variable air volume ventilation systems will be installed in perimeter areas, to supply only the heat or air-conditioning that is necessary. Other features include high efficiency motors, double pane low "E" glass, a teflon-coated fiberglass roof that allows natural lighting in the terminal atrium. Where additional lighting is insufficient, high efficiency compact fluorescent lighting will be used.



Scale model of new airport.

The landscape plan for DIA encourages water conservation by using varieties selected for their hardiness, drought tolerance and natural appearance. Beginning in 1999, the Denver Water Department will provide reclaimed water for landscape irrigation. Also to conserve water, new low volume water-conserving public toilets will be installed, for a projected savings of 60 million gallons of water annually.

For more information on DIA's environmental design, contact the authors at 303-270-1992.

Cooler Communities

On April 22, Tucson, Arizona became the first community to sign up for the new, voluntary Cool Communities Program jointly sponsored by EPA, the Department of Energy, the Forest Service, and American Forests, a non-profit group formerly known as the American Forestry Association. The program is designed to encourage the planting of trees to shade buildings and the use of light colors to reflect sunlight. These actions will help reduce the "urban heat island effect," which can raise the temperatures of many cities 2° to 8° F higher than their rural surroundings. Urban heat islands result in increased use of electricity for air conditioning and higher smog levels.

DOE research has shown that planting trees and shrubs next to buildings can reduce summer air conditioning costs by 15 to 35 percent. Using light surface colors has the potential for even greater energy savings. In March, EPA, DOE, and the Electric Power Research Institute published a guidebook, "Cooling Our Communities," which describes the benefits of these measures and explains how they can be implemented. Under a grant from EPA, American Forests will work with up to seven communities to implement these measures. In addition to Tucson, four other communities have already signed on: Frederick, Maryland, Austin, Texas, Tulsa, Oklahoma, and Dade County, Florida.

Once the model program is in place about a year from now, American Forests will begin working with other municipalities to expand the program.

For more information, contact Joel Smith, EPA, 202-260-9655 or Anne Semrau, American Forests, 202-667-3300.

Federal Agency News

Recycling/Procurement Council Established

A Council on Federal Recycling and Procurement Policy has been set up, as required under Executive Order #12780 signed last October, chaired by Gail Miller Wray, the Federal Recycling Coordinator. The Council will play a role in encouraging and guiding participation in waste reduction, recycling, and affirmative procurement programs in federal agencies.

As required by the Executive Order, federal agencies are in the process of submitting status reports on their affirmative procurement program plans to EPA. At a minimum, the plans cover procurement of products for which EPA has issued procurement guidelines under RCRA section 6002(i).

The Executive Order required each federal agency to designate a Recycling Coordinator, responsible for coordinating agency activities on waste reduction and recycling and for reporting on affirmative procurement programs to EPA. Coordinators named to date are listed at right. The Council can be reached at 202-260-6980.

Agriculture:
Marilyn Wagner, 202-720-2582

CIA: Jerome Weinfield, 703-281-8200

Commerce: Sonya Stewart, 202-377-4299

Consumer Product Safety Commission:
Marc Bloom, 202-504-0667

Defense: Elsie Munsell, 703-602-2048

Education:
Victor Ayala, Jr., 202-401-0781

Energy: Kent Hancock, 301-903-7418

EPA: Michael O'Reilly, 202-260-4928

EEO: Charlotte Powell, 202-663-4275

Executive Office of the President:
Hugh Campbell, 202-395-2335

FBI: William O'Hanlon, 202-324-2875

FCC: Delores Wise, 202-634-1522

FEMA: Gerald Johnson, 202-646-2643

Forest Service:
Paige Ballard, 703-235-3323

FTC: Sherry Greulich, 202-326-2271

GSA: John Stanberry, 202-208-7929

Health & Human Services:
Raffie Shahrigian, 202-619-1755

HUD: Elaine Robinson, 202-708-1955

Interior: Jonathan Deason, 202-208-3891

Justice: Steven Colgate, 202-514-5501

Labor: Janice Sawyer, 202-523-6415

NASA: Billie McGarvey, 202-453-1965

National Science Foundation:
Jack Kirsch, 202-357-9884

National Security Agency:
James Devine, 410-684-7357

Nuclear Regulatory Commission:
John Corley, 202-492-4984

Personnel Management:
Patricia Lattimore, 202-606-2000

Postal Service:
c/o Beth Shriver, 202-268-5595

State: Charles Respass, 202-647-1638

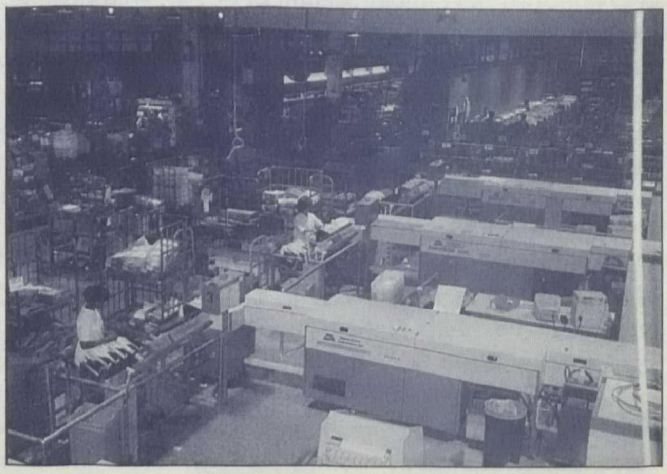
TVA: Paul Schmierbach, 615-632-6578

Transportation:
Ronald Keefer, 202-366-4246

Treasury: Bill McGovern, 202-377-9165

Joint EPA/Postal Service Project

EPA and the U.S. Postal Service have agreed to conduct a joint pilot project to assess pollution prevention initiatives that would be applicable to the Postal Service and other facilities nationwide. The assessment will be done at the Western New York General Mail and Vehicle Maintenance facilities located in Buffalo, NY. The Postal Service currently has the nation's largest recycling program in place; this year, about 600 million tons of wastepaper, plastics, wooden pallets, aluminum cans, and other materials are expected to be recycled at 40,000 postal facilities across the country. The new study will look at ways to reduce some of the 600 million tons of waste at the source. Contacts: Herman Phillips, EPA, 212-264-2515; Mike Fanning, USPS, 202-268-3364.



Postal Service facility in Buffalo.

Symposium: Heavy Metal

EPA Region 1 and EPA Headquarters are cosponsoring a symposium on source reduction for solid waste heavy metals, focusing on a select number of consumer products that contain lead, mercury, and cadmium. In concert with the 33/50 program, the conference will result in a challenge to industry to source reduce these metals. Sept. 29-Oct. 1, Providence, RI. *If you are interested in attending, contact Cynthia Greene, 617-223-5531.*

Symposium: Budapest

EPA, DOE the Hungarian Ministry of Environment, and other organizations are sponsoring a symposium on environmental contamination in Central and Eastern Europe with an emphasis on technology transfer. Oct. 12-16, Budapest, Hungary. *For more information, contact Roy Herndon, 904-644-5524.*

EPA Reports

Total Cost Assessment Helps Calculate Prevention Benefits

A study prepared for EPA's Pollution Prevention Division by the Tellus Institute attempts to answer the question, "Why do so few firms appear to find it cost-effective to adopt a prevention strategy if, in fact, pollution prevention pays?"

One answer has to do with how conventional project investment analysis techniques may bias investment decisions away from prevention-oriented decisions. To illustrate the problem and explore a potential solution, the study uses the approach of total cost assessment (TCA) to provide a comprehensive, long-term financial analysis of two pollution prevention projects in the pulp and paper sector.

In a compliance context, a mill's choice between an end-of-pipe or a prevention strategy will depend heavily on the comparative economics of the options. Unlike most end-of-pipe technologies, pollution prevention projects tend to reduce operating costs by reducing waste generation, regulatory activities, and pollution related liabilities. Investments in pollution prevention may even increase revenue by improving product or corporate image. Including these indirect or less tangible savings in the financial analysis of projects can level the playing field between control and prevention in making investment decisions.

Two Cases Studied

To assess how TCA operates in practice, the researchers examined two pollution prevention projects: a white water and fiber reuse project at a coated fine paper mill, and a conversion from solvent/heavy metal paper coating to aqueous/heavy metal-free coating at a paper coating mill. The researchers compared a typical "company analysis," which contains costs typically accounted for by the firms, with a "TCA analysis" of the same project, in which a full accounting was made of less tangible, longer term, and indirect costs and savings. In both studies, the TCA approach showed markedly different results, in terms of estimating net present value of the project, the internal rate of return on investment, and the simple payback for the capital expenditure. For each financial measure, the TCA approach makes the pollution prevention project a far better investment than conventional financial analysis would indicate.

While the limited sample of two projects is not definitive, and in some cases the expense of preparing the TCA analysis itself may be prohibitive, TCA may still serve as a valuable tool for translating discretionary judgments into concrete dollar values during the capital budgeting process.

EPA is already working actively to promote TCA, incorporating the approach into its newly released *Facility Pollution Prevention Guide*.

In addition, EPA's Pollution Prevention Division staff is working with representatives of the Association for Standards, Testing and Materials (ASTM), a private-sector organization that develops guidance documents and industrial standards, to incorporate Total Cost Assessment principles into a pollution prevention guidance manual.

For a copy of the report, *Total Cost Assessment: Accelerating Industrial Pollution Prevention through Innovative Project Financial Analysis*, contact the Pollution Prevention Information Clearinghouse, 703-821-4800.

Carpets Dialogue Yields Voluntary Agreements

Carpets may be in the process of becoming healthier, thanks to a combined effort of government, industry, public interest groups, labor, and other interested parties. The genesis of the Carpet Policy Dialogue illustrates successful cooperation of all of these groups in a common project.

In early 1990, employees of the National Federation of Federal Employees petitioned EPA under Section 21 of the Toxic Substances Control Act, claiming that emissions of Total Volatile Organic Compounds (TVOCs) from carpets are dangerous to employees' health. EPA denied the petition on the basis of insufficient data, but agreed that it was desirable to reduce exposure to TVOCs. In order to determine the nature of the risks and increase awareness, it was decided to invite other groups to participate in setting standards.

The Dialogue formed three technical subgroups: product testing, process engineering, and public communications. The groups met for one year and agreed on various voluntary steps that would be taken by government and industry to reduce the public's exposure to TVOC emissions and exercise industry-wide responsible product care. Among the voluntary actions agreed to are the following:

- Development and peer review of a standardized small chamber test method to scientifically measure carpet and related emissions; the method has been submitted to the ASTM as the basis for a new standard method.
- The Carpet and Rug Institute voluntarily agreed to conduct a major industry study to define TVOC emission decay characteristics.
- The Carpet Cushion Council will conduct a testing program which will report a profile of TVOC emissions from new carpet cushion; task forces will investigate reduction of TVOC emissions in manufacturing.
- The Floor Covering Adhesive Manufacturers Committee committed to a voluntary testing program that will provide a baseline of comparative TVOC emissions information for floor covering adhesives and sealers.
- The General Services Administration will develop requirements to make low-VOC carpeting available for Government offices.

For copies of the Compendium Report of the Dialogue or for more information, contact Richard W. Leukroth Jr., 202-260-1832.

Pollution Prevention: EPA Statement of Definition

Pursuant to the Pollution Prevention Act of 1990 and the Pollution Prevention Strategy

Under the Pollution Prevention Act of 1990, Congress established a national policy that:

- Pollution should be prevented or reduced at the source whenever feasible;
- Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible;
- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and
- Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Pollution prevention means "source reduction," as defined under the Pollution Prevention Act, and other practices that reduce or eliminate the creation of pollutants through:

- increased efficiency in the use of raw materials, energy, water, or other resources, or
- protection of natural resources by conservation.

The Pollution Prevention Act defines "source reduction" to mean any practice which:

- reduces the amount of any hazardous substance, pollutant or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and
- reduces the hazards to public health and the environment associated with the release of such substances, pollutants or contaminants.

The term includes: equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

Under the Pollution Prevention Act, recycling, energy recovery, treatment, and disposal are not included within the definition of pollution prevention. Some practices commonly described as "in-process recycling" may qualify as pollution prevention. Recycling that is conducted in an environmentally sound manner shares many of the advantages of prevention — it can reduce the need for treatment or disposal, and conserve energy and recources.

Pollution prevention approaches can be applied to all pollution-generating activity: energy, agriculture, federal, consumer, as well as industrial sectors. The impairment of wetlands, ground water sources, and other critical resources constitutes pollution, and prevention practices may be essential for preserving these resources. These practices may include conservation techniques and changes in management practices to prevent harm to sensitive ecosystems. Pollution prevention does not include practices that create new risk for concern.

In the agricultural sector, pollution prevention approaches include:

- reducing the use of water and chemical inputs;
- adoption of less environmentally harmful pesticides or cultivation of crop strains with natural resistance to pests; and
- protection of sensitive areas.

In the energy sector, pollution prevention can reduce environmental damages from extraction, processing, transport and combustion of fuels.

- increasing efficiency in energy use;
- substituting environmentally benign fuel sources; and
- design changes that reduce the demand for energy.

Facility Pollution Prevention Guide Published

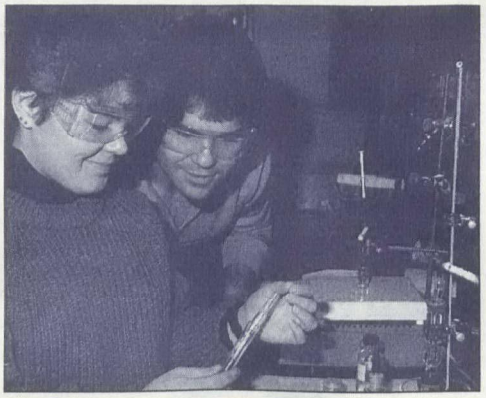
EPA's new *Facility Pollution Prevention Guide*, a successor to the 1988 *Waste Minimization Opportunity Assessment Manual*, is available to help small and medium sized production firms develop broad-based multimedia pollution prevention programs. Worksheets and other information are included to help facilities identify, assess, and implement opportunities for preventing pollution, including methods of controlling waste creation during the production process, as well as product design and redesign. Developed by EPA's Pollution Prevention Research Branch (ORD/RREL) and Office of Solid Waste, the Guide (Doc. No. EPA/600/R-92/088) can be ordered by mail from the EPA Center for Environmental Research Information Publications Unit, 26 W. Martin Luther King Drive, Cincinnati, OH 45268, or by telephone: 513-569-7562 or fax: 513-569-7566.

Research

Microscale Chemistry: Waste Reduction at the Source

An exciting innovation in educational laboratories is happening on a remarkably small level. Based on the idea, "Why use more than you need?" microscale chemistry is making headway in instructional laboratories in over 700 colleges and universities affecting 60,000 students per year in the United States.

First developed at Merrimack College in Massachusetts and Bowdoin College in Maine a decade ago, microscale chemistry began as an effort to improve the air quality in the instructional laboratory. While modern laboratories were able to perform chemical analyses with from 5 to 50 milligrams of material, students had been typically using 100 or even 1000 times that amount in their experiments. Microscale chemistry involves the use of 25-150 milligrams of starting material, with consequent reduction in the amount of solvents used and waste material generated. Reduction of scale by this factor results in a more healthful laboratory environment, better air quality, reduced risk of explosion or fire, shortened reaction time for experiments, reduced costs, and elimination of the production of toxic waste at the source.



Carol Strong and Mark Johnston perform a microscale organic lab experiment.

In one typical experiment, the Grignard reaction, the volume of ether required by a section of 20 students fell from 5000mL to 50 mL. The time required to perform the experiment also fell from 5.5 to 3.0 hours and the cost of the experiment dropped by a factor of 100. Recycling of the small amount of ether, rather than disposal, became a viable option.

Techniques and glassware have now been developed to allow students to manipulate the small quantities of chemicals involved in microscale experiments. The standard organic chemistry kits have had to be totally redesigned, including a new method of joining glassware components together without need of lubricant. New characterization and analysis methods were developed (ultra-micro boiling points, preparative gas chromatography, etc.) to allow for the same measurements at the smaller scale. Microscale chemistry textbooks are also available.

Clearly the wave of the future, microscale chemistry has begun to be implemented around the world, with microscale programs in operation in Canada, Mexico, France, England, China, and South Africa. Current work involves extending the technique to the high school level, and investigating industrial, governmental, and military collaborations.

— Dr. Ronald M. Pike, Dr. Zvi Szafran, Dr. Mono M. Singh, Dept. of Chemistry, Merrimack College, North Andover, MA; Dr. Dana W. Mayo, Bowdoin College, Brunswick, ME

DOE Grants Available

The Department of Energy is soliciting innovative ideas for eliminating, reducing or utilizing gas, liquid or solid waste streams. Innovators whose concepts are selected will receive $15-$20,000 to conduct a preliminary study, and will have their work presented to potential investors and collaborators at the Waste Stream Minimization/ Utilization Technology Fair to be held in May 1993 in Austin, Texas.

The fair is part of DOE's Innovative Concepts Program, which encourages creative approaches for saving energy, cutting costs, and preserving the environment, and helps identify potential users or developers. This is the second fair based on this theme. The first was held in April 1991 in Washington, D.C. where 15 projects were presented; seven projects were linked with sponsors and received follow-on funding ranging from $50,000 to $300,000.

Applications for participation in the 1993 fair are available from Raymond L. Watts, K6-54, Pacific Northwest Laboratory, P.O. Box 999, Richland, WA 99352.

Cellulose to Ethanol

A North Carolina State University professor, Dr. Irving S. Goldstein, has developed an economically feasible process for converting the cellulose content of wood and paper in municipal solid waste into ethanol, an important alternative fuel. Environmental benefits include decreasing the amount of waste entering landfills, while simultaneously producing a cleaner substitute fuel for gasoline.

In the new process, concentrated hydrocholoric acid is used to break down cellulose into its simple-sugar constituents in only about 10-15 minutes. Because of the speed with which complete breakdown (hydrolysis) is achieved, a continuous process can be used, rather than batch processing. After hydrolysis, Goldstein uses electrodialysis to recover concentrated HCl from the sugar solution for reuse. "Ethanol has many other uses besides motor fuel," Goldstein notes. "Cellulose-to-ethanol conversion also could lead to the production, from renewable resources, of chemicals and polymers that are vital to our industrial society." For more information, contact NC State Univ. Information Services, 919-515-3470.

In the States: Ohio

Ohio Environmental Programs Help Companies Stay Competitive

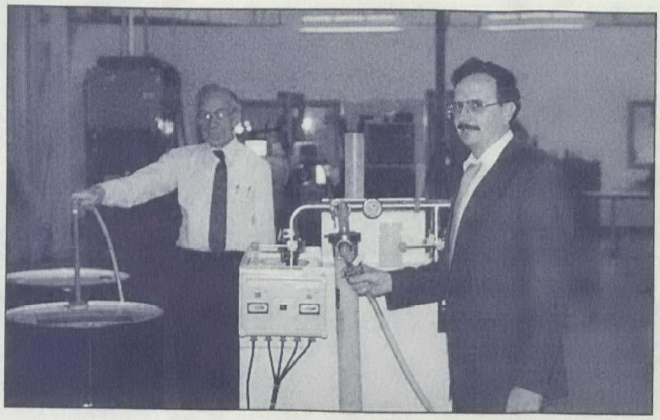
"We're a mid-sized plater.... No, we used to be a mid-sized plater. Now we are small. Everyone who was smaller has gone out of business rather than deal with the environmental stuff."

Sentiments like this Ohio businessman's haven't gone unnoticed in the state, which has responded by crafting programs designed to help companies stay competitive while improving environmental quality.

The Center for Applied Environmental Technologies, a not-for-profit corporation that provides technical assistance for the state, is a major part of Ohio's efforts to help corporations make the transition to pollution prevention, rather than just end-of-the-pipe compliance. To do this, the Center, part of the Institute of Advanced Manufacturing Sciences in Cincinnati, stresses the powerful business reasons for adopting pollution prevention strategies.

"Control technologies virtually always cost money," says Harry Stone, manager of the Center. "Pollution prevention frequently saves money. When you focus on pollution prevention, you become more cost competitive."

The Center facilitates technology transfer and networking among Ohio's state and educational institutions and its businesses. For example, the Center and the Greater Cincinnati Chamber of Commerce plan to hold a program through which General Electric Aircraft will offer to other companies its research on alternatives to chlorofluorocarbons. Among other projects, the Center provides companies the on-site technical assistance needed to develop waste reduction programs and comply with regulations. The Center also provides lists of companies that supply environmental services and equipment.



Gerry Osterman and Harry Stone demonstrate ultra filtration equipment at the Center.

Along with General Electric, the Center's participants include big players such as Procter & Gamble, "industry leaders that think the environmental challenge is one of the greatest issues for staying in business over the coming years," Stone says.

Help for Small Businesses

The Center also provides much needed information and guidance to mid-and small-sized companies. John Weinkam, president and general manager of Trans-Acc Inc., a job shop in Blue Ash, Ohio, says that "as a small business we didn't have the people or staff to interpret all the regulations or the resources to catch up and solve the problems. We contacted about a half-dozen consultants, but we just couldn't afford them. If we had the money, that would be the easy way to go—just hire them and then pay the bill. Maybe a GE or Procter & Gamble can afford that, but we can't. We're just a little firm struggling to survive."

Harry Stone offers a recent example of how the Center helps struggling companies: A small firm wanted to bid on a good-sized painting job, but could not because the firm's bid for the project would have included processes that produced enough emissions to require permits, permits that the firm did not have. "We made recommendations to them about using better technology. We introduced them to a small paint manufacturer to get a low-VOC paint. We also suggested they use a powder-coating line, which would be zero-VOC, and replace their standard air pressure spray gun with an air-assisted airless spray gun. With that pollution prevention information, they were able to bid the job," Stone says.

The Center's efforts complement programs of the Ohio EPA's Pollution Prevention Section. Besides the financial support and expertise on compliance that Ohio EPA offers to the Center for Applied Environmental Technologies, the state's pollution prevention section is identifying and implementing pollution prevention opportunities for the Great Lakes region and an effort similar to the U.S. EPA's 33/50 Program to reduce chemical emissions. Other pollution prevention projects at Ohio EPA include incorporating pollution prevention requirements in environmental enforcement cases and involvement in implementing a bill designed to reduce solid waste and encourage recycling in Ohio's solid waste management districts.

For more information, contact the Center at 513-948-2000.

Pollution Prevention Software

The University of Dayton, with EPA's assistance, has developed an IBM-compatible computer program called Strategic Waste Minimization Initiative. Manufacturers and engineers can use the software to identify ways to reduce waste, prioritize wastestreams based on cost and volume, and develop strategies for solving waste problems. The good news is that the software and user's manual are free! For information, contact Doug Williams, EPA, 513-569-7361.

Calendar

Title	Sponsor	Date/Location	Contact
Procurement of Recycled Goods Conference	EPA Region 6	July 9-10 New Orleans, LA	202-393-6226
Future Direction of Municipal Sludge (Biosolids) Management	Water Environment Federation	July 29-30 Portland, OR	Nancy Blatt 703-684-2400
1992 North American Conf. on Industrial Recycling and Waste Exchange	Government Institutes	Sept. 9-10 Syracuse, NY	Colleen Sullivan 301-921-2345
1992 World Congress on Adventure Travel & Eco-Tourism	UNEP, Canadian Parks Service, B.C. Ministry of Tourism	Sept. 20-23 Whistler, BC	Tel: 303-649-9016 Fax: 303-649-9017
1st Annual Conf. for Southern States on Hazardous Waste Min.	MISSTAP, DoD, EPA Regions 4, 6, MS Dept. of Env. Quality	Sept. 22-24 Biloxi, MS	Dr. J. Carpenter 601-325-8067
Minimization & Recycling	Haz. Materials Control Resources Institute	Sept. 22-24 Crystal City, VA	HMCRI 301-982-9500
Pollution Prevention Conference & Expo	R.I. Depts. of Econ. Devel., Environmental Management	Sept. 30-Oct.1 Warwick, RI	Eileen Marino 401-277-3434
Budapest '92: Forum for Technology Transfer	EPA, DOE, Florida State University, others	Oct. 12-16 Budapest, Hungary	Roy Henderson 904-644-5524

TRI Releases Drop 11 Percent

(Continued from page 1)

metals (569 million pounds), paper manufacturing (289 million pounds), transportation (196 million pounds), plastics (193 million pounds), and fabricated metals (131 million pounds). The top five states for 1990 releases were Louisiana, Texas, Indiana, Tennessee, and Ohio.

The Toxics Release Inventory is required by law under the 1986 Emergency Planning and Community Right-to-Know Act. Facilities covered by section 313 of the law are required to submit annually a report to their state and to EPA listing their releases of any of more than 300 chemicals and 20 chemical categories into the air, water, or soil.

The TRI data provide information on the amount, location, and type of releases to the environment in communities. Increasingly, TRI serves as a vehicle for determining pollution prevention opportunities. This function has been enhanced for the 1990 data, where state rankings are based on *total* facility releases, in an effort to communicate where significant releases to the environment are occurring.

All TRI data for 1990 and prior years are available to the public through the Toxnet national computer database and on computer data tapes through NTIS. For more information, call the EPCRA Hotline at 1-800-535-0202.

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