



Pollution Prevention News



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Federal Facilities to Report Toxic Emissions

President Sets Goal of 50 Percent Reduction by 1999

On August 3, 1993, President Clinton signed an Executive Order requiring federal facilities that manufacture, process, or use toxic chemicals to publicly report their wastes and releases under the Emergency Planning and Community Right to Know Act. Emphasizing that the federal government should become the leader in pollution prevention, the Order also sets a goal for all federal agencies to reduce toxic emissions by 50 percent by 1999.

"[F]ederal facilities will set the example for the rest of the country in applying pollution prevention to daily operations, purchasing

decisions, and policies. In the process [they] will reduce toxic emissions, which helps avoid cleanup costs and promotes clean technologies," the President said.

Federal facilities will report their emissions to EPA and to the states as a part of the national Toxics Release Inventory.

In addition to establishing reporting requirements and emission reduction goals, the Executive Order calls for changes in the procurement of hazardous substances and requires federal facilities to work with communities to develop local emergency response plans.

Industrial Toxic Releases Continue to Decline

But waste generation trends are flat, show "disturbing trend"

Data analysis of the 1991 industrial releases of toxic chemicals shows a 9 percent drop over 1990 figures and a 30 percent drop since 1988, the first year such data were collected by EPA under the Toxics Release Inventory. Balancing the good news, however, are projections for flat or increasing levels of waste generation. According to EPA Administrator Carol Browner, "The data also suggest that recycling will decline while quantities of toxic chemicals being treated will rise. If these projections are true, this is a disturbing trend."

Included in the 1991 data for the first time are extensive waste management and pollution prevention data required by the Pollution Prevention Act. Of the 38 billion pounds of TRI waste reported, 47 percent were either burned, treated, or otherwise released to the environment; another 52

percent were recycled (on-site or off-site). Some 37 percent of the 23,719 facilities reporting indicated that they practiced source reduction. The chemical for which source reduction was reported most frequently was 1,1,1-trichloroethane. Most commonly reported source reduction activities include: good operating practices, process modifications, spill/leak prevention, raw material modifications, and cleaning and degreasing.

The TRI data show 2.01 billion pounds of toxic chemicals released into the nation's air, a decline of 13 percent from 1990, largely due to decreased emissions of industrial solvents, chlorine, and ammonia. Reported releases into the nation's water bodies totalled 244 million pounds, an increase of 24 percent since 1990, due almost

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EPA News

Administrator Sets Pollution Prevention Policy

EPA Administrator Carol Browner renewed the Agency's commitment to making pollution prevention "the guiding principle for all our programs" in a policy statement issued on June 15th. The statement outlines seven objectives for the Agency's pollution prevention program:

- (1) Incorporating prevention into EPA's mainstream regulations and compliance activities, including regulatory development, permitting, inspections, and enforcement;
- (2) Working in partnership to strengthen the national network of state and local prevention programs;
- (3) Pioneering new cooperative government/private partnerships that reinforce the mutual goals of economic and environmental well-being;
- (4) Working closely with other federal agencies to pursue prevention opportunities;
- (5) Strengthening the Toxics Release Inventory by improving the quality of the information collected, expanding the scope of reporting to additional chemicals and sources of pollution, and making the information more accessible to states and local communities;
- (6) Meeting high priority needs for new pollution prevention technologies by supporting R&D and demonstration efforts;
- (7) Seeking changes in federal environmental laws where necessary to eliminate barriers to reducing waste at the source.

The statement reaffirms the definition of pollution prevention as source reduction and the protection of natural resources through conservation and efficiency.

To obtain a copy of the Administrator's statement, contact EPA's Office of Public Affairs, 202-260-4361.

EPA Reference Services

EPA's Pollution Prevention Information Clearinghouse (PPIC) has shifted its hotline service to a reference and referral line; PPIC staff will take orders for certain pollution prevention publications and refer callers to other sources of information as appropriate. To reach PPIC: tel: 202-260-1023; fax: 202-260-0178.

Other EPA information and hotline numbers include:

Green Lights Hotline202-775-6650
 Stratospheric Ozone Hotline 800-296-1996
 Office of Water Info.202-260-2814
 Stormwater Hotline703-821-4823
 RCRA Hotline800-424-9346
 EPCRA Hotline (TRI info)800-535-0202
 TSCA Hotline (33/50 info) ...202-554-1404

Greener Cleaners: EPA, GSA Join Forces

In a joint project, EPA's Office of Pollution Prevention and Toxics (OPPT) and the Public Building Service of the General Services Administration (GSA) are developing procurement criteria for cleaning products that incorporate considerations of efficacy, human health, and environmental safety.

The first phase of the project involves testing several cleaners at the GSA East Philadelphia Field Office. The cleaners will be evaluated based on effectiveness, perceived and real safety and health effects, and risk to the environment. Further field testing will be conducted at a later date on floor and carpet care systems, snow removal products, and sweeping compounds.

The ultimate objective is to use the purchasing power of GSA to advance the pollution prevention ethic throughout the federal supply system, and then among other public and private sector purchasers.

For more information, contact Conrad Flessner at 202-260-3918.

Woods Hole Conference

From June 16-18, pollution prevention practitioners from around the country exchanged ideas at the Ninth Annual Woods Hole Pollution Prevention Conference. Sponsored by EPA, the conference theme this year was "Widening the Circle," especially to advance new prevention technologies and to address the challenges faced by small businesses.

Presentations and panel discussions made clear that small businesses need help in overcoming barriers to implementing prevention and identifying innovative solutions. Additional efforts could make reliable technical information available, and convince small businesses that prevention can lead them out of the regulatory net, and towards improved competitiveness. Greater access to capital for financing environmental improvements is also essential.

Investment is the key to making progress on new prevention technologies. Given the current interest in exporting environmental technology, research dollars need to be targeted specifically at prevention if the U.S. is to lead the world in a new direction.

Conference discussions noted that the pollution prevention circle is growing ever wider. At the international level, speakers expressed concerns that developing countries, looking to adopt new environmental laws, may use our single-media, command-and-control programs as models without fully understanding their shortcomings. Conferees agreed that an effective prevention education effort must include this global audience.

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33/50 Case Study

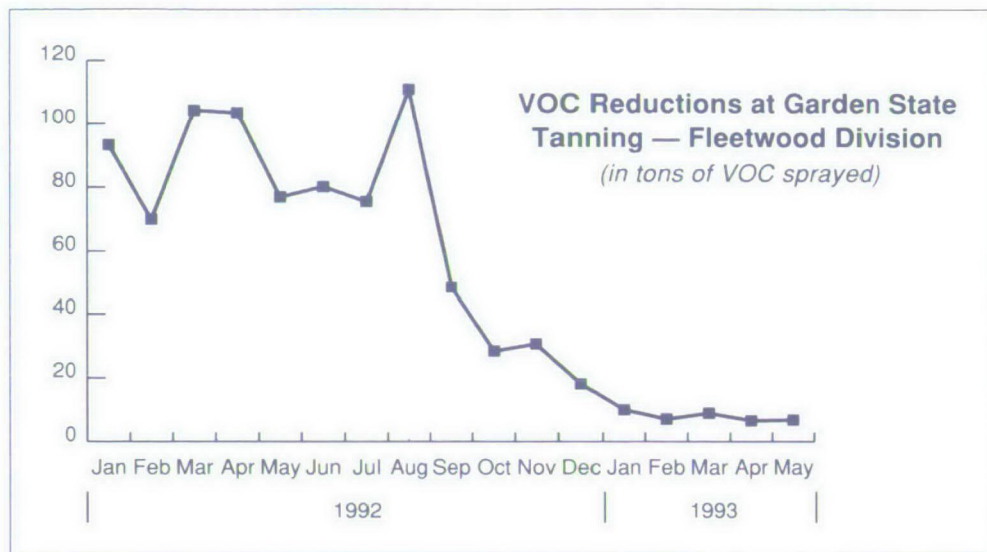
Garden State Tanning Surpasses 33/50 Goal Through Pollution Prevention

by Chris R. Ehret
Corporate Environmental Director

Garden State Tanning, Fleetwood Division, has been producing leather for the automotive industry for the last 60 years. Our division finishes the leather with high-tech coatings to give it both aesthetic appeal and protective qualities for use in automotive seating. The leather is then cut to pattern and shipped to sewing plants.

We used traditional solvent coatings in our finishing systems, with high emissions of volatile organic compounds (VOCs). These coatings were considered state-of-the-art for our industry, and all of the technology trends were based on these solvent systems. Normal market pressures were not strong enough to steer us towards switching to water-based systems.

Since the late 1970s, all of the emissions from our finishing dryers were incinerated in a recuperative incinerator. In 1990 a replacement unit was installed under the existing odor-based permit. Then, in November, 1991, the new incinerator broke down



due to a design flaw, and our production systems shut down.

With the new Clean Air Act in force, we were left with two choices: replace the entire incinerator unit or work out an agreement with the Pennsylvania Department of Environmental Resources (DER) to attain compliance through source reduction. Framing the

options as short-term high cost versus long-term cost savings, DER championed the latter.

Three "crisis management" teams were developed in order to deal with the shutdown of our coating lines. The first team handled the legal notifications, negotiations of permits and fines, and development of a source reduction program acceptable to both plant management and regulators. A company policy was developed to convert our solvent-based finishes to water-based ones, thereby decreasing our emissions. Negotiations with DER were organized into a consent agreement. Total VOC reductions of 90% were scheduled over a one year period, with specific coating formulations to be replaced on a monthly schedule. A schedule of fines was developed to decrease with decreasing VOC usage.

Our Engineering team collected replacement cost information and oversaw insurance collections, which were used to help finance the conversion to water-based finishes.

The third team was made up of people from R&D, Sales, and Production Control. The R&D Department directive was to develop limits to meet the DER standards. Vendors were informed of

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33/50 Program Reaches 1992 Reduction Goal Ahead of Schedule

The recently compiled 1991 Toxics Release Inventory (TRI) data reveal that nationwide releases and transfers of the 17 chemicals targeted in the 33/50 Program declined by 34 percent between 1988 and 1991. This surpasses the Program's 1992 goal of a 33 percent reduction a full year ahead of schedule.

Figures reported by facilities to TRI indicate that releases and transfers of 33/50 chemicals declined from 1.474 billion pounds in the 1988 baseline year to 973 million pounds in 1991, excluding categories that were reported in 1991 but not in 1988. As required by the Pollution Prevention Act, 1991 TRI reports also included projections of future releases and transfers through 1993. An analysis of these projections, coupled with the early achievement of the Program's 1992 reduction goal, offers strong encouragement that the 33/50 Program's ultimate goal of a 50 percent reduction by 1995 will be achieved.

In addition to meeting the nationwide goal, many 33/50 companies have already achieved some of their own reduction targets. According to 1991 TRI reports, as many as 300 participants in the 33/50 program have reported emissions reductions equal to or exceeding targets set out in their commitment letters.

To obtain additional information about the 33/50 Program, contact the 33/50 Program Staff at 202-260-6907, or the 33/50 Program Coordinator in your Regional EPA office.

Greening the Nation

IN 1991, EPA LAUNCHED GREEN LIGHTS, THE FIRST OF A NEW GENERATION OF EPA-SPONSORED initiatives, now under the umbrella of **Energy Star**, including **Energy Star Buildings**, the **Super-Efficient Refrigerator Program**, **Energy Star Computers**, **Natural Gas Star**, and **AgStar**. What these programs have in common is their goal of reducing greenhouse gases and other air pollutants through non-regulatory, market-driven, energy-efficiency initiatives that emphasize cooperative partnerships with the private and public sectors. These programs are attracting praise and attention from government, industry, and public interest groups, and, more important, are projected to reduce anticipated carbon equivalent emissions by 100 -150 million metric tons by the year 2000.

Green Lights Still Growing

Green Lights was launched in January 1991 as a voluntary program to encourage the use of more energy-efficient lighting systems. Lighting accounts for 20-25 percent of electricity used in the United States. Installing more efficient lighting systems can reduce this demand by over 50 percent, thereby reducing the air emissions and other environmental impacts associated with power generation.

There are now over 1,000 participants in Green Lights, representing over 3 billion square feet of facility space — more than twice the total office space in New York, Los Angeles, and Chicago combined. Within five years, over 90 percent of this space should be upgraded, with projected reductions of carbon dioxide emissions in the hundreds of thousands of pounds. Two major corporations, J.C. Penney and McDonalds, have recently pledged over 100 million square feet of administrative and retail space to be upgraded. Currently, J.C. Penney spends more than \$100 million annually on electricity for lighting. After implementing Green Lights upgrades the company expects to save \$5 million per year.

New Product Information

Energy efficient lighting products are still unfamiliar to many managers. In order to help ease this technical barrier, the National Lighting Product Information Program has published three new *Specifier Reports* on Occupancy Sensors, Parking Lot Luminaries, and Compact Fluorescents. Occupancy sensors



automatically turn off lights when a workspace is unoccupied, saving significant amounts of energy and money, and are considered an integral part of an effective lighting upgrade. The reports provide detailed information about the product type, as well as specific performance data by brand name. Previous reports have covered electronic ballasts, power reducers, and specular reflectors. (*Specifier Reports* are sent to all Green Lights participants, and are also available to the public for a fee by faxing a request to 518-276-2999.)

EPA's Green Lights office also has a wealth of planning and technical information available to assist companies in achieving optimal lighting upgrades, including the *Lighting Upgrade Manual*, hotlines, an electronic bulletin board, and computer software packages, including the *Decision Support System* and *Quikalc*.

Surveyor Allies, Distributor Allies

Information is only effective if it reaches its target audience. In addition to working with participating companies, Green Lights has been reaching out to other sectors that can benefit from

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Whirlpool Wins \$30M "Golden Carrot"™

On June 29th, EPA announced that Whirlpool has been selected as the winner of a \$30 million pool aimed at getting energy-efficient, CFC-free refrigerators on the market at a competitive price. The winner-take-all competition was sponsored by the Super Efficient Refrigerator Program (SERP), a consortium of 24 electric utilities.

Working closely with EPA, the Electric Power Research Institute, the Natural Resources Defense Council, the American Council for an Energy-Efficient Economy, and others, SERP invited manufacturers to develop prototypes of the next generation of super-efficient, ozone-friendly refrigerators. Although the technology exists to produce environmentally superior refrigerators, manufacturers have felt that consumers would be unwilling to pay a premium for these models, and have declined until now to invest in their production. By offering the \$30

million "Golden Carrot,™" a rebate for Whirlpool to collect as the new units reach consumers, SERP was able to overcome the initial price gap.

"The SERP partnership will save consumers money and protect the environment," said EPA Administrator Carol Browner. "Here's a good example of environmental protection achieved not by expensive and contentious regulation, but by a voluntary, private-sector initiative that actually helps the economy."

The first "Golden Carrot™" subsidized, super-efficient Whirlpool refrigerators should be available commercially by late 1994, at prices comparable to existing models. The \$30 million investment by SERP utilities is expected ultimately to save consumers \$240 - \$480 million in annual electricity payments, and decrease annual emissions of carbon dioxide by at least 650,000 tons.

For more information about SERP, contact Susan Bullard, 202-233-9065.

Energy Efficiency

Ally of the Year: Johnson Controls

Johnson Controls Inc. has been chosen as the Green Lights 1993 Ally of the Year, excelling in the four award categories of upgrade work, promotion of Green Lights and energy efficiency, technical innovation, and financing opportunities. Johnson Controls is upgrading the lighting in over 10 million square feet of its own facilities and is also actively helping other Green Lights participants, including Amoco and Nike, to realize energy and cost savings through lighting upgrades. Johnson Controls has demonstrated

extraordinary commitment to promoting Green Lights both within the company and among clients and colleagues.

Four other Allies received Certificates of Distinction: MagneTek for outstanding achievements in upgrades; GE Lighting for promoting Green Lights through its sales, training, and educational materials; IllumElex Corp. for its support of innovative energy-efficiency practices; and Honeywell for offering a variety of financing programs to its customers and making them aware of many other available funding mechanisms.

Gov't to Buy Energy Star Computers

On June 17, Vice-President Gore joined industry leaders to unveil the first Energy Star computers, designed to conserve energy, reduce pollution, help American manufacturers, and save customers billions of dollars. To



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provide a jump start for these new products, on Earth Day President Clinton signed an executive order directing the federal government — the largest computer buyer in the world — to purchase only Energy Star computers and printers. This action is expected to save taxpayers about \$40 million a year.

Computer equipment accounts for five percent of commercial energy consumption, and this figure is expected to double by the year 2000. However, research shows that many computers are left on for long periods when they are not actually in use. Building on the success of Green Lights and other similar programs, EPA developed the Energy Star program in partnership with major American computer manufacturers to bring to market the first computers that automatically enter a low-power, standby state when they are inactive.

Manufacturers say that Energy Star products will not cost any more than less-efficient models and will not sacrifice computer performance. But they could save billions of dollars in electricity costs, prevent carbon dioxide emissions equivalent to taking 5 million cars off the road, and create a new niche for the U.S. computer industry.

For now, the Energy Star logo will be used to identify energy saving desktop computers, printers, and monitors. In the future, EPA hopes to use the logo to certify additional energy-efficient products and appliances. To find out more about the companies participating in the Energy Star computer program, contact Brian Johnson at 202-233-9114.

Natural Gas Star to Cut Emissions

EPA has announced a new public/private partnership to help meet the U.S. commitment, made at the Rio Earth Summit in June 1992, to reduce global warming emissions.

Natural Gas Star will work with the natural gas industry to put in place technologies and work practices that reduce methane emissions while

maximizing profitability and creating jobs. Participating companies also agree to improve inspection and maintenance practices to reduce leakage, replace gas venting equipment with new low emissions technology, and repair or replace leaky pipelines.

For more information, contact Bruce Craig, 202-233-9044.

NICE³ Announces Grants Worth \$2.4M

Eight projects in seven states have been named award winners under a program designed to enhance U.S. industry's global competitiveness through energy efficiency. EPA and DOE jointly awarded the \$2.4 million in grants as part of the National Industrial Competitiveness through Energy, Environment, and Economics program (NICE³).

DOE's Assistant Secretary for Energy Efficiency and Renewable Energy, Dr. Robert San Martin, said the eight projects combined have the potential to save \$1.7 billion in energy, waste, and other costs by the year 2010. "The expansion of NICE³ from a pilot project to a nationwide program demonstrates the interest of the private sector in collaborating with the government to develop new technology to reduce industrial waste," San Martin said.

The following eight award winners

will receive grants ranging from \$100,000 to \$350,000:

- **Beta Control Systems, Inc./Oregon Dept. of Energy;**
- **Alpine Technology/Oregon Dept. of Energy;**
- **Lubrizol Petroleum Chemicals Co./Texas Water Commission;**
- **Michigan Biotechnology Institute/Michigan Public Service Commission;**
- **Columbia Aluminum/Washington Dept. of Ecology and Energy;**
- **Shaw Industries/Georgia Hazardous Waste Mgt. Authority;**
- **Thompson Consumer Electronics/Indiana Dept. of Commerce; and**
- **Coors Brewing Co./Colorado Office of Energy Conservation.**

Clean Cars

Electric Cars Set New Records; Solar Cars Also Make Strides

Two recent road races, the American Tour de Sol and Sunrayce 93, showcased the latest generation of battery and solar powered vehicles. The top-placing electric car in the Tour de Sol, manufactured by Solectria Corp., demonstrated a range of 180 miles on a single battery charge. This is a significant accomplishment, since limited range has been a barrier to marketing electric cars commercially. In fact, this year's race included a separate category for Production Vehicles. The three entries in this category are all currently available for sale to the public.

Last year's Tour de Sol efficiency records were also broken by several cars. For example, a car built jointly by Texas A&M and UCal Davis used only 11.5 kilowatts of electricity (at a cost of around \$1.26) to travel 100 miles. "Even when you account for the additional cost of batteries," said Tour de Sol technical director Dr. Robert Wills, "you're looking at about a 30 percent savings compared to the cost of driving a gasoline powered car." The Texas/Davis team won the DOE prize for best student-built electric commuter car. The Tour de Sol was sponsored by DOE, Chrysler, Argonne



Tour de Sol winner: the Force by Solectria Corp.

National Labs, and Boston Edison, and included 37 cars racing from Boston to Burlington, Vermont.

Meanwhile, halfway across the country, 34 student-built cars powered only by sunlight drove 1,100 miles, from Arlington, Texas to Minneapolis, Minnesota, to compete in Sunrayce 93, a biennial race sponsored by DOE and General Motors. The University of

Michigan's entry finished first for the second time in a row. Michigan clocked a total driving time of 40.5 hours, an hour and a half ahead of the nearest competitor, collecting over \$55,000 in cash and prizes. Despite a fair amount of cloud cover and rain along the route, the student teams travelled at speeds of around 30 mph, and demonstrated emerging solar technologies.

Clean Fuels Lead to Cleaner Air

By now everyone knows that cars are a major contributor to air pollution — both the choking, "ground-level" pollution found in many cities, as well as carbon dioxide, a contributor to global warming. Many solutions suggest themselves: driving less; making more efficient cars; or inventing and installing new kinds of emissions controls. One important change that has been gaining visibility is the switch to burning "clean fuels" and driving "low-emission vehicles" (LEVs).

Cleaner Fuels Reduce Emissions

Possible cleaner fuels include reformulated gasoline, ethanol, methanol, natural gas, propane, and electricity. All of these fuels are currently in use and

have demonstrated their effectiveness in reducing automobile emissions. The 1990 Clean Air Act mandated accelerated introduction of clean fuels, especially in cities with excessive carbon monoxide levels.

Last winter EPA required the use of oxygenated fuels in several areas, resulting in impressive declines in carbon monoxide emissions. In 20 locations operating the program for the first time, the carbon monoxide health standard was exceeded only twice over a three month period, compared to 43 unhealthy days over the same time period the previous year. On November 1, 1993, the oxygenated fuels program will be renewed in 39 cities.

Low-Emission Vehicles Get Boost

The Clean Air Act also contains several provisions to promote the widespread use of LEVs. By 1998, owners of 10 or more centrally fueled vehicles, located in states with excessive smog or carbon monoxide levels, must begin purchasing clean-fuel vehicles. As an incentive to make the switch even sooner, new EPA rules exempt LEVs from certain traffic control measures (such as time-of-day driving restrictions). Zero-emission vehicles, such as electric cars, and "inherently low-emission vehicles" that meet stringent evaporative emissions standards will also be exempt from carpool lane restrictions.

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Planning

Pollution Prevention Payback Pyramid

by Steve Hillenbrand

When a company first decides to embrace pollution prevention (P2) as a means of doing business, it usually develops a P2 plan to give form to its program. A major element in most P2 plans is the establishment of goals. Goals are set by a variety of means. Sometimes, a team will try to assess potential P2 activities to determine how much of the company's generated wastes could be reduced. In other cases, the plant manager or company president will mandate a percentage reduction, often without basing it on realistic capabilities. Both of these practices set a fixed quantity or percentage reduction which may vastly under- or overstate the company's practical capability. These possibly unrealistic goals are frequently set before the plan is developed, and the plan is then based on obtaining the goals.

A more useful approach might be a project-based program that builds on early successes. Based on the realization that many P2 investments offer a quick payback, the Pollution Prevention Payback Pyramid (P4) method allows the company to meet realistic goals without a dedicated budget, while

maximizing pollution prevention potential. A company puts the P4 method into practice by:

- (1) Identifying all projects that will reduce the waste generated by the company and performing a payback analysis on these potential projects;
- (2) Ranking the projects by length of payback period; and
- (3) Committing to fund all projects with a payback period of 3 months or less in the first year, projects with a payback of 6 months or less the second year, 1 year paybacks the third year, and 2 year paybacks the fourth year.

The savings from the earlier, shorter payback projects will finance later, longer payback projects. A three month payback project costing \$1000 will save the company \$4000 a year, every year! By reinvesting these savings in additional longer payback waste reduction projects, even greater profits can be realized.

But more important to management, any projects with paybacks of 12 months or less do not have to be budgeted, since

savings will more than equal costs before the end of the annual budgetary period.

Problems to be expected in trying to implement this plan include:

- (1) Managerial resistance to the loss of line item approval, since all projects that meet the payback requirements are already considered approved; and
- (2) The necessity to have as realistic and as accurate project plans and payback estimates as possible.

With accurate analysis of potential projects, the P4 method provides a painless way to implement pollution prevention, and save money.

Steve Hillenbrand has been working as a waste reduction engineer for three years. He coordinates retired professionals to assist in waste reduction projects in the Southeast, and serves as a consultant to the Tennessee Valley Authority. He holds a Masters degree in Environmental Engineering and in Engineering Administration from the University of Tennessee.

Clean Fuels Spur Federal Fleets of Low Emission Vehicles

(Continued from page 6)

In his Earth Day speech, President Clinton went a step farther, requiring federal fleets to purchase alternative fuel vehicles at a much faster pace, and establishing a Federal Fleet Conversion Task Force. The Task Force, chaired by Texas Land Commissioner Garry Mauro, is charged with developing a coordinated public and private sector plan for achieving the commercialization and market acceptance of alternative fueled vehicles nationwide.

New Reports

A new research report from the non-profit environmental organization, INFORM, should help smooth the transition to cleaner automotive fuels. *Paving the Way to Natural Gas Vehicles* identifies the major obstacles slowing the adoption of natural gas as a motor fuel, and proposes 25 specific actions to overcome these barriers. Each proposed action is illustrated with a real life story of an organization or government agency that has implemented it. The report is available from INFORM, 212-689-4040.

The International Institute for Energy Conservation (IIEC) examines the economic, social, and environmental implications of urban transport in *Moving Toward Integrated Transport Planning: Energy, Environment, and Mobility in Four Asian Cities*. After conducting in-depth studies of the transportation systems in four Asian cities, IIEC concludes that Integrated Transport Planning is the best way to ensure long-term economic sustainability and a higher standard of living in any urban area. With passage of the 1990 Clean Air Act and the 1991 Inter-Modal Surface Transport Efficiency Act, IIEC states that the statutory framework is now in place for implementation of ITP in the U.S. For more information, contact IIEC, 202-842-3388.

Resources

The Waste Prevention Tool Kit for Local Governments, published by the Cornell Waste Management Institute, is a 172-page compendium bursting with facts, suggestions, model laws and programs, sample fact sheets, successful ads, and other materials to help local governments implement effective waste prevention programs without reinventing the wheel. To obtain a copy, send \$14.95 (includes shipping and handling; prepaid orders only) to Cornell University Resource Center (TK), 7 Business and Technology Park, Ithaca, NY 14850.



Preventing Industrial Toxic Hazards: A Guide for Communities, is a primer and workbook for ordinary citizens concerned about hazardous waste. Published by INFORM, a non-profit environmental research organization, this guide introduces the concepts behind pollution prevention in lay terms, summarizes the applicable environmen-

tal laws, and explains how communities can find out about emissions from local industrial facilities, initiate a dialogue with company representatives and workers, negotiate for pollution prevention, and then track their progress. Appendices provide helpful lists of additional resources and contacts. Copies are available for \$25 plus shipping. Contact INFORM, 212-689-4040.



Researchers always need money and now pollution prevention researchers can get help in finding it. The 1993 *Guide to Pollution Prevention Funding Organizations*, published by the Pacific Northwest Pollution Prevention Research Center (PPRC), contains detailed information on public and private organizations that fund pollution prevention research. Available for \$50 (\$35 for nonprofits), plus \$1.50 postage and handling, from PPRC, 1218 Third Ave. #1205, Seattle, WA 98101. Tel: 206-223-1151.



Taking a lighter look at pollution prevention, employees in EPA Regions IV and V will be on a *Quest to Save the Earth* with a newly developed employee education tool. Developed by OPPE's Climate Change Division and the Southface Energy Institute, the *Quest* is a colorful, whimsically illustrated, 10-inch square panel, with small fold-out flaps. On one side the "hero" searches for ways to save energy and reduce pollution at home, and on the reverse, the "heroine" discovers similar energy savers in the office. Each flap suggests a useful action (for example, turning off lights and computers), and when opened reveals estimated energy savings and greenhouse emissions reductions associated with that action. Designed for display and ongoing referral, the *Quest* is being evaluated to see if it is effective in changing behavior and saving energy.

To learn more about it, call Rosalie Day, EPA Region V, 312-353-6324.

Pollution Prevention Authority Already in Law

A new report issued by the Environmental Law Institute (ELI) concludes that many opportunities already exist for EPA to implement pollution prevention under existing laws. *The Tools of Prevention: Opportunities for Promoting Pollution Prevention Under Federal Legislation* examines the Clean Water Act (CWA) and the Resource Conservation and Recovery Act (RCRA), two statutes that have long been interpreted as pollution control measures.

The report outlines four prevention strategies available under RCRA and the CWA: regulatory action, standard setting, incentives, and information management and outreach. Examples of possible regulatory actions include linking pollution prevention planning to permit approvals, and banning discharges of the most toxic pollut-

ants. Setting stricter standards for discharge or disposal can force the development and adoption of pollution prevention practices. Incentives for prevention, in the form of adequate pollution fees, government procurement preferences, and other market mechanisms, have shown promise and could be expanded. All of these strategies must be backed up by better data collection and management, so that goals can be set and progress measured.

Based on their analysis of just two environmental laws, the report's authors conclude that "existing statutes provide more than adequate authority to promote industrial pollution prevention boldly, vigorously, and without delay." For more information, or to obtain a copy of the report, contact Lisa Pelstring, ELI, 202-939-3816.

The Journal of Cleaner Production is a new, quarterly journal devoted to the exchange of information on research, development, and implementation of cleaner technologies around the world. The journal will feature original, peer-reviewed research, short papers, editorials and opinion pieces, reviews, conference reports, new product information, and more. The premier issue included articles on Life Cycle Assessment, research at EPA's Risk Reduction Engineering Laboratory, green consumption, case studies, and shorter reviews and activity updates. Subscription rates are £110.00 (Europe), £120.00 (outside Europe). North American subscribers may pay in US dollars at current exchange rates. For a free sample issue, or to subscribe, contact Journals Fulfillment Dept., Butterworth-Heinemann, 80 Montvale Ave., Stoneham, MA 02180. Tel: 617-438-8464; Fax: 617-438-1479.



Life-Cycle Assessment: Tracking Impacts from Cradle-to-Grave

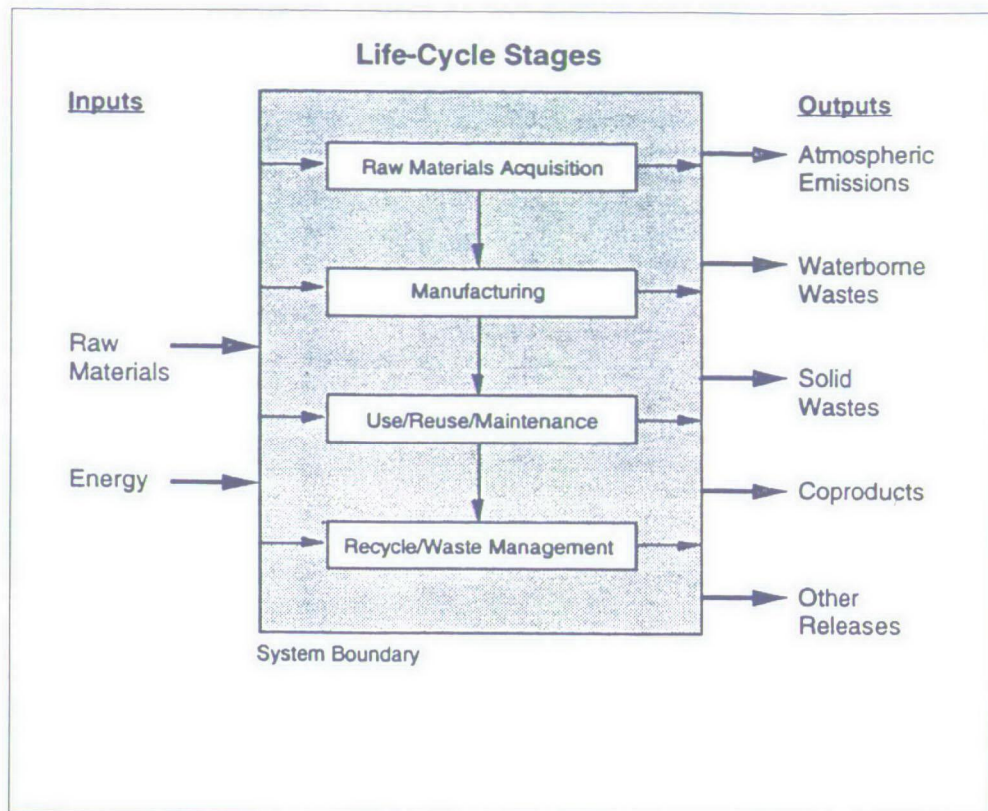
In order to assist producers and regulators in choosing products or processes with the least environmental impact, EPA is working to refine the field of "Life-Cycle Assessment" (LCA). This methodology is an attempt to evaluate the environmental impacts of a product or process through its entire life, from raw material and energy inputs through production, use, and ultimate disposal.

An LCA typically goes through three main stages: Inventory Analysis, Impact Analysis, and Improvement Analysis. All of these phases rely on an initial process of goal definition and scoping, and on accurate, available data. EPA's LCA Methodology Development Program, working closely with the Society for Environmental Toxicology and Chemistry (SETAC), is bringing together experts from many fields with the goal of developing standardized methods for each phase of the LCA.

Inventory Guidelines Available

EPA's first LCA guidance document, *Life Cycle Assessment: Inventory Guidelines and Principles*, released in late 1992, introduces the concepts behind LCA, and describes the three main components. It then offers broad guidelines and principles for conducting the first stage of the process, the Life Cycle Inventory, which sets the parameters of the analysis, including scoping activities, defining goals, gathering data, clarifying assumptions, and interpreting and communicating the inventory results. The report also contains a brief discussion of data type and data quality issues.

In order to test the new inventory guidelines, EPA's Office of Research and Development (ORD) is applying them to a case study on residential carpeting. This detailed case study will help demonstrate the strengths and limitations of the guidelines. For example, ORD's carpeting study will look not only at material inputs, energy use, and environmental releases during carpet manufacturing, but also at the fate of end pieces and scraps, and the upkeep of the carpeting, including vacuuming and cleaning. The scope of this endeavor illustrates both the power



and the complexity of LCA.

Work is underway on the next stages of the project. EPA is compiling a survey of available databases to see if they can be readily adapted for LCA purposes, and will publish guidelines on data quality issues. However, the most difficult aspect of LCA is undoubtedly the impact assessment.

Comparing Apples and Oranges?

In order to make meaningful comparisons between products, LCA practitioners must develop a consistent, more or less objective way to quantify a whole range of possible impacts on ecosystems, human health, natural resources, and social welfare. At SETAC workshops and workgroup meetings over the last two years, experts from different fields met and hammered out a conceptual framework and broad principles for proceeding with impact assessments. Although there is still much work to be done, EPA hopes to publish LCA Impact Assessment guidelines in the not-too-distant future to accompany the existing Inventory Guidelines.

Using LCA to Improve Regulations

Finally, EPA has initiated a project to demonstrate how LCA concepts and practices can fit into, and improve, EPA's traditional rulemaking process. This project will use the development of the Maximum Available Control Technology (MACT) standard for air emissions of halogenated solvents and cleaners as a case study. The study will employ LCA techniques to extend the typical regulatory impact analysis upstream and downstream, across all media, and to include both direct and indirect impacts. The study will also evaluate the impacts of alternatives to halogenated solvents. The degreasing case study could help in developing a protocol for choosing among alternative regulatory standards.

To obtain a copy of the *Inventory Guidelines*, call EPA's Center for Environmental Research Information (CERI) at 513-569-7562. For more information about the LCA project, contact Mary Ann Curan, Pollution Prevention Research Branch, RREL, Cincinnati, OH 45268.

Natural Resources

President Creates Council on Sustainable Development

On the anniversary of the 1992 Earth Summit in Rio de Janeiro, President Clinton announced the creation of the President's Council on Sustainable Development. Sustainable development has been defined as development that meets the needs of the present without compromising the future. The new 25-member Council is charged with helping the President, and the nation, meet that challenge.

President Clinton has asked the Council to explore and develop policies that encourage economic growth, job creation, and effective use of our natural and cultural resources. The Council's goals include:

- developing policy recommendations that integrate economic and environmental concerns, and can be implemented by public and private sectors;
- sponsoring projects that demonstrate sustainable, comprehensive approaches;

- contributing to the work of the United Nations Commission on Sustainable Development;
- recognizing achievements through an annual Presidential award;
- establishing links with non-governmental organizations; and
- educating the public about sustainable development.

The 25 Council members appointed by the President include representatives from industry, environmental, labor, and civil rights organizations, and government, including the Secretaries of Commerce, Energy, and the Interior. The co-chairs of the Council will be Jonathan Lash, President of the World Resources Institute, and David Buzzelli, V.P. and Corporate Director of Environment, Health and Safety, and Public Affairs at the Dow Chemical Company.

"Know Your Watershed" Campaign

In an effort to promote watershed protection activities by the agricultural community, the National Association of Conservation Districts' (NACD) Conservation Technology Information Center (CTIC) has launched a "Know Your Watershed" campaign. "We anticipate this initiative will help local agricultural leaders join with rural and urban partners to take the lead in preventing pollution in their watersheds," stated Gerald Digerness, president of NACD.

The "Know your Watershed" campaign will focus on preventing problems caused by agricultural runoff or nonpoint source pollution. Approximately 65 percent of nonpoint source water pollution comes from agriculture. The primary pollutants are sediment, animal waste, and purchased fertilizers and pesticides. The campaign will work to raise the consciousness of the agricultural community about the effect their actions have on water quality, and the productivity and health of their watersheds. Further, the campaign will encourage the agricultural community to take voluntary action to reduce or prevent agricultural runoff.

CTIC also intends to motivate landowners, operators, and residents within a watershed to identify specific problems and solutions. Commodity groups, farm organizations, farm managers, agricultural retailers, industry, and government are among those that CTIC will encourage to join in partnerships to address nonpoint source pollution.

EPA is one of the initial participants in this campaign. Other participants include the U.S. Department of Agriculture, Soil Conservation Service, Monsanto, American Farmland Trust, Tennessee Valley Authority, Dupont, and the Agricultural Retailers' Association. For more information, contact Jerry Hytry at CTIC, 317-494-9555.

Green Lights Still Growing

(Continued from page 4)

energy efficiency savings themselves and help spread the word to others. Two new programs have been created to bring additional members of the lighting industry under the Green Lights umbrella. The Surveyor Ally program will result in a directory of EPA-recognized individuals capable of surveying existing lighting systems for Green Lights participants and helping to implement optimal upgrades. To become a Surveyor Ally individuals must complete a two-day training workshop covering such topics as Green Lights goals, lighting evaluations, use of EPA support software, product information, financing options for completing upgrades, and maintenance and disposal of lighting systems. They must then pass an examination and sign a Memorandum of Understanding to be

allowed to use the official Green Lights Surveyor Ally title and logo.

Distributor Allies are lighting distributors who agree not only to upgrade their own facilities, but also to include information about energy-efficient lighting in their marketing and promotional materials. Surveyor Allies and Distributor Allies will join existing Green Lights Allies including manufacturers, management companies, and electric utilities. EPA hopes eventually to involve everyone in the lighting industry, as well as commercial and residential electricity consumers, in the push for more efficient, more profitable, environmentally sound lighting systems. To learn more, call the Green Lights Hotline at 202-775-6650, or the Green Lights Ally Hotline at 202-293-4527.

Corporate Notes

AT&T reports that as of the end of 1991, the company had reached or exceeded major environmental goals at its worldwide manufacturing locations: it reduced CFC emissions by 75 percent (goal: 50%); reduced reportable toxic air emissions by 73 percent (goal: 50%); and decreased manufacturing process waste by 39 percent (goal: 25% by end of 1994). AT&T has raised its corporate-wide paper recycling goal from 35 percent to 60 percent by year-end 1994. As of the end of 1991, it had reached the 45 percent mark.

AT&T scientists also report developing a procedure for using a new solvent found in foods, **n-butyl butyrate**, in place of ozone-depleting 1,1,1-trichloroethane, for various manufacturing processes. Contact: Jim McMahon, 908-204-8260.



Winner of a "Together We Can Clean Up" award from the Maryland Department of the Environment, the **Cambridge Wire Cloth Co.** invested more than \$150,000 in a new system that relies on water-based cleaners instead of potentially harmful solvents to wash belts and other products. The change reduced the company's liquid hazardous waste by 95 percent, cut energy consumption, eliminated air emissions, and improved working conditions. Contact: Michael Sullivan, 410-631-3003.



The **paperless office** is here! According to a report in the Indiana Recycling Coalition newsletter, **USAA**, an insurance/banking organization headquartered in San Antonio, has converted to a paperless business. Beginning in the mailroom, incoming mail is scanned into an imaging system and forwarded by electronic mail to the appropriate employee or office. Interoffice communication is also handled on the computer system, with more than 1,500 work stations used by over 2,500 employees. Contact: Frank Rocha, 210-498-9387.

Industrial Toxic Releases Decline

(Continued from page 1)

entirely to increased runoff from four fertilizer facilities in Louisiana. Releases to land decreased nine percent, while underground injection of waste declined nearly five percent.

In announcing the TRI results, Administrator Browner also announced plans to expand the list of TRI chemicals by about 200 later this year, with an expansion to cover additional industries planned for next year. Browner noted, "The Inventory is really a road map of toxic chemicals, right down to the local level, and it puts that information directly at the fingertips of citizens." For

information on obtaining the TRI data, contact the toll-free Right-to-Know hotline at 1-800-535-0202.

A new EPA report, *Assessment of Changes in Reported TRI Releases and Transfers Between 1989 and 1990*, examines the reasons behind the changes in TRI reports from 1989 to 1990. The study concludes that changes in production had the greatest impact, though source reduction also was a significant factor. The study also stresses the importance of looking separately at increases and decreases, rather than considering only net changes. To obtain a copy of the report, call PPIC at 202-260-1023.

Garden State

(Continued from page 3)

the new limits, and non-compliant VOC finishes were no longer accepted from suppliers. The time schedule for developing the new finishes was very clear, and was monitored by DER.

The Sales Department was charged with working with our customers to develop new specifications that reflect the qualities of the new finishes. After 60 years of selling solvent finished leather, the aesthetic and physical properties of the new coatings had to be promoted to customers. Needless to say, the environmentally correct aspect of the leather was also advertised. The policy stated clearly that traditional finish systems could not be offered to customers as an alternative. This firm rule ensured that the transition would happen.

Last but not least, the Production part of the team developed the procedures and equipment required by the folks in R&D. Because of the phased in time schedule negotiated with DER, we were able to deplete existing chemical inventory, and avoid disposal of obsolete chemicals.

The cost incentive that drove the company policy is showing up in many areas. Capital costs for replacement of incinerator equipment, and operating and maintenance costs have been

avoided. Instead, this money was spent on the product itself where it will make a bigger difference for the future. Now every time we turn around we find a new cost savings. For example, our hazardous waste costs have been

"Now every time we turn around we find a new cost savings."

eliminated, and fire insurance rates have gone down. Aesthetic payoffs were also realized, including improvements of the plant environment for employees.

Over the course of our transition, usage of VOCs decreased from an average of 100 tons per month all the way down to 8 tons per month (see graph, p. 3). The solvent mix previously composed of toluene, methyl ethyl ketone, and methyl isobutyl ketone was completely replaced with low VOC coatings. These reductions meet the 33/50 Program goals, and qualify us for the Early Reduction Program. Our success has also greatly motivated our other source reduction efforts.

Chris Ehret is the Corporate Environmental Director at Garden State Tanning Co. where he has worked for 12 years. Mr. Ehret was previously employed as an Environmental Scientist at EPA, and as an environmental and industrial chemist.

Calendar

Title	Sponsor	Date/Location	Contact
The Clean Air Marketplace	EPA, others	September 8-10 Washington, DC	703-934-3747
Control of Ozone-Depleting Substances	Air & Waste Mgt. Assn.	Sept. 23-24 Whistler, BC Canada	Marci Mazzei 412-232-3444, ext.3142
Int'l. Conference on Environmental Pollution	ICTR Secretariat	Sept. 28-Oct. 1 Barcelona, Spain	44-71-930-5825
Annual Conference & Expo	Water Environment Federation	Oct. 3-7 Anaheim, CA	Nancy Blatt 703-684-2400
EnviroSciences Expo '93	EPA, DOE, Small Business Admin., Bureau of Mines	Oct. 7-8 Denver, CO	303-292-6919
Florida Environmental Expo	EPA Reg. IV, FL DEP, FL Assn. of Counties	Oct. 12-14 Tampa, FL	Judy Foster Tel: 813-725-8202
Small Business Innovation Research Conference	DOD, NSF	Oct. 13-15: Wash., DC Nov. 15-17: Seattle, WA	Foresight Sci. & Tech. 407-791-0720
America's Energy Future	New York Solar Coalition	Oct. 15-16 New York, NY	Jim Hurt 212-861-0100
The Emission Inventory — Perception and Reality	Air & Waste Mgt. Assn., SCAQMD	Oct. 18-20 Pasadena, CA	412-232-3444
Sustainable Transportation and Solar/Electric Vehicle Symposium	N.E. Sustainable Energy Assn.	Oct. 22-23 Boston, MA	413-774-6051
Laboratory Waste Minimization Workshop	American Chemical Society	Oct. 21 Pasadena, CA	Bill Gray 202-872-4467
Environmental Technology Expo	EPA, Env. Engineers & Managers Inst., Assn. of Energy Engineers	Oct. 26-28 Atlanta, GA	Wesley Lambert 404-347-3004
Pollution Prevention Training Sessions	WRITAR	Nov. 4-5, Nov. 8-10 Minneapolis, MN	612-379-5995
Annual Meeting; Pollution Prevention Technology (course)	American Inst. of Chemical Engineers (AIChE)	Nov. 7-12 St. Louis, MO	Tel: 212-705-7325 Fax: 212-752-3294

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