United States
Environmental Protection
Agency

Office of Pollution
Prevention and Toxics
Washington, DC 20460

July – August 1995

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Pollution Prevention News

Highlights

EPA LEADERSHIP PROGRAMS ANNOUNCED

A host of new environmental initiatives have been announced in recent weeks as part of the Clinton Administration's reinvention of regulation to achieve environmental results at least cost. In April, EPA launched a one-year pilot of the voluntary **Environmental Leadership Program.** Fifteen facilities were selected to participate in the pilot, including 10 private companies and two federal facilities. The project is aimed at exploring ways that EPA and states might encourage facilities to develop innovative management, compliance, and pollution prevention programs, and reduce the burden of paperwork and inspections.

For example, for three of its facilities, The Gillette Company will develop a compliance audit and environmental management system protocol using independent third-party auditors, and will provide EPA with a prototype verification system for use by other companies. The John Roberts Co., a small printing firm in Minneapolis, will work on developing a mentoring approach, whereby large corporations or agencies can help small ones understand and comply with environmental regulations and new technologies.

Other participants include: Ocean State Power, Burrillville, RI; Duke Power, Mount Holly, NC; Ciba Geigy, St. Gabriel, LA; Motorola, Austin, TX; AZ Public Service, Phoenix, AZ; Salt River Project, Phoenix, AZ; McClellan Air Force Base, Sacramento, CA; Simpson Tacoma Kraft Co., Tacoma, WA; Puget Sound Naval Shipyard,

Continued on page 9

CALIFORNIA AND EPA ACCELERATE REGISTRATION OF SAFER PESTICIDES

The State of California and EPA recently came together for the second in a series of joint approvals of low-toxicity pesticides. On May 25, EPA and the California EPA simultaneously announced the registration of the pesticide tebufenozide (trade name CONFIRM). The announcement culminates a shared staff review of pesticide data, agreed upon a year earlier as a first step in developing common methods of doing risk assessment and eventually arriving at standardized review procedures for all studies. A parallel review of tebufenozide was coordinated with Canada's Pest Management Regulatory Agency.

Tebufenozide, made by Rohm and Haas Co. of Philadelphia, was given priority treatment for registration because of its low toxicity to mammals, birds, honey bees, and moderate toxicity to freshwater fish and invertebrates. EPA has been accelerating the registration process for safer pesticides, particularly for biological pesticides that are derived from naturally-occurring substances.

Earlier this year, EPA and California announced the registration of the biological pesticide Bio-Save™ for the control of post-harvest diseases on apples, pears, and citrus. Bio-Save™ products are based on natural microbial agents isolated from fruit surfaces, and were widely tested in the U.S. and South America by their manufacturer, EcoScience Corporation in Worcester, MA.

INTERVIEW

Dr. William H. Sanders III became the Director of EPA's Office of Pollution Prevention and Toxics (OPPT) in May 1995, after serving as Director of EPA Region 5's Environmental Services Division. He holds a Ph.D. in Public Health from the University of Illinois at Chicago; an M.S. in Management of Public Service from DePaul University; and a B.S. in Civil Engineering from the University of Illinois at Chicago. PPN interviewed Dr. Sanders in August.

Q ***Do you see the "reinventing government" effort as changing our approach to pollution prevention?***

When you talk about reinvention, you hear the words "cleaner, cheaper, smarter." Obviously these same words bring pollution prevention to mind as well. I think our voluntary programs are very much connected to the reinventing government initiative. This Administration wants to explore different ways of doing business, with everybody at the table. As we succeed in these voluntary pollution prevention programs, I think you will see them become a routine part of the way we do business, with less of an emphasis on the regulatory side (although that still needs to be in place). Certainly we still have some work to do, but pollution prevention is key to this Administration, and I'm very excited to be here.

I often use the analogy of doing business upstream versus downstream. When you try to work downstream, you've already created a pollution mess. Pollution prevention is about doing work upstream, at the beginning, and as simply as possible. We've gone about some of our more successful social programs this way. Headstart is an example: if you can get kids at an early enough age and feed them and educate them, they can go a lot further in life.

Q: Reflecting on your experience in one of the EPA Regional Offices, what role do you think the Regions play in promoting pollution prevention, compared to Headquarters' role?

While Headquarters sets national policy and designs national programs, Regions play a key role in implementing those programs in the most advantageous way for specific geographic areas. Let me give you an example — I remember serving in Region 5 when the 33/50 program started. The Regional role in implementing this program was very important. The idea for the program was conceived at Headquarters, but the implementation — in terms of reaching industry, convincing industry to sign up, doing the follow-up presentations — all of that was done in the Regional Offices. I should add that Regions play an especially important role when it comes to working directly with the States. We can thank the Regions for making many of our state grant programs — the Pollution Prevention Incentives for States program is one of them — so successful.

Q: Your office, OPPT, is responsible for pollution prevention and environmental information, both of which are key tools in protecting the environment. How are they related?

Clearly they go hand in hand. One of our tools in pollution prevention is informing people of what is going on in terms of pollution and toxic releases. Getting the information out to the public is very important. Right now you can go to the TRI data. But if there happens to be a release from an industry that does not fall within the SIC codes covered, you're out of luck. Or if the chemical of concern is not one of the 600 or so substances now listed, you're out of luck. You can come into the agency and ask what is going on with air or water permits, but I maintain that it is very difficult to obtain this type of information (even if you could find the right person to ask!) and very difficult to interpret the information.

INTERVIEW, CONTINUED

My office is leading one of the President's reinvention initiatives designed to make access to this information much easier. This initiative to develop "one-stop reporting" will be a tremendous help to communities around this country, particularly when the data comes in electronically. Ultimately, it will also ease the burden that some companies experience. Getting the information in faster will mean that we can also get it out faster — and industry, I've found, is very interested in TRI information as well.

More broadly, we have a tremendous amount of information here in OPPT on chemical processes, chemical substitutes, comparative risk. Companies continually ask us what we can tell them about the risks of different chemicals, or if a new process is sanctioned by EPA. I think our office has to have a leadership role in developing and sharing this information, which will give pollution prevention a real push. An example is the Design for the Environment's dry cleaner project, which is looking for alternatives to perchloroethylene used by most of the cleaners in this country.

We are actively working to find alternatives that will be cleaner, smarter, and economically feasible. We need to harness the information we have to the pollution prevention engine.

Q: As we look forward to the next few years, what special challenges do you see for EPA and for OPPT in particular?

What's happening on Capitol Hill right now is certainly a challenge — to our traditional regulatory and enforcement programs. There does appear something of a disconnect, if you look at the support for the environment in the polls over a number of years. The support is still there, as a bipartisan issue. The extreme reductions that are proposed for EPA's budget are clearly inconsistent with that support. There is no way that this agency can adequately respond to protecting health and the environment with that kind of cut.

I should add that I am greatly encouraged, in these times of Congressional criticism, by the Clinton Administration's support for our work. Earlier this month, the President visited a community in South Baltimore where he praised the Community Right-to-Know program and issued an Executive Order guarding against an effort in Congress which would undermine that program. The new Executive Order requires federal contractors to report to the TRI — so that, no matter what the Congress does to the TRI program, at least information about toxic releases from federal contractors will be available to the public. President Clinton also lent his support to our efforts to expand the types of facilities required to report to the TRI and the type of information we collect. That support is very encouraging.

As for some of my own priorities, a major challenge to this office is still the difficulty of quantitatively measuring the amount of pollution prevented as a result of our efforts. We need to develop a currency with which to value these achievements. Some folks have been telling me that we have grabbed all of the "low-hanging fruit," the easy answers, that all the projects that save money have already been done. I don't believe it. As one colleague from Tennessee recently told me, "We haven't caught all the fat rabbits out there." There are plenty of opportunities for pollution prevention, not just in large industry, but in medium and small businesses too. We need to assist trade associations and large corporations in taking on this task.

EPA's new Pollution Prevention/ Environmental Justice grants program combines two concerns that are "passions" of mine, if you will. I'm optimistic that the $4 million that we will award in September will empower citizens and local agencies to do something about pollution in their own communities. I'm looking forward to seeing some really good work. My bottom line is: When we walk away at the end of the project, have we made the environment safer?

BUILDING DESIGN

For more information, contact INFORM at 212-361-2400 or by fax: 212-361-2412.

HOME GREEN HOME

Building pollution prevention and energy conservation into the design of residential and commercial structures still seems far-enough away to be a pipe dream. But it's a little closer now, thanks to the environmental watchdog group INFORM. The organization set out to show that even a small office can be transformed into a "green" space — and at less than the comparable costs of ordinary renovations. With the help of Croxton Collaborative, an architectural firm noted for environmental architecture, and Silverstein Properties, the owners of 120 Wall Street in New York City where INFORM planned to lease a 9,127 square-foot space, INFORM's build-out costs averaged $38 a square foot, 27 percent less than the standard $52 per square foot cost for office construction in the city. The design incorporated the latest environmental thinking, including an open design, energy efficient lighting, insulated duct work, use of less toxic materials, and cleaner air. Below is a partial checklist of the green features in INFORM's new home.

Even a small office can be transformed into a "green" space.

Before...

and Now

STANDARD FEATURES	GREEN FEATURES
Enclosed offices and/or high partition workstations	Open office plan/low-partition workstations allows natural light into all work areas, needs less electricity
Recessed fixtures	Up/down pendant fixtures maximize brightness, reduce number of light bulbs needed by 66%.
Magnetic ballasts	Electronic ballasts more efficiently transfer electricity to light
Light switches	Motion sensors can save up to 30% of energy bills
Vinyl or vinyl composition flooring	Linoleum flooring is durable, made of natural ingredients
Vat-dyed carpet	Solution-dyed carpet conserves water in manufacturing process
Interior-grade plywood	Exterior-grade plywood reduced formaldehyde emissions
Partial filtration	High air filtration reduces particulates 40-80% rather than 20%
Few air changes/standard velocityair circulation	Multiple air changes: eight times an hour, ratherthan the code-specified three times per hour. Low velocity air circulation decreases potential for moisture/fungus build-up in duct work.

BUILDING DESIGN, CONTINUED

BUILDING NOTES

In April, one of the nation's largest home improvement retailers, **Home Depot,** awarded grants worth $287,100 to 33 non-profit environmental groups. The recipients include the Center for Sustainable Building and Technology in Cambridge, MA which promotes environmental sound living habits and products in low income, urban communities, and the Southface Energy Institute which is sponsoring the building of an "earthwise" home by the Atlanta chapter of Habitat for Humanity. Home Depot recently published "Environmental Greenprint^{R}" which pinpoints 88 ways to bring about a "greener" home in making home improvements.

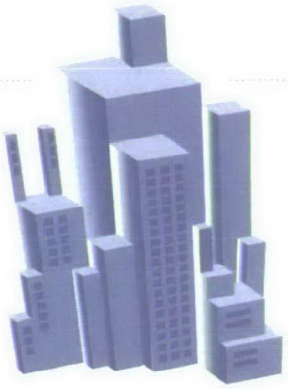
This August, 70,000 people walked by the **Planet Protection Center** display at the **National Hardware Show** in Chicago. The Center is a joint effort by the National Retail Hardware Association and the Home Center Institute, geared at educating home improvement retailers about the need for energy and water conservation and suggests ways to accomplish it. The Center encourages retailers to stock and promote products that will help American homeowners and businesses conserve energy and water. Industry research pegs the do-it-yourself consumer public at more than 75 million households and increasing every year; the Center is trying to reach 10% of the market, or 7.5 million U.S. households.

Architects attending **Ball State University**'s fourth conference on **Educating Architects for a Sustainable Environment** (EASE) in May in Aspen, Colorado heard suggestions for implementing sustainable architecture principles into schools of architecture. Ideas included: creating multi-disciplinary videoconference courses, generating a collaborative database, developing a network of sustainable development educators, requiring courses in ecology and environmental sciences, producing a video involving case studies of exemplars of sustainability, publishing guidelines for educators, and developing a resource network. Work products coming out of this effort should be available within a year. For information, contact: Holly Wirick, 312-353-6704.

Worried about your deck expanding and contracting with the weather? **Mobil Chemical Co.** has come out with a new product, **Trex,** made up of wood fiber and plastic — specifically, post-consumer and/or post-industrial reclaimed plastic grocery sacks and stretch film, combined with waste wood fiber from furniture manufacturers and used pallets. Trex's manufacturer claims that the product is as easy to work with as wood, but has low expansion and contraction.

The City of **Austin's Green Builder Program** is one of 12 finalists in the United Nations' Local Government Honors Program. The Green Builder Program rewards conservation efforts and offers builders technical assistance in environmentally sensitive construction. Using a four-star ranking system, Austin rates home energy use to emphasize conservation and sustainability in the both construction and renovation.

A garage-sized mobile "**GreenHouse**," constructed entirely of recycled, reused, non-toxic, and energy-efficient building materials was developed by Pierce County, Washington to demonstrate the feasibility of environmentally friendly building design. The county estimates that over 400,000 people have visited the display since September 1993. For information, contact Nancy Morrison, 206-593-4050.



RESOURCES:

New software to be released later this year by the **National Research Energy Laboratory** (NREL) will help architects, designers, and builders get computerized answers to building design questions. Called **Energy-10,** the software takes data on floor area, building use, and type of HVAC system, and produces over 15 options for comparing energy-saving designs, with options ranging from passive solar heating to insulation. Energy-10 can also perform hourly calculations of thermal, HVAC, and lighting behavior simulated through a complete year of operations. For information, contact Doug Balcomb, 303-275-6028.

The *Local Government Sustainable Buildings Guidebook: Environmentally Responsible Building Design and Management* provides an easy-to-read overview of sustainable construction and renovation strategies for municipal buildings. Produced by Public Technology Inc. and the U.S. Green Building Council. (1994, $18/govt., $50/others. Contact PTI at 301-490-2188, fax: 301-604-0158.)

ENERGY

TRAINING

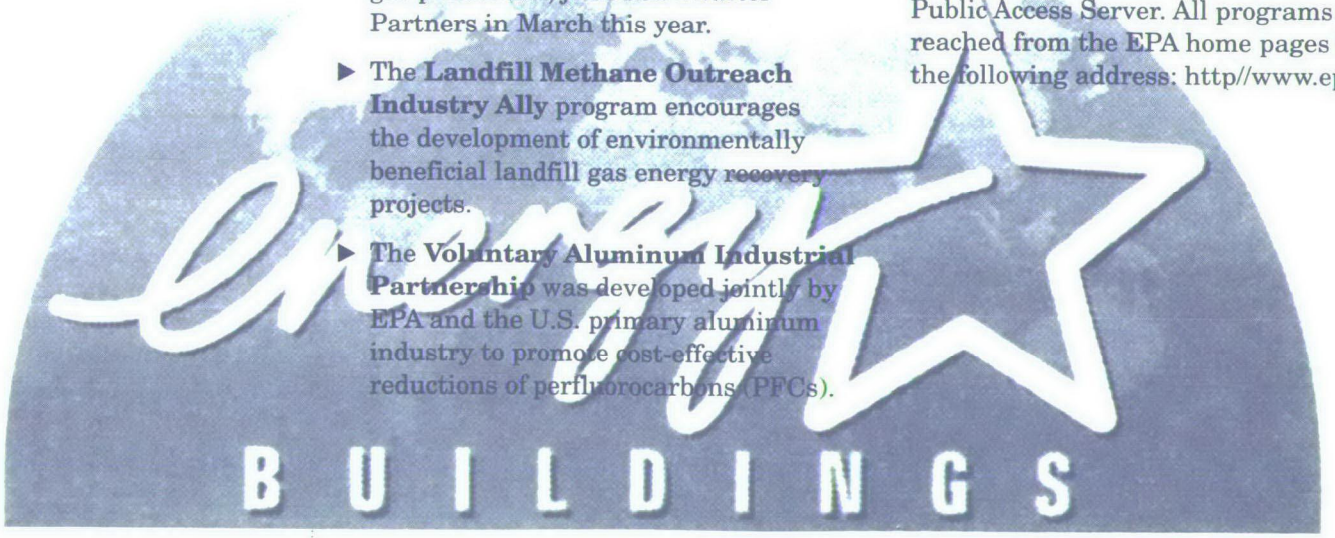
The Association of Energy Engineers is sponsoring a two-day training program for energy managers. **Energy Management in Federal, State & Local Government Buildings** will run September 14-15, in Sacramento, CA. For more information, call 916-922-8041.

ENERGY STAR TAKES OFF

EPA's Energy Star program has cloned its winning formula into a number of voluntary efforts. What they have in common is a commitment to innovative, energy-efficient technologies and profitable solutions.

- **Energy Star Buildings** focuses on profitable investment opportunities for energy savings in existing commercial buildings that already participate in EPA's Green Lights program.
- **Energy Star Office Equipment** was first launched in 1992 to encourage manufacture of machines that will power down and go to "sleep" when not in use. Some 450 computer manufacturers currently produce over 2000 models that qualify. Energy Star copiers, fax machines, and printers are the latest addition to the program.
- **Energy Star Transformers** assists utilities in finding ways to cut costs and improve services. Electric utilities agree to purchase cost-effective, high-efficiency transformers for their distribution systems.
- **Natural Gas Star Producers** aims at reducing methane emissions associated with natural gas production, transmission, and distribution. Seven companies, representing almost 20% of U.S. gas production, joined as Charter Partners in March this year.
- The **Landfill Methane Outreach Industry Ally** program encourages the development of environmentally beneficial landfill gas energy recovery projects.
- The **Voluntary Aluminum Industrial Partnership** was developed jointly by EPA and the U.S. primary aluminum industry to promote cost-effective reductions of perfluorocarbons (PFCs).
- **Energy Star Furnaces** are 90 percent efficient or more, compared to 60 percent efficiency from existing furnaces in the U.S.
- Manufacturers participating in the **Energy Star Heat Pump and Air Conditioners** program agree to produce air source heat pumps and central air conditioners with a Seasonal Energy Performance Factor of at least 12 and a Heating Seasonal Performance Factor of at least 7. Consumers will save hundreds of dollars per year in heating and air conditioning bills with these products.
- The **Energy Star Geothermal Heat Pump** program is an attempt to make this energy-efficient, environmentally-friendly technology better known among consumers.
- And last but not least, boasting one solitary brave charter partner (York International), the **Energy Star Gas-Fired Heat Pump** program is an effort to promote this new breakthrough technology that allows users to heat and cool their homes using a single natural gas-fired system.

For more information, contact the Energy Star Hotline at 202-775-6650, or fax: 202-775-6680. Information about these programs is available on the Internet's World Wide Web via the EPA Public Access Server. All programs can be reached from the EPA home pages through the following address: http//www.epa.gov.



ENERGY, CONTINUED

REVOLVING FUNDS HOLD THE KEY TO STATE AND LOCAL ENERGY DEMAND

Revolving funds are proving to be a popular option for states and localities hoping to trim energy demand while helping households, businesses, and governments gain access to the capital they need to make energy efficiency improvements. The Results Center, a project of IRT Environment located in Basalt, Colorado, has been studying revolving funds and other energy efficiency programs. Here are summaries of three of the funds they studied.

PHOENIX

The City of Phoenix's Energy Management Program is one of the best kept efficiency secrets in the United States. The revolving fund for municipal facilities was started with virtually no capital and in a few years was saving the city over $1 million annually. In the past 13 years, the fund has provided the City's departments with valuable energy management services, $22.4 million in direct, accountable dollar savings, and over $18 million in net repayments to the City's General Fund. Each year a portion of documented energy savings are reinvested in further energy efficiency improvements, providing a means for leveraging greater and greater energy savings.

TEXAS' LOANSTAR PROGRAM

The State of Texas' LoanSTAR program is a revolving fund that loans money at low-interest rates to institutional facilities to retrofit public buildings. After four years in business, LoanSTAR has provided capital for the retrofit of over 22 million square feet of space in 225 buildings at 34 sites. The average payback of the projects has been 3.5 years; over $20 million is estimated in cost savings derived from reductions in the use of electricity, natural gas, steam, and chilled water. LoanSTAR emphasizes monitoring and verification of energy savings.

With some $100 million dollars worth of loan funds available from oil overcharge funds, LoanSTAR has the potential to leverage as much as $850 million over the next 20 years. While oil overcharge funds are drying up, the model that LoanSTAR represents can be funded through utility seed capital programs and from federal, state, and municipal sources.

NEBRASKA'S DOLLAR AND ENERGY SAVING LOAN

The Nebraska Energy Office has implemented its Dollar and Energy Saving Loan program since 1991 with remarkable success and little fanfare. The program has resulted in over $45 million dollars worth of retrofit activity, 4,394 MWh of annual electricity savings, and 137,107 MCF of natural gas savings. To achieve these results the Energy Office has effectively leveraged significant private sector funds from the program's base funding of oil overcharge monies. Nebraska uses the interest income generated from oil overcharge funds to administer the program, while subsidizing low-interest energy efficiency loans by working in close cooperation with commercial lenders in the state.

Nebraska invested $24.5 million in the loan program, which has been leveraged 170 percent through matching private-sector funds. The total value of loans made is $46 million. Over ten years, program analysts expect that the total amount of capital provided for retrofits will be 360 percent of the initial outlay.

Of 8,420 loans processed as a result of the program through 1994, fully 92% have been residential loans. These loans have fostered both gas and electricity savings with average home efficiency gains of 13.5% and 5% respectively.

The American Council for an Energy-Efficient Economy (ACEEE) analyzed the program's macroeconomic impact using input-output modelling. Over a ten-year period of analysis, the program is expected to induce 789 job-years of employment, create $17.26 million in net income from added wage and salary compensation, and contribute $28.3 million to the Nebraska Gross State Product.

REPORT ON OHIO PROGRAMS

An audit of utility demand-side management programs in Ohio concludes that the programs are succeeding, but consumers could be paying less for electricity if utilities engaged in more aggressive efforts. *Strengthening Demand Side Management in Ohio* is available from the Campaign for an Energy Efficient Ohio, 400 Dublin Ave. Suite 120, Columbus, OH 43215, Tel: 614-224-4900, Fax: 614-224-4914.

For more information on revolving loan funds or 120 case studies of successful energy service programs, please contact The Results Center, c/o IRT Environment, PO Box 2239, Basalt, Colorado 81621, tel: 970-927-3155, fax: 970-927-9428, or via e-mail irt@irt.com.

RESOURCES

MANUALS, VIDEOS

"A Pollution Prevention Manual for Localities" and accompanying video, "Pollution Prevention: Virginia Localities Doing Their Part," are available from Virginia Military Institute Research Laboratories (VMIRL). They were produced through a grant provided by the Virginia Environmental Endowment, in conjunction with the annual Environment Virginia Symposium in April 1995. The video highlights pollution prevention initiatives at various Virginia localities, and the manual give guidelines on how to implement an effective pollution prevention program. A similar video and manual set targeted to small and medium size businesses is also available. The cost is $20 per video or manual, or $35 for each set. Send check (made out to VMIRL) to: Conference Office, Civil & Environmental Engineering, Virginia Military Institute, Lexington, VA 24450; or call 703-464-7743.

CPAS LENDS A POLLUTION PREVENTION HAND

Suppose you're a process designer who has been given the task of optimizing a methanol plant from an environmental standpoint. You know about reactor design improvements, separation equipment efficiencies, and measuring fugitive emissions. But would you know to look into using a membrane separator and an autothermal reformer? Only in the last two years has this technology been written about in the literature, and if you didn't know about it, how would you find out about it?

A coalition of industry, academia, and government offices is working to provide an answer to such questions, by developing a computer-based suite of tools that can help process designers build pollution prevention information and technology in at the earliest stages of conceptual design. The **Clean Process Advisory System ™ (CPAS)** is the name of the software framework, currently being developed through the National Center for Clean Industrial and Treatment Technologies (CenCITT), the AIChE Center for Waste Reduction Technologies, and the National Center for Manufacturing Sciences, with support from EPA, the Department of Energy, the National Institute for Standards and Technology, and other federal and state agencies.

A key objective of CPAS is to offer designers the opportunity to quickly identify the range of pollution prevention options available and have enough design information on hand to feel comfortable about the technical feasibility of unfamiliar options. The software developers note that if designers are new to an option and cannot get comfortable with it quickly, they will nearly always discard it. CPAS itself consists of a series of tools or modules aimed at helping designers consider options and understand potential environmental risks. For example, there are tools being built for separation technologies and treatment technologies, for technology modeling and assessing environmental fate and transport. There are pollution prevention design options tools for gaseous, aqueous, organic, and solid streams. Advisory tools will provide information on material and solvent selection, while a range of design comparison modules assist with full-cost accounting, economics and environmental analyses, and life-cycle analysis.

A demonstration version of the software is currently available, incorporating 10 tools; another 15 tools are in the planning stages. The developers have sought information from technology users and vendors and are interested in the widest possible involvement of all sectors in this project. For more information, contact Pete Radecki or Jim Baker, CenCITT, at 906-487-3143 or Internet: cpas@mtu.edu

P2P SOFTWARE QUANTIFIES PREVENTION PROGRESS

EPA has developed a software program called "P2P" — meaning "pollution prevention progress" — to help firms assess the results of their product redesign, reformulation, or replacement. The software program leads the user through a brief protocol aimed at identifying the pollutants generated before and after the product change occurs. The program then compares the before and after situations and produces a variety of reports on media affected — water, soil/groundwater, air — and pollution impacts on human health, environmental use, and disposal capacity.

Copies of P2P are available on written request to the Pollution Prevention Research Branch, Risk Reduction Engineering Laboratory, U.S. EPA, Cincinnati, OH 45268, or by fax: 513-569-7680.

EPA NEWS

ACID RAIN MARKET TRADING PROGRAM EXPANDED

EPA has extended the option of trading pollution credits to all industrial fossil fuel-burning sources, in an effort to expand the market trading program beyond electric power plants. Industrial boilers and small utility units may now, on a voluntary basis, enter the program and receive their own acid rain allowances. These allowances do not increase overall emissions but merely shift emissions from the industrial to the utility sector. Industry and consumers currently save an estimated $2 billion per year under the pollution credit trading program, and the inclusion of additional sources is expected to increase the cost savings associated with allowance trading.

In March, EPA and the Chicago Board of Trade announced that the third annual acid rain allowance auction had resulted in proceeds totaling $22.8 million. The money will be returned to the utilities from which the allowances were drawn. Overall, the Acid Rain Program is expected to result in a 10 million ton reduction in SO_2 emissions from 1980 levels, by the year 2010.

MEASURING POLLUTION PREVENTION

EPA, in cooperation with Research Triangle Institute, is conducting research to develop a framework for the design of industrial pollution prevention measurement systems. This research will identify and define critical design factors such as data and indexing. An initial framework is being developed through a review of relevant literature and will be tested and revised through the light of an evaluation of measurement systems currently in place at 4-6 companies.

Facilities wishing to comment on or participate in the research should contact Melissa Malkin at Research Triangle Institute (919-541-6154 or E-mail: mjmalkin@rti.org).

ENVIRO$ENSE UPDATE

EPA's full-service environmental database, Enviro$ense, is up and running. The Internet address and hotline number were incorrect as reported in the last issue of PPN. The correct information is shown below, along with access information via modem (unchanged from previous report):

Via Internet: (corrected)
The address is:
http://wastenot.inel.gov/envirosense
The World Wide Web hotline number is:
208-526-6956

Via Modem: (unchanged)
Set communications to 8, N, 1; Emulation: ANSI or VT-100. Telephone Number: 703-908-2092. BBS hotline: 703-908-2007.

LEADERSHIP PROGRAMS

Continued from page 1

Bremerton, WA; WMX Technologies, Arlington, OR. For more information, contact Taiming Chang, Tel: 202-564-5081.

Another new project underway is called **Project XL.** Through this project, EPA will offer a limited number of responsible companies and other regulated entities the opportunity to test alternative approaches to traditional command and control regulations. Project participants will be given the flexibility to replace current regulatory requirements with an alternative strategy that achieves better environmental results. EPA will choose XL projects on a rolling basis beginning this summer. Projects will be evaluated based on whether they:

- Save costs and reduce paperwork
- Demonstrate stakeholder support
- Demonstrate an innovative process, technology, or management approach
- Develop a transferrable approach
- Are technically and administratively feasible
- Contain monitoring, report, and evaluation components
- Avoid shifting the burden of environmental risk.

For more information contact Jon Kessler, 202-250-3761.

MARK YOUR CALENDAR:

National Pollution Prevention Week — September 18-24, 1995

The first ever **National Pollution Prevention Week** is a celebration of the benefits of pollution prevention and an opportunity for state and local governments to spread the pollution prevention message. Activity guides, media guides, model proclamations and other materials are available through the Tony Eulo, Western Center for Pollution Prevention, 1121 W. 25th St., Eugene, OR 97405, Tel: 503-683-3054.

THE CHALLENGE OF SOLVENTS

THE SEARCH IS ON FOR ALTERNATIVES TO CHLORINATED SOLVENTS

Increasing concern for public health and environmental problems, such as the greenhouse effect and ozone layer depletion, has resulted in more stringent regulations for industries using solvents. As one writer noted:

> 'Crunch' time has come for most solvent users. If the excise tax won't do it, accelerated phase-out of the chlorinated ozone depleters and the Clean Air Act will... There is no "drop-in" replacement for chlorinated solvents in any cleaning application. Switching to aqueous or semi-aqueous cleaners and processes generally requires additional equipment, multiple cleaning and rinsing steps, and drying...
>
> Bob Carter, "Solvents: The Alternatives," in *Pollution Prevention in South Carolina,* Winter 1995.

Below, some indications of how companies are rising to the challenge.

ROBERT BOSCH CORP., CHARLESTON, SC

At Robert Bosch, Charleston, a manufacturing plant producing gasoline fuel injectors, antilock brake systems, and diesel fuel pumps, the solvents of choice had been CFC-113 and trichloroethylene (TCE) for metal parts cleaning. CFC-113 use has been eliminated, and the company made a decision to phase out the use of all chlorinated solvents by the end of 1995, including TCE.

These interim solutions were seen not as "buying time but wasting time."

Eliminating chlorinated solvents required a large team effort, beginning with the Vice President/Plant Manager. The most desirable replacement option was the "no-clean" option. Each cleaning step was examined to decide if it was absolutely necessary. Although it is rare to eliminate a cleaning step entirely, one example at Bosch — suggested by the shop-floor personnel — involved the replacement of solvent cleaning of a part between two machine steps. The oil-based lubricant is now centrifuged off the parts, eliminating the wash and rinse cycles formerly used.

For all other operations, Bosch decided to bypass hydrochlorofluorocarbon solvents and not to revert to hydrocarbon cleaners of earlier years. These interim solutions were seen not as "buying time but wasting time." For a more permanent solution, Bosch decided on aqueous cleaning for most of its needs. For better performance, Bosch decided to use small custom cleaners dedicated to one or a few cleaning steps. The danger of corrosion has been minimized by the company's move to "just-in-time" production and a reduced inventory buffer between operations. Company engineers report that a great deal of experimentation was necessary, as well as fine-tuning, to get the results they were seeking. But now, they, claim, capital and operating costs have decreased while their manufactured parts are cleaner than ever.

CAMBRIDGE, INC. IN MARYLAND

Maryland pollution prevention officials are pleased with the alternatives to solvent cleaning developed by a metal conveyor belt manufacturer, Cambridge, Inc., located in Cambridge, Maryland. The company's original system consisted of a 1,1,1-trichloroethane solvent cleaning bath contained in a tank. The system produced hazardous vapors in the work area, contributed to emissions in the adjacent environment, and required periodic cleansing by a distillation unit.

None of that is true of the aqueous system that replaces the old system. The process water is obtained from a city source, then deionized and filtered prior to entering the rinse and wash tanks. Both tanks are equipped with electric immersion heaters, oil skimmers, and several turbochargers to agitate the waters for the wash and rinse operations. Each tank has sensors that automatically monitor water level and conductivity to ensure adequate detergent strength for optimum cleaning efficiency.

SOLVENTS, CONTINUED

The aqueous system produces no ozone-depleting emissions, no hazardous waste to be disposed of, no need for employees to wear safety protective equipment, no fire or spill hazards, and no federal reporting requirements. While the annual electricity costs are higher for the aqueous system, overall operating costs are 58% less than with solvents. The payback period for the installation costs is estimated at less than 5 years. According to Robert Murphy and Rita Bellini-Goetze in Maryland's Hazardous Waste Program, Cambridge Inc. "is a model project that has overpowering environmental gains for both the community and the industry." Cambridge, Inc. won the Maryland Department of the Environment award as the outstanding Maryland company in 1993.

WHAT'S THE ALTERNATIVE?

Companies pursuing pollution prevention goals and environmental compliance sometimes find themselves between a rock and a hard place — or more specifically, in a world of less-than-ideal alternatives. A case in point is the search for substitutes for the ozone-depleting chemical TCA (1,1,1-Trichloroethane). A world-wide ban on TCA production goes into effect on January 1, 1996.

In anticipation of the upcoming outlawing of TCA, some Southern California firms have switched their cleaning operations from TCA to perchloroethylene (perc). In essence, these firms went from the frying pan into the fire, exchanging an ozone-depleting substance (TCA) for a suspected carcinogen (perc). According to Katy Wolf, Director of the California-based Institute for Research and Technical Assistance (IRTA), firms may have made the switch because perc can be used in the same equipment as TCA, and because "many firms are comfortable with solvents and are reluctant to do the testing necessary to convert to water cleaning formulations."

Nevertheless, the handwriting is on the wall: regulation of perc is increasing at both the federal and state levels. Perc is already listed as a Hazardous Air Pollutant under the Clean Air Act and California permits use of perc only if a firm is using the best available control technology. Says Wolf, "The challenge is to keep firms from converting from one ozone-depleting solvent to other solvents that pose health and environmental problems. In general, we try to put people into a no-clean or water approach. The reason not to move to another chemical is that you'll have to move again in a few years. Forward-thinking firms will bite the bullet now and test water cleaning formulations."

"The reason not to move to another chemical is that you'll have to move again in a few years."

Even odder is the situation of California industries using adhesives. Some years ago, the South Coast Air Quality Management District encouraged them to replace their VOC-based adhesives, which contribute to smog, with TCA-based adhesives. While other regions can switch back to VOC-based products, the 40,000 operations in the Los Angeles Basin that use adhesives have to find an alternative to satisfy both the local restrictions on VOCs and the international ban on TCA.

IRTA's Pollution Prevention Center brought together adhesive users, vendors, and regulators at an all-day adhesives conference last year to discuss the state of adhesives technology and new applications under development. One panelist noted that here, too, the best solution lies with water-based alternatives: "Returning to solvents is not an option. The regulations have driven the technology, and water-based adhesives are 10 years ahead of where they would have been." The conference saw demonstrations of hot-melt and water-based formulations.

One helpful solution for companies is IRTA's Pollution Prevention Center, one of the National Institute of Standards and Technology's manufacturing extension centers. The Center works with hundreds of small and medium-sized businesses in the Los Angeles area identifying, testing, and implementing low- and non-solvent alternatives. For more information, contact IRTA at 310-453-0450.

PUBLICATION

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CALENDAR

TITLE	DATE	LOCATION	CONTACT
National Recycling Coalition - 14th Annual Conference & Exposition	September 11-13	Kansas City, MO	National Recycling Coalition, 202-625-6406
How to Manage Solvents in the Workplace	September 11-13	Chicago, IL	Jennifer Winch, Intertech Corp., 207-781-9800
Solar Home Design/Environmental Building Technologies Workshop	October 9-27	Carbondale, CO	Solar Energy International, 303-963-8855
Southern States Annual Environmental Conference	October 10-12	Biloxi, MS	MS Solid Waste Reduction & Tech. Asst. Programs, 601-325-8067
33rd International Solid Waste Exposition	October 23-26	Baltimore, MD	Solid Waste Assoc. of North America, 301-585-2898
1995 International CFC & Halon Alternatives Conference	October 23-25	Washington, DC	301-695-3762
A Symposium on Life Cycle Engineering - 1995 ASME Winter Annual Meeting	November 12-17	San Francisco, CA	Prof. Hong-Chao Zhang, Texas Tech University, 806-742-3400
Wastewater Pollution Prevention Symposium	November 13-14	San Francisco, CA	Elizabeth Borowiec, 415-744-1948
Waste Minimization Certification	December 4	Williamsburg, VA	Government Institutes Inc. 301-921-2345
Fall 1995 National Pollution Prevention Roundtable Conference	December 6-8	Miami Beach, FL	NPPR, Tel: 202-543-P2P2 Fax: 202-543-3844
Conference on Tailings and Mine Waste '96	January 16-19, 1996	Fort Collins, CO	Linda Hinshaw, Colorado State University, 970-491-6081,
Technological Solutions for Pollution Prevention in the Mining and Mineral Processing Industries	January 22-27	Palm Coast, FL	Engineering Foundation, Fax: 212-705-7441
RadTech 96: Zero VOC Coatings and Inks	April 28-May 2	Nashville, TN	Chris Dionne, 708-480-9576

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