



Jennifer Machian accepts an MVP2 Award in Washington DC for MnTAP's intern program.

MnTAP clients work hard to run their operations efficiently and in ways that have the least impact on the environment. Going that extra mile beyond compliance can seem thankless. MnTAP encourages businesses and organizations to apply for environmental awards and gain some well-earned recognition for their work.

Environmental awards can be industry or media specific, or for environmental improvements in general. For example, Making Medicine Mercury Free (MMMF) is for health care; the Industrial Environmental Achievement Award is for reducing water-related waste; and, the Governor's Award for Excellence in Waste and Pollution Prevention is broad based.

This issue of *Source* recognizes 17 Minnesota winners of environmental awards. Overcoming their Minnesota modesty, these award winners admit that recognition feels good. Receiving the various awards has helped reinforce the value of environmental work to management and garner additional funds for pollution prevention projects. The awards have drawn positive attention to the winners. Several of the winners were featured in their internal corporate publications. When New Ulm Medical Center won the MMMF award, the city's daily newspaper *The Journal* carried a story about the award.

And the winner is...

MnTAP, and every one of our clients who have taken steps to prevent pollution and reduce waste.

MVP2 award

The MnTAP Intern Program won one of the 2004 National Pollution Prevention Roundtable's Most Valuable Pollution Prevention (MVP2) awards because of its documented impact on participating businesses and organizations.

Our thanks goes out to over 110 Minnesota businesses who have participated in MnTAP's student intern program. Using the research of their MnTAP interns, the companies reduced 7 million pounds of waste and 109 million gallons of water, for first year savings of \$4.6 million.

Honorable mention

Reducing solid waste by 6,250 pounds a year probably won't win Schult Homes, in Redwood Falls, an award for its pollution prevention work. Using the research from a **MnTAP intern**, the company changed masking and wiring techniques used in building manufactured homes to save between \$2,000 to \$3,000 annually, depending on production levels. Smaller, single pollution prevention activities generally don't stand out. But, MnTAP considers all of our clients winners who are trying to use pollution prevention strategies to become more efficient.

Find environmental award information on MnTAP's Web site at <mntap.umn.edu/resources/busaward.htm>. ■

Award winning baking

A blue ribbon at the county fair isn't the only high prize that a baker can boast of. At least one, General Mill's Chanhassen baking facility, can show off its Governor's Award for Excellence in Waste and Pollution Prevention.

Congratulations to General Mills and four other 2004 Governor's Award recipients! These organizations demonstrated that pollution and waste prevention practices are environmentally and economically beneficial.

Innovative production

General Mills

When Dotti Shay talks about saving dough at the Chanhassen baking facility, she means it literally and figuratively. By integrating environmental considerations into the design stage of products and related production practices, her facility reduced ingredient waste and cut costs.

To identify process and product improvements, waste generation was correlated to specific products and production steps. Over 12 months, one production line alone will save \$353,700 by avoiding the generation of 640,000 pounds of ingredient waste.

United Defense, Armament Systems

Folks in the environmental field debate about the effectiveness

of using an Environmental Management System (EMS) to minimize environmental impacts. United Defense proves that planned well and executed right, an EMS makes a difference.

Following its EMS which incorporates environmental considerations into manufacturing practices, United Defense:

- No longer uses a paint that requires a chrome conversion coating, eliminating chrome from entering the environment.
- Removed cadmium plating from fasteners, so that this toxic chemical will not enter the environment.
- Uses powder coatings instead of liquid paint, improving transfer efficiency and eliminating toxic materials and a large waste stream.



Innovative products and design

Faribault Mills is using Ingeo, a corn-derived fiber, as a yarn in woven blankets.

Nylon Board Manufacturing, in Medford, recycles 100 percent post-consumer carpet into products such as shingles and specialized pallets.

The Steele County Sheriff's Office was honored for its new detention center that uses a geothermal system for heating and cooling.

See this article in the online *Source*, <mntap.umn.edu/source>, for links to more information about the award winning work, the Governor's Awards Program and PMPs (box below). ■

St. Cloud wins, again

Success begets success. The St. Cloud Wastewater Treatment Facility won a Governor's Award in 2003 for its Phosphorus Management Plan (PMP). This year it won an MVP2 award for continued success with the project. MnTAP consulted with the facility's pretreatment coordinator to help identify pollution prevention options for its industrial users. The city cut the total phosphorus entering the facility by 32 percent and the phosphorus leaving by 48 percent. ■

Making Medicine Mercury Free

New Ulm Medical Center and Parker Hughes Institute virtually eliminate mercury from their facilities.

Reproductive toxin, potent neurotoxin. Sounds like something that might send you to the hospital. Or, something you might find already there.

The majority of hospitals have a significant volume of mercury on site, in fever thermometers, blood pressure cuffs and other equipment and products. But, health care leaders are taking steps to protect public health by virtually eliminating mercury from their facilities.

In 2004, New Ulm Medical Center and Parker Hughes Institute, Roseville, were each awarded the Making Medicine Mercury Free (MMMf) Award from Hospitals for a Healthy Environment (H2E).

New Ulm eliminated 75 pounds of mercury from its 200,000 square foot facility. It used the project as a JCAHO (Joint Commission for the Accreditation of Healthcare Organizations) environment of care performance improvement.

The medical center originally thought that it would replace equipment a little at a time. "But, everything came together and all the change outs happened in the same 12 months," said Laurie McPhee, New Ulm's facilities and safety manager.

MMMf criteria

Anywhere that mercury is not completely eliminated, the facility needs to inventory the remaining items and have a plan in place for non-mercury substitutes. Among other criteria, award winners must:

- Replace mercury thermometers
- Replace all or majority (75%) of sphygmomanometers
- Inventory and label all mercury-containing facility devices (switches, thermostats, etc.)
- Replace B5/Zenkers stains with non-mercury substitutes
- Inventory mercury-containing lab chemicals

"The hardest part was having to sift through lists and lists and lists of things that contain mercury," said McPhee.



Park Nicollet Health Services is eliminating mercury in its facilities after a MnTAP intern inventoried mercury-containing equipment.

The facilities had to locate non-mercury containing equipment that worked as well as the current equipment to ensure patient care. New Ulm's Hazardous Materials Committee found data and research to support the alternatives.

H2E is a joint project of the American Hospital Association and the U.S. Environmental Protection Agency designed to help health care facilities reduce waste and become better environmental stewards and neighbors.

Previous MMMf award winners in Minnesota include First Care Medical Services, Hennepin County Medical Center and Ridgeview Medical Center. Duluth Clinic Health System, St. Luke's Hospital and Regional Trauma Center, and St. Mary's Medical Center won similar awards prior to the inception of H2E.

More information on the MMMf award and mercury in health care facilities is online at <mntap.umn.edu/health/mercury.htm>. ■

Getting a taste of winning

Kerry Bio-Science wins Industrial Environmental Achievement Award.

As one of Minnesota's fastest growing cities, Rochester must build a new wastewater treatment plant to meet demand. While waiting three to five years for the new facility to come online, the publicly owned treatment works (POTW) is working with its largest industrial users to keep loads as low as possible because it is near capacity.

Kerry Bio-Science (formerly Quest International) was among the companies asked to evaluate its effluent. The company produces flavors and food ingredients. Water scrubbers, cooling applications and extensive-cleaning needs generate significant amounts of effluent, with high levels of biochemical oxygen demand (BOD), total suspended solids (TSS) and phosphorus.

A **MnTAP intern** worked full time at Kerry Bio-Science during the summer of 2001 to identify high volume wastewater streams in order to reduce loading and ingredient losses.

The intern's research laid the groundwork for changes at Kerry Bio-Science, including:

- Automating a sterilizer. This tightened control of key process parameters and reduced the number of diverts of unsterilized product to the drain.
- Automating a system to concentrate and collect solids in both dryer impinger systems.



- Pumping centrifuge desludges to the byproduct collection system instead of sending down the drain.
- Improving dry cleanup of dryer solids prior to beginning the clean-in-place cycle.

"All of the changes we made came from the initial work that Katie [the MnTAP intern] did," said Greg Hitchcock, engineering and maintenance manager.

Kerry Bio-Science is proactive in complying with environmental regulations. It also wanted to help out the city until the POTW got its expansion put in.

"The changes were for good business reasons. Less product going down the drain means there's more to sell," Hitchcock noted. Annually, Kerry Bio-Science saves \$15,400 by reducing TSS charges and \$2,300 by reducing BOD charges. Reduced

product loss generated additional savings.

"The company continues to expand, increasing production while reducing waste. Without these reductions the company would have more wastewater compliance issues," said David Lane, POTW pretreatment coordinator.

The Central States Water Environment Association gives the Industrial Environmental Achievement Award to one industry per year to recognize outstanding waste minimization, pollution prevention, environmental compliance and environmental stewardship.

"Winning the award was a lot of personal satisfaction for me. It was nice being able to show the award to the city and to corporate. We had proof that we are doing a good job," said Hitchcock. ■

Control your motors

Variable frequency drives (VFDs) on motors can enhance process operations, especially for flow control, and can efficiently cut energy demand for pumps and fans.

Motors are sized to fit a maximum load and operate at a constant speed. But, demand on motors fluctuates. Greater power is needed at start-up; air pressure changes in a paint booth because doors are opened; more-viscous product is pumped through process lines.

VFDs control the difference between supply and demand by automatically matching the motor speed to the actual needs of the system based on input from sensors. VFDs control motors more efficiently than throttling or other means, which reduces energy bills.

Filtering out waste

Paint was “hanging” in the booth, causing Crenlo’s painters to complain about overspray and poor airflow.

“If anyone complained about booth conditions, we changed out the filters rather than knowing what our problem was,” explained Jason Kleeberger, safety/environmental specialist. “We had no set procedures.”

Crenlo LLC fabricates sheet metal products, including agricultural and construction equipment cabs and electronic enclosures.

Test panels located on the top of the exhaust stacks showed paint, possibly indicating low paint-capturing efficiency for the filters. The back layer of the filters were discolored by paint making it look as if the filters were loaded with overspray.

All of these factors led Crenlo to change its paint filters daily. At roughly \$1,000 a day, the filters were exceeding the amount budgeted. Excessive maintenance time was also required for filter change out. Crenlo requested a **MnTAP intern** to help investigate and reduce



its paint filter waste and to decrease its wastewater volume.

The intern analyzed the system for best set up. He tested different types of paint arrestors. None of them performed better than the two different layered grades of high efficiency/high capacity paper filters that Crenlo was currently using.

The intern also experimented with the frequency of filter change out. Depending on the paint line, he was able to extend the use of the top filters to three or five days without measurable change in efficiency. The bottom filters could last 12 days.

Based on production levels at the time of the intern project, modifying the paint filter change out schedule saved Crenlo \$95,600 a year. Filter purchase cost was reduced by \$88,200 and waste disposal was reduced by 21 tons a year, saving \$7,400. Over 1,500 hours of maintenance labor was no longer needed to change out filters. Crenlo also made booth repairs to prevent air leaks.

The challenge for the intern was dealing with busy maintenance supervisors. “If Yafet [the intern] came to talk to you, he’d ask one or two questions. Yafet was able to get the information he needed—fast,” said Kleeberger. “He could work on his own. You didn’t have to hold his hand.”

More information on paint filters is available in *Paint Filters: Crenlo saves Nearly \$100,000 by Reducing Paint Filter Waste and Water* at <mntap.umn.edu/intern/projects/crenlo.htm>. Intern program application deadline for 2005 is March 1; see <mntap.umn.edu/intern>. ■

VFDs in use

Kerry Bio-Science added a VFD for flow control when automating its sterilizer. Before, more-viscous product couldn’t reach the tank fast enough. When this affected process time and temperature, product was diverted to the sewer as waste. Now, the VFD maintains a constant flow rate.

Crestliner, an aluminum boat manufacturer, ordered a VFD for its new paint booth to extend filter life and cut energy costs. As paint accumulates in the filters, the VFD automatically adjusts air flow to maintain the exhaust rate for the booth. Filters are now changed less frequently.

Ask your electric company about rebates for VFDs. See the *Source* online for links to additional information. ■

The secret to winning

Applying for awards can seem daunting. Don't let the instructions defeat you. Two types of award applications stand out to the judges—great applications and poor ones. Here are a few tips to make you a winner.

Follow the directions

Sounds obvious, but many people don't provide all of the information asked for in the application form. In many award competitions incomplete applications are automatically boot-ed out of the process.

The organization sponsoring the award developed specific judging criteria to meet its objectives. If an award is for reducing waste at the source, your recycling project won't fit the criteria. Spare yourself the rejection; apply for a different award.

Respond to each criterion to give judges a full understanding of your award-worthy activities. Write in a clear, concise style to make your project easy to understand.

Measurement—show the numbers

When you "Describe the environmental benefits" of your project, judges are looking for hard numbers. Paint a picture with data. Pull out every measurement system you have and use the data to support your statements about why you are worthy of an award. Quantifiable information will make your application stand out.

For example, this data helped Hutchinson Technology win a 2003 Governor's Award, "100 percent reduction of the use of butyl carbitol in the roller coater operations. This is an 82 percent facility-wide reduction for the use of this SARA Title 313 (TRI) reportable chemical...46 percent reduction in annual chemical costs for roller coating operations...\$113,000 reduction in annual waste treatment costs."

Feedback

You do not have to win the award to benefit from the competition. Awards like the Malcolm Baldrige National Quality

Award offer manufacturers a chance for feedback about their systems. The feedback reports contain both strengths and opportunities for improvement—important inputs that can help your organization improve.

Application reuse

Completing an award application is a time investment. Pulling together all of the project data can take just as long as writing the application. If you won, think about repurposing the information and submitting it to another award program.

MnTAP helped Anagram International submit an application for a Governor's Award for Excellence in Waste and Pollution Prevention. A year later we repurposed the information and helped the company apply for Manufacturer of the Year. Anagram won each year.

Didn't win? Find out what was lacking. Maybe you just need to beef up your application—add that measurement data—and resubmit next year. ■

Loans for small businesses

Businesses with less than 50 full-time employees who need between \$1,000 and \$50,000 for equipment purchases should look into the Small Business Assistance Program's (SBAP) Environmental Loan Program.

This Minnesota Pollution Control Agency (MPCA) program provides low-interest loans to finance environmental projects such as capital equipment upgrades that meet or exceed environmental regulations, and costs associated with the investigation and cleanup of contaminated sites.

Pollution prevention technologies are a great fit for the loan program. Examples include:

- Aqueous parts washers
- Closed mold equipment and fluid impingement technology (FIT) guns for the fiberglass industry

- Formalin distillation and filtration equipment for labs
- Optic sensors to reduce wastewater loading and product loss
- Plating barrels that reduce dragout
- Replacements for mercury containing equipment like gauges and sphygmo-manometers
- Solvent stills
- Stainless steel tanks for converting to nonphosphorus cleaners
- Variable frequency drives that reduce material/product waste

Loans are awarded quarterly. The next application deadline is January 1, 2005. For more information about the loan program, contact the MPCA Small Business Ombudsman at 651/297-8615 or 800/985-4247. See the *Source* online for links to additional information. ■

materials exchange



A materials exchange program lists one company's unwanted material and makes it avail-

able for use by another company. The lists below are examples from the Minnesota Materials Exchange.

For more information, call MnTAP at 612/624-1300 or 800/247-0015. Or, visit <www.mnexchange.org>.

Materials available

Bags, static shielding: 10 boxes. 3M. Various sizes. Free. Arden Hills. [16466]

Crepe paper: 14 pallets. Brown, pleated sheets. 32 x 36 inches. Free. Shakopee. [16514]

Defoamer: 55 gallons. Daraclean Daraguard DF-2. In a 55-gallon drum. Free. Arden Hills. [16505]

Expanded polystyrene boards: Semiload per week. 38 x 45 x 4 inches. Used to ship freezer compressors. Free. St. Cloud. [16442]

Hot melt pellets: 12. Nacon. Ultra-Melt FPA. In 50-pound boxes. Free. Sauk Rapids. [16521]

Oxy-acetylene carts: 14. Also hoses, regulators. No tanks included. Fee charged. Anoka. [16530]

Sulfur: Stauffer Chemicals. 6,500 pounds. In 50-pound bags, some opened. 20 years old. Free. Biwabik. [16329]

Water treatment chemicals: 215 gallons. Freemont. 9149 pH adjustment alkalinity (40 gallons), 9918 closed system treatment (25 gallons), 8530 steam

line treatment (10 gallons), 8815 system preclean (55 gallons), 9117 biocide (30 gallons), 9106 cooling water dispersant (55 gallons). Free. Freeborn. [16516]

Materials wanted

Acrylic/plastic scrap: Any amount. 4 x 4 foot and larger. Any color or type. No PVC. Prefer free. Royalton. [16425]

Bags and film, plastic: HDPE and LDPE. Shrink wrap, stretch film or grocery bags. No charge for drop off. Vadnais Heights. [16407]

Containers, plastic: One to six gallons. For storing used antifreeze. Prefer free. Big Lake. [16519]

Drums, steel: 200 per year. 55 gallon. Open top with lids and rings. Will pick up. Prefer free. Willmar. [16322]

Name tag holders, plastic: 400. Prefer with elastic cord. Prefer free. Woodbury. [16527]

Paint shaker: Prefer free. Alberta. [16400]

Pallets, wood: Any amount. 2- or 4-way. Any size. Free pick up within 125 miles. Golden Valley. [5913]

Successful exchanges

- A powder painting company received two drums of pretreatment rinse worth \$2,200 from a fluid applications manufacturer.
- A pharmaceutical company gave 25 plastic and steel drums to a county household hazardous waste program.
- A technical college received a large display booth worth \$25,000 from a graphics design firm.
- A medical supply distribution company gave 12 large boxes of office supplies to a state law enforcement agency. ■

Breathe easier, new air permit

Coaters, fiberglass reinforced plastic shops, printers and other air permit holders with hazardous air pollutant emissions below major federal source standards may want to look into the new capped air emission permits.

A capped emission permit restricts a facility's emissions below federal permitting thresholds and requires the facility to comply with all applicable requirements. The facility is allowed to make changes as long as emissions remain below the facility-wide thresholds and it can demonstrate continued compliance.

Faster, shorter, flexible

The new permit type has several benefits. MPCA plans to issue capped permits within 60 to 90 days of receiving applications. The application package is shorter. Facilities that comply with the permit's requirements will be able to make physical and operational changes without needing advance MPCA approval. Reporting is reduced, as reports only need submitted if a deviation occurred in the past six months.

The MPCA anticipates that it will issue its first capped emission permit in December 2004—once the rule becomes effective. The MPCA will accept applications prior to the rule's approval.

Small companies should use the registration permit option. For more information call the MPCA Customer Assistance Center at 651/297-2274 or see <www.pca.state.mn.us/air/permits/capped.html>. ■

helping businesses implement industry-tailored solutions that maximize resource efficiency

mntap



The **Minnesota Technical Assistance Program** helps businesses and industries maximize resource efficiency, prevent pollution and reduce waste—which saves time and money. Located at the University of Minnesota, MnTAP provides free technical assistance tailored to individual businesses. By reducing waste and increasing efficiency, companies save on disposal and raw-material costs and make working conditions healthier and safer for employees.

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calendar

Hennepin County Hazardous Waste Management Training December 17, Brooklyn Park, MN. Sponsored by Hennepin County Department of Environmental Services, 612/348-8100.

Small Business Environmental Improvement Loan Application Deadline January 1. MPCA, 651/297-8615 or 800/985-4247.:

Kaisen Rapid Improvement January 26, Shoreview, MN. Sponsored by Manufacturers Alliance, 763/533-8239.

2005 MPCA Air, Water and Waste Conference February 16-17, Bloomington, MN. Sponsored by MPCA, 651/297-8472.

MnTAP Intern Program Application Deadline March 1. MnTAP, 612/624-4697 or 800/247-0015.

National Environmental Partnership 2005 Summit April 11-14, Chicago, IL. Sponsored by the National Pollution Prevention Roundtable and others, 215/428-9655.

Air & Waste Management Association Annual Conference June 21-24, Minneapolis, MN. Sponsored by 3M, 412/232-3444. Early application deadline is in March.

For more information and links to Web pages for these events, visit MnTAP's online calendar at <mntap.umn.edu/resources/cal.htm>.

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