

2011 results are in: Businesses saved \$3 million

Inside...

- Interns identify solutions for their facilities
- Site visits lead to cost savings for companies
- Teamwork results in energy and waste savings
- Hotel properties can reduce waste and energy
- MnTAP is hiring a new engineer
- Materials Exchange builds reuse in Minnesota

One Minnesota business added 40 new jobs. Another engaged employees in reducing waste and water use and expects to save at least \$72,000 annually. A third business employed interns to address waste generation and energy use and implemented changes that are saving the company over \$370,000 annually in chemical and energy costs.

These three companies, as well as over 200 more businesses, worked with MnTAP at the University of Minnesota in 2011 to evaluate waste, water use, and energy use. These companies have identified solutions that will not only save money, but will reduce each facility's environmental footprint.

In 2011, MnTAP staff assisted Minnesota businesses by providing on-site visits, interns, and team facilitation services. Businesses that implemented changes identified by MnTAP are realizing reductions of over 5 million pounds of waste, 13.8 million gallons of water, and 7.7 million kWh and 2.1 million therms of energy. These reductions are saving companies over \$3 million annually. "The cost savings these companies achieved in 2011 are helping many of them increase production, add employees, and invest back in their businesses. This is good business for Minnesota," MnTAP Director Laura Babcock said.

In addition to providing technical assistance to Minnesota's businesses, MnTAP also coordinates the Minnesota Materials Exchange, an online business reuse network. In 2011, MnTAP upgraded the Materials Exchange program to streamline exchanges between businesses. This new system makes reporting more efficient and facilitates additional exchanges for partner organizations such as the University of Minnesota ReUse Center. Businesses that exchanged items in 2011 helped divert over 380,000 pounds of waste from landfills.

"We are proud of the companies that we have worked with. They are implementing changes that help them be more competitive and improve Minnesota's environment."

-- Laura Babcock, MnTAP Director

Highlights of MnTAP achievements during 2011 include:

- Conducting over 100 site visits, attending nearly 75 company team meetings, and placing eight interns.
- Completing Phase I of the Department of Energy industrial energy efficiency project and securing funding for Phase II.
- Starting or continuing six special grant-funded projects.

These results, as well as a number of success stories from businesses that worked with MnTAP in 2011, are featured in MnTAP's environmental benefits report and this issue of the *Source*. The environmental benefits report can be found online at <www.mntap.umn.edu/resources/reports/EnvBenefits/2011EnvBenefits.pdf>. ■

Route:

- health and safety
- maintenance
- owner/president
- process engineer
- purchasing

Activity	Waste (lbs)			Energy		Water (gallons)	Savings
	Air Emissions (lbs)	Solid/Hazardous Waste (lbs)	Wastewater Loading (lbs)	(kWh)	(therms)		
Calls/Emails	0	0	0	38,000	0	620,000	\$5,300
Site Visits	0	3.6 million	230	1.6 million	950,000	0	\$1.37 million
Teams	0	735,000	810,000	2.3 million	75,600	7.1 million	\$677,000
Interns	4,200	10,500	0	3.8 million	1.2 million	6.2 million	\$1.1 million
TOTAL		5.15 million		7.7 million	2.2 million	13.9 million	\$3.1 million

Two interns at foundry identify solutions

The Consolidated Precision Products (CPP) Minneapolis operation is one of eight CPP facilities in the U.S. and Europe. CPP Minneapolis uses chemically-bonded sand to cast a variety of aluminum and magnesium alloys in parts up to 1,000 pounds for critical aerospace applications.

What they said...

"The beauty of it is (the intern) is focused on one thing."

-- Jim Trudeau, Facilities & Maintenance Manager at CPP

MnTAP placed an intern at CPP in 2008 to research alternatives to the use of the potent greenhouse gas sulfur hexafluoride (SF₆),

which is used as a cover gas in magnesium casting operations. Molten magnesium easily reacts with air and burns vigorously during melting and pouring procedures without the use of a cover gas to isolate the metal. CPP wanted an intern to research SF₆ alternatives in part due to the Environmental Protection Agency and International Magnesium Association 2003 Emission Reduction Partnership commitment to eliminate SF₆ emissions by the end of 2010.

Based on the intern's research, an alternative substitution of a low concentration of sulfur dioxide (SO₂), historically used in the industry at high concentrations, has been successfully applied in most of the magnesium casting process. The investment in mixing and application equipment has been substantial, and has since included a mechanical rework of the magnesium

casting area to add new ventilation hoods, ducting, and equipment. Currently, the facility has reduced the annual use of SF₆ by 36,500 pounds and is saving over \$250,000 annually.

CPP hosted another MnTAP intern in 2010 to work on a number of energy efficiency improvement projects, including the design and implementation of the aluminum. A number of recommendations were made by the intern in process areas where the facility was facing air quality challenges. At least half of the recommendations have been implemented and additional improvements are continuing to occur since the intern was hired as a full-time CPP employee. To date, CPP has documented annual energy use reductions of nearly 1 million kWh and 93,000 therms and is saving nearly \$120,000 annually in energy costs. An additional ventilation redesign project is nearly complete and is expected to reduce annual energy use by 786,000 kWh and 6,400 therms.

Jim Trudeau, the facilities and maintenance manager, served as the on-site supervisor for both interns. He reported that the SF₆ project helped spur the entire corporation to move toward eliminating the use of SF₆ as the primary cover gas at all three of the CPP magnesium casting facilities in the U.S. The Minneapolis facility has not purchased any SF₆ since October 2011 and expects to use 90% less in 2012. ■

Intern at treatment plant in Rogers helps increase energy efficiency

Since the last major expansion project in 1996, the City of Rogers wastewater treatment facility had been operated the same way; the oxidation ditches that drive the activated sludge process had limited controls and were operating using the same settings for day and night, regardless of loading fluctuations. The facility has received several awards for maintaining pristine effluent quality; however, the public works superintendent suspected that the ditches may be using more electricity than needed. He approached MnTAP about having an intern investigate the energy efficiency of the oxidation ditch rotors and identify a new control scheme that would lower energy use by better controlling the rotational speed to match incoming waste loadings. Recommended changes had to ensure the high level of effluent quality the facility is well-known for.

During Summer 2011, the MnTAP intern observed motor current draw, dissolved oxygen concentration, and flow within the oxidation ditches. Using the data he gathered, the intern was able to propose an optimal control scheme given the current limitations and a new control scheme that was more energy efficient and dispelled any concerns about decreased effluent quality. He concluded that

the facility should install sensors to monitor dissolved oxygen concentration and variable frequency drives on the oxidation ditch motors to control the rotator speeds based on oxygen levels. Doing so would allow for more closely matching oxygen supply with real-time demand and minimizing the use of electricity at periods of low loading. Additionally, the intern identified premium efficiency rated floating pond aerators that replaced their faulty predecessors. In total, he identified projects that would save the City of Rogers \$15,000 in electric costs and 240,000 kWh annually. Since the project's completion, the City has implemented the optimal control setpoint supported by the current equipment and installed two new floating pond aerators. The aerators use less energy, have reduced maintenance requirements, and are supported by a local company.

Incentives offered by Xcel Energy have made the proposed changes even more attractive to the City. The replacement floating pond aerators were eligible to receive motor rebates. Currently, the City is using the intern's work to apply for a custom rebate from Xcel Energy for process improvements related to the oxidation ditch rotor. ■

Jones Metal adds employees, reduces energy use

Jones Metal Products, Inc. of Mankato is metal fabrication company that offers a variety of metal components for partners and customers. Working within a Lean environment, the company gains efficiencies by reducing over-processing, defects, and work-in-process inventory (WIP). Jones Metal wanted to incorporate green practices and worked with MnTAP and Enterprise Minnesota to combine Lean and sustainability initiatives to reduce energy, water, and material use.

A team of employees at Jones Metal created a value-stream map to identify focus areas for the project. "There have been a wide variety of positive impacts in the facility due to the Lean and Green project which include improved material flow through the laser breakout area and our pre-fabrication processes," David Olson, director of engineering, said. One area was in the paint kitchen, where an antiquated distillation system was no longer in service. Solvents used in the facility were not recovered, costing the company hazardous waste disposal fees and material costs. The company implemented a cost-effective solvent recovery system and is realizing over \$10,000 in annual savings. The facility also lessened the hazardous waste regulatory burden.

The facility also focused on energy efficiency in a variety of areas including the compressed air system, conversion coating tanks, and everyday lighting and vending. MnTAP

conducted a compressed air assessment and recommended repairing almost \$7,500 in leaks. Additionally, MnTAP provided information on an appropriately-sized compressor with a variable frequency drive that could qualify for a \$5,000 rebate. Jones Metal implemented bathroom occupancy sensors and VendMisers that resulted in rebates and is looking forward to adding insulated covers to heated coating line tanks. This modification or utilizing lower-temperature chemicals can save energy and help reduce the amount of bath chemistry lost to evaporation.

In addition to the green initiatives implemented in 2011, the company made significant progress on reducing set-up time on brakepresses, WIP inventory, and production lead time. The GreenLean™ process made them more capable of meeting customer timelines and allowed the facility to add operational capacity, which resulted in adding 40 new employees in 2011 to meet customer orders. Enterprise Minnesota has studied the effects of the GreenLean™ process with MnTAP and shown that, on average, another 30% reduction in costs can occur by incorporating a sustainability element in the lean process. ■

What they said...

"The expertise in lean methods along with green technology development that both MnTAP and Enterprise Minnesota brought to our company complimented the process knowledge that already existed."

-- Dave Olson, Director of Engineering at Jones Metal

Facility tour helps Standard Iron staff see efficiency solutions at work

Standard Iron and Wire Works is a metal fabrication contract manufacturer headquartered in Monticello, with manufacturing plants in Alexandria and Sauk Centre; Grand Island, Nebraska; and Montrey, Mexico. MnTAP conducted a site visit at the Sauk Centre facility after receiving a referral from MN WasteWise. MnTAP was invited to visit this site to outline opportunities to improve the efficiency of the powder coat paint system, ultimately saving money and reducing the amount of solid waste generated.

What they said...

"Having area experts available, like MnTAP, to review a particular issue and then sharing their knowledge and/or recommending appropriate solution(s) is seen as a very positive problem solving approach at the facility."

-- Greg Waletzko, Vice President of Manufacturing at Standard Iron's Minnesota facilities

MnTAP made suggestions that included regulating the speed of the powder coating booth exhaust fans and adjusting the air seals in the dry-off oven. Additionally, MnTAP arranged for staff members from Standard Iron to visit another fabrication company that recently improved its powder coating transfer efficiencies. The tour motivated the staff to make modifications to the booth exhaust rate and work with the spray equipment supplier to tune up equipment. The implemented modifications resulted in improved powder coating transfer efficiency and is estimated to save 3,900 pounds of powder paint annually, which is valued at \$10,000. An added benefit of the project is reduced staff time required to handle the powder.

Standard Iron also fabricated new oven ducting to keep more of the hot air in the oven and is estimated to save the company 3,600 therms, which reduces their energy costs by about \$2,500 annually. It also improves the work environment. "Efficiency and proper utilization of all variables has to be a priority for all of us. Monies saved from efficiencies gained will be used in other continuous improvement endeavors," said Greg Waletzko, vice president of manufacturing at Standard Iron's Minnesota facilities. ■

Team at ice cream plant reduces product loss

Kemps Ice Cream manufacturing plant in Rochester operates 24 hours a day, five days a week to manufacture and package 900 different items in various sizes and flavors of ice cream and frozen yogurt. Additional products include novelty ice cream sandwiches and a specialty product, “Ittibitz”, which are liquid nitrogen frozen intensely flavored spheres.

From 2001 through 2004, MnTAP facilitated a successful pollution prevention team at the facility. In 2009, a new plant manager was hired and MnTAP approached him to determine if additional MnTAP services could be of value to the facility. During the meeting, the plant manager described that unexplained high BOD loadings had been detected in the

facility’s wastewater. A company team was formed to address the high loading levels and their associated costs.

The team members drew and reviewed a processing diagram, which revealed a collection system for by-products that

had previously been put in place. However, with the addition of new equipment and changes in the production process over the years, the by-product collection system was no longer being used. As a result, most of the by-products were simply being flushed to the drain, thereby causing the high BOD loadings. The team members analyzed the system, and identified valves, piping, and controls needed for updating and rebuilding the by-product collection system. After only seven monthly meetings, the system was updated and rebuilt, and the team was credited with saving the company over \$72,000 annually in lost product and ingredients.

While working on the larger by-products issues, team members also identified additional savings opportunities including adding water meters to two cooling towers and the powder room and installing new chemical feed pumps to the vat pasteurizers to allow for accurate monitoring and use of a more effective cleaning chemical.

The impact of all these team efforts has been significant cost reductions and business savings for the company. As these and additional team ideas are implemented, the Kemps Rochester facility will continue to improve its plant efficiency and increase its plant capacity. ■

What they said...

“MnTAP provided a structure to develop our team and gave us an understanding of how ingredients going down the drain affects loading. After this demonstration, the team realized anything that could be captured in process would greatly impact our BOD loadings.”

-- Mike Hinrichsen, Operations Manager at Kemps Ice Cream

Beef packing facility attends training, implements energy improvements

PM Beef Holdings, LLC in Windom is a privately held beef packing facility. Facility representatives attended the steam assessment training coordinated through MnTAP’s U.S. Department of Energy (DOE) project and then participated in a DOE facility audit. To continue the momentum started through the training and subsequent audit, MnTAP met monthly with PM Beef’s energy management team that included management and staff from the maintenance department as well as representatives from Minnesota Energy Resources Corp. (MERC).

During team meetings, MnTAP helped team members prioritize suggestions from the facility audit and develop project ideas to reduce PM Beef’s energy use and wastewater. Several projects were completed in 2011, including:

- The purchase and installation of a heat exchanger for boiler blow down
- Regular water heater preventive maintenance
- Steam trap repairs and replacement
- Water conservation measures and water reuse initiatives
- Implementation of mechanical cleaning operations to reduce water use

The company expects the projects will result in reduced annual thermal energy use by approximately 172,000 therms and annual water use by 3.5 million

gallons. Annual savings from these projects tops \$114,000; additionally, PM Beef received a \$1,000 one-time rebate from MERC.

“MnTAP brought things to light; they provided information and feedback in areas that are not our expertise,” Lester Tessum, plant manager, said.

This project was made possible by a grant from the U.S. Department of Energy and the Minnesota Department of Commerce through the American Recovery and Reinvestment Act of 2009 (ARRA). ■

What they said...

“MnTAP assisted our facility by having the knowledge to identify equipment items and practices that could impact utility savings as well as being environmentally friendly. We appreciate their professional assistance and insight and highly recommend their services to others.”

-- Greg Beck, Vice President of PM Beef

Savings identified in hotels total \$710,000

Torgerson Properties, Inc. (TPI) develops, builds and manages hotels and restaurants throughout greater Minnesota and Florida. In 2011, TPI agreed to work with MnTAP as part of the U.S. EPA Region 5-funded hospitality project. “We agreed to work with MnTAP initially because it was a low-cost initiative that allowed us to become more educated on how we could impact our financial performance and at the same time become good partners in our communities.” Pete Bromelkamp, vice president of associate training and development at TPI, said.

MnTAP conducted site assessments at 26 of the 27 Torgerson hotel properties in Minnesota to identify waste reduction and energy efficiency opportunities. Following each visit, a letter of recommendations was sent to the property manager outlining the low-hanging fruit opportunities such as upgrading lighting and installing low-flow faucet aerators. In addition, MnTAP evaluated some larger capital investment projects that are assumed to have more significant impact on environmental performance and cost reductions. The larger projects were presented to Torgerson and provided in a company-wide report. “The impact of the MnTAP study completed by Sarah Haas has been amazing. We immediately began to implement some of the suggestions, but when we received a company-wide report, it clearly identified what a huge impact our organization could make on our operations and our communities,” Bromelkamp said.

MnTAP also used two years of utility data to develop benchmarks and energy footprints for each facility. The benchmarks allow the facilities to compare their energy use

and relative efficiency against their peers. The energy footprints identified for the Torgerson properties were summarized to develop an average footprint for Minnesota properties, which did not exist prior to this project. This average footprint will serve as a guide for providing assistance to future properties.

The data was also entered into the EnergySTAR benchmarking program and the results indicate that five properties are potentially eligible for certification. The application process has been started and it is anticipated the properties will receive their designation by end of the year.

Through the efforts of this project with Torgerson, 5.8 million kWh; 460,550 therms; 4.3 million gallons of water; 418 tons of solid waste; and nearly \$710,000 in annual savings were identified. This represents an annual reduction of 25% in electric use, 57% in gas use, and 38% reduction in water use. Any cost saving generated through conservation efforts will go directly back into the facilities. “We hope to implement additional projects as they become practical. The impact of these first few initiatives really opened our eyes to the potential that exists as technology continues to change and improve,” Bromelkamp said. ■

What they said...

“[The] precise and easy to understand feedback identified a lot of low-hanging fruit that we were able to quickly act upon.”

-- Pete Bromelkamp, Vice President of Associate Training and Development at Torgerson Properties

MnTAP’s work in hospitality leads to projects on organic and food waste

Due to MnTAP’s success with the hospitality sector in Minnesota, two partner organizations have engaged MnTAP in organic and food waste initiatives. Through a grant funded by the U.S. EPA Region 5, MnTAP has been working with the City of Eagan to develop and demonstrate opportunities for food waste management at an event center. Since the project began, MnTAP has conducted a waste audit for the facility and determined that roughly 45% of the waste generated can be sent to a compost facility. The next steps are to initiate a pilot project with the facility to determine the feasibility of implementing an organic waste program at the event center. Overall, the results from this project will be used to develop a template that can be used by event centers statewide.

A second project, sponsored by the Ramsey and Washington County Resource Recovery Board aims to also result in replication models for organic waste management. In this project, MnTAP is placing two interns at facilities (a food processor and multiple restaurants) in Ramsey and/or Washington County to develop a replication model for implementation of food waste and organics management within business clusters in the region. The tools and information generated during this effort will be available to businesses through both counties, as well as through MnTAP

For more information about organic waste, how to manage it, or MnTAP’s efforts in the hospitality industry, contact Sarah Haas at 612.624.5119 or haasx132@umn.edu. ■

2012 MnTAP interns ready to identify solutions

On May 21, 2012, nine talented and ambitious students will begin their summer MnTAP internships. This year they are charged with identifying feasible solutions for the companies they are working with. To kick off their projects, each student will tour, assess, and learn more about his/her facility and then will begin to identify where the waste is being generated or the energy is being used. Then, with guidance from their MnTAP advisors and on-site supervisors, the interns will research and start implementing effective solutions to help their facilities save costs, reduce regulatory compliance burden, and decrease environmental impacts.

Each company has an on-site supervisor to the project and is looking forward to a new set of eyes to evaluate potential solutions. Participating companies for 2012 include:

- 3M Co., Hutchinson
- Ceramic Industrial Coatings, Osseo
- Food Processor, Ramsey/Washington Counties
- G&K Services Inc., St. Cloud
- Graco, Inc., Minneapolis
- GE Water and Process Technologies, Minnetonka
- Northern Iron and Machine, St. Paul
- Seneca Foods, Rochester
- Various Restaurants, Ramsey/Washington Counties



A MnTAP intern in 2011 worked at August Schell Brewing Company in New Ulm and identified water conservation opportunities.

As in past years, a number of utility companies in Minnesota are partnering to offer their clients interns through the MnTAP program. Xcel Energy, CenterPoint Energy, and Minnesota Energy Resources Corporation are all helping to sponsor part or all of a project within their service territory.

The 2012 interns will be presenting their projects at a public forum on August 22, 2012, at the University of Minnesota. For more information about the intern program, visit MnTAP's web site at <www.mntap.umn.edu> or contact Krysta Larson, 612.624.4697. ■

MnTAP is seeking an engineer to help us assist Minnesota businesses

In early April 2012, Jeff Becker, technical director and senior engineer, left MnTAP to pursue other opportunities in the field of energy efficiency. He was a tremendous asset to MnTAP and Minnesota businesses during his four-year tenure at the organization.

In order to fill the open position, MnTAP is seeking applicants for an engineer position. At this time, we are looking for an engineer with a background in environmental and energy issues as well as manufacturing processes. Knowledge of or experience in Lean manufacturing processes would be a plus. Required qualifications include a B.A. or B.S. in engineering, problem-solving skills, communication skills, and 1-5 years or more of experience. Additionally, there is in-state travel required with this position as MnTAP assists companies throughout Minnesota. This position qualifies for University of Minnesota benefits and is located at the University of Minnesota Twin Cities campus.

Important responsibilities of this position include:

- Developing an expertise in manufacturing sectors in order to serve as a resource for Minnesota companies.
- Providing technical assistance to help companies reduce waste, use materials more efficiently, and conserve energy.
- Identifying opportunities through process analysis and providing justifications for proposals to meet the needs of business.
- Delivering pollution prevention and energy efficiency information to businesses in Minnesota.
- Continuing on-going relationships with clients by conducting follow-up to interactions and tracking project implementation.

For more information about the opening or responsibilities, please contact Krysta Larson, MnTAP assistant director, by email at mntap@umn.edu. ■

Materials Exchange



The Minnesota Materials Exchange program lists one company's unwanted material and makes it available for use by another company. For more information, call MnTAP at 612.624.1300 or 800.247.0015.

2011 Accomplishments

As MnTAP has reported previously, an entirely new online system was developed, tested, and rolled out in 2011. The system, installed and implemented by iWasteNot, was chosen for its ability to streamline exchanges between businesses, reduce MnTAP staff time spent gathering data, and facilitate additional exchanges for partner organizations. To date, the University of Minnesota ReUse Center has signed on to partner with MnTAP on the new system and is in the final phase of implementation for their exchange. In 2011, the Materials Exchange program was responsible for helping divert over 380,000 pounds from landfills in Minnesota.

Wanted!

The Materials Exchange is a great place to list items that you have available, but did you know that you can list items that you want? You can also check out the items wanted by others to see if you have something that someone else needs.

Currently, there are almost 50 items listed as wanted on the Materials Exchange. Those items include, but are not limited to:

- 55 gallon empty steel or plastic drums
- Bubble wrap, packing peanuts, or air-filled packing pillows
- Wood pallets
- Styrofoam coolers
- Gaylord boxes

Log in today to find out if someone needs something you have or to list an item that you need at your business. Other users may just have what you need!

Ready, Set, Race, Reuse

The Minnesota Chapter of the Reuse Alliance hosted "The Great Reuse Race," the first ever two-week long scavenger hunt through the reuse community from April 9 through 22. Over

250 racers took to the Twin Cities reuse community learning about opportunities for purchasing quality, used items and donating goods. Participants physically and virtually visited up to 28 participating organizations to become eligible for exciting prizes such as a refurbished Apple iPad, Lenovo laptop with Windows 7, and a custom bike build-out.

The goal of the The Great Reuse Race was to demonstrate the environmental, social, and economic benefits of choosing to reuse locally. Reuse diverts valuable materials from the landfill, supports local business, provides assistance to underrepresented populations, and creates thousands of jobs in every state. In fact, the Minnesota Pollution Control Agency estimates the reuse industry creates approximately 46,000 direct jobs alone in Minnesota.

Reuse Alliance MN is a chapter of the national Reuse Alliance, a 501(c)3 nonprofit for the promotion of the triple bottom line benefits of reuse. Members are individuals whom represent reuse organizations throughout the state. Other chapters include New York, Oregon, California, North Carolina, and Texas. For questions and comments, please contact Arielle Courtney at Arielle@reusealliance.org.

For More Information

If you have questions regarding the Materials Exchange or solid waste issues, please email mnexchange@umn.edu or call Sarah Haas at 612.624.1300. ■

SBEAP offers new regulatory tools

'What permits apply to me?' video

Are you wondering what environmental regulations apply to your small business and what can be done to reduce obligations? A new Small Business Environmental Assistance Program (SBEAP) video offers a brief overview of what permits might apply to you. Consider reducing regulatory obligations through pollution prevention, which can save money through lower fees and be better for the environment. View the videos at www.pca.state.mn.us/sbeap.

New SBEAP sand and gravel operations resource page

The SBEAP Industry Sector webpage for sand and gravel operations has been updated and upgraded. The new page separates the regulations affecting aggregate operations into easy-to-navigate tabs and provides step-by-step instructions on how to determine if a permit is required. A calculator for determining emissions for this sector has also been updated to work in concert with the new webpage: www.pca.state.mn.us/jsrifde. ■

Minnesota Technical Assistance Program

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MINNESOTA TECHNICAL ASSISTANCE PROGRAM

The Minnesota Technical Assistance Program (MnTAP) helps businesses and industries develop and implement industry-tailored solutions that maximize resource efficiency, prevent pollution and reduce costs and energy use to improve public health and the environment. As an outreach program at the University of Minnesota, MnTAP provides 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.

MnTAP is funded primarily by the Minnesota Pollution Control Agency's Resource Management and Assistance Division and is located at the University of Minnesota in the School of Public Health, Division of Environmental Health Sciences. The University's mission, carried out on multiple campuses and throughout the state, is threefold: research and discovery, teaching and learning, and outreach and public service.

The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression.



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UNIVERSITY OF MINNESOTA

Calendar

For more information about these events and more, including how to register, visit MnTAP's online calendar at www.mntap.umn.edu/news/index.htm.

May 9, 2012. **Up in the Air: What Changes in Federal Air Quality Standards Could Mean for Minnesota.** Join Environmental Initiative and experts from across the state and region to learn about new research on air quality in Minnesota and its impacts on public health, how proposed changes to federal standards may impact Minnesota industries and communities, and opportunities to improve our air quality through tested strategies that make sense for Minnesota's economy, our health and our environment.

May 11, 2012. **Embedded Sustainability - Adapting and Innovating for Long-term Success.** In this session, consultants, experts, and local business leaders will share resources, discuss challenges and lessons learned, and offer solutions to help sustainability practitioners integrate sustainability into the foundation of their organizations.

May 17 & 24, 2012. **Emergency Planning and Community Right-to-know Act (EPCRA) Seminar.** This seminar will cover reporting required by all sections of the Federal EPCRA, including the Toxic Release Inventory and EPCRA and CERCLA release reporting and compliance.

June 5, 2012. **Industrial Stormwater "How to Collect a Sample/Submit Results" Training.** This event, coordinated by the University of Minnesota Erosion and Stormwater Management Program, will focus on the permit sampling and monitoring requirements, as well as how to take samples and report the findings.

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