MnTAP
University of Minnesota

SOURCE

2013 Issue 1

Resource Efficiency = Savings for Businesses

Inside...

- Interns identify solutions for their facilities
- Site visits lead to cost savings for companies
- Teamwork results in energy and waste savings
- Grant-funded projects looking for partners
- MnTAP welcomes new staff
- Materials Exchange facilitates reuse in Minnesota

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2012 was another great year for MnTAP. The work of our dedicated staff members has resulted in significant source reduction of hazardous pollutants and improved raw material and energy efficiency at businesses across Minnesota. In addition to our pollution prevention work supported by the Minnesota Pollution Control Agency (MPCA), we have launched eight new projects, and concluded five projects over the course of the year. These additional projects have afforded staff the opportunity to provide assistance in the areas of energy efficiency, water conservation, reuse, life-cycle assessment and lean processes, as well as solid and organic waste management.

> *"MnTAP has been forturnte to work with committed clients, sponsors and assistance organizations in 2012 to provide conservation results for Minnesota."*
>
> *-- Laura Babcock, MnTAP Director*

MnTAP has pulled together another impressive set of implemented outcomes for the calendar year 2012. We have:

- Visited with approximately 100 companies on site.
- Reached out to nearly 200 more across the entire state.
- Supported nine intern projects at businesses throughout Minnesota.

With MnTAP assistance, companies have realized reductions of more than **1.8 million pounds** of waste, **7.5 million kWh** and **350,000 therms of energy**, and conserved over **42 million gallons** of water. Combined, these reductions are saving companies **$2 million annually.** Throughout this report, you will read success stories from some of the companies we assisted in 2012. The cost savings these companies achieved in 2012 are helping many of them increase production, add employees and invest back in their operations. This is good business for Minnesota. ■

Be sure to check out . . .

- The full 2012 Environmental Benefits Report: http://www.mntap.umn.edu/resources/reports/EnvBenefits/2012EnvBenefits.pdf
- The GreenBiz.com article about MnTAP's life-cycle assessment of surgical sterilization equipment at the Mayo Clinic: http://www.greenbiz.com/blog/2013/03/28/cutting-hospital-waste-emissions-blue-wrap

2012 Outcomes

Activity	Waste (lbs)				Energy		Water (gallons)	Savings
	Air Emissions (lbs)	Hazardous Waste (lbs)	Wastewater Load (lbs)	Non-Haz/ Solid Waste (lbs)	Electric (kWh)	Gas (therms)		
Site Visits	1,350	0	270,000	36,200	1.9 million	55,000	1.3 million	$590,000
Teams	0	17,000	1,200,000	241,000	1.8 million	149,000	29.9 million	$810,000
Interns	50	14,400	0	33,000	3.8 million	153,000	11.6 million	$590,000
Mat. Exch.				26,000				$5,000
TOTAL	1.8 million				7.5 million	357,000	42.8 million	$2.0 million

MnTAP conducts solid waste assessments in rural Minnesota

Solid waste is a growing problem in Minnesota that impacts businesses, counties and communities. In 2010, Minnesota generated 5.6 million tons of solid waste, with 2.5 million tons collected for recycling.

To begin tackling the issue of solid waste in rural communities, MnTAP is partnering with counties and other concerned partners, such as chambers, civic organizations and tribal communities, to host training sessions and assessments in 10 locations in northern and western Minnesota. The events will provide resources, insights and a forum for sharing ideas and information about solid waste management and diversion. MnTAP is also conducting no-cost solid waste assessments for businesses in each training location. MnTAP will work with the businesses in advance to understand their waste generation cost burden and their priority waste issues. This will help tailor assessments to the businesses' needs.

What they said...

"This is a great opportunity for northern Minnesota businesses and local units of government to learn how they can reduce wastes and costs."

-- *Sandy Gunderson, Becker County Environmental Services*

Five counties have already scheduled trainings that began in February, with **five additional training sessions still available.**

An assessment with a solid waste specialist takes two to four hours, depending on the size of the facility. MnTAP will discuss your facility's waste concerns and management practices; after the assessment, we will provide a detailed, site-specific report with information about the opportunities identified, cost analysis and recommendations for moving forward. MnTAP will also provide follow-up for one year to help implement changes that will reduce or divert solid waste from landfills.

These trainings and assessments are supported by a grant from the United States Department of Agriculture Rural Development Utilities Program, with no cost to your organization.

If you have any questions about the current training calendar or partnering with MnTAP to bring a solid waste event to your county or group, please contact Anna Arkin, Solid Waste Specialist, at 612.624.0808 / 800.247.0015 or aiarkin@umn.edu. ■

Company teams find efficiencies and savings for their businesses

Forming a pollution prevention and energy efficiency team within your facility can not only improve process efficiencies, but also boost your bottom line. MnTAP can help develop an internal team designed to investigate your waste-related issues.

"A company's greatest resource is the innate, creative potential of its employees," says MnTAP Food Processing Specialist John Polanski, who has been helping businesses build successful teams for over 15 years. Polanski has refined the MnTAP model for creating a team-based approach to improving waste, water and energy efficiency that is being piloted at companies over the coming year.

Many companies have employed the team structure and have realized significant waste and energy use reductions - and the associated cost savings. Often, teams consist of members from all ranks of the company and all locations in the facility. This enables the team to tackle projects and get many points of view to define solutions.

Franklin Foods, a fluid milk bottling plant in Duluth, Minn., realized product and cost savings through MnTAP team facilitation. Franklin Foods serves customers throughout northern Minnesota, Wisconsin and the Upper Peninsula of Michigan. At the plant, approximately 129,500 gallons of fluid milk and 5,000 gallons of cream are processed each week. In 2010, MnTAP was asked to assist the company in forming a pollution prevention team to reduce water use and wastewater loading.

During 2012, the team took on the task of identifying the source of a large fluid yield loss. This search indicated the butter fat and cream yields were lower than expected. The process for flushing product forward in a new pasteurizer system was investigated in more detail. The new pasteurizer required doubling the flush time to clear the line of product prior to clean-in-place operations. Increasing the flush time for the line solved the fluid yield loss problem, with the company realizing $346,900 in energy, water and materials savings.

To find out if forming an internal team is the right move for your business, contact John Polanski, Food Processing and Team Facilitation Specialist, at 612.624.4619 or polan001@umn.edu. ■

Franklin Team Savings

Energy	Water Use	Raw Material Recovery	Hazardous Material Recovery	Total Savings
53,000 kWh	2.1 million gallons	1.2 million lbs	1,000 gal & 8,500 lib/yr	$346,900

Industry finds millions of gallons in water savings

The Twin Cities metro region is fortunate to have an abundant clean water supply. Approximately 70% of the consumptive groundwater use in the area is monitored through municipal water use plans approved by Metropolitan Council Environmental Services (MCES). The remaining 30% of consumptive groundwater use is from private well users.

> ***MnTAP staff have made industrial water conservation recommendations totaling over 150 million gallons over the past five years.***

Currently, MnTAP is exploring the opportunity for water conservation by private industrial water users across the eleven county Twin Cities metro. The project team will identify factors that encourage or create barriers for implementation of identified industrial water conservation projects. Project goals include:

- **A survey of private industrial water users to assess general trends in water use and conservation activities.**
- **Numerous on-site assessments with MnTAP engineering staff to directly identify water conservation opportunities.**
- **An in-depth investigation of three facilities through summer intern projects.**

This water conservation project is sponsored by MCES and supported with Clean Water Land & Legacy Amendment funds.

Here are a few highlights of water conservation projects throughout 2012:

- Five assessments were conducted by MnTAP staff experienced in industrial process improvements.
- 70 million+ gallons of water conservation opportunity have been identified.
- Water savings identified have the potential to impact the facility's ability to:
  - -Increase production
  - -Reduce hydraulic loads to treatment processes
  - -Reduce water heating, evaporation or pumping energy costs
  - -Avoid a new well installation

MnTAP will support implementation of identified water conservation opportunities and additional assessments though the end of 2013. ■

Squeeze the most from every drop: *Water conservation tips for your business*

- **Understand your water flow**
- **Reuse water**
- **Use high-pressure, low- volume wet cleaning systems**
- **Optimize nozzle type for your application**
- **Prevent leaks**

- **Turn water off when not in use**
- **Review your clean-in-place system**
- **Train your employees about water conservation**
- **Create incentives for employees to reduce water use**

More on how to maximize your water use at: http://www.mntap.umn.edu/greenbusiness/water.htm

Organic waste management is now in vogue

Food businesses can save money and lighten their trash loads when they manage organic waste. Whether it's a tomato or a tomAHto, waste costs your business money.

"Businesses pay for materials three times during the life of the product," says MnTAP Organic Waste Specialist Matt Domski. The first time is the initial purchase, the second cost comes through processing and the third is paid when the unconverted material is disposed as waste.

A business that recycles their organic waste may be able to reduce cost number three, their disposal cost.

"There is a large percentage of food that is wasted that could be put to beneficial reuse. It can be donated to food banks or pig farms, composted or burned for energy," said Domski.

Following are three examples of businesses that found savings by implementing organic waste management processes. ■

What they said...

"The help from MnTAP and Dakota Valley Recycling was critical. The process is second nature now and going very well."

-- Cherryl Mesko, City of Eagan, Parks and Recreation Superintendent of Operations

Eagan Community Center finds cost savings through composting

With the help of the Eagan Energy and Environment Commission and Dakota Valley Recycling, MnTAP helped the Eagan Community Center establish a collection system to send organic waste to a composting facility, with support from an EPA solid waste management assistance grant. The implementation included purchasing color-coded bins, training staff members, purchasing and offering compostable service ware, and engaging the public with signage.

Based on the results of a waste sort, the facility has reduced its daily trash by 55%, with the potential to divert 45,000 pounds of waste annually from the landfill. Cost savings may be achieved by reducing the number of trash pickups each week. The facility now recycles three pounds of material for every one pound thrown in the dumpster.

The City of Eagan is looking to expand organics separation to other city-managed facilities. ■

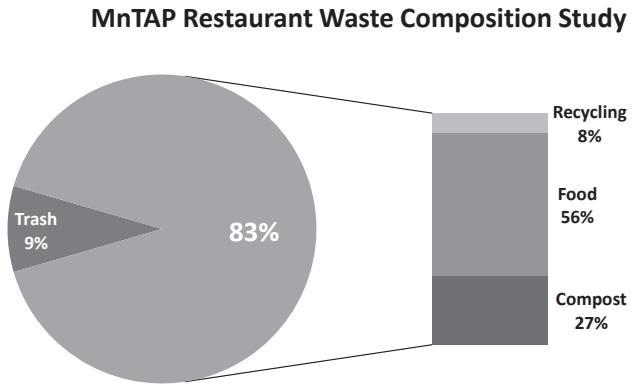
As part of the composting project with the City of Eagan, MnTAP helped generate signage for composting, recycling and trash.

Restaurant waste is mostly compostable or recyclable

As part of the Ramsey/Washington County Resource Recovery Project, 10 restaurants participated in a MnTAP intern project during the summer of 2012: Burger Moe's, Donatelli's, The Downtowner, Leo's Grill & Malt Shop, Rudy's Redeye Grill, Sweeney's Saloon, The Day by Day Café, The Green Room, Ursula's Wine Bar & Café, and Washington Square Bar & Grill.

Each restaurant proved to be conscious of their waste streams, with most having recycling systems in place. A waste sort of the remaining dumpster trash revealed that over half the waste was food that could be composted.

MnTAP intern Jessica Primozich evaluated opportunities to divert food and other organic material in restaurant waste from landfills. The project generated a model for organic waste management, providing businesses with a template to recycle more material and reduce costs.



Primozich spotted other trends that can help restaurants improve recycling rates:

- An average of 83% of total waste was food and other reusable material.
- Common materials that were not recycled properly were food and beverage containers.
- Color-coded bins for trash, recycling and organics could improve waste management efficiency. ■

Don't let waste eat into your bottom line...

No matter how you look at it, waste costs you money.

MnTAP is offering NO COST organic waste assistance to businesses in the Ramsey/Washington County area through the end of 2013.

Funded through the Resource Recovery Project, MnTAP is focusing on implementing organic waste management best practices with food processing companies and related organic waste generators in Ramsey and Washington Counties.

Conatct Matt Domski at 612.624.5119 or domsk004@umn.edu

Land 'O Lakes R&D reduces disposal costs, improves worker safety

The Resource Recovery Board of Ramsey and Washington counties collaborated with MnTAP on a project to model organic waste management in food processing facilities.

Intern Matt Domski (now MnTAP's organic waste specialist) worked at Land O'Lakes R&D in Arden Hills for three months. He evaluated the waste stream, and conducted employee interviews and meetings with waste haulers to determine the best options for waste management.

The project revealed some key opportunities for Land O'Lakes R&D: 60% of all food waste, or approximately 15 tons per year, could be claimed for beneficial reuse. Land 'O Lakes implemented a food-to-hog farm collection service, which takes excess food, steam-heats it to kill pathogens, and feeds it to the animals.

By removing this portion of food waste from the trash, Land O'Lakes R&D gains value in three main ways:

- **Reduced disposal costs** – adding an organic service and reducing the amount of food waste in their dumpster will help Land O'Lakes save approximately $11,000 annually.
- **Improved employee safety** – adding an organic service helped reduce the amount of heavy lifting done by employees to transport food waste.
- **Increased use of raw material, less environmental impact** – food that was once waste is now a valuable resource to farmers as a food source for their swine.

Combining experience at Land O'Lakes R&D with additional research, Domski developed a comprehensive model for organic waste management. The model will serve as a starting point for other food processing facilities to implement organics recycling programs. ■

2013 MnTAP interns identify energy and water savings

On May 20, 2013, nine talented and ambitious students began their summer MnTAP internships. This year, the interns are charged with identifying potential waste, energy and water conservation solutions at companies in the Twin Cities and Duluth.

To begin their projects, each student toured their facility to learn about the production process and facility operations. The students then began to identify where the waste is generated or the energy or water is being used. With guidance from their MnTAP advisors and on-site supervisors, the interns researched and began implementing effective solutions to help the facilities save costs, reduce their regulatory compliance burden, and decrease environmental impacts.

Participating companies in the 2013 summer intern program include:

- St. Luke's Hospital, Duluth
- St. Croix Forge, Forest Lake
- Consolidated Precision Products, Bloomington
- Schwing America, White Bear Lake
- Tennant Company, Minneapolis
- Federal Cartridge, Anoka
- Gedney Foods Company, Chaska
- Michael Foods, Chaska
- CSM Bakery Products, Eagan

A 2013 MnTAP intern at Federal Cartridge in Anoka researched multiple water conservation and recycling opportunities including single pass cooling applications and other metal-forming manufacturing steps that incorporate washing and rinsing.

As in past years, a number of utility companies and government agencies are partnering with companies within their service area to offer their clients interns through the MnTAP program. Xcel Energy, CenterPoint Energy, Minnesota Energy Resources Corporation (MERC), Minnesota Power, Metropolitan Council Environmental Services, and the Minnesota Department of Commerce, Department of Energy Resources are all helping to sponsor part or all of a 2013 intern project.

The 2013 interns will be presenting their projects at a public forum on August 22, 2013 from 1:00 p.m. - 4:30 p.m., at the University of Minnesota. To register for the event go to: http://form.jotformpro.com/form/31607012241943. For more information about the intern program, visit MnTAP's web site at www.mntap.umn.edu or contact Linda Maleitzke, 612.624.4697. ■

Welcome new MnTAP Staff!

Anna Arkin is a Solid Waste Specialist who manages the Minnesota Materials Exchange, the state's online business reuse network, and serves as interim coordinator for ReUSE Minnesota, a new trade association for the reuse sector. She previously developed an organics recycling program with U of MN Recycling through Minnesota GreenCorps.

Matt Domski is an Organic Waste Specialist. He began with MnTAP as a summer intern, after graduating with a B.S. in Bioproducts Marketing & Management and a minor in Corporate Environmental Management. He will focus on organic waste reduction in food processing and institutional facilities.

Monique Dubos joins MnTAP as Communications Associate. She has more than 10 years of experience as a freelance writer and editor, and has been published in preriodicals across Minnesota, including Ensia.com.

Linda Maleitzke is the new Communications Specialist and Intern Program Administrator. She is responsible for providing outreach and communication leadership for MnTAP programs and initiatives. Linda has more than 20 years of experience in communications and marketing in the private, public, and non-profit sectors, including over five years of experience as a communications professional in higher education.

Mark Powers is an Engineering Coordinator. He has more than 12 years of experience as a process engineer, with expertise in agricultural and renewables processing, renewable chemicals, reverse osmosis membrane manufacture, and microelectronics manufacturing. He is active with Enterprise Minnesota on GreenLean™ projects and provides technical assistance to all industries. His MnTAP focus is within the ethanol and pulp/paper industries, as well as on energy conservation projects.

Materials Exchange

The Minnesota Materials Exchange program lists one company's unwanted material and makes it available for use by another company.

The Minnesota Materials Exchange program (www.mnexchange.org) connects organizations that have reusable goods they no longer need to those who can use them. This reuse network helps prevent usable materials from becoming waste and entering our landfills and also saves users money.

Recent Accomplishments

MnTAP introduced an entirely new Materials Exchange website in 2011. Throughout 2012, we refined the website and launched an improved site at the beginning of 2013. The improved website is user-friendly and intuitive, and offers new options for listing and browsing items listed on the exchange.

During 2012, MnTAP strengthened its partnership with the University of Minnesota ReUse Center and their "Virtual Warehouse," through which they are expanding their on-campus reuse program to the web.

In 2012, MnTAP registered 345 new members to the Materials Exchange and saw 11,220 unique visitors, 271 listings, 70 successful exchanges reported, 13 tons of waste diverted, and thousands of dollars saved.

Wanted!

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

- Wood pallets
- Padded envelopes
- 55-gallon food-grade plastic drums
- Used computers
- Packing materials, including bubble wrap, foam peanuts and cardboard

Log in to www.mnexchange.org today. Who knows? Other users may just need what you have or have what you need!

For More Information

If you have questions regarding the Materials Exchange or solid waste issues, please email mnexchange@umn.edu or call Anna Arkin at 612.624.0808. ■

ReUSE Minnesota: *Dedicated to Strengthening Minnesota's Reuse Sector*

Through an Environmental Assistance grant from the MPCA and support from several Minnesota reuse organizations, MnTAP has been coordinating a new nonprofit organization dedicated to increasing the visibility of Minnesota's reuse sector.

ReUSE Minnesota is focused on bringing visibility to the reuse, rental and repair sector through networking, publicity and events.

The organization's official launch was celebrated at Summit Brewery in St. Paul in June and drew over 100 business owners and other reuse advocates. Their exhibit at the Minnesota State Fair this year, "Room with a 'Re'Purpose," will demonstrate opportunities to reuse and repair everyday items through beautiful interior design and furniture ideas.

"The three R's" have been part of MnTAP's conversation for many years; reuse is only recently getting the attention it merits due to its environmental, social and economic benefits.

Learn more at www.reusemn.org or contact ReUSE Minnesota Coordinator Anna Arkin at 612.624.0808 or info@reusemn.org.

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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.

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Calendar

August 13, 2013. **Pro Paint Incorporated 6th Annual Trade Show and Seminars.**

August 22, 2013. **Intern Program Final Presentations.** Learn more about pollution prevention and energy efficiency solutions from students participating in the 2013 MnTAP intern program. Each presentation is 15 minutes with 5 minutes for questions.

August 26-28, 2013. **Next Steps for Campus Sustainability: Connection, Integration & Transformation.** This workshop will help campus sustainability leaders push their institutions towards a deeper commitment to sustainability.

September 22-24, 2013. **ACEEE National Conference on Energy Efficiency as a Resource.** This conference draws together leading experts from a broad spectrum of energy industry stakeholders.

September 24-26, 2013. **International Institute for Sustainable Laboratories Annual Conference.** Industry professionals from around the world will gather in Minneapolis to experience dozens of technical sessions, symposia, workshops, and offsite evening tours on a variety of laboratory design, construction, architecture, engineering, and maintenance topics.

September 25-26, 2013. **16th Annual Pollution Prevention Conference and Trade Show.** The pollution prevention conference and trade show is a two day event. Day one will consist of GreenScreen™ Training, workshops, and other speakers as well as an evening reception. Day two will have keynote presentations and three concurrent breakout tracks.

Editors: Linda Maleitzke and Monique Dubos. Contributing writers: Anna Arkin, Matt Domski, Karl DeWahl, Mick Jost, Paul Pagel, John Polanski, Mark Powers and AJ Van den Berghe. This newsletter is sent free to Minnesota businesses and is available online at www.mntap.umn.edu/source. This publication/material is available in alternative formats upon request. Direct requests to Linda Maleitzke 612.624.1300 or lmaleitz@umn.edu.