Trash talk: The real scoop on waste in Minnesota.

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Commissioner’s Message

Dear Environmental Partners,

I’ve been throwing out things ever since I can remember. I used to throw everything in the trash, which I would put out weekly for the garbage truck. Let me be honest: until I came to the MPCA, I didn’t spend much time thinking about trash or its future.

And trash does have a future. Trash is not just — well, garbage anymore. The old saw, “garbage in, garbage out” is obsolete. It’s now “garbage in, something worthwhile out.” Trash has become a valuable resource, a collection of materials that can be transferred from one person to another, or transformed from one thing to another.

Garbage is no longer unwanted stuff to be dumped somewhere out of sight and out of mind. Instead of watching our trash pile up in landfills, where it sits for years and years, we can now make trash disappear and money appear in its place.

In this issue of Minnesota Environment, you’ll read about what we’re doing with trash in Minnesota. You’ll find out how businesses are saving money by choosing to recycle, reuse or, even better, not create trash in the first place. Since it’s better to avoid creating waste than to figure out what to do with waste once it’s here, waste prevention is the foundation of Minnesota’s waste hierarchy (see page 1).

You’ll also read about how and why recycling makes good economic sense. According to the 2001 U.S. Recycling Economic Information Study by the National Recycling Coalition, more than 56,000 recycling and reuse establishments in the United States employ approximately 1.1 million people, generate an annual payroll of $37 billion, and gross $236 billion in annual revenues. According to the report, the number of workers in the recycling industry is comparable to the automobile and truck manufacturing industry, and is considerably larger than the mining and waste management/disposal industries.

When we’ve done all we can to prevent, reuse and recycle, some things still need to be thrown away. This is where landfills come in. But keep in mind that Minnesota has enough capacity in its existing landfills only for the next 10 or 15 years, far too few for long-range planning. Modern incinerators burning garbage to make energy may be in our future; surely more recycling is.

Perhaps we are not yet ready for the diligent garbage-sorting required in landfill-poor Japan. A Yokohama residents’ handbook lists disposal categories for more than 500 household items!

Not being quite as determined as the Japanese, I sometimes have a hard time sorting recyclables into just two or three categories, let alone several dozen. But I can learn.

So can we all.

The key is to remember that heaping garbage into landfills is the same as heaping dollar bills into landfills. And we can all put our money to better use than that.

Sincerely,

Sheryl Corrigan
Commissioner
Waste is a terrible thing to waste

Treating waste as a resource benefits our health, environment

**Garbologist:** someone who studies society by digging in landfills and analyzing what people throw away.

If the vision of Minnesota’s top waste manager comes to pass, future Minnesota garbologists will find very little to study.

“I like to say there is no such thing as waste, just missed opportunities,” says Art Dunn, director of the Minnesota Office of Environmental Assistance (OEA). “There’s really very little that we’re currently putting into landfills that can’t be reused, recycled or converted into energy.”

**Keeping SCORE: Minnesota is a recycling leader**

In 1980, Minnesota adopted the Waste Management Act that established a waste management “hierarchy” to prioritize and focus resources where they would do the most good in protecting health and the environment. Waste reduction, reuse and recycling are at the base of the list; land disposal is the last choice at the top.

Nine years later, the Legislature adopted laws recommended by the Governor’s Select Committee on Recycling and the Environment, referred to as SCORE. Money collected through taxes on garbage service are passed on to counties that establish solid waste plans and match these funds.

Thanks in large part to SCORE and county and local waste managers, the state’s recycling rate has climbed from 25 percent in 1991 to roughly 40 percent, where it has remained steady for the past few years. Minnesota has one of the highest recycling rates in the country.

But there’s bad news. The average amount of waste each Minnesotan generates is increasing each year. The per capita rate in 2002 was 1.17 tons per person* — a 32 percent increase from 1991.

**High-fiber “diet” fills land disposal sites**

The waste hierarchy says we should reduce or recycle more of what we currently throw away. The biggest bang for the waste management buck would come from recycling more fiber — not bran muffins, but paper and cloth.

Nearly a third of the waste reaching Minnesota landfills is paper, cloth, cardboard and other easily-recycled materials. OEA’s Dunn says the time is right to recapture more of this resource.

“Finding markets is often a significant barrier to achieving high levels of recycling. However, the market for waste fiber is going through the roof, due to growing demand in places like China, which just built the world’s largest paper factory. We’re paying $50-$80 a ton to dispose of waste fiber, when there’s a huge opportunity to avoid that cost, plus profit from the sale,” Dunn said.

According to Dunn, people and businesses are washing another opportunity right down the drain.

“Capturing waste food and other organic material from homes, schools, restaurants, prisons and other institutions represents an opportunity for reducing loads going to landfills by 20 percent. It would be great to recapture the energy that went into producing the food by turning it into high-quality, highly-marketable organic compost,” Dunn says.

School District 196 in Dakota County found that 77 percent of the waste from the district’s 30 schools could be composted, including food scraps, milk cartons, napkins and lunch bags. Each school set up sorting areas for compostable materials in their cafeterias, and educated students on how to do it. More than 800 tons of waste was turned into a rich, organic soil enhancer that was sold back to the school district for grounds maintenance, saving the district money on both land disposal costs and environmental education for students.

Strangely enough, the food we throw away can make our lakes turn green in summer. Phosphorous is a nutrient that causes algae blooms in many Minnesota lakes. It’s estimated that nearly five percent of the phosphorous that enters Minnesota surface waters comes from food scraps, washed down sinks and garbage disposals. Keeping phosphorous out of our lakes costs money, so the more we compost, the healthier the water and the more money we save.

**Recycling is good for business**

Using an “environmental benefits calculator” model, the Recycling Association of Minnesota showed that recycling 2.3 million tons of waste in the state in 2002:

- Conserved nearly 58 trillion BTUs of energy, enough to power nearly 571,000 homes for a year, while reducing greenhouse gas emissions by more than 1.5 million tons;
- Reduced by 558,000 tons the natural resources needed to make steel;
- Reduced overall emissions (excluding carbon dioxide and methane) by 38,000 tons. Waterborne wastes were reduced by 6,300 tons.

*The 1.17 tons of garbage created per person divides into 6.4 pounds a day, a figure that includes discards from the commercial as well as residential sectors. Commercial discards are included because eating a meal at a restaurant or using consumer products create waste, too.*

Waste continued on page 4
Remember the days when communities across the country struggled to find places to dump their garbage? Stories abounded of cities that, for lack of landfill space, were sneaking their garbage across city or state lines to dump in other communities’ trash.

The quest of New York’s wandering “garbage barge,” seeking some place, any place, that would take its star-crossed trash, became a symbol of how serious the problem had become.

The garbage barge, the Mobro 4000, began its odyssey in the spring of 1987, carrying 3,200 tons of municipal refuse from Islip, New York, whose landfills were full, to a city in North Carolina, where city fathers expected to generate and sell methane from the garbage.

But, as the barge made its slow way south, rumors spread that its cargo contained medical waste and (horrors!) diapers. The intended recipients changed their minds and the barge was refused entry. Thus began a six-month journey that saw the Mobro eventually turned away by six states and three countries.

In the end, the Mobro’s load was taken back to New York and incinerated, but not before the barge had become an international laughingstock and a symbol for the growing problem of what to do with waste.

Minnesota, like the rest of the country, had developed a near-obsessive fear of landfills. Minnesota was different in one respect, though. Our battles focused on how to keep wastes inside the state, rather than keeping other people’s wastes out, which was more typical of the garbage wars in other places.

According to MPCA waste policy expert Jim Chiles, we can thank a progressive legislature in the 1970s and 80s, which invested heavily in a bold plan of “integrated waste management.” The idea was that recycling and advanced waste processing would take care of garbage where it was generated, without creating more landfills.

One result was a network of municipal and county garbage incinerators which still serves the state today. Another was what proved to be an unpopular attempt to restrict the flow of garbage so that it had to be handled at facilities built and operated by local governments.

For years, haulers had been free to take trash wherever they could pay the lowest “tipping fees,” the cost landfills or other facilities charge to dump their loads. Under integrated waste management, counties invested massively in facilities such as incinerators and transfer stations, set their own tipping fees, and mandated that haulers use only those facilities.

Other states followed suit. Trouble was not far behind, as haulers cried foul over sharply higher tipping fees and being constrained from seeking cheaper alternatives — for example, out-of-state landfills. Lawsuits alleging restriction of commerce filled the newspapers for years until a Supreme Court decision (Carbone vs. Town of Clarkson) in 1992 held that waste and waste-disposal service were articles of interstate commerce and therefore could not be restricted by state and local governments.

Now, a decade post-Carbone, a comfortable system has developed that allows waste to be moved freely but offers incentives to haulers to use integrated facilities.

“It’s still a big business with good profits to be made,” Chiles said. “After all, waste management is a pretty low-tech industry, and if haulers can keep their costs down they can do all right.”

— Ralph Pribble
The economic value associated with collecting, processing and marketing recyclables in Minnesota is estimated to be $3 billion, while supporting 9,000 jobs, according to OEA.

A burning issue

Despite being illegal for most citizens since 1969, burn barrels in Minnesota backyards are still common. Surveys of rural residents found that 45 percent of respondents burn up to two bags of garbage a week. When asked why, many cited convenience.

The key risk posed by residential garbage burning is dioxin. Remarkably, because it has no pollution controls, one burn barrel can produce more dioxin than a full-scale municipal waste combustor burning 200 tons of garbage per day.

Dioxin is a potent human carcinogen that is especially harmful to pregnant women, children and the elderly. It can cause reproductive, developmental and immunological problems in humans and animals. When released into the air in smoke, dioxin can be inhaled by those nearby or downwind.

Burn barrel regulation falls to the Department of Natural Resources, which recently received a federal grant to begin burn barrel buy-back programs beginning in the fall of 2005.

“Out of sight, out of mind,” now out of the question

So what happens if you can’t recycle it, can’t burn it and can’t get rid of it by other means? Are more landfills the answer?

In 2002, the amount of waste sent to landfills — the least-preferred disposal method — increased 3.4 percent. At this rate, the state’s existing landfills will be full in around 10 years. While existing landfills may be able to increase capacity by acquiring additional permits, and other states may be willing to accept more of Minnesota’s waste, Dunn says the solution to managing waste will not be found in building more landfills, but rather in changing our perceptions of waste.

“It would be very difficult, if not impossible, to site a new landfill anywhere in Minnesota now,” Dunn says. “No one wants it. It used to be that you could haul garbage away to ‘someplace’ where it was out of sight and didn’t bother anyone. Those places don’t exist anymore.”

The only viable approach, he says, lies in getting people to view waste as a resource, not something that has no value. And it wouldn’t hurt to do more upfront thinking about waste and disposal issues before products are designed and marketed, not afterward. The result: economic benefits, conservation of scarce resources and less pollution.

Our apologies to all future garbologists.

— Dan Olson

For more information

Minnesota Office of Environmental Assistance:
www.moea.state.mn.us

DNR regulations on open burning: www.dnr.state.mn.us/forestry/fire/questions.html

Minnesota law governing all types of outdoor burning: www.moea.state.mn.us/publications/byburn/law.pdf
When Mom says “please take out the garbage,” the dutiful child reaches under the kitchen sink, pulls out the waste basket, lifts out the plastic bag liner — hoping it doesn’t rip — closes the top with a twist-tie and takes it outside to the large trash container. Satisfied, the child returns, thinking the job is done.

As far as Mother Earth is concerned, that’s just the start. If the earth could say “take out the garbage” and we obeyed, we would avoid producing so much garbage in the first place. What we did toss out would go into a well-designed and properly-constructed landfill.

Despite efforts to recycle trash, Americans still lead the world in the amount of garbage dumped into landfills — nearly 150 million tons annually. Minnesotans generate nearly six million tons of garbage or “mixed municipal solid waste” annually. Families and businesses pay the price in their garbage bills.

About 40 percent of Minnesota garbage is recycled. Another 20 percent goes either to incinerators that produce heat and electricity or to organic composting sites. The rest goes into open landfills around the state or to landfills in neighboring states.

**Landfills are not all equal**

In years past, we didn’t think about what harm garbage might bring. We simply dumped trash into a hole in the ground, or a ravine or wetland. In the 1970s, the MPCA identified 1,800 open dumps, many of which burned garbage openly.

“Ground water was being contaminated to such an extent that it was no longer suitable for drinking,” says Mike Lynn, an engineer in the MPCA’s solid waste program. “In reaction to this, regulations were put in place in the early 1990s, establishing acceptable landfill designs to prevent ground water contamination.”

Currently, Minnesota has 16 public and five private landfills with permits to accept mixed municipal solid waste. They range in size from Cottonwood County (7,500 tons in 2004) to Elk River (nearly 350,000 tons in 2004).

Some waste must be disposed of in special locations. Waste from construction projects must go either to one of 128 separate demolition landfills or to a municipal solid waste facility also permitted for demolition waste. Minnesota also has 18 industrial solid waste landfills and 10 landfills approved to accept ash from the waste-to-energy incinerators.

The hundreds of old dumps and landfills that formerly existed around the state were either forced to close because they posed a threat to public health and the environment, or chose to close rather than comply with more stringent environmental rules.

**How does a landfill work?**

Landfills today are located away from sensitive areas such as wetlands, shorelands and floodplains. They are divided into
separate cells, each with about a five-year capacity. Both new landfills and new cells in existing landfills must have impermeable liners that prevent contaminants in the waste from reaching ground water.

“The liners generally consist of natural materials, such as compacted clay, and also man-made plastic liners,” Lynn explains. “These liners have collection systems that move liquids to collection areas or storage tanks.” From there, the liquid or “leachate” is stored for treatment at the landfill or a wastewater treatment plant. A monitoring system detects if contaminated ground water or methane gas leaves the property.

Once a cell is full, it is covered with an impermeable barrier such as clay or a synthetic geomembrane, which further reduces the production of leachate.

The decomposition of garbage generates methane, carbon dioxide and smaller amounts of other organic compounds and volatile materials. In the past, methane was often captured and burned off. Recently, methods have been developed to capture methane gas to fuel engines for electric generators. In Minnesota, four landfills use gas-to-energy recovery systems that generate a total of 24.2 megawatts of electricity annually — enough to provide power for more than 13,000 homes.

Closed Landfill Program

The legislature passed the Landfill Cleanup Act in 1994, which was aimed at having the state clean up and provide long-term care at 106 old, permitted, mixed municipal solid waste landfills. After 1994, the program added six more landfills, bringing the total to 112. A combination of a solid waste assessment tax, bonding authority and claims on waste generator insurance policies provided more than $150 million for cleanup at these landfills in the past 10 years.

“Minnesota has the only closed landfill program in the country. It’s absolutely unique,” says Don Kyser, an engineer with the Minnesota Office of Environmental Assistance. “We have prevented millions of gallons of leachate from contaminating ground water, kept thousands of tons of methane gas out of the atmosphere and saved the public millions of dollars in legal fees.”

Anatomy of a garbage bill

Here’s what the lingo on your garbage bill means:

1. **Recycling service** — some waste haulers also pick up residential recycling.
2. **Garbage service** — service fee charged by the waste hauler; includes disposal fee the hauler pays the landfill.
3. **Fuel surcharge** — charged to cover the cost of transporting waste to various landfills.
4. **State and/or county solid waste management fee** — some of this fee goes to the state or county general fund and some to the agency in charge of permitting landfills and haulers (e.g., county solid waste office or the MPCA).

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The future

While landfill capacity in Minnesota may be sufficient for the next 10 or 15 years, the legislature set a vision for future solid waste management by establishing a preferred hierarchy. Landfill disposal is the last choice. While more waste in Minnesota goes to resource recovery facilities than anywhere else in the country, it’s important not to slip back into more landfill use just because it’s less expensive.

“For the time being we have a fair amount of landfill capacity, but landfills are likely to fill quicker than we expect,” Kyser says. “We’re going to need to think about limiting landfilling of some types of wastes and paying the price. Europe is already beginning to limit the amount of organics going to landfill disposal.

“With the state’s projected population growth, there’s going to be plenty of new waste,” Kyser says. “Hopefully, we can make the small sacrifices now to cut our need for more landfill space later. With waste, it’s pay now or pay more later.”

— Forrest Peterson

Garbage through the ages

**Prehistoric** — small groups of nomadic humans dealt with their trash by moving on and leaving it behind.

**Ancient Civilizations** — around 500 B.C. the Greeks issued a law ordering all waste to be dumped one mile from the city walls.

**Middle Ages** — garbage was tossed into the streets, creating extremely filthy conditions in densely populated cities. Hordes of rats scavenged the trash, their disease-carrying fleas responsible for the Black Death in the 14th century, which killed an estimated one-third of the population of Europe and Asia.

**Industrial Revolution** — In New York City, trash was dumped into the East River until 1872, when it was instead taken out on barges and dumped into the ocean.

**Turn of the 19th century** — the first garbage incinerator was used in America in 1885. Cities also began to realize that garbage was a health hazard, not just a source of bad smells, and began to clean streets and remove garbage as a public health measure.

**20th century** — convenient disposable items and increased product packaging contributed to rapidly filling landfills. More disposable garbage items were dangerous to the environment, as they contained hazardous materials.

**21st century** — more and more cities, counties and states emphasize pollution-prevention, recycling, incineration and other means to handle municipal garbage.
My father, a librarian at a small Midwestern university, had the daunting task of figuring out what to do with stacks of dated newspapers that accumulated in the library's basement.

When he discovered that the local “junk yard” would pay for newspapers, I'd periodically help him load up the family station wagon and haul them away. The payoff was anywhere from 10 to 50 dollars, enough to keep me in baseball cards and bubble gum for weeks.

The recycling business has grown since those days. In 2003, Minnesota recycled 2.35 million tons of material — about 40 percent of the 5.9 million tons of mixed municipal solid waste generated. In turn, it's estimated that the recycling industry supports more than 9,000 jobs and ultimately generates as much as $64 million in tax revenues. With Minnesota's population predicted to grow by one million in the next two decades, recycling can only grow.

The markets for common recyclables such as glass, aluminum cans, paper and cardboard are well established in Minnesota. Businesses that recycle paper make up the largest segment of Minnesota's recycling industry. Rock Tenn in St. Paul, Liberty Paper in Becker, Stora Enso in Duluth and Pactiv in Moorhead are the biggest players, and much of the waste they use comes from curbside and business recycling programs.

Minnesota is also home to the biggest consumer of recycled glass in the upper Midwest. Anchor Glass in Savage produces more than 900 million bottles a year from recycled glass. Anchor gets most of its feedstock from business and curbside programs, too.

Even with these impressive numbers, the industry is ripe for growth. The Minnesota Office of Environmental Assistance (OEA) estimates that each year, businesses and consumers in the state still throw away as much as one million tons of material that could be recycled.

**Developing markets for recyclables**

OEA's Wayne Gjerde has worked for more than a decade on developing markets for waste materials. “Businesses pay for each ton of waste they dispose of,” says Gjerde. “Clearly, the best option is to limit the amount of waste a business generates in the first place. But once you've done that, it just makes good sense to routinely consider what's still going into your dumpster, and figure out what doesn't absolutely have to be there.”

If there isn't an existing market for a waste, one can be developed, but that can be a lengthy battle. It takes a convergence of factors. “First, there needs to be a steady stream of the material to be recycled,” says Gjerde. “Secondly, you need businesses that want to use that material. And last, but certainly not least, those companies have got to produce products that are generally accepted in the marketplace.”

A good example is the market for plastic milk jugs, shopping bags and the type of film used to wrap materials on pallets. These materials can be used in the manufacture of plastic decking material and other lawn and garden supplies.
Japan is dead serious about reducing waste. The New York Times reports that the city of Yokohama, Japan, recently gave residents at 27-page handbook on how to sort trash. The handbook includes instructions on 518 items, including lipstick and lipstick tubes (leftover lipstick to the incinerator, tubes into “small metals” or plastics), frying pans (under 12 inches into small metals, over 12 inches into “bulky refuse”), ping pong balls (incinerator), socks (pairs to “used cloth,” orphans to the incinerator). Garbage and recycling bags must be made of transparent plastic, so that neighborhood garbage wardens can check compliance. Families can even be evicted for poor garbage-sorting practices!

Because of its small size, Japan lacks landfill space. Eighty percent of Japan's garbage is incinerated today. The goal is to recycle enough to reduce incineration by 30 percent in the next five years.

Samurai garbage-sorting

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THE GOOD NEWS
is that, according
to a new survey by a
San Diego research
firm, we’re not the
throwaway society we
think we are. At least
when it comes to old
computers.

More than half of
us, according to the
nationwide survey by
MetaFacts, either keep
our old computers
ourselves, or pass
them on to friends
or relatives. Nearly
10 percent donate
them to charity and
17 percent of us keep
them indefinitely as
electronic bric-a-brac. A
miniscule 3.6 percent
claim to recycle or
“eCycle” their old PCs.

The bad news? A lot of
us admit to throwing
away old computers in
the trash.

Why is that bad news?
Consider this: Computer monitors and older TV picture
tubes contain an average of four pounds of lead, which
is known to be harmful to children. In addition to lead,
electronic equipment commonly contains chromium,
cadmium, mercury, beryllium, nickel, zinc, and brominated
flame retardants, all materials that can cause harm to humans
if released into the environment.

The National Safety Council projects that nearly 250
million computers will become obsolete in the next five
years, and mobile phones will be discarded at a rate of 130
million per year.

That’s a lot of toxic material to end up dumped into the
environment. Minnesota’s legislature has taken steps to help
control this problem with a law that will ban electronics with
cathode-ray tubes
(such as televisions
and computer
monitors) from
disposal as garbage.
This means that
these electronics will
need to be recycled
in some way.

Donate that
old computer
to charity
If your old
computer or cell
phone is working,
consider donating
it to a school,
library or nonprofit
organization.
Some computer
refurnishers are
nonprofit agencies
and will even
take non-working
equipment. Your
donation will help
others and provide
you with a tax break.

Contact the manufacturer
Some electronics manufacturers offer recycling and reuse
alternatives for their products. For instance, the Cellular
Telecommunications & Internet Association (CTIA) and its
member organizations have teamed up to offer recycling options
for wireless phones. Companies like Dell, Gateway, Hewlett-
Packard and IBM provide recycling and refurbishment options
for many of the computer and computer-related products they
manufacture. Rules and fees vary. A few years ago, the Sony
Corporation agreed to team up with the state of Minnesota
and Waste Management Inc. to recycle Sony electronics free of
charge. For more information, visit www.moea.state.mn.us/
plugin/sonyevents.cfm.

Contact your retailer
Many national retail chains offer recycling programs for broken
or unwanted electronics. Items collected are either refurnished
or recycled to benefit charitable organizations. Some companies
that offer this service include AT&T Wireless, Sprint, Verizon, Staples and Best Buy.

**Battery and cell phone recyclers**

In addition, Batteries Plus and other retailers across Minnesota participate in the national program, Call2Recycle™ ([www.call2recycle.org/](http://www.call2recycle.org/)) which recycles old cell phones and used portable rechargeable batteries (these batteries are commonly found in cordless power tools, cellular and cordless phones, laptop computers, camcorders, digital cameras, and remote control toys). Usable wireless phones are donated to charity and non-working phones are recycled, with a portion of the proceeds donated to charity.

Another program, Call to Protect ([www.wirelessfoundation.org/index.cfm](http://www.wirelessfoundation.org/index.cfm)) collects cell phones to give to victims of domestic violence for use in an emergency.

The Minnesota Office of Environmental Assistance has a comprehensive Web site dedicated to helping consumers find options for old electronic gadgets and gizmos that have reached the end of their life in your home at [www.moea.state.mn.us/plugin/recyclers-household.cfm](http://www.moea.state.mn.us/plugin/recyclers-household.cfm).

The site features an alphabetical list of nearly 50 electronics recyclers in Minnesota, from Austin to Cloquet, Henning to Northfield, Red Wing to Willmar and many cities in between. More tips for eCycling can also be found on the site.

**For more information, see:**

Ten tips for donating a computer: [www.techsoup.org/products/recycle/articlepage.cfm?ArticleId=524](http://www.techsoup.org/products/recycle/articlepage.cfm?ArticleId=524)

EPA’s eCycling home page: [www.epa.gov/ecycling/index.htm](http://www.epa.gov/ecycling/index.htm)

— Nancy Miller

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**Double environmental trouble:**

**mercury and lead**

Mercury and lead are found in products we use every day, such as thermostats and thermometers with mercury, as well as car batteries, televisions, and fishing tackle.

As scientists learn more about these metals, they discover health problems at lower and lower levels of exposure. Especially at risk are individuals whose central nervous systems are still developing — infants and children younger than 15, as well as fetuses. Both these metals can affect mental development and learning.

**Mercury**

The element mercury is present in every living thing, including fossil remains like coal and petroleum. One source of mercury pollution, therefore, is facilities and engines that burn coal and petroleum. When mercury becomes airborne, it can fall to earth with rain or snow, and contaminate water and the fish in them. Eating contaminated fish is the main way people are exposed to mercury.

Although many products that contained mercury, including thermometers and athletic shoes with mercury switches, have been taken off the market, some remain.

Fluorescent and high-intensity discharge (HID) bulbs are appreciated for their energy-sipping capacities, using 50 percent less energy per lumen than incandescent bulbs — which means that power plants needn’t burn as much coal to provide as much light.

But these energy-saving bulbs should not be thrown away when burned out, because they contain mercury. The Association of Lighting and Mercury Recyclers says that only a quarter of the 700 million bulbs discarded each year are recycled. To dispose of these bulbs safely, take them unbroken to a household hazardous waste facility (see a list of county facilities at [www.moea.state.mn.us/hhw/programs.cfm](http://www.moea.state.mn.us/hhw/programs.cfm)).

**Lead**

The most common source of childhood lead exposure continues to be paint manufactured before 1978. Young children may eat paint chips or paint-contaminated soil, or ingest lead dust by putting their hands to their mouths. Another source of lead in the home is tap water contaminated by the home’s old lead pipes or solder.

Many fishermen still use lead fishing tackle, which can be recycled and replaced. Some batteries also contain lead. Recently, lead was even discovered in some children’s toys and imported candies.

Cathode-ray tubes (CRTs) in televisions and computers are about 20 percent lead by weight and are the single largest source of lead in Minnesota’s municipal waste. For a list of facilities that accept these, see [www.moea.state.mn.us/plugin/recyclers-household.cfm](http://www.moea.state.mn.us/plugin/recyclers-household.cfm).
MnTAP Materials Exchange
Have we got a deal for you!

Does your business have excess (fill in the blank) stuff? Want to find a good home for it? If it’s reusable, you’re in luck.

A free service of the University of Minnesota’s Minnesota Technical Assistance Program (MnTAP) allows businesses and organizations to contact each other with their excess materials and needs.

The Materials Exchange Program is a placement center for orphaned business materials and equipment. From old wood pallets to used computers, the Materials Exchange funnels reusable supplies to a new life. Some of the more unique exchanges include 50-pound bags of jelly that ended up going to a pig farmer, and a bridge from a park system that a citizen used for his property in northern Minnesota. More prosaic items include paint, furniture and boxes.

This year marks the 10th anniversary of the Materials Exchange, which has so far kept eight million pounds of used business materials and equipment out of landfills. But the benefit isn’t only environmental: buyers saved three million dollars in costs by using the Materials Exchange (although some sellers charge a maximum of 20 percent of the new value, others do not charge; and the fee is waived for non-profits). Sellers save money, too, since they needn’t pay landfill fees to dispose of the materials.

Program coordinator Barb Nesheim helped develop the Exchange in 1994. Like many other non-profit programs, Nesheim thinks the Materials Exchange Program is a secret that has been kept too well. Efficiency is the hallmark of the program which, with just one full-time and one part-time staff, has developed an e-mail list of 3,000 businesses and organizations in Minnesota.

E-mail list members receive material updates every two-weeks. Some may receive occasional notices or even a phone call regarding items that are a good fit.

“Most businesses really want to do the right thing,” Nesheim said. “The Materials Exchange Program gives businesses the opportunity to save money and help the environment. It’s important to remember that the program is for businesses and organizations only. People with residential materials should contact local charities or the Twin Cities Free Market (www.twincitiesfreemarket.org), which handle those exchanges.”

For more information, call 612-624-1300, 1-800-247-0015 or visit www.mnexchange.org.

— Mark Sulzbach

Be smart — be Waste Wise

Another group offering waste reduction help to businesses and organizations is Minnesota Waste Wise. Minnesota Waste Wise offers members waste audits, a comprehensive library, and a guidebook. Two significant Waste Wise partnerships operate in the Twin Cities: mercury recovery, which collects mercury switches from salvage yard vehicles; and plastic bag recycling. The plastic bag recycling program, “It’s in the Bag,” has already surpassed its goal of collecting a half million pounds of used plastic bags every year. The plastic bags are recycled into construction materials for patios and decks. Collection sites are located at many metro-area grocery stores.

Minnesota Waste Wise is an affiliate of the Minnesota Chamber of Commerce. For more information, see www.mnwastewise.org/
Burn, baby, burn
Waste incinerators in the 21st century

Minnesotans love making garbage.
A family of four generates about a ton of garbage a year. Around 30 percent of that becomes fuel for one of the state’s nine permitted waste-to-energy (WTE) facilities.

Incineration is an attractive option on several levels. Nearly 600,000 tons of waste is diverted from landfills annually. About 95 percent of the waste’s volume is burned; one-third of the resulting 100,000 tons of ash is beneficially-reused in asphalt road construction, saving more landfill space. Garbage is a renewable resource and — thanks to our waste-generating habits — a reliable one!

Twenty-eight counties leveraged the electrical power provided by WTE facilities to develop industrial parks, attract new businesses and create jobs. Their combined power output (85 to 100 megawatts of power and 2.6 million pounds of steam per hour) electrifies 26,000 Hennepin County homes and Polk County’s industrial park food processing businesses. It also heats and cools 25 downtown Rochester buildings, the Fergus Falls State Regional Hospital and Alexandria’s 3M abrasives plant; and provides a consistent steam supply to the Red Wing Shoe factory and Tuffy’s Pet Food manufacturing plant in Perham. Not bad for garbage.

Incineration and cost
Is incineration more expensive? A little. Minnesota Office of Environmental Assistance engineer Don Kyser says, “Obviously, not creating the waste in the first place is the lowest cost. But realistically, for the equivalent of two Hershey bars per month, a household can easily pay the $2.00 price difference between incinerating and landfilling waste.

Is there a downside to incinerators?
The downside of burning waste, whether at a state-of-the-art municipal incinerator or a backyard burn barrel, is emissions: dioxin, lead and other heavy metals. Fortunately, incinerator air quality pollution controls (carbon injectors, acid gas scrubbers and highly-efficient combustors) keep dioxin and other pollutant emissions below state standards.

In 1994, the MPCA placed new environmental requirements on large incinerators and banned all small ones except those at hospitals, crematoria, metals recovery, and those used for animal carcass and pathological waste disposal. The estimated 1,300 newly-banned small combustors accounted for more than 90 percent of the state’s dioxin emissions; poor operation and burning inappropriate wastes likely contributed to their emissions.

Beyond incineration
Fifteen states and the U.S. Department of Agriculture now use an EPA-approved incineration alternative for disposing of pathological wastes such as animals with Mad Cow disease and infectious medical wastes. Called alkaline hydrolysis, the environmentally-friendly and less expensive alternative boils wastes in caustic chemicals inside a sealed container. The resulting sterile, water-like solution can be disposed of in a sanitary sewer system; the bone powder makes a handy fertilizer.

— Anne Moore

Background photo: MorgueFile

Photo: Minnesota Public Radio/Bob Reha

Working on the floor at the Fergus Falls incinerator

Background photo: MorgueFile
**Compliance Matters — News you can use**

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**Legislature creates new environment department**

As a result of the environment, agriculture and jobs omnibus budget bill passed June 30, OEA and the MPCA became a new, combined department of the environment on July 1.

The new department will serve Minnesotans by providing a single point of contact for environmental information, permits, guidance, education and training. The combination of staff expertise is expected to provide better coordination of services for citizens, local governments and industry. For example, OEA's work to decrease school bus idling will combine well with the MPCA's work to retrofit diesel school buses for lower emissions. OEA's county-based waste management program and the MPCA's county-based programs, such as the feedlot and septic system programs, can work together to improve local water and air quality. Staff at both agencies are looking forward to opportunities to work together.

The Legislature decided that the new, combined agency should retain the name of the MPCA.

“I see great opportunities for environmental improvement with the new department,” said MPCA Commissioner Sheryl Corrigan, “and I’m energized by our potential as we begin this journey together.”

Keep your eyes open for more information about our new agency.

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**EPA launches clean energy-environment partnership**

EPA recently launched the Clean Energy-Environment State Partnership Program. States, including Minnesota, that use coal as a primary energy source are seeking new ways to support energy growth while protecting public health. EPA estimates that if all states implemented cost-effective energy efficiency and clean energy policies, the expected growth in demand for electricity, currently estimated at 40 percent by 2025, could be cut in half. For more information, see www.epa.gov/cleanenergy.

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**It’s the law**

◆ **Backyard burning**

Burning household waste has been illegal in Minnesota since 1969, with an exception for some farm households. The law requires a burning permit from a township or the Minnesota Department of Natural Resources for all open burning, city or rural, except cooking or camp fires. With a permit, it is legal to burn grass, yard clippings, leaves, woody vegetation, clean scrap lumber and paper products—but no garbage. Don’t burn garbage, even wrappings and packaging, in your fireplace, either; toxic fumes can fill your home. For more information, see www.moea.state.mn.us/reduce/burnbarrel.cfm.

◆ **Phosphorus fertilizer**

As of January 1, 2005, fertilizers containing phosphorus cannot be used on lawns anywhere in Minnesota. Look for the middle number in the string of three numbers on the bag of fertilizer. It should be zero. It’s also illegal to spread fertilizer on hard surfaces such as driveways or sidewalks, so clean up anything you spill. Rain washes fertilizer into lakes and streams, causing algae growth and killing fish. For more information, see www.mda.state.mn.us/appd/ace/lawnwq.htm and www.moea.state.mn.us/campaign/download/phosphorus.pdf.

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**Junk mail weighing you down?**

The average American household receives more than 500 pieces of advertising mail each year, most of which end up in the garbage.

◆ Make a major dent in advertising mail arriving at your home or business by asking for your name to be removed from mailing lists at the Direct Marketing Association: www.dmaconsumers.org or 212-768-7277.

◆ The nation’s major consumer credit bureaus offer a toll-free number to remove your name from pre-approved credit card offers. The recording asks for social security number, name, address and phone number. Call 1-888-5-OPTOUT (1-888-567-8688).

◆ More tips for reducing junk mail can be found at www.reduce.org.

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**MPCA posts criteria emissions data online**

The Minnesota criteria pollutant emission inventory for 2003 is now online. Mobile, area (small stationary) and point (large stationary) sources are included. The site also lists the top 100 emitters by pollutant for a given year. Visit www.pca.state.mn.us/air/criteria-emissioninventory.html.

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**MPCA publishes final report on statewide air toxics study**

The MPCA has published the results of its five-year air toxics monitoring study on the Web at www.pca.state.mn.us/air/toxics/at-monitoringstudy-9601.html. Concentrations of 73 air toxics were generally below health benchmarks at the 35 monitoring locations.

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**MPCA offers construction stormwater permit application online**

The MPCA provides an online application system for construction stormwater permits. For detailed construction stormwater regulatory information and a link to the application, go to www.pca.state.mn.us/water/stormwater/stormwater-c-steps.html. E-mail questions to: shanna.denis@pca.state.mn.us
An ounce of prevention is worth $$

Americans throw away enough sheets of office paper each year to build a 12-foot high wall stretching from New York to San Francisco—that's about 10,000 sheets per person!

◆ The EPA estimates that paper and paperboard account for almost 40 percent of our garbage.

◆ Office paper is highly recyclable, but a lot doesn't get recycled. Using less paper to start with is more cost-effective than recycling, because it reduces the amount of material that needs to be collected and recycled.

◆ Fewer sheets mailed means lower postage costs. A single-sided 10-page document costs $0.60 to mail. That same document, copied double-sided, uses five sheets and requires only $0.37 in postage.

Calculating the environmental impact of paper

The Office of the Federal Environmental Executive provides a free Web-based paper calculator that compares the environmental impacts of papers made with different amounts of post-consumer recycled content, ranging from 0% (i.e., virgin paper) to 100%. Visit www.ofee.gov/recycled/descript.htm.

Mohawk Paper also provides a free online project planner to help you select paper for environmentally-friendly printing projects. You may select paper size and number of sheets in your printing project, as well as percentage of post-consumer waste. Visit www.mohawkpaper.com/about/calculator.

Early product planning = less waste + lower costs

For a typical product, 70 percent of the cost of development, manufacture and use is determined in the design phase. Early planning can cut both waste and costs. The Minnesota Office of Environmental Assistance’s Design for the Environment (DfE) Toolkit allows companies to score products, showing where the product is strong in environmental efficiency and where it needs improvement. Download the toolkit at www.moca.state.mn.us/berc/dfetoolkit.cfm.

U.S. Air Force tops EPA green power list

The top green power purchasers are buying enough energy to run more than 150,000 homes a year, according to the EPA. Green power is electricity from renewable resources such as solar, wind, or geothermal power; it currently accounts for two percent of America’s electricity supply. The U.S. Air Force leads the list, purchasing more than 321,000 MWh annually for its bases. Second place, Johnson & Johnson, bought more than 241,000 MWh of renewable energy in 2004. EPA and the World Bank rank third and fourth.

Keys to “HOURCAR” now available in Twin Cities

The Twin Cities’ first car-sharing program got off to a start in June, sponsored by the St. Paul Neighborhood Energy Consortium. Modeled after car-sharing programs in Europe and other North American cities, the program has six 2005 hybrid Toyota Priuses to sign out to members. The cars are available in St. Paul’s Lowertown and Minneapolis’ Uptown and Loring Park neighborhoods. Car-sharing is particularly effective for people who don’t need cars all the time, but find that public transportation doesn’t meet all their needs. Members pay a monthly fee and a per hour rate to use a car, which is maintained in a central location in each neighborhood. For more information, see www.hourcar.org.

Beware the dog days of summer!

Remember the dog days of last summer, when a couple of dogs actually died from contact with southern Minnesota lakes soupy with algae? Although nasty algae blooms in summer are not unusual, fatal results are rare. The culprit, a common type of algae called “blue-green,” can, under the right conditions, produce toxins that have serious effects on animals and humans. Keep an ear out for a multi-agency public information campaign this summer to let you know how to keep your animals safe.

Apply for Governor’s Award

Applications will be available online August 1 for the 15th annual Governor’s Award for Excellence in Waste and Pollution Prevention. The award is open to businesses, private institutions and nonprofits with exemplary waste reduction or pollution prevention projects. For more information and online entry forms, see www.moea.state.mn.us and click on “Governor’s Award,” or call 651-215-0242 or toll-free 1-800-657-3843.

Professional conferences


Minneapolis Convention Center, Minneapolis. The Congress will feature more than 30 educational sessions for recycling professionals, more than 100 exhibitors, networking events, tours and more. See the latest products, services and technology. The theme is “Heartland of Recycling.”

www.pca.state.mn.us
“I’m pretty sure it’s mink,” said the clerk. “The label says ‘Dayton’s’ and ‘Made in Paris.’ That’s why we had to mark it up to five bucks.”

“I always said I’d never buy a fur coat,” I replied, rubbing the fur collar on my cheek. “Well,” he replied, “it is only the collar and besides, that poor mink died more than 20 years ago!”

As a financially-strapped college student, I shopped for clothes at what I called Sally Mae’s Boutique, also known as the Salvation Army (www.salvationarmyusa.org/) thrift store. But good-as-new clothes, including furs, can be found a lot of places.

National charities such as Goodwill, the Salvation Army, St. Vincent de Paul and Arc run thrift shops across the state and country. The national Savers chain buys used clothing and household goods from charities like the Epilepsy Foundation of Minnesota and Arc Hennepin-Carver and then sells them at their stores. Other thrift shops are homegrown, such as Saint Paul’s Animal Ark Thrift & Pet Store, www.animalarkshelter.org, which sells bargains and saves homeless pets at the same time.

Weird, wacky and wonderful

It’s not just clothes and household goods. In the market for a radio vacuum tube, doll heads, a gas mask, glass beakers and mysterious electronic parts? For more than 30 years, the Twin Cities’ Ax-Man Surplus, www.ax-man.com, has welcomed shoppers with unique needs — where else can you find an iron lung and a stoplight?


Other stores specialize in used musical instruments, sporting goods, children’s clothes, exercise equipment, books, antiques, computers and appliances. Some pay cash up front, others pay once your item sells.
Government agencies work to keep reusable furniture and office supplies out of landfills. Minnesota Surplus Distribution Center in Arden Hills holds public auctions and sales of state and federal surplus property, including computers. Information is available at www.mmd.admin.state.mn.us/mn03000.htm. The University of Minnesota also runs its own program, www1.umn.edu/reuse/, open to the public on Thursdays.

When it comes to recycling your own excess, head over to www.ebay.com. While you'll have to pay a small fee to list an item for sale, the buyer usually pays postage.

Prefer to donate an item? Minnesotans can call 211 or 1-800-543-7709 for information about community groups that accept donations. The United Way's First Call for Help information and referral service connects people to thousands of resources. The Charities Review Council Web site at www.crcmn.org offers a list of car donation programs.

Donating items not only benefits the environment and helps needy people, but it can also lower your taxes. Check out the IRS charitable contribution guide at www.irs.gov/pub/irs-pdf/p526.pdf for details.

By the way, that long-ago mink-collared coat? I wore it through several winters, then re-donated it for someone else to enjoy.

— Barbara Skoglund

Find more information at these Web sites:

Summer flea market schedules: www.fleamarketguide.com

Bridging (providing furniture to people in transition) www.bridging.org

How does a municipal solid waste landfill work?