



UPDATE

PUBLISHED FOR OUR EMPLOYEES, THEIR FAMILIES AND THE COMMUNITY

Summer 1993

Think Globally—Act at Home

SUSTAINABLE DEVELOPMENT MEANS BALANCED THINKING

You may remember the worldwide environmental conference—called the Earth Summit—held in Rio de Janeiro last summer. People from more than 180 countries met together to talk about the environment and the future of our planet. Behind the headlines, countless other meetings were being held so that corporations and other interested organizations had a chance to offer their input and recommendations.

During the Rio meetings, the phrase “sustainable development” became a popular and useful term to describe the idea that business and government can work together to achieve a good balance between jobs and a clean environment.

Sustainable development is a concept of global proportions, with global implications. Yet, right here in Cottage Grove, we are reaping the benefits of this new kind of thinking.

In this 18th issue of *Update*, for example, you can read three stories that illustrate 3M's commitment to sustainable development. For example, instead of updating our coal-fired boiler system to accommodate the growing need for steam at 3M Cottage Grove, we hope to be able to buy steam generated by a nearby power plant. This plant is remarkable in itself. It will use high-efficiency, clean-burning natural gas to generate electricity.

In our article about Toxic Reduction Inventory (TRI) numbers, we show that 3M's continued voluntary commitment to reducing air and water emissions is paying off. Despite the fact that production increased by 10 percent at our site in 1992, we were able to cap our air and water emissions increase at 5 percent. Here is an excellent example of a com-

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◀ *A Carbon Adsorption Bed is being installed at 3M Cottage Grove. This special environmental system will capture and filter solvent emissions. Then, through a condensation process, the solvent vapors will be reconstituted back to a liquid form which can be reused in the manufacturing process. Tests show that the Carbon Bed traps 99 percent of solvent vapors. Earl Kennard, right, Field Services representative, 3M Printing and Publishing Systems Technology Division, discusses the final pipework connections with Paul Burrows, left, and Curt Myron, center, of Albers Sheet Metal.*

“Today, there's a lot of demand on companies like 3M to find ways to reduce the potential for pollution. And we're making these investments—in labor and dollars—because we believe that the manufacturing needs of industry can be balanced with an ongoing responsibility to the environment we all share.”

**Exhibit
2732**

State of Minnesota v. 3M Co.,
Court File No. 27-CV-10-28862

3MA00044881

Think Globally—Act At Home

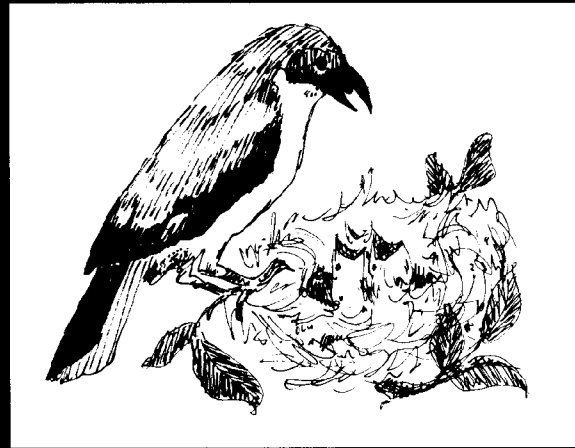
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pany's commitment to balance business needs with environmental quality.

The need for balance is evident at 3M Cottage Grove. We're fortunate to be located above the beautiful Mississippi River—and many of us enjoy the wildlife that lives alongside us. Bald eagles are frequently spotted along the river, and the site provides shelter to a deer herd, many types of songbirds as well as a growing flock of geese on our wastewater treatment ponds.

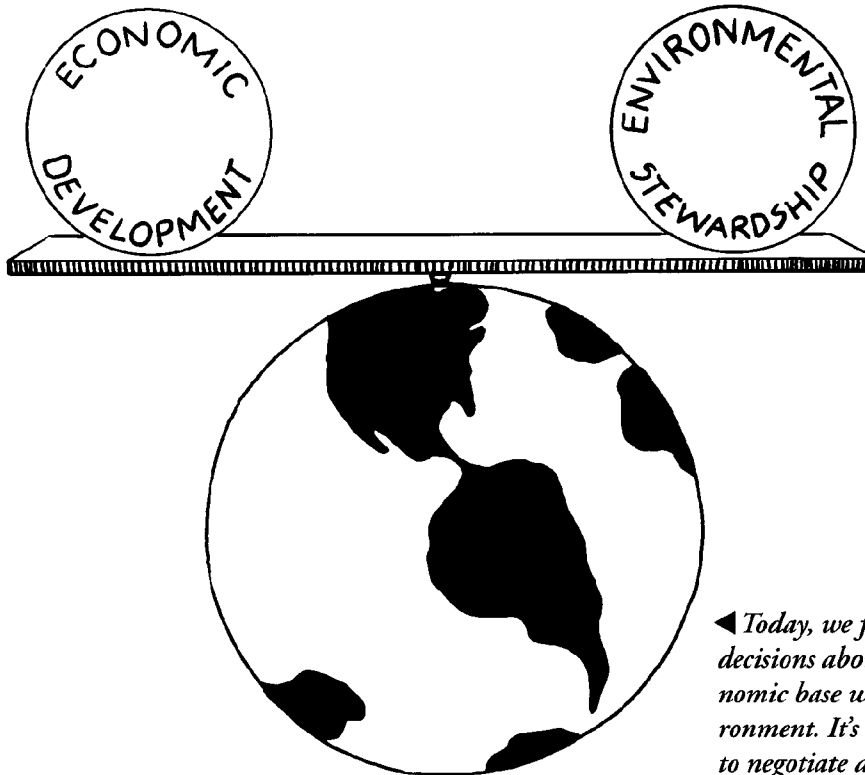
Throughout the history of our state, however, the river has offered more than a habitat for wildlife. It is a working river—a river that connects major points of commerce in our nation and is one of the most important reasons for our region's continued growth. Today, as we report in another story, many people are concerned about the future of our river and are voicing their opinions at public hearings. As of September 10, 1993, however, the talking phase will be over and definite recommendations will be included in a report to the U.S. Department of the Interior.

The concept of sustainable development signals all of us that it's no longer possible to answer today's economic questions
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One much-appreciated aspect of 3M Cottage Grove's location is the fertile grasslands and woodlands that rise from the Mississippi River. Birdwatchers will be interested to know that a pair of loggerhead shrikes is nesting in a wetland area near the site.

Infrequently seen in our part of the Upper Midwest these days, the loggerhead shrike is a good insect and rodent eater.



◀ *Today, we face countless difficult decisions about how to build our economic base while protecting the environment. It's in everyone's best interest to negotiate a good balance.*

A Powerful Opportunity

3M COTTAGE GROVE MAY BUY STEAM FROM A NEW COTTAGE GROVE POWER PLANT

In recent months you may have read about the agreement being developed by Northern States Power Co. and LS Power Corp., a firm that specializes in building and operating independent power plants. Under the terms of this agreement, LS Power Corp. would build a 232 megawatt facility on 8 acres of land

Everybody benefits from a Cottage Grove cogeneration facility that could be operating by mid-1997.

near the junction of Highway 61 and Chemolite Road. NSP will then buy electricity for distribution throughout its service area.

This cogeneration facility will provide a valuable commodity—electricity—for the growing population of the region. It's also good news for residents of southeastern Washington County because it will provide skilled jobs: up to 250 skilled men and women will be needed during the construction phase and up to 25 technicians will eventually operate the plant.

As LS Power and NSP release more information about this project, you'll be pleased to learn about the excellent environ-

mental benefits that a cogeneration facility offers. Here's a brief recap:

💡 The facility will be fueled primarily by natural gas. Burning natural gas does not produce the sulfur dioxide and particulate emissions that coal does.

💡 Natural gas plus today's cogeneration technology will make the proposed Cottage Grove cogeneration facility 25 percent more efficient than conventional coal plants. Efficiency translates into less fuel for more electricity and steam.

💡 As a cogeneration facility (see related story), the Cottage Grove plant will produce steam and sell it to 3M Cottage Grove. (3M will continue to buy electricity from NSP.)

💡 Instead of using fresh water in its cooling towers, the Cottage Grove utility plant will use recycled cooling water from nearby 3M Cottage Grove.

The Cottage Grove cogeneration project has been reviewed by the Minnesota Public Utilities Commission (PUC). Within the next several months, pending the final approval by the commission, LS Power and NSP will formally introduce the project to the public and invite comment. If you have any questions about the facility or the proposed agreement between LS Power and NSP, please call Lew Staley, spokesperson, LS Power Corp. (716) 434-9347.

What is cogeneration?

COGENERATION—TWICE THE BENEFITS

Cogeneration is one of those ideas that gets better the more you know about it. In a nutshell: a cogeneration plant produces electricity, but is also able to produce steam. It can use this excess steam to produce more electricity, or it can sell it—to a company or municipality, for example. Whoever buys the steam for their own use is called the "thermal host."

HERE ARE THE BASICS:

IN A CONVENTIONAL ELECTRIC UTILITY PLANT...

Fuel, such as coal or natural gas, is burned to produce heat, which is converted to steam. The steam is used to spin a large mechanical device called a turbine; this turbine is con-

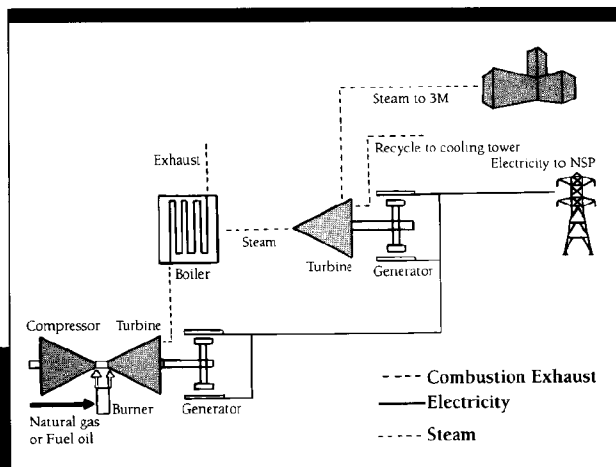
nected to a generator, which then converts the mechanical energy into electricity.

In conventional utility plants, however, the exhaust steam is a byproduct that serves no useful purpose. It must be cooled down and condensed in cooling towers.

IN TODAY'S EFFICIENT COGENERATION PLANTS...

Today's cogeneration technology makes it possible to recover some of the energy that can't be used in creating electricity. This steam energy is then sold to a thermal host such as an industrial plant, university or other institution.

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What is cogeneration?

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Here in southeastern Washington County, the Cottage Grove cogeneration plant will produce electricity—which will be sold and distributed by NSP to customers throughout its service area. At the same time, 3M Cottage Grove will buy the extracted steam and use it for our own heat and manufacturing needs.

◀ This schematic shows the basics of how the Cottage Grove cogeneration plant will work. This type of system is called a natural gas-fired combined-cycle system.

Begin on the left: Natural gas is burned in a combustion turbine. Hot exhaust gases spin the turbine, which is connected to a generator. This generator makes electricity.

But with today's technology, the exhaust gases from that process are used to boil water to make steam. Most of that steam is used to power another turbine generator (to make additional electricity), then steam is extracted and sent via pipeline to a thermal host, such as 3M Cottage Grove.

3M Cottage Grove knew that it would need to upgrade its steam generation facility in the next few years—to meet growth as well as environmental commitments. So, when the opportunity to buy steam from the Cottage Grove cogeneration plant presented itself, the 3M management team welcomed it. Buying steam could provide a cost-saving—and environmentally sound—alternative to producing it ourselves.

By buying steam, for example, 3M has the opportunity to save millions of dollars in operating and capital investment costs. Steam can be brought to 3M Cottage Grove through a new above-ground pipeline, and waste cooling water from 3M's manufacturing buildings can be used in the cogeneration plant's cooling towers and boilers.

"Equally compelling are the environmental benefits offered in this proposed new plant's design," notes Clair Murphy, 3M Cottage Grove site director. "With this agreement, we receive a reliable source of steam and we help keep the public's utility rates from growing as much as the demand for electricity. This is a win-win project for everybody."



▲ If the Minnesota Public Utilities Commission agrees, a new electric power facility will be operating by 1997 on land near 3M Cottage Grove. From left to right, 3M Cottage Grove Site Director Clair Murphy, George Gathje, principal project engineer in 3M Engineering, and Doug Johnson, Incinerator superintendent, map out a pipeline to carry steam to 3M Cottage Grove, where it will be used for heating or in manufacturing.

Working Together for a Balanced Use of Our River

During the last two months, we have all become more aware than ever of the presence and power of the

The Mississippi River saves farmers and industries many millions of dollars in transportation costs.

Mississippi River. Summer floods up and down the river, in fact, remind us that the Mississippi River system is vital to our regional economy. It's not

enough, we realize, that the river is beautiful to look at and is great for water sports. The Mississippi must carry our barges and provide water resources to our industries and towns.

In short, the Mississippi River must be all things to all of us who depend on it.

That's a guiding principle for 3M. And that's why we've been so persistent in working with the Mississippi River Coordinating Commission (MRCC) through the past three years. The MRCC is a 22-member government-appointed group charged with planning the future of a 72-mile section of the river between Dayton in northern Anoka County and Hastings in northern Dakota County. We at 3M have attended public meetings regarding the river, held special information sessions, and responded to draft reports in writing—all in order to make our case that all the resources of the river be used in a balanced way.

So important is the issue of balanced use that 3M has joined with other companies, local governments and labor groups to form a non-profit coalition called Minnesotans for the Mississippi.

In July, Minnesotans for the Mississippi sent a special invitation to residents and business owners in Cottage Grove, explaining that the



If you are concerned about the future of the Mississippi River, let the Mississippi River Coordinating Commission know your feelings. Your letter must be received by September 10, 1993. See the article for the address and more information.

MRCC had scheduled four public hearings during the week of July 26 through 29. At these hearings, residents were encouraged to offer their points of view about the Mississippi's future. Two themes were central to much of the discussion:

- The MRCC should not seek to impose another layer of government on top of the five existing federal commissions that already govern the use of the Mississippi River. (Minnesotans for the Mississippi believes that local governments are better suited to lead this planning.)
- The MRCC's recommendations should not restrict a community's ability to prosper. (In this growing region, Minnesotans for the Mississippi believes it is not good planning to inhibit the economy's ability to grow.)

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◀ *3M and other companies, labor groups and local governments fear that federal regulations might strangle the economic vitality of the towns along the river. Pending recommendations from the Mississippi River Coordinating Commission could do that unless it hears from the public by September 10, 1993 (see page 8 for an address).*

How's It Going?

LAST SUMMER, WE REPORTED THE BEGINNING OF AN ENVIRONMENTAL MONITORING STUDY FOR THE AREA SURROUNDING 3M COTTAGE GROVE. IN MAY 1993, WE PUBLISHED SOME FINDINGS FROM THE STUDY. NOW, HERE IS MORE INFORMATION.

Mohamed Elnabarawy is a 3M environmental specialist who, for the past two years, has been leading an effort in setting up and conducting an environmental monitoring study. Today, more than a year after the joint study by 3M and the Minnesota Pollution Control Agency (MPCA) was begun, he notes that preliminary findings should be encouraging for area residents.

The objectives of the ambient air, area soils and sediment study are to: (1) determine levels of select compounds, such as heavy metals, in the vicinity of the facility; (2) compare levels with background to assess the accumulation of these substances; and (3) evaluate environmental samples, such as ambient air, area soils and sediment.

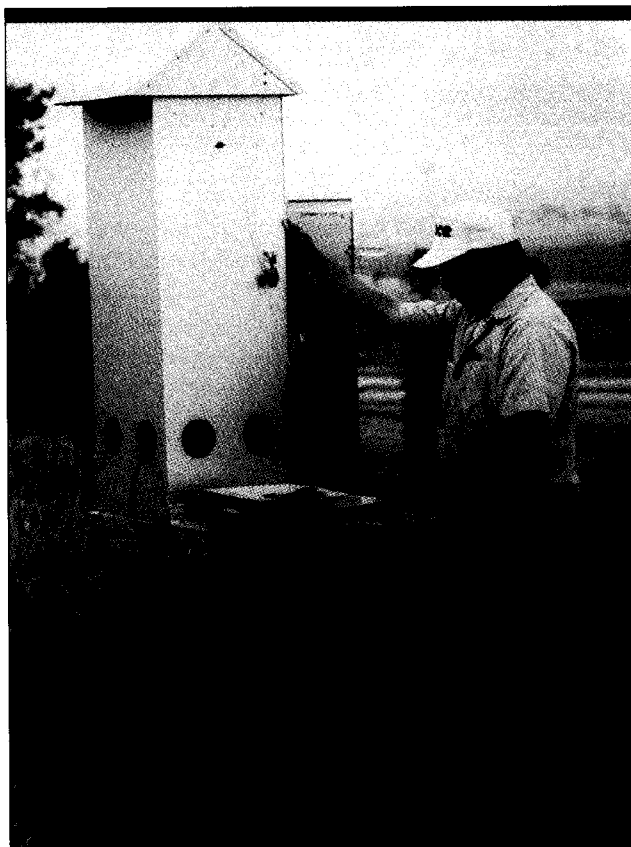
3M has worked closely with the air-quality division staff at the MPCA and with three environmental scientists from the University of Minnesota in the design and implementation of the sample collection and analysis phase of the study.

Here are brief descriptions of the sampling locations and timetable, and the preliminary findings:

- **Ambient air:** Five air monitoring stations were set up around the 3M Cottage Grove site. These monitors act like filters, capturing particulate—airborne microscopic particles. Every six days, beginning last November, researchers have been collecting samples from one 24-hour period. From these samples, scientists hope to learn whether or not the particulate contains heavy metals (such as zinc or lead).

To date: Scientists do not detect a presence of particulate heavy metals any greater than is allowed by established standards.

- **Area soils:** Between August and October 1992, more than 100 separate soil samples were collected from 11 sampling locations around the 3M site. A statistical analysis of the soil sampling results has been completed.



▲ *Regular air sampling for 3M Cottage Grove's environmental monitoring study requires the help of a number of environmental consulting technicians, who are jointly hired by 3M and the MPCA. Matt McDermott, environmental technician with Pace, Inc., changes a filter on one of the five air sampling stations located near 3M Cottage Grove. Filters are changed every six days. Sample collection will continue through November 1993.*

To date: Soil samples collected some distance from the facility showed virtually the same low levels of heavy metals as the samples collected nearer the facility. Preliminary results show no concentration of metals above the levels found naturally in soils.

- **Area sediment:** A sediment study was part of the original plan but was halted by the MPCA and the independent review team because samplings from area lakes proved unsuitable for study.

If you would like more information on this environmental monitoring study, or clarification of any of the data, please contact Mohamed Elnabarawy, 3M Environmental Engineering and Pollution Control, 778-5151.

Every July 1st, 3M Cottage Grove Submits a Record of Air and Water Emissions

THIS RECORD IS CALLED THE TOXIC RELEASE INVENTORY (TRI)

In spite of the gloomy economic forecasts throughout 1992, 3M Cottage Grove's employees were enjoying an increase in workload. Production actually increased by 10 percent. That's a healthy indicator that 3M Cottage Grove is a valuable resource to 3M.

Of course, a production increase could have resulted in a corresponding increase in air and water emissions.

If you have questions about 3M Cottage Grove's air or water emissions, call 3M or the Minnesota Emergency Response Commission at 643-3000.

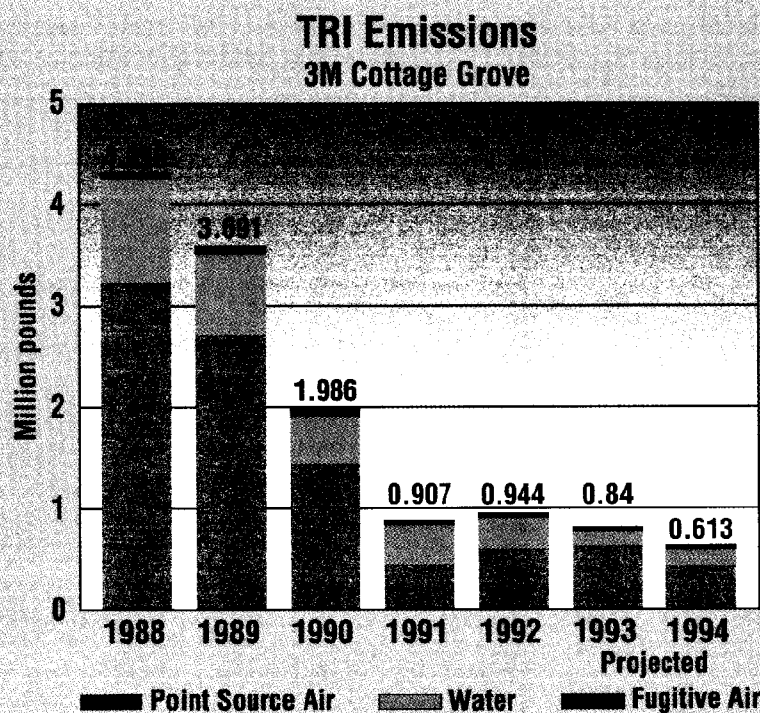
But that didn't happen at 3M Cottage Grove. Employee ingenuity and pollution prevention investments have helped keep a lid on

emissions increases. While the overall business grew by 10 percent, emissions in 1992 increased by only 5 percent.

Understanding the TRI Numbers...

On July 1, 1993, 3M and other U.S. companies that manufacture or use quantities of chemicals filed a report called the Toxic Chemical Release Inventory (TRI) with the Environmental Protection Agency (EPA). These numbers show the air, water and land emissions each company generated in the previous calendar year, 1992. (In July 1994, 3M will report the total emissions it generated in 1993, and so on.)

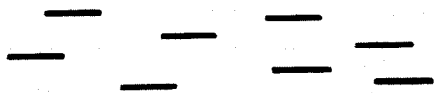
Why are we telling you this? Because there can be a significant lag between the time an emissions reduction is accomplished and the time that the public is informed of the change. If you have questions about 3M Cottage Grove's record of TRI emissions, please call Clair Murphy at 458-2000.



◀ 3M Cottage Grove measures its emission reduction successes against 1988—the year emissions were at their highest levels. Over the past five years, we have reduced air and water emissions by 77.6 percent. Air emissions alone are down 80 percent from 1988. It's a good track record of emissions reduction—particularly considering 3M Cottage Grove's continuing growth in production.

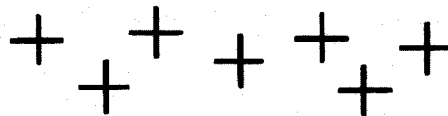
There's some emission reduction work yet to do at 3M Cottage Grove, but our TRI reduction record shows that we're on the right track!

How are we doing it? Small successes add up to big numbers:



- In 3M Audio and Video Technology, wastewater discharges were reduced last year by 16.5 percent when 3M'ers developed a substitute for ammonia, used in manufacturing video tape. Next year's TRI report (reflecting 1993 emissions) will show a 30 percent decrease in the use of ammonia.
- In 3M Specialty Adhesives and Chemicals/Specialty Materials Division, a product reformulation reduced the use of Freon 113 so significantly that emission numbers no longer need to be reported.
- In 3M Specialty Film/Specialty Materials Division, the use of 1,1,1-trichloroethane in production was totally phased out in 1993.
- Sitewide, Freon 113 and 1,1,1-trichloroethane (ozone-depleting chemicals) are still being used in some air conditioning and refrigeration systems but that, too, is scheduled for total phase-out.

- In 3M Printing and Publishing Systems Technology Division, changes in production procedures, along with an investment of \$4.5 million in pollution prevention equipment, will yield an 11 percent decrease in air emissions in 1993, and a 35 percent decrease by 1994.



- In 3M Printing and Publishing Systems Technology Division, stack air emissions increased by 30 percent in 1992 due to the plant's increased manufacturing business for the printing and pharmaceutical industries. TRI numbers for 1993 and 1994, however, will reflect the benefits of a recovery system that is now being installed. It is expected to capture 98 percent of stack emissions.
- In 3M Tape Manufacturing, a 70 percent increase in production with a 70 percent reduction in stack air emissions was achieved. Two thermal oxidizers, installed in 1991 and 1992, capture and burn evaporating solvent materials before they escape into the air.

Minnesotans for the Mississippi

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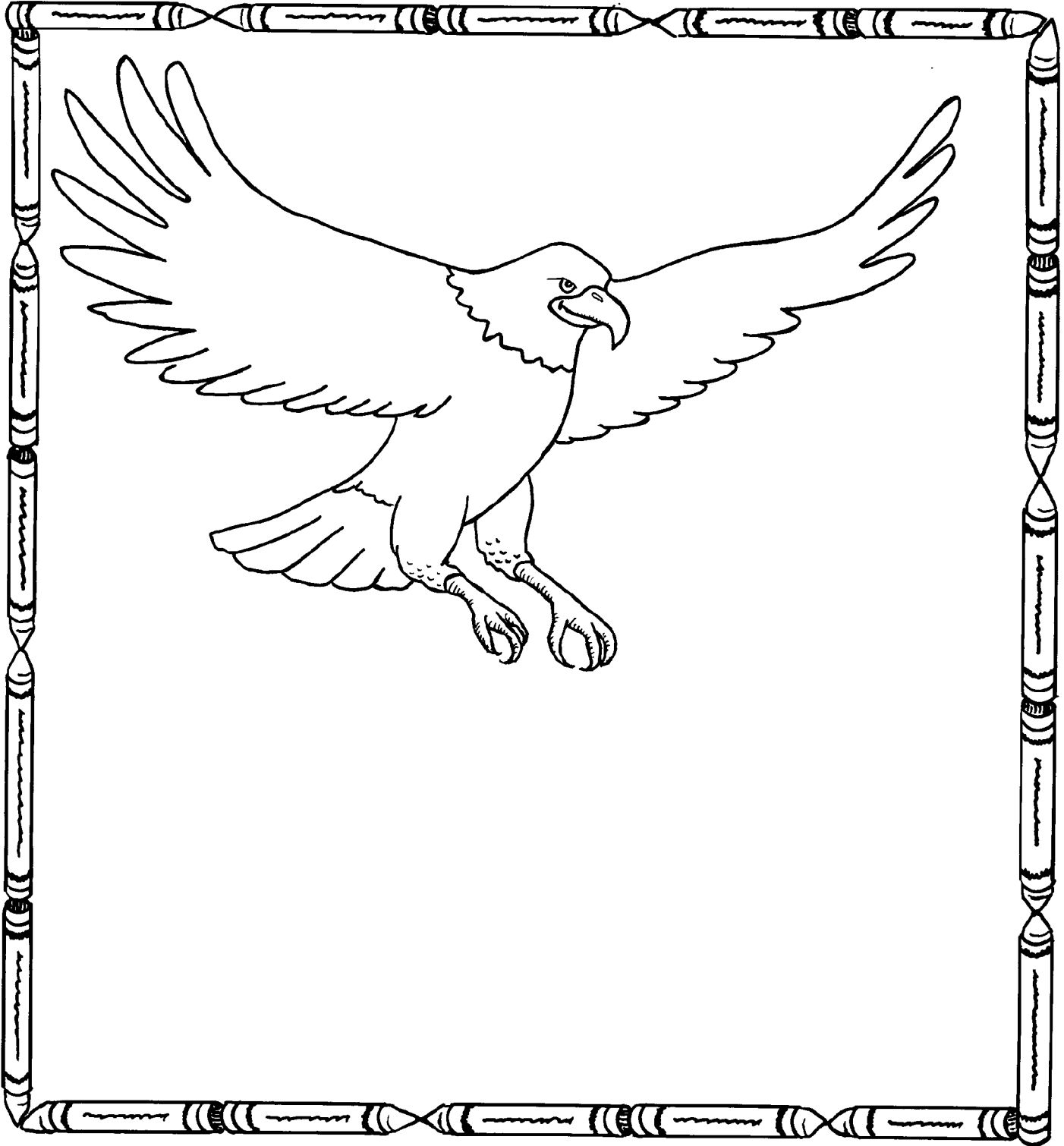
For those of you who were unable to attend these important hearings, you still have time to comment. Please write: Superintendent, Mississippi National River and Recreation Area, 175 East Fifth Street, Suite 418, Box 41, Saint Paul, MN 55101. Your letter must be received by September 10, 1993.

Once the MRCC's recommendations are finalized, they will be submitted to the U.S. Department of the Interior. After September 10, 1993, the opportunity for effective public feedback is lost.

If you'd like more information about 3M's concerns about the future of our Mississippi River, please call Clair Murphy at 458-2000.



Those of us who live along Minnesota's rivers can occasionally catch a glimpse of a bald eagle. These majestic, mostly black, birds have white heads, white tails and long, heavy yellow bills. They build their nests from sticks at the top of tall trees or cliffs and lay two or three white eggs. Your child might enjoy coloring this bald eagle and drawing in the Mississippi River and the rest of the scene below.



Today, 65 percent of the households in Washington County are taking time to sort their trash. Instead of simply throwing something "away," they remember that landfills are filling up—and that our kids and grandkids could use a little help in cleaning up the world we're leaving to them. These families are recycling bottles, cardboard, newspapers, telephone books, aluminum and steel cans—even plastic.

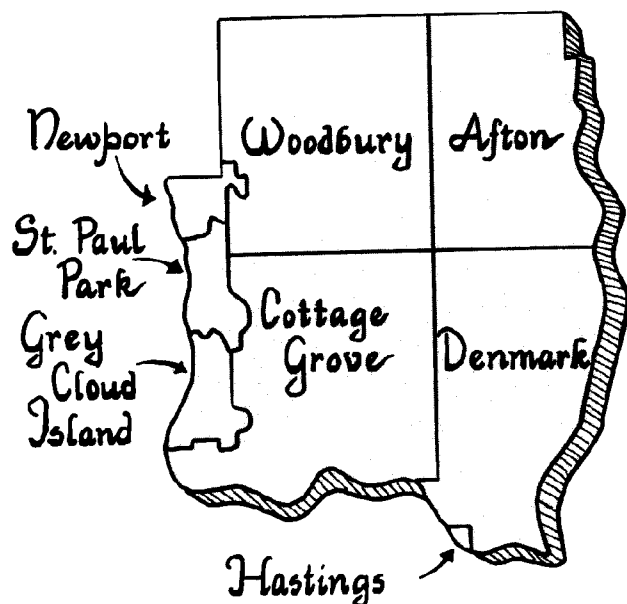
In the spirit of helping out, we've put together some basic schedule information for curbside recycling for southeastern Washington County.

COTTAGE GROVE:

WHAT: Newspaper, glass jars and bottles, tin and aluminum cans, corrugated cardboard and #1 and #2 plastic bottles. Call 458-2828 (City of Cottage Grove) for more information and to get preparation instructions.

WHEN: All materials are collected on your regular trash collection day by your trash hauler. Materials should be placed at the end of your driveway by 6:00 a.m.

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▲ Curbside pick-up for recycling is available in most of the area.



There is still time to dispose of household hazardous waste if you live in **WOODBURY**. These are materials that cannot be put into landfills or septic systems because they are too dangerous. Call 739-5972 for drop-off location on October 15 from 1:00 to 6:00 p.m. and October 16 from 9:00 a.m. to 3:00 p.m. You must bring proof of residency in Woodbury.

You can bring: pesticides, garden chemicals, paint thinner, solvents, gasoline, paints, stains, varnishes, full or partly full aerosol cans, acids or bases, fluorescent light tubes and insecticides.

You cannot bring: tires, auto batteries, antifreeze, motor oil, appliances, radioactive materials or explosives, household batteries, industrial or commercial waste, propane tanks or compressed gas. For information on how to dispose of things that are flammable, corrosive or poisonous, call 430-6655.

Recycling

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DENMARK TOWNSHIP:

WHAT: Newspaper, glass jars and bottles, tin and aluminum cans and corrugated cardboard. Call 436-5994 (Eisinger Sanitation) for more information and for preparation instructions.

WHEN: All materials are collected by Eisinger Sanitation on the first Friday of the month. Materials should be placed at the end of your driveway by 6:00 a.m. on collection day.

GREY CLOUD ISLAND TOWNSHIP:

WHAT: Newspaper, glass jars and bottles, tin and aluminum cans, corrugated cardboard and #1 and #2 plastic bottles. Call 459-1887 (Tennis Sanitation) for more information and for preparation instructions.

WHEN: All materials are collected every Tuesday by Tennis Sanitation. Materials should be placed at the end of your driveway by 7:00 a.m. on collection day.

NEWPORT:

WHAT: Newspapers, glass jars and bottle, tin and aluminum cans and corrugated cardboard. Call 459-5677 (City of Newport) for more information and for preparation instructions.

WHEN: All materials are collected by your trash hauler on the same day your trash is picked up. Materials should be placed curbside by 6:00 a.m. on collection day.

ST. PAUL PARK:

WHAT: Newspaper, glass jars and bottles, tin and aluminum cans, corrugated cardboard and #1 and #2 plastic bottles. Call 459-9785 (City of St. Paul Park) for more information and for preparation instructions.

WHEN: All materials are collected on your regular trash collection day by your trash hauler. Materials should be placed at the end of your driveway by 6:00 a.m. on collection day.

WOODBURY:

WHAT: Newspapers, glass jars and bottles, tin and aluminum cans, corrugated cardboard, #1 and #2 plastic bottles and glossy magazines and catalogs. Call 739-5972 (City of Woodbury) for more information and for preparation instructions.

WHEN: All materials are collected by your trash hauler on the same day your trash is collected. Materials should be placed curbside by 6:00 a.m. on collection day.

PRESCOTT, WI:

The recycling program in Pierce County is being reorganized. For current guidelines, call the Pierce County Courthouse at (715) 273-3531, ext. 333.



"Recycling is important for our children's future," says Gayle Carlin, secretary, Plant Engineering, 3M Cottage Grove. Carlin and her daughter, Cassie, 6, and son, Jonathan, 4, take out the recycling for curbside pick-up one morning—doing their part to reduce the landfill squeeze. "We've been recycling for years and our whole family gets involved," she says. "Jonathan especially likes to crush the cans!"

Think Globally—Act At Home

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with yesterday's thinking. All of us—in business, government and in our communities—are facing more complicated issues today—and the consequences of choosing the wrong answers are growing more serious all the time. That's why stories about balance—like those we're reporting here—are so important.

Call us with questions. And remember, we're always pleased to schedule a tour. We like to show off how we're providing 1,000 jobs, manufacturing valuable products for our community, and going a long way in protecting our environment!

If you are reading 3M Cottage Grove's *Update* for the first time, welcome. We publish this newsletter every two or three months as part of our effort to keep in touch with the community. It's important to us that you know what we do at our site as well as what we're doing to reduce, reuse, and recycle the materials and wastes involved in our manufacturing processes.

If you know someone who would like to receive *Update*, or if you have questions about 3M Cottage Grove, or if you would like a tour, please call. Also, please let us know if we have misspelled your name, incorrectly listed your address, or sent you duplicate copies. Our number is 458-2000.



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