

# Environmental Justice Advocates of Minnesota

Minnesota State Legislative hearings on mercury March 1, 2006

Prepared By: Boise D. Jones

People Organizing Wanting Environmental Responsibility

"They have stolen our clean air, and water; we want it back".

## Salutations-

My name is Boise Jones. I am research specialist for Environmental Justice Advocates of Minnesota. Our goal at EJAM is to promote healthy communities by preventing environmental hazards that disproportionately effect communities of color. [I] am trained as a geographer and city planner. However, I do not appear here as an expert or authority on the science of adverse impact of contaminants or pollution. I do submit my remarks to this august body today as an observer and ombudsman.

In March of 2004 [we] provided testimony to the EPA hearings in Chicago on the affects of mercury. That effort saw the Bush administrations essentially ignore our pleas for federal relief. We were here last on March 30<sup>th</sup> 2005 asking your support to relieve us of the burdens we carried in our communities with adverse health effects of lead. We praised you for your leadership in that regard. On this opening day of the Minnesota legislative year, we regret to say the state of Minnesotans health, especially in our communities of color begs for more of your time, passion for providing solutions, and legislative leadership on these issues presented today.

In the land of ten thousand lakes, it has long been recognized that environmental accoutrements on the one hand and *toxic waste sites, smelters, and power plants on the other are not uniformly distributed in reference to income group, class or ethnic communities*. On a regional scale, there are marked and increasing disparities between those who have access to clean and safe resources and those who do not. Disparities of this nature may be the result of historical circumstances, contemporary economic and trade relations or simply

inadequate or inappropriate governmental regulation. *Whatever their source, it is clear that a comprehensive, grassroots approach is needed both to understand and ameliorate these problems. This is why we are here today.*

*Poor people have carried the lion's share of the burden for the wanton abuse of our air, water and soil. We no longer argue that the specter of environmental racism is ever present in communities where ethnic minorities and American Indians live.*

*Three out of five African - American and Hispanic live in communities with uncontrolled toxic waste sites, as do nearly half of Asians/Pacific Islanders and Native Americans.*

Let me tell you about Harriet Brewer.... She is an African American women living in North Minneapolis, who by her own admission "loves to fish". She travails her experiences over the years of fishing with her family and feasting on the bounty. Mrs. Brewer was consternated to say the least; as I educated her on the fish advisory of the state of Minnesota. She speaks about how she routinely had exceeded the recommended guidelines.

What she ponders today is... What have I done to my children and myself by feasting on that poison fish? She was clear, had she known she would have made different choices. She wonders of the possible misdiagnosis of ADHD of her children. Could [it] have been the affects of mercury? Have my children been predisposed to illnesses related to neurotoxicity? It is apparent that residents of varied cultures rely on fishing for subsistence. Along with the Sierra Club and others we have placed signs in multiple languages at some of the popular fishing areas where subsistence fishing predominates. We did this on our own because we had few options available to us to warn those like Mrs. Brewer, who are oblivious to the health consequences of their activity. Communicating the hazards of mercury to our resident is important, but creating a climate that ensures their access to clean and safe resources is imperative. That is where you come in.

I am certain by now all you would like to know from us is .... What do you want from us? EJAM supports legislation to reduce emissions from all coal plants by 90 percent, achieving these reductions from

plants with dry scrubbers by 2009 and from plants with wet scrubbers by 2011. EJAM also believes that controls should be placed by the legislature on new sources of mercury. We also believe that mercury is a neurotoxin. Therefore, we look for the legislature to take leadership in reducing mercury use in products and ensure that remaining mercury products be recycled.

EJAM will continue to develop campaigns in these and other sectors, while strengthening *cross-cutting concerns such as children's environmental health, corporate accountability and a comprehensive, broader strategy* to contribute to the enrichment of our collective health.

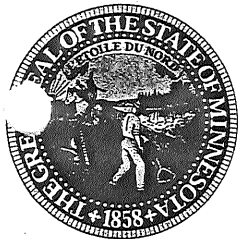
[We] have focused on collaborative projects, that can reduce human exposures to mercury and eliminate man-made mercury emissions. We will continue to *compile information on adverse environmental impacts caused by air pollution, soil contamination and waste disposal problems.*

We urge you lawmakers to *examine the potential environmental contributors to learning disabilities and activate new legislation to protect public health through pollution prevention.*

We hope to assist the legislature to design and implement a model education initiative and outreach program targeted at the health care community about the impact of environmental exposures on neuro-developmental disabilities in children.

When last I spoke here, I referenced the "Ides of March" [how I had come neither to praise the legislative initiative, nor bury it]. I would love to return here next year to lament, 'I have come here to praise you and your legislation; not to bury it'...

***THANK YOU!***



# STATE OF MINNESOTA

## Office of Governor Tim Pawlenty

130 State Capitol ♦ 75 Rev. Dr. Martin Luther King Jr. Boulevard ♦ Saint Paul, MN 55155

February 16, 2006

Commissioner Sheryl Corrigan  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
Saint Paul, MN 55155

Dear Commissioner Corrigan:

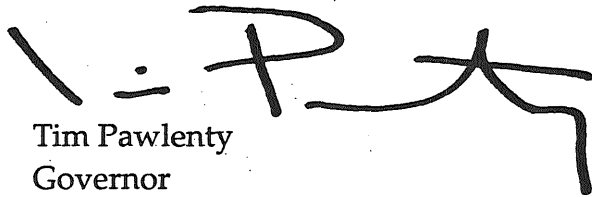
Mercury poses a major threat to the health of our citizens and our **environment**. While most mercury emissions deposited in our state come from **outside our borders**, Minnesota has made significant progress on mercury reductions in the past 15 years. Total annual mercury emissions declined 72% during that time. That is important progress and I congratulate all those who helped make that happen.

Now we need to do more. The 93% mercury reduction goal you have proposed through the regional mercury total maximum daily load ("TMDL") is a great step toward addressing this problem. I share your concern, however, that the TMDL plan and related process has become mired in divergent opinions, misperceptions, and competing interests. The TMDL also faces the likelihood of litigation which will cause further delay.

Given those dynamics, the best way to proceed is to move boldly and decisively to resolve this issue by passing legislation this session. Such legislation should require Minnesota's electric utilities that operate the largest coal-fired facilities in the state to submit plans to the Public Utilities Commission to reduce mercury emissions by 90% in a timeframe well in advance of the federal clean air requirements. These plans should include the cost of implementing this goal so that the Commission can protect rate-payers while providing the utilities' recovery of the costs.

The success of this proposal will come from the full and constructive engagement of a broad range of stakeholders. I ask you to continue to work with stakeholders and key members of our administration to pass this legislation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tim Pawlenty', with a stylized, elongated final stroke.

Tim Pawlenty  
Governor

# Mercury

## from a pediatrician's perspective

Christine Ziebold MD PhD MPH  
Fellow of the American Academy of Pediatrics  
March 1, 2006

1

## Mercury is...

- a neurotoxicant
- a heavy metal behaving *very similarly* to lead.

Why is mercury not regulated like lead?

2

## Pediatricians know a lot about mercury.

### Like with lead we know:

- where mercury comes from
- how mercury gets into people
- a lot about its health effects



3

## We know the costs on human health, ie lost productivity...

- \$8.7 billion nationwide annually (Trasande et al, EnvHealthPerspectives 2005)
- \$156.6 millions for the 70,000 Minnesota babies born each year
- \$23.4 million of that are attributable to power plant emissions (based on the old model that only 8% of the wet mercury deposition nationwide comes from U.S. power plants.

4

## Unlike with lead however, pediatricians...

- have no established and easy ways of testing
- have no mercury monitoring programs for children, no mercury surveillance experts at MDH or on the federal, the CDC level...
- don't know which individual child has an elevated level.

5

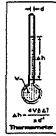
## Unlike with lead, pediatricians...

- are not educated in medical school or residency or fellowship how to deal with chronic mercury exposure
- have limited treatment options for acute exposures
- have no treatment for past exposures that resulted in developmental sequelae

6

## Pediatricians are prevention and precaution oriented...

- helped eliminate mercury in healthcare: in clinics / hospitals, medicines, including vaccines in 1999
- issued a American Academy of Pediatrics Technical Report summarizing what we know and what we recommend (Hg in the environment , Pediatrics 2001)



Read the text and see the picture.

7

## Pediatricians depend on policy measures to decrease mercury exposure:

### DOWNSTREAM MEASURES:

- Monitoring mercury in our rainwater and fish
- Issuing fish advisories in print and on the web for anglers and buyers/ consumers

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

8

## Upstream Measures are most protective:

- Strong emission standards for air, rain and waste water
- EPA's Children's Health Public Advisory Committee advice
- American Academy of Pediatrics (AAP) joined a lawsuit against EPA's mercury rule June 14, 2005

9



10

# **2005 Mercury Reduction Progress Report to Legislature**

**Joint Environment and Natural Resources  
Committee and Jobs, Energy and Community  
Development Committee  
Minnesota Senate**

**David Thornton  
Minnesota Pollution Control Agency  
March 1, 2006**



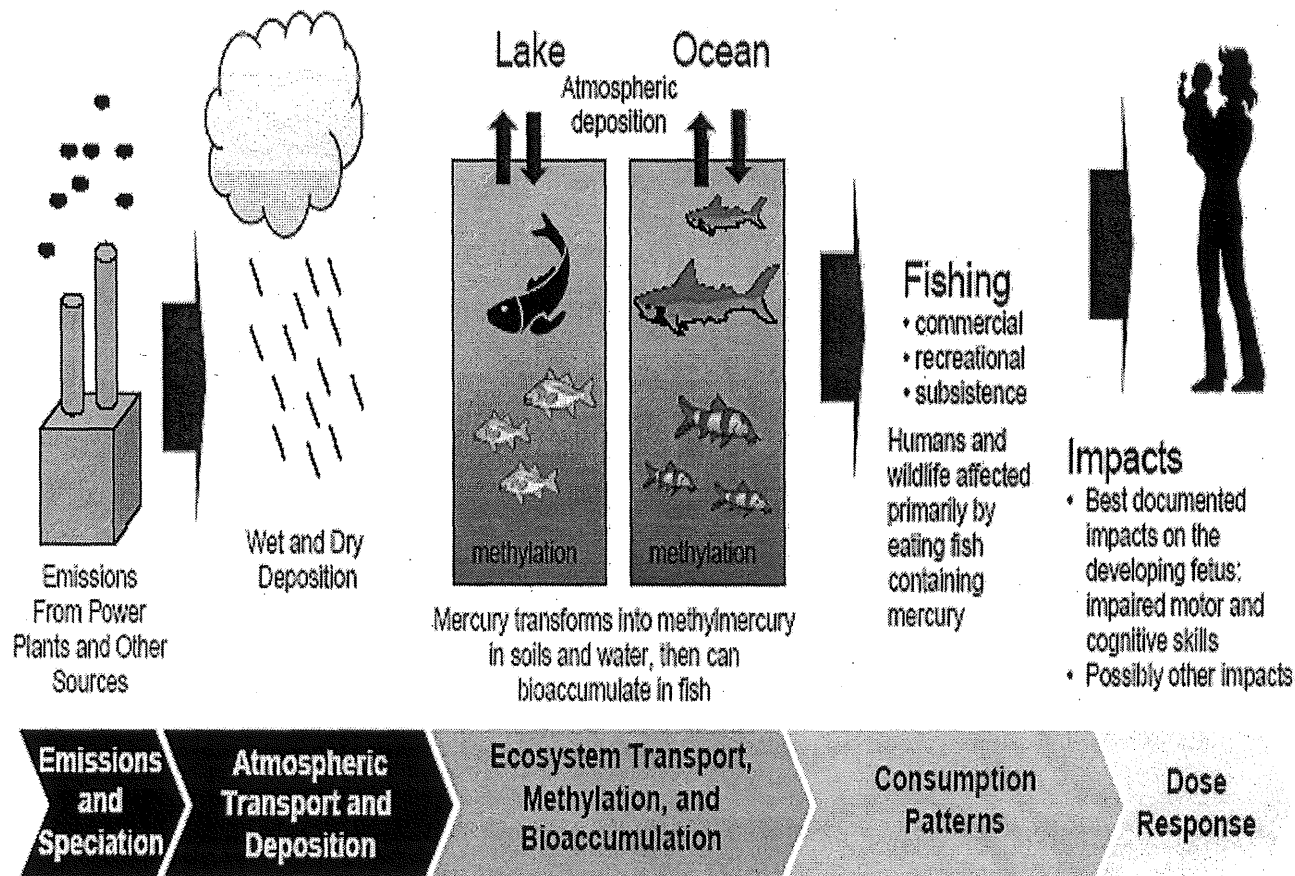
**Minnesota Pollution Control Agency**



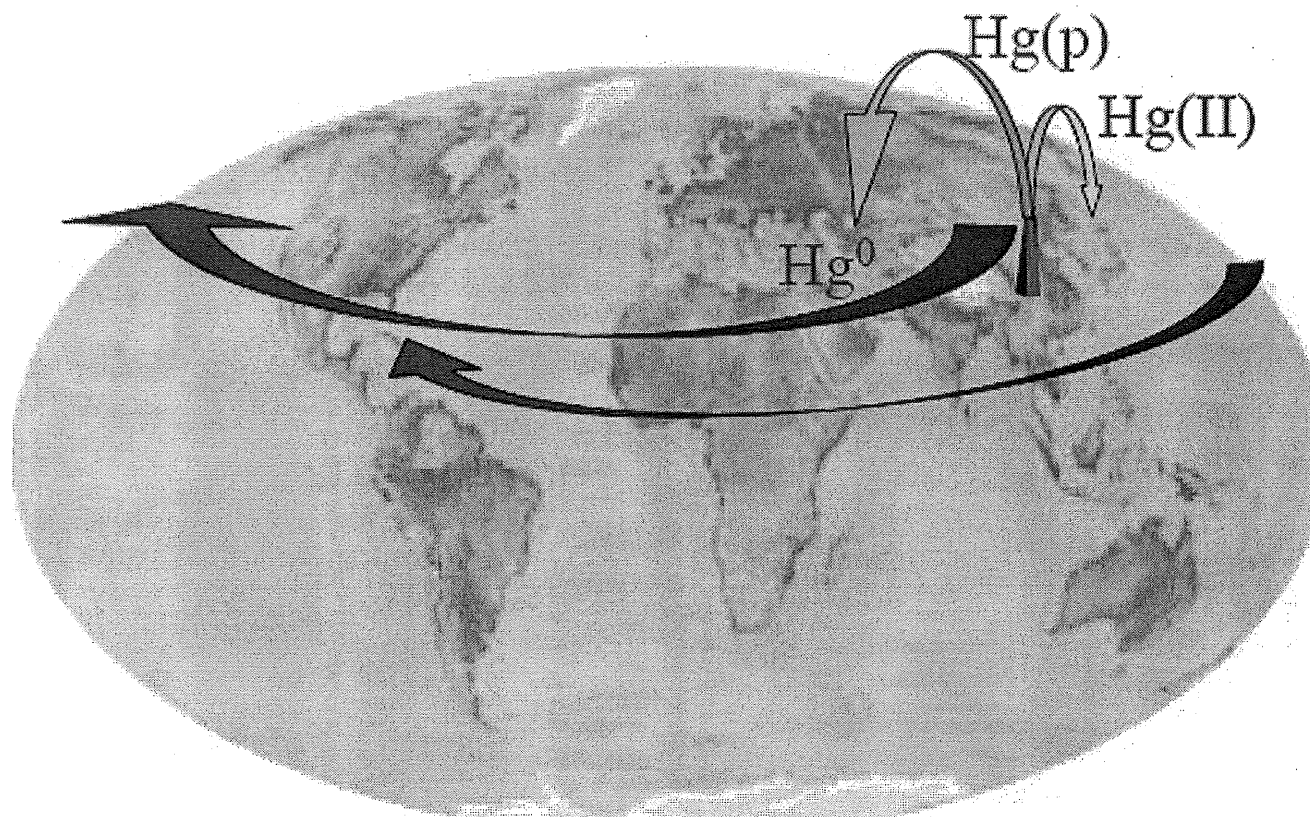
# **Background**

- **In high enough concentrations, mercury acts as a neurotoxin.**
- **Primary route of exposure for Minnesotans is eating fish.**
- **Two-thirds of impaired waters are listed because of mercury.**
- **Mercury is a global pollutant.**
- **MPCA analysis shows a global reduction of 93% in anthropogenic emissions is needed to reduce fish concentrations to safe levels**

# Mercury Exposure Pathway



# Contemporary Atmospheric Mercury Conceptual Model

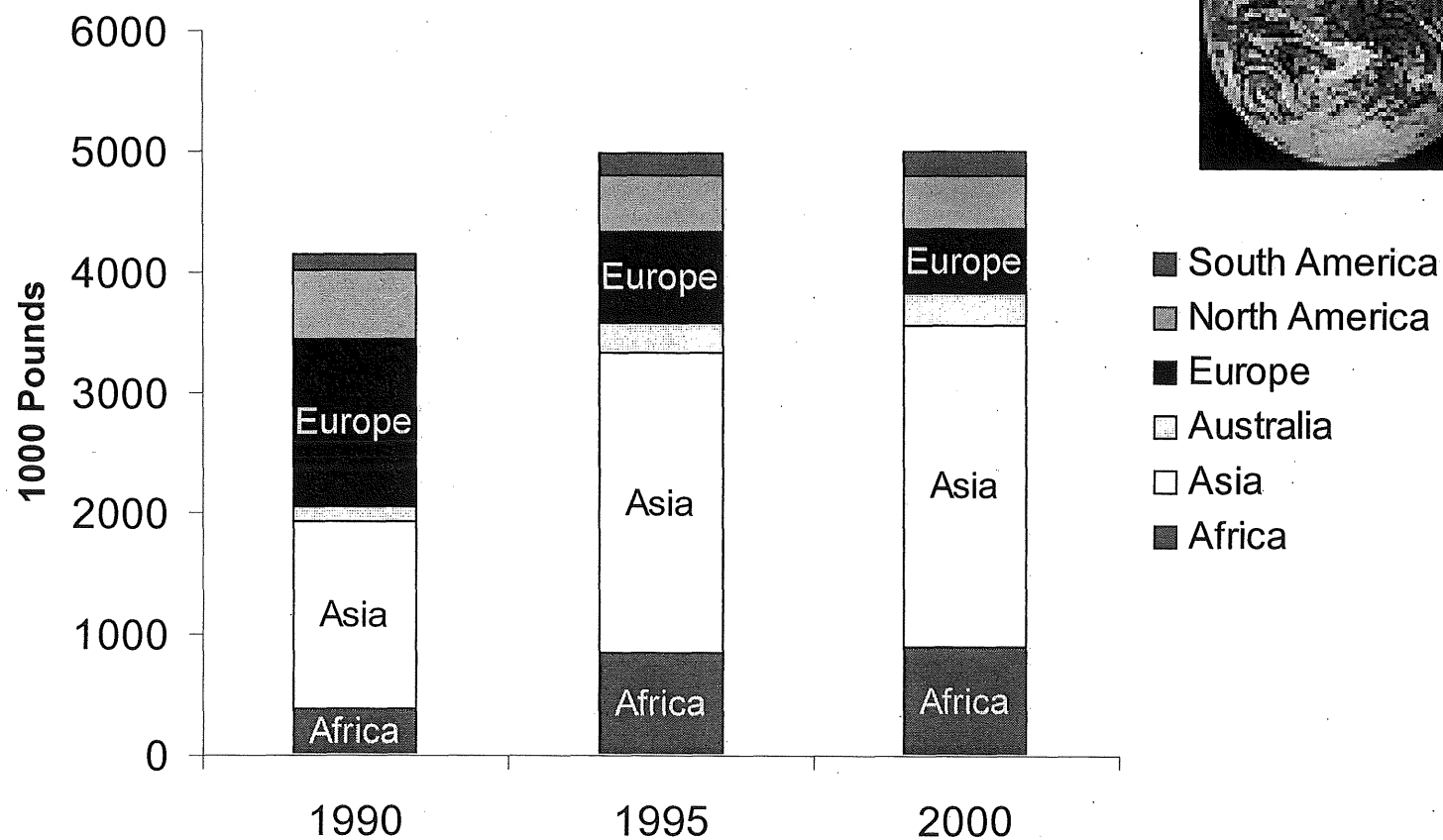


Global - Regional - Local

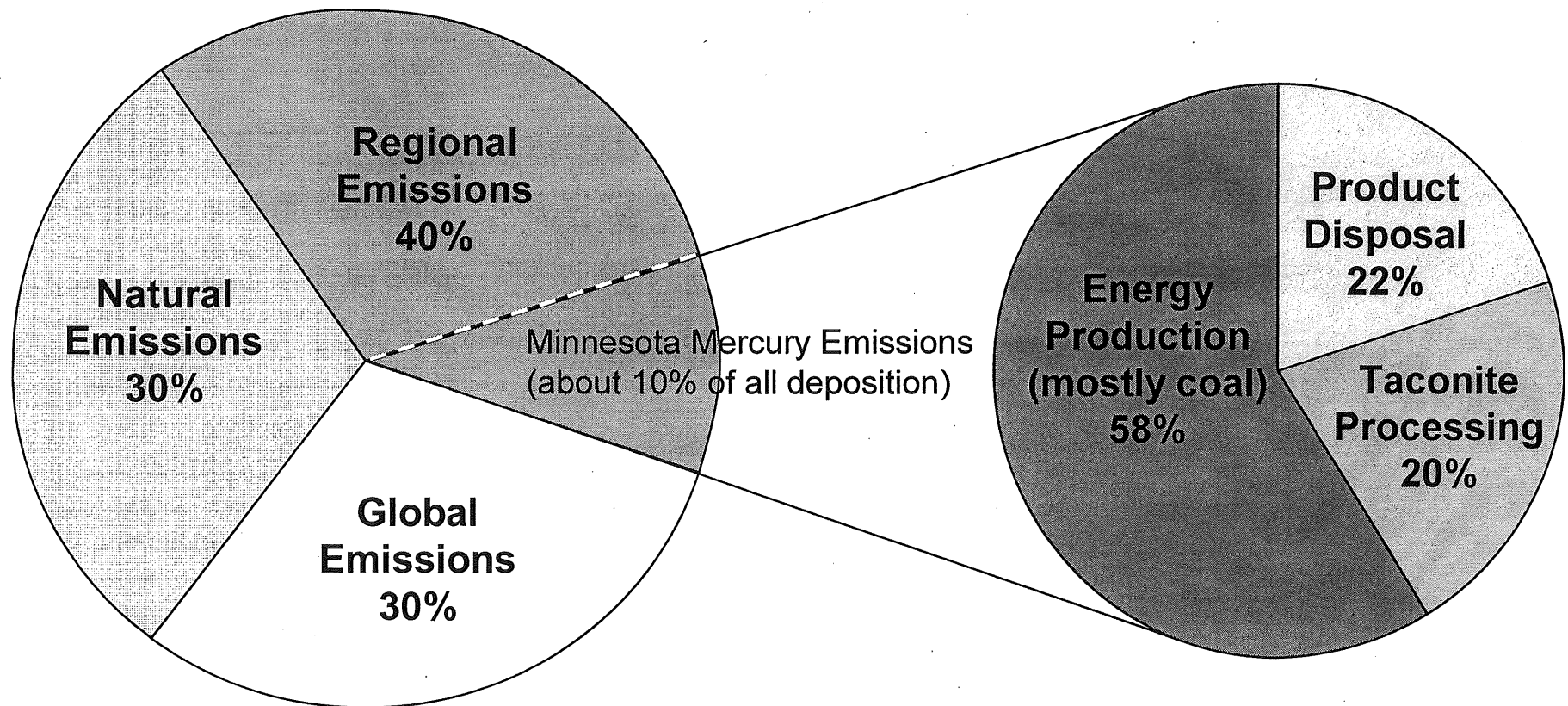
RESEARCH & DEVELOPMENT

*Building a scientific foundation for sound environmental decisions*

# Global Mercury Emissions



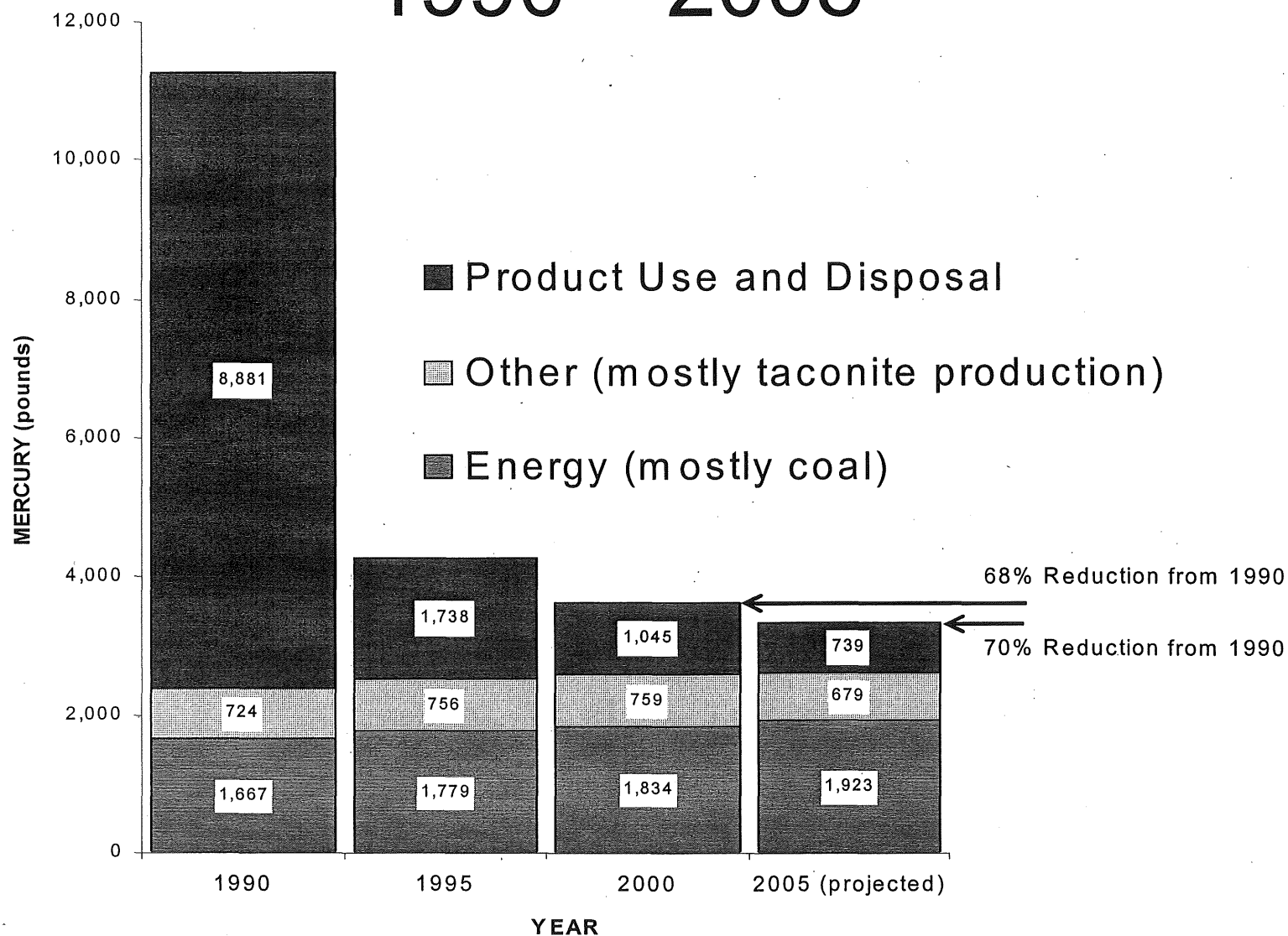
# Sources of Atmospheric Deposition to Minnesota, 2005 Minnesota Emissions



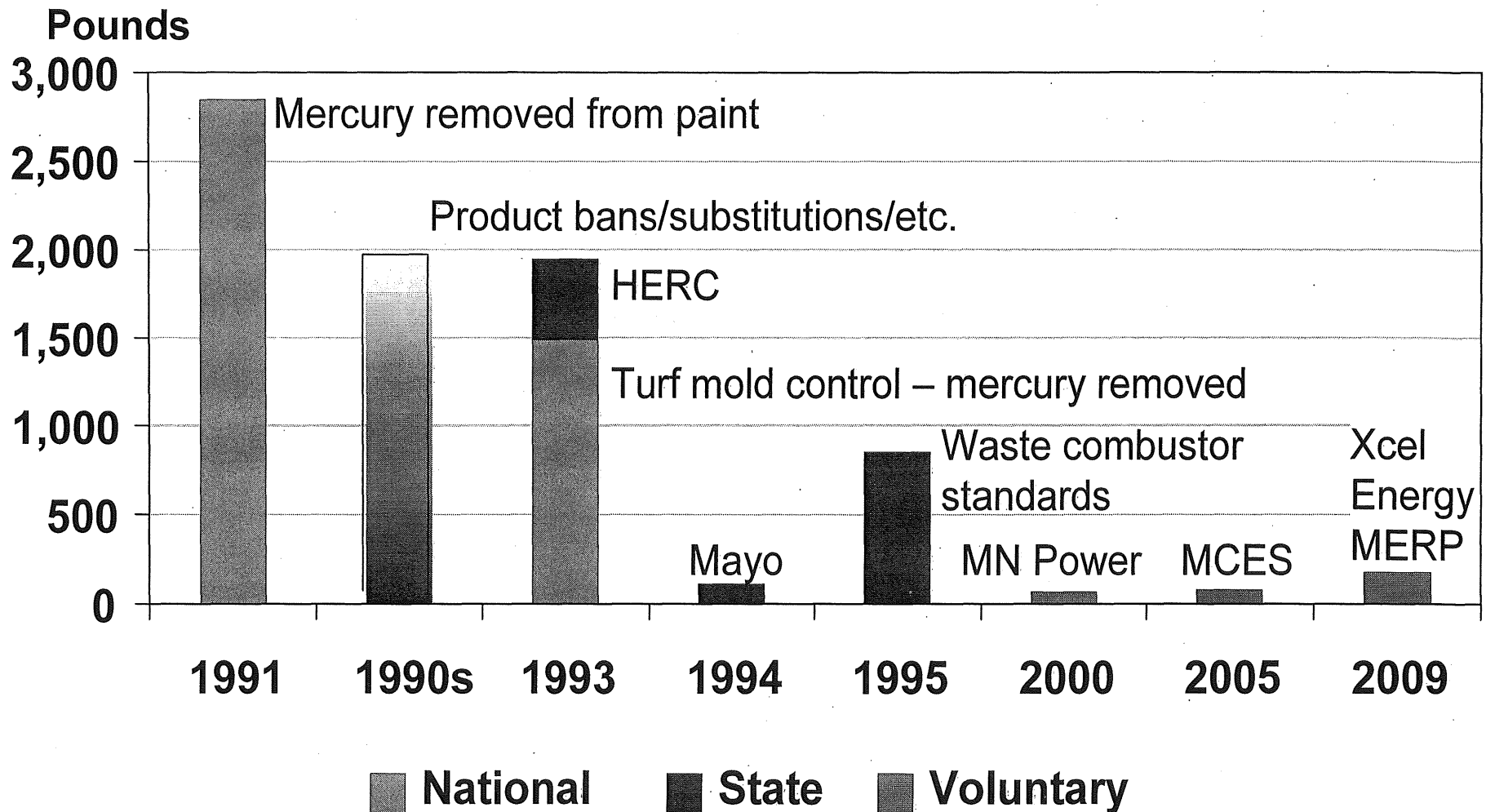
# 1999 Mercury Reduction Legislation

- **Set reduction goals (from 1990 baseline):**
  - 60% decrease by 2000
  - 70% decrease by 2005
- **Required strategies recommended by MPCA-convened advisory council**
- **Established voluntary reduction agreements.**
- **Called for progress reports in 2001 & 2005.**

# Mercury Air Emissions by Sector, 1990 – 2005



# Annual Reductions in Air Emissions from Selected Activities





# **2005 Mercury Report**

## **Findings & Conclusions**

- **Met goal of 70% reduction since 1990.**
- **Change to the baseline inventory clouds success.**
- **Mercury in fish decreased by 10%.**
- **Emissions since 1990**
  - **Product-related releases declined by 92%.**
  - **Taconite emissions are down by 6%.**
  - **Energy production increased by 15%.**
- **Voluntary agreement actions led to some reductions, more expected by 2009.**

## **Report conclusions, cont.**

- **Pace of reductions has slowed since 2005.**
- **Emissions may rise after 2010 absent new voluntary or regulatory reductions.**
- **New 93% reduction goal established to protect health**
- **Final emissions target of 789 lb./yr. (from 3,341 lb./yr in 2005)**
- **Meeting the goal will require additional state or federal regulations.**

# **2005 Mercury Report**

## **Recommendations**

- **Long-term goal of 93% reduction in Minnesota emissions from all sources.**
- **Collaborate with stakeholders to develop strategies to reach goal.**
- **In the short term:**
  - **Develop implementation plan for TMDL**
  - **Develop strategy to limit new emissions**
  - **Continue other voluntary and regulatory state strategies.**
  - **Encourage national & international reductions.**

# For More Information

Download copy of report at

<http://www.pca.state.mn.us/air/mercury.html#reports>

Or contact Ned Brooks at  
651-296-7242 or  
[Ned.brooks@state.mn.us](mailto:Ned.brooks@state.mn.us)

# EPA's Clean Air Mercury Rule

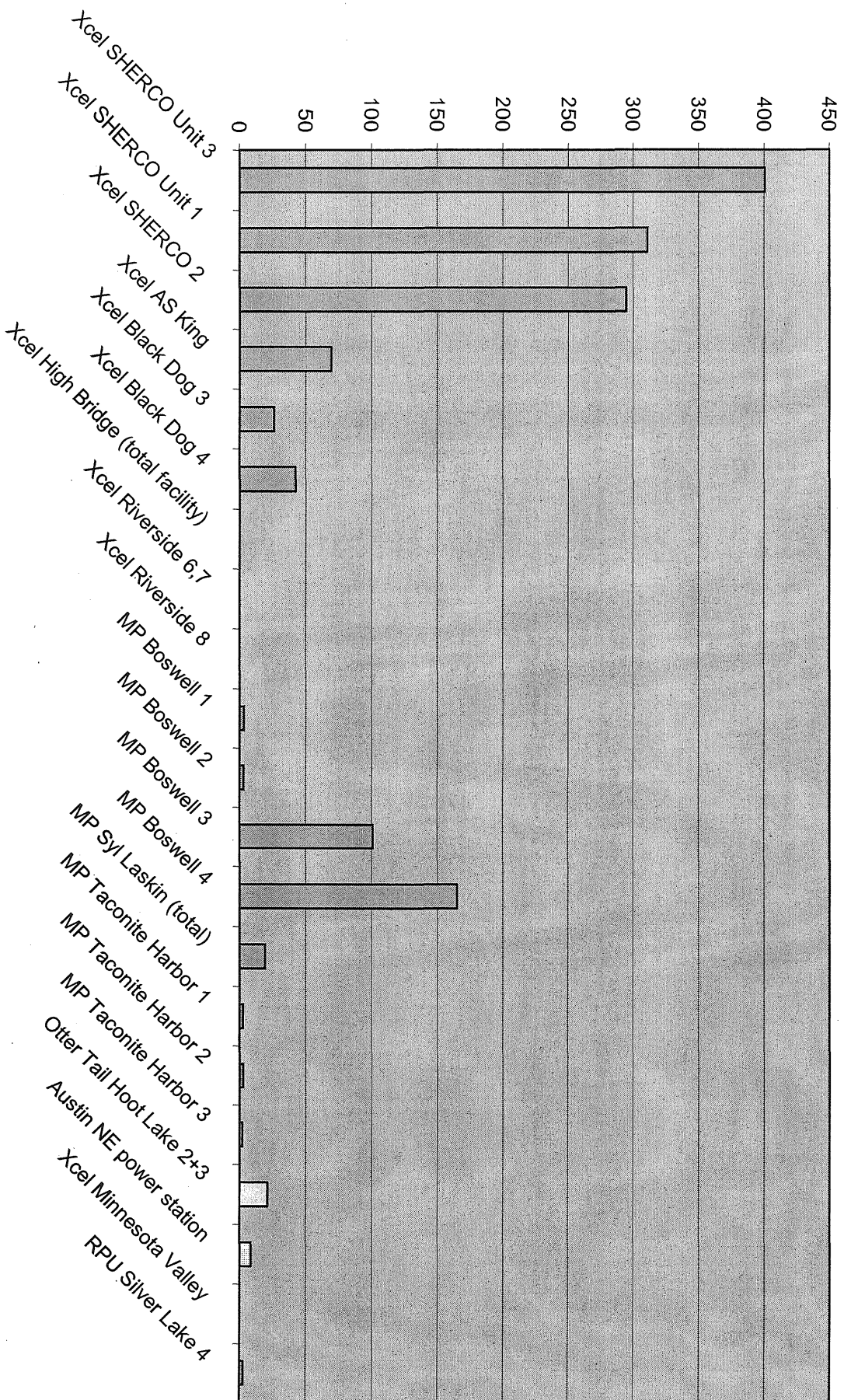
- Affects all states
- National cap and trade program
- 35% reduction by 2010
- 70% reduction by 2018

# Where Do We Go From Here?

## *Challenges to Reduce Mercury at Minnesota Facilities*

- Western coal is lower in mercury content than eastern coal –low concentration gas stream is harder to control
- Mercury from western coal is more difficult to remove with conventional pollution control technology
- Wet scrubbing systems are not as good at mercury removal as dry systems

# Estimated Mercury Emissions from MN Coal-Fired Utilities - 2009



# States with Regulations

		Coal Generation	Expected Hg Reduction
<b>Mass</b>	<b>95% 2012</b>	<b>1690 MW 11.8%</b>	<b>156 lbs</b>
<b>Conn</b>	<b>90% 2008</b>	<b>400 MW 5.1%</b>	<b>39 lbs</b>
<b>NJ</b>	<b>90% 2012</b>	<b>1710 MW 10.1 %</b>	<b>422 lbs</b>
<b>Wis</b>	<b>80% 2018</b>	<b>7118 MW 52%</b>	<b>Defaults to EPA Rule</b>
<b>NC</b>	<b>64% 2013</b>	<b>12,494 MW 45%</b>	<b>1500 lbs Incidental</b>
<b>MN</b>		<b>5782 MW 55%</b>	<b>90% at largest units~1100 lbs</b>



# Conclusions

- Minnesota is a leader in reducing mercury emissions
- It is time to take the next step, focusing on the largest utility plants
- The situation in Minnesota is such that crafting the best next step is not easy and requires making difficult choices

**Environment and Natural Resources Committee**  
**Minnesota Senate**  
March 1, 2006

Testimony by:

Dave Johnson, MPH  
President  
Minnesota Public Health Association ([www.mpha.net](http://www.mpha.net))  
PO Box 14709  
Minneapolis, MN 55414  
[johnsonosnhøj@hotmail.com](mailto:johnsonosnhøj@hotmail.com)  
(612) 781-0209

My name is Dave Johnson, President of the Minnesota Public Health Association (MPHA). Our organization has been in existence since 1907, and currently represents about 400 health professionals working to protect and promote the health of Minnesota communities. I have come to testify in strong support of the proposed legislation to reduce mercury emissions from coal-fired energy plants in Minnesota.

Our membership has spoken clearly on the issue of the mercury reduction in recent years. Mercury reduction from coal plants is clearly addressed in our policy resolutions "Mercury Reduction to Protect Public Health", passed in 1999, and "Mercury in Food as a Human Health Hazard", passed in 2003.<sup>1,2</sup> To that end, MPHA has cosigned a letter of support with the Minnesota Nurses Association that supports *"comprehensive mercury reduction legislation that sets statewide goals for phased elimination of mercury emissions from the major sources of mercury pollution in Minnesota"* (see attachment).

As an affiliate association of the American Public Health Association (APHA), I would also like to mention that APHA has adopted similar policy resolutions, calling for action to "cease man-made mercury emissions from all sources".<sup>3</sup> The American Academy of Pediatrics (AAP), and the American Medical Association (AMA) also have formal policies in support of mercury reduction to protect public health.

The litany of negative health outcomes that are caused by mercury are well-documented and indisputable. Methylmercury is a potent neurotoxin that poses the greatest risk to the fetus, infants and children. CDC data indicates that nationally, 10 percent of women have unsafe mercury levels, translating to over 410,000 babies born at risk each year. The public health chain of exposure that we are concerned with today begins with coal-fired power plants, which release mercury into the environment, where microbial biotransformation occurs, producing organically active methylmercury. Methylmercury accumulation occurs up the food chain, and has reached unsafe levels in many of Minnesota's popular game fish. When these fish are consumed, methylmercury adversely affects the nervous and reproductive systems. Interrupting this chain is of considerable public health interest, and is essential to reducing the toxic effects of methylmercury on humans.

The emphasis of my testimony today will be to demonstrate the effectiveness of this legislation in addressing mercury harm-reduction from a public health prevention perspective. This bill is a model of public health policy for three reasons.

First, the bill exemplifies **evidence-based targeting** of an intervention. According to the Minnesota Pollution Control Agency, 46 percent of Minnesota's mercury emissions come from coal-fired power plants, and that contribution is growing.<sup>1</sup> Proportionately, that is the largest single source of mercury

release in the state. While Minnesota has acted to reduce mercury pollution resulting from its use in products, like thermometers, and from their incineration, we have failed to regulate mercury emissions from their largest source. By focusing on the greatest contributor to environmental mercury emissions, this legislation is data-driven intervention to produce the largest possible impact.

Second, the proposed legislation is focused on **upstream intervention**. Despite our best efforts, current public health warnings to avoid or limit fish consumption are an imperfect tool to manage health risks from mercury exposure. They are dependent on a perfect transfer of complete and accurate risk information to individuals that is specific to time, place, and species of fish. There is also an implicit assumption that this information will lead to behavior change, and public health is well acquainted with the fact that the complexity of human behavior makes this assumption invalid. Additionally, fish advisories do nothing to protect the health of wildlife and our natural environment. Even further downstream, medical interventions to treat the chronic effects of mercury poisoning are expensive and are of limited efficacy. Focusing on mercury emissions at the source avoids the pitfalls of addressing these problems further down the chain of effects.

Finally, this bill clearly has a **population-based focus**. Patterns of subsistence and recreational fishing among Minnesota sub-populations distributes the health risks posed by mercury inequitably and unjustly, and propagates health disparities within our population. Addressing mercury emissions directly by reducing the release of mercury into our shared environment provides protection to *all* Minnesotans. The prevention effects of this policy are robust by reducing exposure across the entire population.

<b>Issue</b>	<b>Coal Plant Mercury Emissions</b>	<b>Mercury- contaminated Fish</b>	<b>Mercury-Poisoned Human</b>
<i>Intervention</i>	<i>Emissions Reduction</i>	<i>Fish Advisories</i>	<i>Medical Treatment</i>
	<div> <div>←Upstream</div> <div>Downstream→</div> </div>		

The prevention of human mercury poisoning is best accomplished by upstream, population-based interventions. By adopting these reductions in mercury emissions standards, Minnesota will demonstrate significant leadership in this area that will reduce regulatory uncertainty, which can catalyze regional action. If we do not act, and decide to maintain the status quo, we have failed in our obligation to protect the health of our communities and our state's natural resources.

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1. Minnesota Public Health Association. Policy Resolution: Mercury in Food as a Human Health Hazard. 2003.
  2. Minnesota Public Health Association. Policy Resolution: Mercury Reduction to Protect Public Health. 1999.
  3. American Public Health Association. Policy Number 9910: Preventing Human Methylmercury Exposure to Protect Public Health.
  4. Minnesota Pollution Control Agency, January 2002. Mercury Reduction Program, Progress Report to the Minnesota Legislature.

August 22, 2005

RE: Public Health Call for Mercury Reduction

Dear Legislators:

We are writing in support of mercury pollution reduction legislation in Minnesota to protect public health. The American Public Health Association (APHA), the Minnesota Public Health Association (MPHA), the American Academy of Pediatrics (AAP), and the American Medical Association (AMA) all have formal policies in support of mercury reduction to protect public health. Specifically, APHA recognizes that "a considerable portion of methylmercury concentrations in freshwater fish likely results from current man-made mercury emissions, or past emissions residing in mercury-laden lake and river sediments."<sup>i</sup> MPHA urges the Minnesota state legislature "set statewide goals for phased elimination of mercury emissions."<sup>ii</sup>

Further, the AAP notes: "Mercury in all its forms is toxic to the fetus and children, and efforts should be made to reduce exposure to the extent possible to pregnant women and children as well as the general population."<sup>iii</sup> Finally, the AMA states in a 2004 report: "Long-term solutions to reduce dietary mercury exposure must rely on improving the quality of the food supply through reduced anthropogenic emissions of mercury that become incorporated into the food chain as MeHg."<sup>iv</sup>

Fish are a healthy source of protein and essential fatty acids that promote cardiovascular health. However, the nutritional value of fish is compromised by its widespread contamination with methyl mercury. The National Academy of Sciences affirms that methyl mercury is a potent neurotoxin and chronic exposure to methyl mercury is associated with toxicity to the central nervous system. It affects the brain, spinal cord, kidneys and liver.<sup>v</sup> Methyl mercury passes through the placenta and is excreted into breast milk, so it can interfere with normal fetal and infant brain and nervous system development. Even low-level exposure over time, as from maternal fish consumption, can affect a child's learning and abilities, including reduced intelligence, impaired hearing and memory, poor coordination or delayed motor and verbal skills.<sup>vi</sup>

The Environmental Protection Agency estimates that between 8 and 16 percent of women of childbearing age have mercury body burdens above what is considered safe.<sup>vii</sup> This translates to an estimated 300,000 to 600,000 newborns at risk for developmental disabilities each year in the U.S., due to methyl mercury exposure. About 17% of school age children in the U.S. -- or 12 million in number -- suffer from some type of learning or developmental disability.<sup>viii</sup> Mounting evidence points to mercury as a contributor to these problems.<sup>ix,x,xi</sup>

Children in Minnesota are routinely exposed to methyl mercury. The Minnesota Department of Health (MDH) has issued statewide fish consumption advisories for mercury. MDH advises women of childbearing age to never eat large Walleye or Northern Pike and to restrict consumption of other fish due to mercury contamination.<sup>xii</sup> Every water body contains mercury and every fish in those water bodies has some level of mercury. In addition, Minnesotans face a higher than average risk of mercury exposure, since more people are engaged in recreational and subsistence fishing and therefore, are likely to eat more locally caught fish from mercury-contaminated waters.<sup>xiii</sup>

According to the Minnesota Pollution Control Agency, 46 percent of the mercury emitted in Minnesota comes from coal-fired power plants, with another 21 percent from taconite processing and 28 percent from mercury-containing products.<sup>xiv</sup> Cost effective technologies are available to reduce mercury from coal-burning power plants by 90 percent or more by the end of the decade. Mercury-free alternatives to most mercury-containing products are available.

**We the undersigned health, public health, education and other professionals support comprehensive mercury reduction legislation that sets statewide goals for phased elimination of mercury emissions from the major sources of mercury pollution in Minnesota.** We urge the Minnesota legislature to act now to pass this important legislation in order to protect the health of Minnesota's children and other sensitive populations.

Sincerely,

Erin Murphy, Executive Director  
Minnesota Nurses Association

David Johnson, President  
Minnesota Public Health Association

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<sup>i</sup> American Public Health Association, Resolution # 9910, Preventing Human Methylmercury Exposure to Protect Public Health.

<sup>ii</sup> Minnesota Public Health Association 2003 Resolution: Mercury in Food as a Human Health Hazard.

<sup>iii</sup> Goldman LR et al, 2001. Technical Report: Mercury in the Environment: Implications for Pediatricians, *Pediatrics* 108 (1): 197-205.

<sup>iv</sup> American Medical Association. 2004. Report 13 of the Council on Scientific Affairs (A-02), Mercury and Fish Consumption: Medical and Public Health Issues.

<sup>v</sup> National Research Council, 2000. Toxicological Effects of Methylmercury, National Academy Press, Washington, D.C.

<sup>vi</sup> Grandjean P, et al. 1997. Cognitive deficit in 7-year old children with prenatal exposure to methylmercury. *Neurotoxicol Teratol* 19(6):417-428)

<sup>vii</sup> Mahaffey, K, 2004. Presentation at National Forum on Fish Contaminants, January 2004.

<sup>viii</sup> Schettler, T et al, 2000, *In Harm's Way: Toxic Threats to Child Development*, Greater Boston Physicians for Social Responsibility.

<sup>ix</sup> Kjellstrom T, Kennedy P, Wallis S, et al. 1989. Physical and mental development of children with prenatal exposure to mercury from fish. Stage II: Interviews and psychological tests at age 6. Report 3642. Soina, Sweden: National Environmental Protection Board.

<sup>x</sup> Grandjean 1997.

<sup>xi</sup> National Research Council, 2000.

<sup>xii</sup> Minnesota Department of Health, [www.health.state.mn.us/divs/eh/fish/eating/safeeating.html](http://www.health.state.mn.us/divs/eh/fish/eating/safeeating.html), accessed August 22, 2005.

<sup>xiii</sup> U.S. Department of Interior Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau. 2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.

<sup>xiv</sup> Minnesota Pollution Control Agency, January 2002. Mercury Reduction Program, Progress Report to the Minnesota Legislature.

Posted on Sun, Feb. 19, 2006

## Embrace consensus to reduce mercury

Finally, political consensus is emerging at the Capitol to commit Minnesota to a responsible mercury reduction schedule to cut the toxic emissions that come from coal-fired power plants. Gov. Tim Pawlenty last week joined those calling for Minnesota to get moving well ahead of the federal government's foot-dragging new standards.

The vehicle is legislation to be introduced in the upcoming session by Sen. Scott Dibble, DFL-Minneapolis, and Rep. Ray Cox, R-Northfield. Although the governor's commitment is less specific than the lawmakers' call to cut emissions 90 percent by 2011, Pawlenty has also come down on the side of requiring utilities with coal-fired plants to submit action plans to the state. Clearly, the momentum is shifting away from the Minnesota Pollution Control Agency's position that voluntary reductions without timetables are sufficient.

In his letter to MPCA Commissioner Sheryl Corrigan, Pawlenty called for reducing mercury emissions by 90 percent "well in advance" of new federal standards that seek by 2018 to reduce by 70 percent the amount of such airborne pollution from what it was in 1999. Minnesota can do better to cut mercury emissions from power plants and do it faster with existing technology. The Dibble-Cox legislation does not set an unrealistic target that emerged in a political vacuum. About half of all remaining mercury pollution here comes from coal-fired power plant emissions. Deliberate attention to this single largest source is sensible.

Whether a 90 percent reduction by 2011 is the magic number that can win final passage in the Legislature remains to be seen. But the governor's commitment puts the stars in alignment for Minnesota to take care of its own mercury problem. The Legislature knows Minnesotans are impatient with its recent performance record. Committing to cut mercury emissions would count as an example that bipartisan, sensible behavior produces positive action for human health and the environment.

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**StarTribune.com** MINNEAPOLIS - ST. PAUL, MINNESOTA

Last update: February 26, 2006 - 6:19 PM

## **Editorial: A welcome shift on mercury pollution**

Pawlenty is right to seek ambitious, required reductions.

Gov. Tim Pawlenty's call for aggressive, mandatory reductions in mercury emissions from Minnesota power plants represents a welcome course correction for a regulatory agenda that has gone seriously awry. Indeed, it holds the potential of returning this state to a position of leadership on this horrific nerve poison, which not incidentally is toxic to fishing-based tourism as well.

As concern has mounted over mercury's public health impacts, state after state has decided that federal regulations are delivering too little, too late, and moved toward tougher control programs. Wisconsin is requiring power plants to cut mercury at least 40 percent by 2010 and 75 percent by 2015; that compares to federal standards compelling cuts of just 20 percent by 2010 and 70 percent by 2018. In Illinois, the governor is pressing for a 90 percent reduction by 2009.

This state, meanwhile, has placed its trust in a voluntary approach that set modest objectives and then fell far short.

In 1999, on recommendation of the Minnesota Pollution Control Agency, the Legislature adopted short-term objectives that, in fact, had been exceeded by the time the law was passed. The longer-range target was a 1,000-pound reduction by 2005; actual reductions claimed by polluters totalled roughly one-third of that amount, by the MPCA's count, and perhaps less than one-fifth, according to an analysis by the Izaak Walton League.

This is an embarrassing performance for a state which, in the 1990s, led the nation in cracking down on mercury pollution from consumer products such as batteries and fluorescent lights. But MPCA leadership has continued to favor a volunteer approach -- and further embarrassed itself by deciding, after meeting with industry representatives but not environmentalists, to drop firm timetables from the new mercury-control plan it was preparing last year.

In calling on the Legislature to mandate a 90 percent reduction in power-plant emissions, Pawlenty observed that the MPCA's process has bogged down -- and in ways likely to invite litigation, which would mean further delay. Those were understatements. Still, they could not have come easily to this conservative young governor, whose ambitions rely heavily on support from a regulation-resistant political base.

Of course there will be debate over the details of this plan, and there is some doubt that lawmakers can come to consensus in a short, bonding-centered session. But they ought to do their very best. Mercury pollution is arguably the most serious air-quality problem in this state -- and after too many years of wishful thinking, it is once again getting the firm, top-level attention it deserves.

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**Greenwire**

Wednesday, February 15, 2006

## **MERCURY: EPA study links fallout in Ohio to nearby coal-burning plants**

**Darren Samuelsohn**, *Greenwire* senior reporter

Nearly 70 percent of the mercury in rain collected at an Ohio River Valley monitoring site originated from nearby coal-burning industrial plants, according to new U.S. EPA-funded research.

The findings, which researchers hope to publish this spring, apparently contradict the Bush administration's position that links most U.S. mercury fallout to power plants in other countries.

The study -- conducted in 2003 and 2004 in Steubenville, Ohio -- is the first in which scientists used rain samples and meteorological data to track mercury from smokestacks to monitors, said Matthew Landis, an EPA researcher and the lead investigator in the mercury study.

EPA issued regulations for controlling power plants' mercury emissions in March 2005 that were based on computer models that estimated mercury deposition nationwide. The agency's most widely trumpeted modeling result was this: Only 8 percent of the wet mercury deposition nationwide comes from U.S. power plants.

Assuming that the bulk of U.S. wet deposition of the toxic metal comes from smokestacks abroad, the administration adopted a market-friendly, cap-and-trade program to facilitate domestic mercury reductions. The alternative was to force most of the nation's 1,300 coal- and oil-fired power plants to install their own pollution controls.

Critics of the administration's mercury rule say Landis' findings show for the first time that deposition from regional and local smokestacks are much higher than EPA models suggest. To protect public health, they say, power plants should be required to install mercury-specific emission control equipment rather than be allowed to buy pollution credits from cleaner-burning facilities elsewhere.

A Wheeling-Pittsburgh Steel Corp. steel mill is one of many industrial plants around Steubenville, Ohio. Photo by Darren Samuelsohn.

"This is a very important study that makes the case for hot spots caused by local large sources, mostly coal plants," said Praveen Amir, a senior scientist for the Northeast States Coordinated Air Use Management, a nine-state coalition of air pollution officials.



An EPA source who has not been given official clearance to speak to the press on the record said, "What we've said to the public is the 8 percent number. We've basically hidden the large local deposition from sources as a way to justify the trading program."

### **Significance of Steubenville**

Landis and his former graduate school professor, University of Michigan atmospheric scientist Gerald Keeler, launched the Steubenville research in the wake of EPA's 1997 report to Congress that listed U.S. power plant emissions as the largest single source of mercury pollution. The report also highlighted how mercury is a significant threat to unborn children whose mothers eat fish with tissue containing large concentrations of the toxin.

The study's goal was to determine whether emissions from regional coal combustion could be more than just a secondary source of mercury.

Much of the continent's mercury data was collected by a network of 69 North American mercury deposition monitors. The monitors -- run primarily by independent scientists and academics -- are designed to measure background levels of mercury and not specifically placed near industrial sources. They also do not account for trace elements, Landis said in a recent interview.

Landis and Keeler picked Steubenville -- famous for being the birthplace of singer and actor Dean Martin -- for their work because it is within air transport distance of many major Midwestern coal-burning facilities. Within 125 miles are more than a dozen major coal combustion sources, including Ohio Edison and American Electric Power Co. power plants and petroleum coke manufacturers.

Steubenville also has a deep history in international air pollution and health research. Harvard University has tested Steubenville's residents dating back to the early 1970s in a well-known and frequently cited study on the link between air pollution and human health. Many of the major regulatory decisions on air pollution -- including EPA's current federal soot and ozone limits -- have been based on information gathered in Steubenville.

The mercury scientists set up their equipment on the mountain campus of Franciscan University, which is 1,500 feet above the Ohio River and industrial riverbank of Weirton, W.Va. A large white cross overlooks the measurement site and an adjacent student parking lot.

Landis and Keeler collected more than 160 precipitation samples there over two years using an automated device about the size of an office photocopier. The machine's trap door opens at the first trace of rain or snow.

The scientists compared their samples with meteorological data about wind patterns and the origin of the precipitation. And they traced mercury to coal combustion sources based

on trace elements found in the samples, including sulfur, nitrates and selenium. Those three elements originate only at a coal burning, as opposed to nickel, chlorine or other elements that would originate at an oil-fired power plants.

After running the data through EPA models, Landis found as much as 67 percent of the mercury in Steubenville originated from coal-combustion sources.

Air quality monitoring equipment, including the rain collection equipment to detect mercury, on the campus of Franciscan University in Steubenville. Photo by Darren Samuelsohn.

From weather data, he determined the mercury had traveled three days at most, or about 400 miles.

Also noteworthy, Landis said his results appear to contradict the unpublished yet highly touted findings of the Electric Power Research Institute. The industry-funded group has suggested that ionic mercury may be transformed chemically into a form of elemental mercury that wafts into the atmosphere and circles the globe.

If industry's reported findings were accepted, sources said, U.S. regulators would have less incentive to push for domestic mercury reductions. But if the mercury tends to stay in its reactive form, as Landis' research indicates, then EPA would have a greater stake in addressing local emissions.

The Landis-Keeler study is ongoing. Similar rain collection devices and weather tracking programs are in place in northern Vermont, at five sites in Michigan and near Tampa, Fla. Landis and Keeler also plan this year to track dry mercury deposition, a more complex subject given the difficulty of drawing samples from air as opposed to taking them from water.

When finished at the end of the year, the research will have cost more than \$1.1 million. EPA has funded the study through appropriations specifically marked for work related to power plant emissions and the administration's "Clear Skies" legislation.

The findings have a margin of error of 14 percent, and they also do not specify which power plant or other coal-combustion source the mercury originated from.

### **EPA 'quite confident' in mercury rules**

Top EPA officials have been aware of the Landis-Keeler study for at least a year -- to about the date the administration was required under a legal deadline to issue the final mercury rule, March 15, 2005.

Tim Oppelt was serving as EPA's Office of Research and Development's acting director when he was briefed by Landis on April 27, 2005 -- about six weeks after the agency finalized the rule. Then-EPA air chief Jeff Holmstead had a similar briefing last July. In all, Landis said he attended at least a half dozen sessions in Washington to present his

data to senior EPA officials. He also provided more details of his study at an October air pollution event in Beijing.

Sources familiar with Landis' efforts said EPA senior officials ordered an external peer review before he could submit the study to a scientific journal. The step was necessary given the high-stakes findings and the political repercussions that could follow, sources said.

The peer review -- which cost about \$20,000 to the Research Triangle Institute in North Carolina -- ended last December without any major changes recommended in the study's findings. A new manuscript was submitted for publication to a journal last month. Landis declined to release a draft of the article until it has been peer reviewed by the publication.

Senior Bush administration EPA officials say they are not surprised by Landis' findings. Jason Burnett, EPA's point person on mercury issues, said the agency has known all along that the industrial Midwest stands out as a region where mercury emissions would be driven up by regional sources.

EPA models have showed deposition levels in Steubenville of 45 percent, with levels east of the city of more than 70 percent, he said. And even with such levels taken into account, Burnett said the administration's regulations will address the pollution as best as possible.

"The evidence is there will continue to be a large amount of mercury, but the power plant part of it will be reduced significantly because of these rules," he said.

Burnett's explanation squares with how the Bush administration justified its move to the market-based approach nearly a year ago. At press briefings, EPA last March went on the public relations offensive to argue that regulators are limited in their ability to reduce mercury in the United States because of global emission patterns and also the production patterns of the seafood industry.

EPA also said specific mercury control technologies were not available yet for deployment across the country.

Holmstead told reporters then that EPA did not anticipate the trading program would leave local areas vulnerable to high deposition levels. "We don't think there will be any hot spots, we're quite confident of that," he said. "A cap-and-trade approach can always get a bigger reduction at a lower cost."

Landis' presentation to Oppelt clearly indicated that he wanted the information presented to agency decisionmakers to ensure they knew what was being studied. But he also acknowledged last spring that he could not deliver the work before EPA's final rule was due because he was still waiting for final analysis.

"We think its important for policymakers to have the data as soon as we can generate it," he said of the delays in releasing the information.

### **Study entered into public record**

EPA's acknowledgment that deposition levels are likely to be higher in the Midwest has not satisfied its critics. They contend that EPA has said little publicly about the Landis-Keeler study until it was prompted by environmentalists and the press. They say the agency's silence raises questions about whether the administration would prefer to keep the information out of the public eye until after the rulemaking docket is closed and all subsequent reviews were complete.

"It's one thing to say we're withholding the results because it's going through a peer review process, it's another thing to acknowledge that the research is happening," said Ann Weeks, an attorney with the Clean Air Task Force.

First Energy's W.H. Sammis coal-fired power plant sits about 10 miles north of Steubenville. New pollution control equipment was added to the plant on a platform that sits on top of Ohio's State Road 7. Photo by Darren Samuelsohn.

Environmentalists first heard about the Steubenville study last summer. They commented on it in December and entered Landis' Power Point presentation to Oppelt into the public record. Weeks said the report puts EPA on the spot to issue an official reaction to the information.

After interviewing Keeler, the Michigan Department of Environmental Protection also cited the Steubenville study in its own comments submitted to EPA.

EPA has not released a copy of the Holmstead briefing materials. *Greenwire* has filed a Freedom of Information Act request to obtain it.

The lack of documentation has also frustrated critics from industry. They have been forced to hold their fire in challenging the study. Leonard Levin, mercury expert at the Electric Power Research Institute, said in an interview that he was skeptical of the Landis-Keeler findings and their originality.

Echoing the reaction of EPA officials, Levin said the study is eliciting shrugs given the region has long been known to retain power plant emissions within the river valley. He also said he doubted the validity of the mercury findings given the difficulty in tracking emissions from any one power plant to a deposition site.

"Give us something technical to chew on," Levin said. "We don't have anything."

EPA says the Landis-Keeler scientific findings were not made public because of the need for external peer review -- a process that slowed the research's submission to a journal for publication by about six months. Burnett also said EPA would be open to considering the

study's results as it sorts through ways that states will implement the mercury trading program.

Administration critics are pushing to make Landis' Steubenville research another stepping stone in their effort to influence policy.

If EPA does not address Landis' findings by a mid-May deadline for administration rehearing, the mercury rule's critics say litigation challenging the rule will almost certainly include a mention of the study. Oral arguments in the case are expected later this year in a federal appeals court in Washington. Plaintiffs challenging EPA's rule include 15 states, environmentalists and several Maine-based Native American tribes.

This is not the first time that questions have been raised about EPA's mercury rule and the analysis behind it. Critics say the administration has appeared to ignore or downplay other key studies on mercury, including the toxic pollutant's potential cardiovascular health effects. The agency's inspector general issued a report in February 2005 that said the administration made decisions during the rulewriting process that were based on preconceived ideas in favor of the market-based trading system.

*Greenwire* and the *Washington Post* have reported EPA issued rule language copied verbatim from industry-sponsored memos. In one instance, suggestions to adopt the cap-and-trade approach had come from a Washington law office where Holmstead and his top legal aide, William Wehrum, had worked before joining the administration. Holmstead left EPA last summer, and the air office is currently under the acting command of Wehrum.

Last month, a spokeswoman for the EPA inspector general confirmed that another report is under way on the administration's mercury rule. Landis was among the EPA officials who has been interviewed for the investigation.



**Clean Water, Safe Fish, Healthy Kids**

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# 2006 Policy Goals

## **Mercury-Free Minnesota**

**Clean Water, Safe Fish, Healthy Kids**

### **2006 Policy Goal — Reduce Mercury Emissions from Power Plants**

#### **The Problem**

Mercury pollution is a serious problem. Minnesota's lakes and rivers are contaminated with mercury, which accumulates in fish and can adversely affect the health of people and wildlife that eat the fish. Mercury is a potent neurotoxin that causes learning and developmental disabilities in children. Because of mercury pollution, women of child-bearing age and children are advised to limit or totally avoid eating fish from Minnesota's lakes and rivers.

One of Mercury-Free Minnesota's 2006 policy goals is to reduce mercury emissions from coal-burning power plants. According to the Minnesota Pollution Control Agency (MPCA), most of Minnesota's mercury contamination is the result of air emissions that fall into our lakes and rivers. Coal-burning power plants are the largest source of mercury air emissions.

Over half of U.S. electricity is generated by burning coal—releasing mercury. The problem in Minnesota is even worse: 75 percent of our electricity comes from coal. Our coal-burning power plants alone release almost 1,700 pounds of mercury each year, which accounts for about 50 percent of the state's mercury air emissions. Coal-burning power plants are a growing part of the problem because our electricity demand continues to grow and because nearly every other sector that emits mercury has been required to reduce emissions.

Minnesota does not limit the amount of mercury that existing coal-burning facilities can emit. Past efforts to reduce mercury emissions in Minnesota have produced mixed results. Minnesota has successfully reduced mercury in some products and from some sources.

*Clean Water Action Alliance of Minnesota*  
[www.cleanwateraction.org/mn/](http://www.cleanwateraction.org/mn/)  
612-623-3666

*Environmental Justice Advocates of Minnesota*  
[www.ejam.org](http://www.ejam.org)  
651-646-8890

*Institute for Agriculture & Trade Policy*  
[www.iatp.org/foodandhealth](http://www.iatp.org/foodandhealth)  
612-870-3468

*Izaak Walton League of America—Midwest Office*  
[www.iwla.org](http://www.iwla.org)  
651-649-1446

*Minnesotans for an Energy-Efficient Economy (ME3)*  
[www.me3.org](http://www.me3.org)  
651-726-7562

*National Environmental Trust*  
[www.net.org](http://www.net.org)  
612-465-8566

*Sierra Club North Star Chapter*  
[www.northstar.sierraclub.org](http://www.northstar.sierraclub.org)  
612-659-9124

But the largest comprehensive effort to date, the Mercury Contamination Reduction Initiative, did not result in significant reductions of mercury emissions as intended. Federal rules, which are currently under legal challenge, are not projected to reduce emissions from Minnesota's power plants.

Since mercury is unquestionably bad for our health and the technology exists to cost effectively reduce emissions from coal-burning power plants, we should put our kids' health first and require mercury controls on power plants.

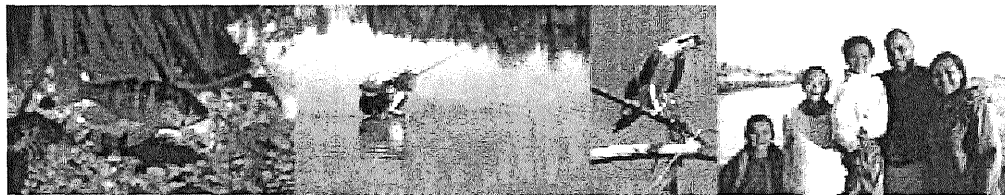
## What We Can Do

To address this problem, Mercury-Free Minnesota supports legislation that requires 90 percent reductions in mercury emissions by 2009 from coal-burning power plants and extends the Emissions Reduction Rider to 2009.

**Reductions:** All coal-burning power plants that are 25 MW or larger at a single unit must reduce emissions 90 percent by 2009. If the unit employs wet scrubber control technology, it must reduce emissions 90 percent by 2011. Emission regulations must be modified to protect public health, the environment and sensitive populations.

**Emissions Reduction Rider:** The emissions reduction rider (Minnesota Statute 216B.1692) provides that investor-owned utilities in Minnesota can propose emissions reduction projects at their large electric generation stations and seek cost recovery from ratepayers for such investments. This rider, which is currently slated to expire in June 2006, will be extended to 2009 and will apply only to units that install multi-pollutant control technology, including mercury controls.

**Authority:** Any existing state standards more restrictive than federal standards will be retained, and the authority of state agencies to issue standards more restrictive than those issued by the federal government will also be retained.



*Mercury-Free Minnesota is working with government agencies, legislators, industries and the public to phase out harmful mercury emissions in Minnesota, find safer alternatives and protect human health and the environment.*

*For complete language of the Mercury-Free Minnesota policy goals or to see all of our recommendations, see Mercury-Free Minnesota's Comprehensive Statewide Mercury Reduction Policy Recommendations at:*

***[www.MercuryFreeMinnesota.org](http://www.MercuryFreeMinnesota.org)***



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## *Arrowhead Regional Emission Abatement (AREA)*

*—Minnesota Power's \$60 million voluntary environmental initiative—  
March, 2006 Legislative Update*

*AREA is Minnesota Power's voluntary effort to significantly reduce emissions from two coal-based generating facilities in Northeastern Minnesota: Taconite Harbor Energy Center in Schroeder, and Laskin Energy Center in Hoyt Lakes. At Taconite Harbor, Minnesota Power will be employing multi-emission reduction technology, while Laskin will receive a retrofit focused on lowering nitrogen oxides (NOx) emissions, with the first projects at both facilities expected to come online in late 2006.*

*Upon projected completion of the retrofits, Minnesota Power estimates an emission reduction of over 60% for NOx at both facilities and a 65% reduction in sulfur dioxide (SO<sub>2</sub>) at Taconite Harbor. Laskin Energy Center already has relatively low emission levels of sulfur dioxide due to existing emission reduction technology. With the emerging technology being applied at Taconite Harbor, there is the potential for as much as a 90% reduction in mercury.*

### Regulatory Milestones:

October 13, 2005, MP filed its AREA Plan

- Proposed environmental retrofits and emission reductions
- MPCA primary reviewer

December 13, 2005, MP filed its AREA Rider

- Cost recovery and rate impact
- Department of Commerce primary reviewer

January 17, 2006, MPCA filed its Project Review

- Evaluated qualification under the statute and project cost/benefit
- Concluded appropriate for cost recovery



Anticipated Outcomes:

Laskin Energy Center

Before AREA Plan

Two 55 MW (net) coal-fired units  
Tangentially fired boilers burning low sulfur, low mercury sub-bituminous coal and wet particulate scrubbers

After AREA Plan

NOx control technology – Low NOx Burners, Over-Fire Air Systems and Neural Networks  
Expected reductions: NOx - 66%

Taconite Harbor Energy Center

Before AREA Plan

Three 75 MW (net) coal-fired units  
Tangentially fired boilers burning low sulfur, low mercury sub-bituminous coal and hot-side electrostatic precipitators

After AREA Plan

Multi-emission control technology (Mobotec) – NOx - Rotating Opposed Fired Air and Selective Non-Catalytic Reduction; SO<sub>2</sub> - Furnace Injection Systems; mercury - Sorbent Injection Systems  
Expected reductions: NOx - 62%; SO<sub>2</sub> - 65%; mercury – up to 90%

Questions? Please call Steve Garvey, Manager-Minnesota Power State Legislative Affairs, 651-225-1009, or email [sgarvey@mnpower.com](mailto:sgarvey@mnpower.com).