Mercury Reduction Program: Progress Report to the Legislature

Response to comments on the December 21, 2001 draft

Comments were sent by:

- Clean Water Action Alliance
- Iron Mining Association of Minnesota
- Izaak Walton League of America
- Minnesota Center for Environmental Advocacy
- Minnesota Chamber of Commerce
- Minnesota Environmental Science and Economic Review Board
- Minnesotans for an Energy-Efficient Economy
- Minnesotans for an Energy-Efficient Economy
- National Wildlife Federation
- Wisconsin's Environmental Decade
- Xcel Energy

All comments received were considered in writing the final progress report. As we reviewed comments we looked for common themes. What follows is our attempt to capture those themes and respond to them.

A. Groups and firms representing industrial interests

1. Industrial firms are satisfied with Voluntary Agreements and want to see them continue.

   It is worth noting accomplishments that have resulted from the Voluntary Agreements. Our report acknowledges generally the positive developments of the past few years. It also includes, in Appendix D, full copies of all Voluntary Agreements and progress reports. However, this is not the time for final evaluations. Some commenters want to declare the Voluntary Agreements a complete success and make no changes other than those proposed by the firms that draft the Agreements. On the other hand, there are those, e.g., some environmental interest groups, who want to declare the Voluntary Agreements an "abysmal failure" and proceed to develop mercury-related regulations. Both sides are too quick to judge.

   As Appendix D notes, overly optimistic evaluations can interfere with necessary decisions and pessimism can force decisions before they really have to be made. This year's report was not planned as the final evaluation of the Voluntary Agreements. Instead, it compares our mercury reduction goals with current developments to see whether we are headed in the right direction. It also has recommendations for improvement.

   A few developments are worth special mention:

   - The mercury reductions reported in Voluntary Agreements and progress reports are relatively small compared to emission estimates.
   - Individual firms' Voluntary Agreements and progress reports use formats so different that total emission or total reduction estimates cannot be made. There is a need for a standard reporting format (which is among our recommendations in the final report). We should get together and talk about this.
   - Only MCES has accepted a specific target for mercury reductions. They believe a new system will give them control of 70 per cent of their mercury emissions. Analysts who have studied other voluntary systems have found that individual targets improve system performance. In the final report we indicate our intent to develop individual voluntary targets for facilities emitting more than 50 pounds of mercury per year. We should get together and talk about this also.
• Environmental interest groups should be more involved in development and implementation of the Voluntary Agreements. This is another likely subject for a meeting.

2. Industrial firms are concerned about the availability of control technologies.

This is a valid point, but its validity has limits. Some who hear this argument think it is a strategic point raised to support delay - and they’re not always wrong. The fact is that technological change is underway. It occurs with or without regulations or voluntary programs. However, without environmental regulations it is unlikely that much research and development would be devoted to emission control systems. Various of our Voluntary Agreement firms now sponsor technical studies on different aspects of mercury emission control. We look forward to progress reports that will give us more detailed findings and stronger support for emission reduction estimates.

One purpose of Voluntary Agreements was to give industrial firms a broad range of choices for their mercury reduction plans. Even if technological capacity is lacking, a wide array of alternatives remains available. Some industrial firms plan to use the full range of mercury reduction alternatives. Others do not. We plan to discuss both technological capacity and its alternatives with those firms that have rather narrow mercury reduction plans.

3. "Even though the state is ahead of schedule for meeting the reduction goals, we will continue to implement the activities outlined in our voluntary agreements to reduce or work towards reducing mercury releases." Minnesota Chamber of Commerce.

Thank you. We appreciate the effort required to improve performance after reaching an agreed target. We hope to learn about specific results in this year’s progress reports.

4. The report should cover the full range of mercury reduction activities, not just the Voluntary Agreements. Not all progress indicators can be reduced to numbers.

We believe the full range of mercury reduction activities is covered in the report. Page 16 has a short description of MPCA and MOEA programs. General descriptions of Voluntary Agreement activities begin on page 19. For those who want more detail, copies of Voluntary Agreements and Progress reports are included in Appendix D. It would, of course, be possible to discuss more about the projects that do not reduce direct mercury emissions, but may have some effect on other mercury releases. However, to many people the essence of the 1999 legislation was its reliance on a voluntary approach using voluntary agreements. Furthermore, over half of the mercury emissions in the current inventory are direct emissions from firms that have Voluntary Agreements. Many reviewers accept the need for research and product-related initiatives, but they also want to know what is happening with direct mercury emissions.

Although we do not need numbers to show that Voluntary Agreement firms have made progress, the most important part of our evaluation requires numbers. We have to discuss whether we have met the goals set by the 1999 Legislature. In addition, in the final report we have recommended changes to the reduction goals to better reflect the spirit and intent of the 1999 legislation.

B. Environmental Interest Groups

1. Environmental interest groups dislike the Voluntary Agreements. Some refer to the voluntary approach as an "abysmal failure" and call it "neither effective nor fair."
Recall the purpose of the 2001 evaluation report. It was not planned to make a final judgment about the Voluntary Agreements. Instead, we are to discuss whether we are likely to meet the 2005 goal. The 60 per cent reduction goal for 2000 was planned as a milestone, not a final goal.

We think it is too early to tell whether the Voluntary Agreements have failed. However, we also think that the Voluntary Agreements need improvement. Our suggestions for change are included in the final report. We agree that the Voluntary Agreements should be more specific about an individual firm’s commitment to reduce its mercury emissions. We also think it will help if Voluntary Agreement firms standardize their progress reports. We think Voluntary Agreements will improve if environmental interest groups participate actively in the implementation of mercury reduction plans. We intend to encourage all sides in this debate to work together on making programs work.

2. Environmental interest groups are dissatisfied with the results of the latest adjustments to the mercury release inventory. Some think it is an accounting device used as an effortless way to claim program success. The MPCA should explain clearly why the inventory was changed.

Last year, the MPCA paid for a library research study on mercury in products. Results of that study convinced us that earlier inventories underestimated the amount of mercury released from latex paint. We made appropriate adjustments and found that doing so caused the 2000 estimate to become 68 per cent less than the 1990 estimate. With the stroke of a pen, the goal for 2000 was reached.

Bear in mind that we were all aware that this problem might arise. The Advisory Council's final report says: "The reduction goal applies to the statewide total of releases from existing and new mercury sources. As new information regarding mercury releases changes the 1990 baseline estimate, the goal of a 70% statewide reduction in releases to air and water by 2005 will apply to the revised 1990 baseline." However, everyone knows it is not that simple.

We recommend in this year's report a change in the goal for 2005. In addition to the 70 per cent reduction, we recommend no less than a ten per cent emission reductions (with the same 1990 basis year) for utility firms and taconite firms. We believe this change reflects the intent of our Advisory Council and of the 1999 Legislature. We are interested to know if you think the goal should be different.

Mercury in latex paint was the item that changed significantly in the inventory. Here are the specific changes:

<table>
<thead>
<tr>
<th>Latex paint volatilization, in pounds per year</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998 best estimate</td>
<td>500</td>
<td>2</td>
</tr>
<tr>
<td>2001 best estimate</td>
<td>3,800</td>
<td>0</td>
</tr>
</tbody>
</table>

The difference is dramatic. The 1998 estimate assumed: "Nationally, 24.2 tons of mercury were added to paint in 1990 (Minnesota's economy is about 2% of the U.S. economy; 2% of 24.2 tons = 968 lb.). Half is assumed to volatilize the first year." No carry-over of the remaining mercury from earlier years was included in the 1990 estimate.

The 2001 estimate assumed: a) mercury emissions in 1990 come from paint applied between 1971 and 1990, b) Minnesota emissions are two per cent of the national emission estimate, and c) a 75 per cent annual volatilization rate. The higher volatilization rate is the rate assumed by Ontario researchers in 1998. Apart from the specific numbers, the critical difference derives from the recognition, in the 2001 estimate, that some mercury emissions in 1990 came from paint that was used in earlier years, as far back as 1971.
3. The report says that mercury deposition is declining in some parts of the state and increasing in others. Where is mercury deposition increasing? Why is mercury deposition increasing in some places?

Mercury deposition in a given location is not very constant from year to year, probably because of variations in rainfall patterns and source areas. One would expect, through chance alone, mercury deposition to exhibit long term trends that are overlain by temporary increases and decreases over time.

The report’s conclusion that deposition has declined or has been relatively constant in recent times is based on sediment core data, which has been averaged at decadal time increments (published in Environmental Science and Technology, 1997, volume 31, pages 960-967). Examining mercury deposition in 10-year increments probably does a good job of smoothing out year-to-year variations and revealing long-term trends in deposition that reflect changes in local, regional, and global mercury emissions.

In contrast, the report’s conclusion that deposition has slightly increased since 1990 is based on six years of weekly mercury deposition measurements in rainfall, (published in Environmental Science and Technology, 1999, volume 33, pages 3303-3312). In this study, mercury deposition tended to increase, but was not statistically significant until all the sites were combined to get more statistical power (the pertinent sites were near Bethel, Duluth, Ely, International Falls, Lamberton, and Cavalier, North Dakota).

The MPCA continues to sponsor weekly deposition monitoring at four sites in Minnesota (Ely, Camp Ripley, Marcell, and Lamberton), but the data has not recently been examined for time trends. Since 1995, the data have been collected under the national Mercury Deposition Network monitoring program: http://nadp.sws.uiuc.edu/mdn/

4. MPCA reports that it supports federal action to reduce mercury emissions from coal-fired power plants. What specific steps is the agency taking to show support for federal initiatives?

MPCA representatives help develop and advance mercury-related positions in the Environmental Council of States (ECOS), the State and Territorial Air Pollution Program Administrators (STAPPA), the Association of State Water Pollution Control Administrators (ASWPCA), the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), and the Quicksilver Caucus. These positions often focus on federal initiatives. MPCA mercury coordinators have also developed contacts with USEPA's Region 5. These contacts have led to establishment of a communications network that covers the Great Lakes region. Discussions held and initiatives developed through these groups nearly always involve multi-state issues. Among the topics addressed through ECOS are: the federal mercury stockpile, multi-pollutant strategies and the need for the articulation of a national vision for mercury.

5. The MPCA should take other steps to get utilities to reduce their mercury emissions. The voluntary program should be scrapped and a regulatory approach should begin. The agency should provide the "statewide implementation plan" that is required for further progress. Finally, the report should address the issue of increasing mercury emissions caused by construction of new power plants.

We have already discussed why it is too early to reject the Voluntary Agreements (see point 1, above). Our Advisory Council considered and disapproved of conventional regulations for mercury point sources. But apart from the Advisory Council's recommendation, we believe federal authorities have stronger grounds on which to base mercury regulations. They have the Mercury Report to Congress and the recent validation of that report made by the National
Research Council. USEPA also has a broader regulatory scope, which permits more confidence that reducing emissions at a regulated plant will have beneficial impacts on American communities. Federal regulations for utilities are expected to be proposed by 2003 and implemented by 2007.

6. Some reviewers ask whether the MPCA intends to develop the statewide implementation plan that is needed to make the statewide goal more effective.

The final report recommends changes that are expected to handle the "free rider" problem. Specifically, the MPCA recommends negotiation of mercury reduction goals for individual plants and emission sources.

7. The report should address the issue of increasing mercury emissions caused by construction of new power plants.

Recommendations in the final report have been cleared up. Specifically, the MPCA plans to work closely with the Department of Commerce to encourage energy conservation and the use of electricity resources that do not emit mercury.

C. Municipal Wastewater Treatment Facility Operators (MESERB)

1. The report should say that POTWs are insignificant contributors to mercury releases.

This point is made on p. 22: "... wastewater-treatment plants are already under increasing financial and regulatory pressure on a number of fronts, and their wastewater discharges are usually (but not always) minor contributors to the mercury loading in the affected water body."

2. MESERB recommends delay of statewide Total Maximum Daily Loads (TMDLs) until federal rules are completed.

TMDL options continue to develop. The MPCA, along with environmental agencies in other states and USEPA's Chicago office, are now looking into plans that promise both flexibility and effectiveness. We will keep you advised as things develop.

3. MESERB is concerned about the "cost and applicability" of mercury monitoring requirements. They assert that a requirement to use new analytical methods will "generate tremendous costs with little environmental benefit."

It is EPA policy in the NPDES program that surface water dischargers monitor effluents using analytical methods appropriate to the water quality standard to be achieved. Minnesota has water quality standards for mercury, and many of the state's waters have been designated as impaired for mercury. It is clearly within MPCA authority to require the monitoring (Minn. Stat. § 115.03(e)(7)). The reduction goals established in Minn. Stat. § 116.915 are in addition to these statutory authorities – not to the exclusion of those authorities. Until recently there was no mercury analytical method approved for use by EPA that measured at the low levels represented by mercury water quality standards. That changed in June 1999 with the promulgation of a new low-level method. We can now assess which dischargers are meeting water quality standards on a site-specific basis.

The cost of monitoring effluents through the NPDES permit program is born by the discharger. The cost associated with low-level mercury sampling is about $200-300 per sample, or about $4,000-$6,000 total based on typical requirements during a five year permit for an existing discharger that collects their own samples. This is not exorbitant compared to samples collected for other metals or organic pollutants. If a discharger wants to spend additional money to have non-facility personnel sample their effluent, that is their choice. Other EPA Region 5 states are requiring low-level mercury monitoring using this same method.
While we can establish that municipalities have achieved reductions in mercury in their collection systems since 1990 by other methods, we cannot say which dischargers meet water quality standards without conducting low-level monitoring on their effluents. Every watershed and every point source is different, which is precisely why monitoring will help answer the question - “which dischargers affect their watersheds adversely?”. Currently the MPCA is requiring monitoring in the permits of major dischargers (those who discharge effluent at a rate ≥ one million gallons per day or mgd) and select minor dischargers (<1.0 mgd) believed to have elevated mercury. The degree of the extension of this monitoring to others is yet to be determined based on sampling the MPCA is to collect yet this spring.