

# Getting the Mercury Out of Vermont's Environment

## A Call For Action



**Report Prepared by Vermont's *Advisory Committee on Mercury Pollution***

**January 2001**

## A CALL TO ACTION

**M**ercury contamination represents a new breed of environmental problem; one more subtle and that presents new and different challenges. Vermont currently is one of nearly 40 states that has issued mercury *fish consumption advisories* for lakes and reservoirs. This is because fish in these water bodies contain high levels of mercury that if frequently consumed pose a human health risk, most especially to the nervous system of the developing fetus and to young children. This alone should justify a clarion call for action at the state and federal levels to reduce mercury releases. To do so, Vermonters will need to address the sources of mercury contamination; coal burning power plants, incineration, and improper disposal of a multitude of commercial mercury-containing products. If we are to envision a day when Vermont lakes and ponds, and their fish are no longer repositories for contaminants like mercury, then we must take action now to prevent and control mercury releases, the



The Governors of the New England States and the Premiers of the

Eastern Canadian Provinces have endorsed a regional goal of “the virtual elimination of the discharge of anthropogenic mercury into the environment with a goal of 50 percent reduction by the year 2003.” In 1998, Vermont was the second state to adopt a mercury-added product labeling law to inform consumers and purchasers of the mercury content of products and to ban them from solid waste disposal.

Information, education, and assistance programs are being established to educate Vermonters about mercury-free product alternatives and proper disposal. Solid Waste Districts and municipalities are already active in educating their member towns about the mercury issue and providing hazardous waste collection of mercury products. They have conducted mercury fever thermometer exchanges, removing thousands of these thermometers and replacing them with digital thermometers. Over 90 percent of Vermont’s pharmacies have voluntarily pledged to discontinue the sale of mercury fever thermometers. Mercury-containing manometers on dairy farms (containing a pound of mercury) are being replaced with mercury-free models at

**If we are to envision a day when Vermont lakes and ponds, and their fish are no longer repositories for contaminants like mercury, then we must take action now to prevent and control mercury releases, the result of our technologies and lifestyles.**

no cost to farmers in a project coordinated through Solid Waste Districts in the Lake Champlain Basin. The Vermont Agency of Natural Resources in partnership with Solid Waste Districts is helping to clean out Vermont middle schools and high schools of mercury stockpiles and other hazardous materials.

In 1999, keeping with a regional northeast states Mercury Action Plan, a Mercury Education and

Reduction Model Act was developed and endorsed by states to further control the release of mercury from products. Many states are now moving forward to consider adoption of product bans, product labeling, product phase-out and other provisions.

The Food and Drug Administration and the Environmental Protection Agency have recently taken action on mercury contamination. FDA has issued fish consumption advisories for certain types of saltwater fish for the first time. EPA has



recently proposed criteria for methyl-mercury in fish tissue

Vermont's **Advisory Committee on Mercury Pollution** (ACMP) was established by Vermont's mercury product law in 1998 to address and report on mercury health risks and contamination in Vermont's environment and to review programs and methods to reduce contamination and risk. This is the third annual legislative report of

**The School Science Lab Chemical and Mercury Clean-Out Project. In working with its first 50 schools, removed and properly managed 4200 pounds of acids and caustics; 1500 pounds of poisonous chemicals; 500 pounds of mercury containing wastes; and 4600 pounds of flammables, oxidizers and spontaneous combustibles. It takes only a few ounces of mercury to contaminate an entire lake.**

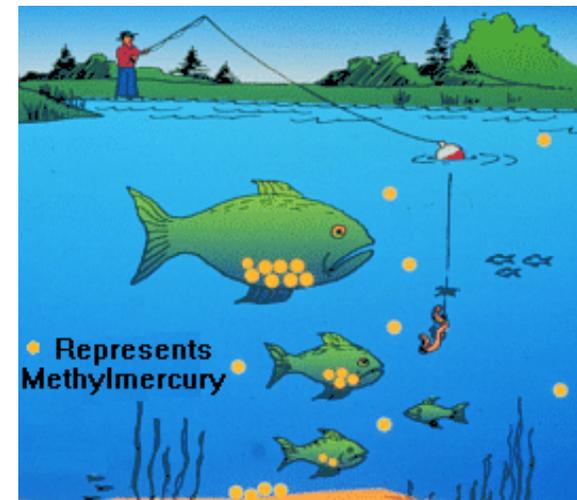
the ACMP to report on the status of mercury contamination and the efforts underway to reduce mercury contamination, including recommendations for action.

## THE MERCURY PROBLEM

**M**ercury (Hg) is one of the most widespread, persistent and toxic contaminants in our environment. Its incorporation into many products and its emission from combustion processes have resulted in well documented instances of population poisonings, high level occupational exposures, and worldwide, chronic, low-level environmental exposures. In the environment, mercury is found in various forms and complexes. Methylmercury, one organic form of mercury, can accumulate up the food chain in lakes, ponds and reservoirs which results in high concentrations in predatory fish. When certain mercury-tainted fish are consumed by humans, the levels of mercury can impair development of the nervous system in the fetus and in young children, affecting sensory, motor and cognitive functions, and resulting in such problems as difficulty in learning to read and inability to concentrate. Vermont's relatively pristine waters have not been spared from this regional and global problem. In addition to fish consumption advisories that recommend limiting consumption of certain fish in certain bodies of water, recent studies have shown that 12 percent of Vermont's lakes have sufficient mercury in their food chains to put common loons at considerable risk of

toxic effects.

Atmospheric mercury mixes with rain and snow and falls into lakes, rivers and watersheds. Once mercury enters a waterway, natural processes convert a small proportion of it to methylmercury. About **two-thirds of the mercury in the atmosphere comes from human sources** such as coal burning power plants and incinerators, and one-third from natural sources such as volcanoes and forest fires. The amount of mercury flowing into our lakes is between two and four times what flowed into them 100 years ago.



**Mercury accumulates in aquatic food chains.**

## STATUS OF MERCURY REDUCTION EFFORTS AND WORK OF THE COMMITTEE

### Legislative Recommendations on Mercury Reduction and Education

The ACMP met 13 times in 2000. Minutes of meetings and other documents of the Committee's work all appear on the internet at [www.mercvt.org](http://www.mercvt.org). A major task of the Committee was to review, evaluate and make recommendations for additional legislation to control mercury releases, especially from the use and disposal of mercury-added products. The Committee reviewed the regional model legislation developed through the coordination of the Northeast States Waste Management Officials' Association (NEWMOA), took comments from stakeholders and is recommending to the Legislature the adoption of **H. 111** sponsored by Representatives Jordan of Middlesex and Deen of Westminster. The major provisions of the bill are shown in the adjacent text box.

### LEGISLATIVE RECOMMENDATIONS ON MERCURY REDUCTION AND EDUCATION

**Interstate Clearinghouse:** Authorizes the Agency of Natural Resources to participate in a multi-state clearinghouse to assist in carrying out the requirements of the act as adopted by Vermont and other states, especially those sections which apply to mercury-added product manufacturers such as notification, product phase-out, and product labeling. The Clearinghouse would provide a single point of contact for manufacturers, encourage consistency in decision-making between states and would reduce paperwork for manufacturers and state governments.

**Manufacturer Notification:** Requires manufacturers of mercury-added components and products to periodically notify the Agency of the types of mercury components and/or products manufactured and sold for use in the state, the amount of mercury in each individual product, and the purpose that the mercury in the product serves. The purpose of this section is to obtain information on manufacturers of mercury-added products which are subject to some or all provisions of the act and to ascertain trends in mercury use by product manufacturers.

**Restrictions on the Sale of Certain Products:** Bans the sale of mercury fever thermometers. Bans the sale of mercury-containing manometers on dairy farms. Prohibits purchase and use of elemental mercury, chemicals containing mercury, and mercury-containing measuring devices in schools. Bans the sale of mercury-added novelties, such as games, cards, toys, ornaments, apparel, and jewelry.

**Product Phase-Out and Exemptions:** Gradually phases out mercury-added products starting with those products that contain more than one gram of mercury, down to those that contain 10 milligrams, over a period of time. Two-year renewable exemptions could be granted for products that are beneficial to the environment or public health, have no feasible alternatives, and for which a manufacturer-funded system for recycling or disposal of discarded products exists.

**Limitations on the Use of Elemental Mercury:** Would restrict the sale of elemental mercury in Vermont for medical, dental, or research or manufacturing purposes only.

## LEGISLATIVE RECOMMENDATIONS ON MERCURY REDUCTION AND EDUCATION (Cont.)

**Labeling of Mercury-Added Products:** Vermont statutes currently have mercury-added product labeling requirements in place. This section would require labeling of additional mercury-added products not covered by existing law. Labels would be required to be visible prior to product sale and inform purchasers that the product contains mercury and cannot be disposed as solid waste or in wastewater systems. Product and packaging labels would be required.

**Disposal Ban:** Would ban mercury-added products from solid waste disposal and would require the separation of mercury-added products from solid waste for recycling or proper hazardous waste disposal. Solid waste management facilities or any business in Vermont which accepts appliances or motor vehicles would be responsible to remove mercury-added components prior to crushing or scrap metal processing.

**Hospital Mercury Reduction Plan and Disclosure for Mercury-Containing Products Used in Hospitals:** Would require each hospital in Vermont to submit a biennial mercury reduction plan covering all owned and operated patient care facilities. The plan would identify and quantify mercury use and disposal in equipment and chemicals and would identify reduction goals and measures to be taken by each hospital. Manufacturers of formulated products that contain mercury, whether intended or unintended, would be required upon request of a Vermont hospital, to provide a certificate of analysis documenting the mercury content of their products.

**Public Education and Outreach:** Requires the Agency of Natural Resources and Department of Health to implement comprehensive mercury education programs for the general public, including municipalities and small businesses. These state agencies would also be required, as currently exists in statute, to assist Solid Waste Districts and municipalities to disseminate information to the public about the disposal restrictions, source separation requirements, and collection programs for mercury-added products that are discarded.

## Status of Current Product Labeling Law Implementation



- The Agency of Natural Resources has reviewed and approved 170 mercury-added product labeling plans from manufactures and 46 alterative labeling requests. Many manufacturers that are labeling products are doing so not only for Vermont but for national sales.
- Fluorescent lamp manufacturers continue not to be required to label lamps and their packages as a result of a court-issued preliminary injunction.
- The Agency intends to monitor labeling compliance for mercury-added products sold at retail in 2001 in order to assess the rate of compliance with the labeling law.

## School Clean-Out Project

- The Agency of Natural Resources' School Science Lab and Mercury Clean-Out Project is into its second year and involves 83 schools.



To date, approximately 500 pounds of mercury has been removed from over 50 middle and high schools. Over 11,000 pounds of other hazardous wastes have also been removed with the assistance of Chittenden Solid Waste District and other Solid Waste Districts. Teacher training on hazardous materials management plans is being conducted.

## Mercury Dairy Manometer Replacement Project



- The mercury dairy manometer exchange program in the Lake Champlain Basin, coordinated by the Northwest Solid Waste Management District and the Department of Agriculture, Food & Markets, has collected and properly disposed of 77 mercury-containing dairy manometers and replaced them with

non-mercury models. Each manometer may contain a half pound or more of mercury. This program has removed a significant amount of mercury from circulation and has reduced the risk of a costly and dangerous mercury spill. Additional

## Vermont Department of Health Initiatives

- Revised and distributed Health Alert fish consumption advisory and Mercury in Fish brochure targeted to pregnant women's exposure to fresh and salt water fish, to ten District Health Offices, WIC Clinics, and local health officers. Printed 1000 Mercury Fact Sheets and distributed to schools and others upon request.

## Joint NH/VT Assessment of Mercury and Methylmercury in VT and NH lakes and Other Environmental Monitoring Studies )

- This ongoing EPA-funded study has measured mercury in fish and fish-eating bird tissue, sediments, and water in 108 VT and NH lakes to date.
- Results of the study will be used to better understand the behavior, transformation, and movement of mercury in lake waters and sediments so that fish consumption advisories can be refined and better

baseline mercury contamination levels can be established. (See **Appendix 1** for more detailed summary).

## Mercury Containing Dental Amalgam

- The Vermont State Dental Society and the Agency of Natural Resources are collaborating on a survey of Vermont dentists on best management practices to control releases of mercury from dental amalgam usage. This follows the distribution last year of a best management practices guide to proper waste management, including mercury wastes, to all Vermont dentists.

## Coordination with States

- The Agency of Natural Resources has played an active role in the Regional Mercury Task Force which oversees implementation of the Mercury Action Plan adopted by the New England Governors and Eastern Canadian Premiers to achieve virtual elimination of mercury releases.
- The Agency of Natural Resources has coordinated extensively with other states in the development of consistent mercury product

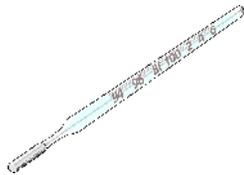
legislation proposals. Vermont's experience with product labeling has helped other states to avoid implementation difficulties.

- The Vermont Department of Health and the New Hampshire Department of Health and Human Services coordinated on the development of consistent state fish consumption advisories on the 15 Mile Falls Chain along the Connecticut River.

### Mercury Education and Reduction Efforts

A Mercury Education and Reduction Campaign has been initiated by the Agency of Natural Resources in conjunction and collaboration with municipal Solid Waste Management Districts and health care organizations. These efforts include residential and business education and assistance efforts and initiatives to reduce mercury releases. Highlights of these efforts include:

- *Pharmacy Mercury Fever Thermometer Pledge and Exchange Program* in which 114 of Vermont's pharmacies have pledged to discontinue the sale of mercury fever thermometers. Over 100 pharmacies will participate



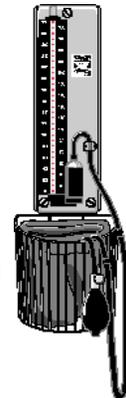
in a mercury fever thermometer exchange in February 2001, in which residential customers will be given a free digital thermometer in exchange for mercury fever thermometers.

- *Publications:* A retailer brochure was developed and distributed to approximately 2000 retailers explaining Vermont's mercury product labeling law. A fluorescent lamp fact sheet for businesses and households was developed to inform Vermonters of proper lamp management to avoid mercury releases. A manual for scrap metal and salvage businesses is under development that will inform operators how to identify and remove mercury switches from appliances and vehicles.



- A mercury web site sponsored by the Agency of Natural Resources continues to be expanded to inform and educate Vermonters on mercury products, alternatives, proper disposal and various statewide initiatives such as labeling, thermometer exchanges, school clean out project ([www.mercvt.org](http://www.mercvt.org))

- 30 Solid Waste Districts and municipalities have been provided funding (\$125,000) to support hazardous waste collection and education programs including mercury wastes. Over 750 pounds of elemental mercury, mercury containing devices, and mercury compounds were collected in municipal hazardous waste programs in 2000.



- Vermont hospitals are being surveyed on mercury management and reduction programs by the Agency of Natural Resources and the Vermont Association of Hospitals and Health Systems. The Agency hopes to use survey information to provide assistance to hospitals in mercury reduction efforts.
- The Agency of Natural Resources is providing thermostat recycling containers to more than 20 plumbing, heating and electrical suppliers to encourage contractors to recycle mercury thermostats. Recycling is provided by the Thermostat Recycling Corporation, a private venture coordinated by one ACMP member.



## COMMITTEE WORK PLAN FOR 2001

The ACMP work plan for 2001 includes the following activities in support of the charge established by the Legislature for the Committee:

- Provide legislative testimony and information to legislative committees on proposed mercury product legislation
- Conduct a review of environmental monitoring data, studies, and environmental research initiatives (state, regional and national) on all aspects of mercury contamination in air, soils, water, and biota to gain a better understanding of the health risks to Vermonters.
- Revise the existing Vermont inventory of mercury sources that can be used for health risk evaluation and management. Review efforts by other states in these areas.
- Review mercury education and reduction efforts of the Department of Health, Agency of Natural Resources, Solid Waste Districts and municipalities and provide recommendations for improving
- outreach, particularly to sensitive populations and on initiatives that will be most effective in reducing health risks from mercury exposure.
- Continue to stay abreast of dental amalgam waste management issues and the status of best management practice implementation by Vermont dental offices.
- Review the status of collection programs for discarded mercury products which keep mercury out of the environment and any enhancements that may be necessary in order to virtually eliminate environmental releases of mercury.
- In order to assist Vermont hospitals and health care facilities in eliminating the release of mercury to the environment, review the status and availability of mercury content in formulated products used by health care facilities that is available from product manufacturers.
- Evaluate the need for mercury emission limitations from solid waste incinerators as suggested in the Regional Mercury Action Plan and make any needed recommendations to the Legislature

## COMMITTEE RECOMMENDATIONS\*

- The ACMP recommends that the Vermont General Assembly pass comprehensive mercury product legislation as put forward by the Committee in its proposal and introduced as House Bill **H. 111**, consistent with the regional model, endorsed by the New England Governor's and the Premiers of the Eastern Canadian Provinces, and supported through regional work groups and task forces representing the New England states and New York and Eastern Canadian Provinces. This legislation represents over two years of study, evaluation, and public input in the region.

Passage of reasonably consistent legislation in all New England states is necessary for successful implementation in order for mercury product manufacturers across the nation to reasonably comply.

- The ACMP continues to support the recommendations made in its 2000 annual report and has made progress on many of these, as reflected in the section above entitled, *Status of Mercury Reduction Efforts and Work of the Committee*. The 2001 work plan of the Committee also contains action to be taken in support of these recommendations.

### Advisory Committee Members

Michael Bender

Abenaki Self-Help Association, Inc. Executive Director Mercury Policy Project.

**Bill Bress**

PhD, Diplomat American Board of Forensic Toxicology, State Toxicologist and Chief of the Environmental Health Division, Vermont Department of Health.

**\*Ric Erdheim**

Senior Manager, Government Affairs, National Electric Manufacturers Association.

**Representative**

**Henrietta Jordan**

Vermont House of Representatives.

**Neil Kamman,**

Vermont Agency of Natural Resources, Environmental Scientist.

**Richard Phillips**

Vermont Agency of Natural Resources, Director of Environmental Assistance Division.

\* See Appendix 2 for dissenting opinion of Committee Member, Ric Erdheim

## APPENDIX 1

### ONGOING SCIENTIFIC MONITORING AND RESEARCH ACTIVITIES

#### ***Assessment of mercury and methylmercury in VT and NH lakes:***

This project is supported by the USEPA in conjunction with their Regional Environmental Monitoring and Assessment Program, and is being investigated and administered by VTDEC. The project strives to understand how mercury moves into lake food chains and ultimately into the fish.

Project collaborators include several experts in the mercury field, with representation from Syracuse University, the NH Department of Environmental Services, the University of Minnesota, the Biodiversity Research Institute of Freeport, the US Fish and Wildlife Service, the Vermont Department of Fish and Wildlife, and Dartmouth College. Neil Kamman, ACMP scientific advisory member, is the principal investigator of the study.

The objectives of this study are to determine which larger, publicly used Vermont and New Hampshire lakes are of the type that:

- 1) have significant quantities of mercury in their waters and sediments;
- 2) have the necessary conditions to transform the mercury into its toxic and bioavailable methylmercury form; and,
- 3) manifest high levels of mercury in fish, and high-risk fish-eating wildlife such as the common loon.

Another major objective is to study the sediments which accumulate in lake-bottoms, to determine how long mercury deposition has been impacting New England lakes, and whether recent mercury control efforts have resulted in lower mercury inputs to the lakes. This information will provide a critical environmental baseline against which the efficacy of mercury controls can be assessed.

The results of this study will be used to refine fish tissue consumption advisories in Vermont and New Hampshire, to learn more about bioaccumulation of mercury in New England freshwater biota, and to provide the baseline chemical and biological indicators against which regional and national-scale reductions of atmospherically emitted mercury can be measured. The project will also contribute critical scientific information to support a statewide fish-tissue mercury reduction plan for lakes with fish-tissue contamination. This reduction plan, also known as a Total Maximum Daily Load, is required of VT under the Federal Clean Water Act.

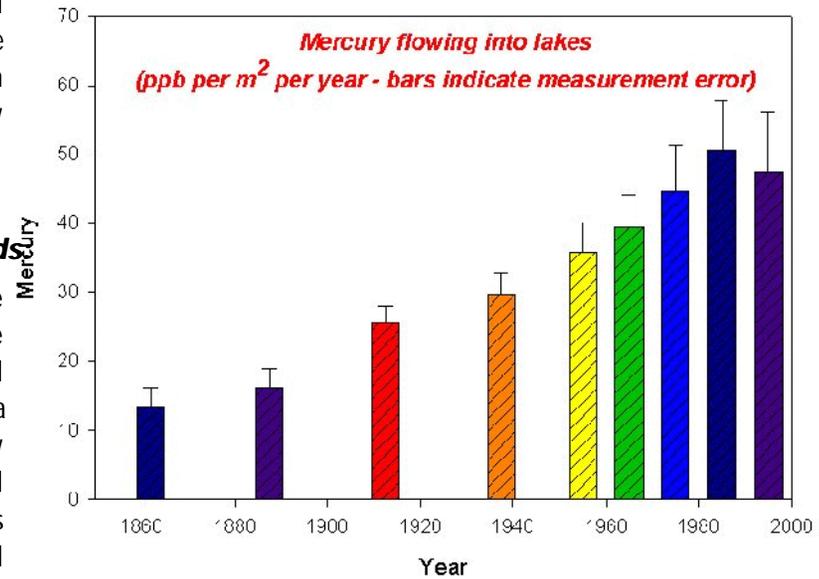
As of this writing, the three year field-sampling effort has been completed, and the project investigators are formally analyzing the data. A total of 108 lakes have been visited to date, and an impressive number of sediment, water, fish, and fish-eating bird samples have been processed.

So far, the following valuable information has come to light:

- Mercury in lake waters occurs at rather low levels. Most (but not all) results fall below the current water quality standards for mercury which are intended to protect wildlife from chronic mercury exposure.
- Fish tissue concentrations vary, but contamination is pervasive. In some waters, fish show remarkably high mercury contamination, while other lakes show much lower contamination. This level of contamination is related to the lakes water chemistry and it's surroundings. This means that the project team will be able to predict, in the absence of tissue data, which VT lakes will show greater mercury contamination in fish, and which lakes may have sufficiently low contamination values that consumption advisories may be relaxed. The project team will work with the VT Department of Health on using this information and the related predictions to refine consumption advisories.
- In VT, 12% of lakes have sufficient mercury in their food chains to put common loons at high risk of toxic effects. Mercury contamination in loons can result in, among other problems, the inability of these birds to successfully reproduce.
- The amount of mercury flowing into our lakes is between two and four times what flowed into them 100 years ago.
- The amount of mercury flowing into our lakes has declined slightly in recent years. This decrease may be attributable to initial reductions in emissions which stemmed from provisions of the Clean Air Act implemented in the early 1980's.

**Mercury and methylmercury movement through VT watersheds**

The United States Geological Survey, in collaboration with the University of VT, is investigating how mercury which falls onto the landscape is transported through watersheds into rivers and streams. This work is important in that there appears to be a connection between watershed land uses, and the delivery of mercury to downstream waters. By understanding how mercury is delivered from watersheds to downstream receiving waters such as streams and ultimately lakes, scientists can predict the environmental benefit which is expected to stem from controls placed on atmospheric mercury emissions. USGS will be expanding this work with specific focus toward the Lake Champlain Basin during 2001.



**Mercury and Reservoirs:**

In Vermont, there are several hydropower reservoirs which display highly elevated levels of fish tissue contamination relative to natural lakes. Since fish-eating wildlife such as loons and eagles inhabit these reservoirs, they too incur a significant risk. Scientists presently hypothesize that the wide fluctuations in water levels necessary to generate power enhances the rate at which mercury transforms to

the highly toxic methylmercury within the reservoirs. A very important direction for scientists is to test this hypothesis. If this hypothesis is validated, it would suggest that very significant reductions in fish-tissue contamination in these reservoirs could be achieved by working collaboratively with the operators to evaluate changes which could be made in the way the reservoirs' waters are manipulated. The Vermont Department of Environmental Conservation is currently evaluating whether it should take the lead in launching a large study to understand this special situation in reservoirs, by leveraging the expertise of the project team already in place for the USEPA study discussed above.

***Mercury in the Vermont Atmosphere:***

At present, funding to operate the atmospheric mercury deposition monitoring station at Underhill continues to be tenuous. The station has provided excellent long-term data on the amount of mercury depositing to Vermont's landscape for approximately one decade. However, current discussions on the future of the atmospheric monitoring efforts for mercury are revolving around reducing the costs of operating the station. One current suggestion is to fold the Underhill station into the national-scale Mercury Deposition Network. This would allow continued mercury monitoring, but at a reduced temporal resolution. Regardless, good atmospheric deposition monitoring data is an important component of each project discussed above.

## Appendix 2

### ACMP Member Dissenting Remarks on Proposed Legislation

Prepared by ACMP Member Ric Erdheim, Senior Manager for Government Affairs, National Electrical Manufacturers Association

January 11, 2001

The Advisory Committee on Mercury Pollution (ACMP) spent most of the year reviewing the model mercury product legislation drafted by the New England Waste Management Officials Association (NEWMOA). While in some cases the ACMP made some constructive changes to the NEWMOA bill, the ACMP bill contains many of the most serious flaws in the NEWMOA bill. Moreover, the Committee proposal ignores the serious flaws contained in the existing state statute. Vermont's statutory mandate regarding fluorescent lamp labeling is currently subject to a federal preliminary injunction on grounds that the provision violates the U.S. Constitution.

In addition to the problems with the current state statute, this draft bill is fatally flawed because:

1. It establishes a one-size-fits all approach by requiring labeling, manufacturer-take back, and product and disposal bans for virtually all mercury-containing products. In doing so it fails to consider the benefits and costs of these requirements. It also fails to establish priorities for cost-effective mercury pollution reduction.
2. The bill will impose unknown costs to business and consumers. There is simply no analysis of the costs.
  - a. For example, the Chittenden County Solid Waste District spent nearly \$9,000 to recover just one pound of mercury from its fluorescent lamp recycling program in 1999 and pointed out that this was far in excess of costs to recover mercury from other products.
  - b. Costs are expected to be significant since the bill establishes an administrative nightmare for manufacturers to apply for exemptions and approvals for virtually every mercury-containing product. To make matters worse, state staffs

already have difficulty administering and enforcing existing laws.

c. The bill fails to adequately address legitimate business concerns including protection of confidential business information, and movement of products in interstate and international commerce.

3. The bill offers insignificant benefits. The bill relies on old data, thereby failing to reflect the significant reduction of mercury in the solid waste stream. Due to industry innovations to reduce mercury in products, the bill will result in minimal incinerator and landfill emission reductions.

The major source of mercury in the solid waste stream was from alkaline batteries. In the 1980s, the battery industry alone used over 1,000 tons of mercury, more than half the mercury used by industry. The battery industry eliminated its use of mercury in these batteries between 1988 and 1993. As a result, mercury levels from these batteries have declined by over 90% and the industry expects that there will be few if any of these batteries in the waste stream by 2006. The only consumer batteries with any mercury are zinc-air, silver oxide and alkaline button cells. These batteries contain very few milligrams of mercury and in total contain 0.2% of the mercury previously used by the industry. These batteries, some of which are made by Energizer in Bennington, Vermont, provide power for numerous products including hearing aids, digital thermometers, watches, pagers, and calculators.

4. The bill will lead to unintended consequences. It undercuts the nation's global warming efforts by making it more difficult and more costly to market energy efficient lighting. Both fluorescent and HID lamps are typically three to four times more energy efficient than incandescent lamps. Through their Green Lights and Federal Energy Management programs, the US Environmental Protection Agency and the Department of Energy actively promote conversion to more energy efficient lighting. The use of energy efficient lighting reduces the amount of coal, oil and gas burned in power plants, as well as the amount of air pollutants released from power plants. Mercury is a common pollutant emitted from power plants burning coal. Because of the significant energy savings, using high efficiency fluorescent lamps to replace incandescent bulbs results in a net reduction of mercury emissions. At a time when the need to reduce energy consumption is so important because of global warming and electric brownouts from electricity shortages, the ACMP proposal will interfere with global warming efforts with little resulting benefit.

5. The bill fails to account for individual product circumstances. The benefits and costs for each product are different because mercury-containing products are vastly different in terms of units sold, mercury levels, product size and fragility,

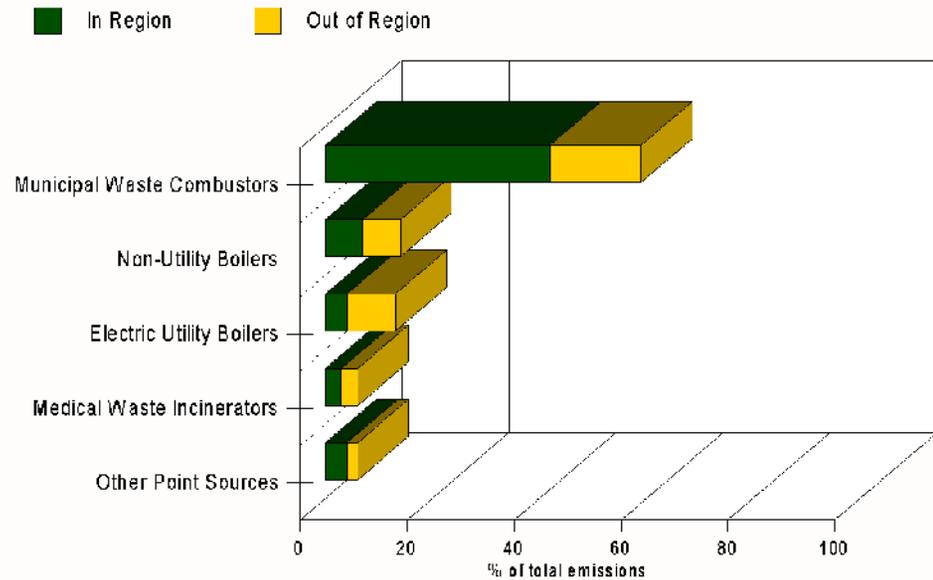
product users, adequacy and cost of alternatives and benefits provided. The bill neither addresses these factors nor does it establish priorities for mercury reduction.

In sum, the bill requires labeling, and product and disposal bans for nearly all mercury-containing products without consideration of benefits and costs. By failing to establish priorities and by ignoring the costs and benefits of the proposed programs for different products, the bill will not result in mercury reduction in a cost-effective and efficient manner. In fact, it could confuse and discourage consumers from using energy efficient products.

An effective mercury program is one that focuses on priority mercury issues and addresses them in a manner that considers all relevant costs. The ACMP bill fails to meet this standard.

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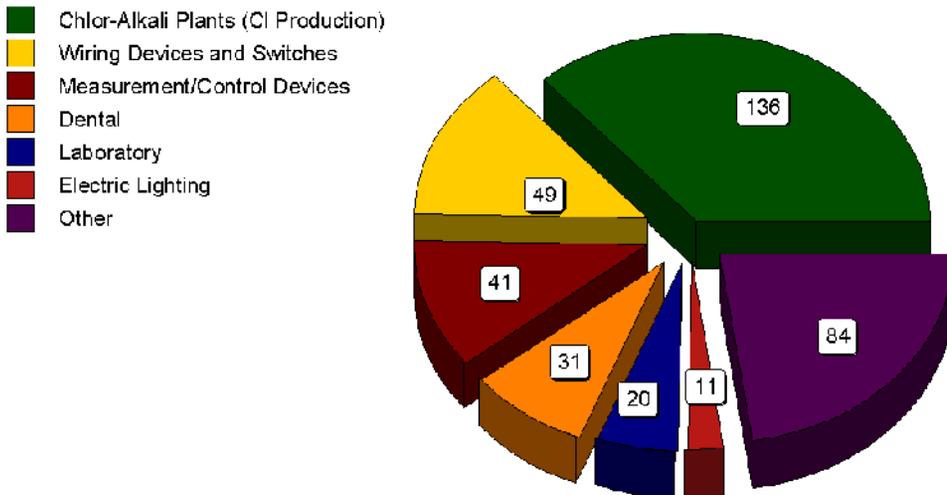
## Mercury Emissions by Source Type



Source: Northeast States and Eastern Canadian Provinces Mercury Emissions Inventory: A Framework for Action, February 1998.

## Mercury Use in Products

(in metric tons, 1996)



Source: The Materials Flow of Mercury in the Economies of the United States and the World, U.S. Geological Survey, 2000, Report 00-281.



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