

Advisory Committee on Mercury Pollution

January 27, 2000

Governor Howard Dean, M.D.
Members of the House Natural Resources and Energy Committee
Members of the Senate Natural Resources and Energy Committee
Clerk of the House
Secretary of the Senate

Dear Governor Dean, Committee Members, Clerk and Secretary:

The Advisory Committee on Mercury Pollution was established under 10 V.S.A. Section 6621e in 1998 to provide recommendations that further reduce the health and environmental risks associated with mercury in the environment. The Committee includes scientists, experts in health, regulatory and business members and legislators. We have been pursuing our legislative charge, and the attached report enumerates the actions taken to further reduce the risks from mercury. Our committee achieved near unanimity in supporting the recommendations in this report.

It has been a privilege and pleasure to work with the members of the Advisory Committee this year. Bringing their wealth of knowledge to our task, this group has volunteered a great deal of time and effort to bring forth the most up-to-date and accurate information about mercury in Vermont. We are proud of these efforts and confident that the Annual Report and the Committee's continuing work are of the highest quality. We hope that you will appreciate the information and guidance we offer on addressing this critical environmental problem, and that together we can use our knowledge and commitment to create a clean, healthy environment for all Vermonters.

Sincerely,

Co-Chair:

Tim Scherbatskoy _____

Co-Chair:

Hollie Shaner _____

On behalf of the members of the Advisory Committee on Mercury Pollution:

Tim Scherbatskoy, University of Vermont
Hollie Shaner, Fletcher Allen Health Care
Michael Bender, Abenaki Self-Help Association, Inc
William Bress, Vermont Department of Health
Richard Phillips, Vermont Agency of Natural Resources
Elizabeth Ready, Chair of Senate Natural Resources and Energy Committee
Mary Sullivan, Chair of House Natural Resources and Energy Committee
Ric Erdheim, National Electrical Manufacturers Association

Advisory Committee on Mercury Pollution 2000 Report

to the
Governor, General Assembly and Citizens
of the State of Vermont

January, 2000

Committee Members:

Co-Chair	Tim Scherbatskoy	University of Vermont
Co-Chair	Hollie Shaner	Fletcher Allen Health Care
	Michael Bender	Abenaki Self-Help Association, Inc
	William Bress	Vermont Department of Health
	Ric Erdheim	National Electrical Manufacturers Association
	Richard Phillips	Vermont Agency of Natural Resources
	Elizabeth Ready	Chair, Senate Natural Resources and Energy Committee
	Mary Sullivan	Chair, House Natural Resources and Energy Committee

EXECUTIVE SUMMARY

This report is the second annual report of the Advisory Committee on Mercury Pollution which was established by the 1998 Vermont legislature to address and report on mercury contamination in the environment, health risks posed, and to review programs and methods to reduce contamination and health risk. The Advisory Committee on Mercury Pollution supports the following: (order is not specific as to priority)

Legislative Initiatives

- **Amendment of the mercury law.** Require that all listed mercury products and components be subject to source separation requirements from solid waste and prohibited from disposal as a solid waste, not just products which bear a label after March 1, 2000.
- **Restrict sale of mercury fever thermometers.** Working with the Vermont health care community, develop restrictions by statute on the sale of mercury fever thermometers, breakage of which poses an unnecessary risk to sensitive populations (children, mothers) that can be avoided with mercury-free substitutes.
- **Stringent mercury emission standards for incinerators.** State legislation that requires solid wastes destined for incineration be disposed only at facilities which meet a 0.028 milligram per dry standard cubic meter mercury emission standard (suggested in the Regional Mercury Action Plan). In addition, this legislation should require that any solid wastes destined for incineration be subjected to source separation programs for mercury-added products.
- **Future elimination of solid waste incineration.** Vermont, as a matter of public policy, should move toward elimination of incineration of solid wastes. The toxicity of mercury and other emissions, coupled with the cost and difficulty of controlling them, argue against this method of waste disposal.
- **Comprehensive mercury legislation for next session.** The Committee will conduct a complete analysis and evaluation of the final version of the NEWMOA model mercury legislation during 2000. Legislative recommendations for statutory amendments to Vermont's law in 2001 will be proposed to address the regional Mercury Action Plan goal of "virtual elimination of the discharge of anthropogenic mercury into the environment."

Other Initiatives

- The Committee strongly supports the continuation of monitoring and research to identify sources and trends of mercury pollution in Vermont. The Vermont Monitoring Cooperative will terminate due to federal funding cuts; therefore, the Committee supports state stop-gap funding and additional funding for continuation of the project.

- The Committee recommends that the Agency of Natural Resources and the Department of Health coordinate their information outreach and communicate new information to the public on mercury contamination and health risk issues in a timely manner.
- A statewide survey to assess consumption rate of ocean fish in sensitive populations and other populations of Vermonters that consume large quantities of fish, in order to better assess human health risk from mercury exposure.
- The School Science Lab Chemical and Mercury Clean-Out Project funded by the Agency of Natural Resources to assure that all high schools and middle schools participate in mercury removal and receive training on proper waste prevention and management, including reducing and eliminating the use of mercury in laboratory applications.
- Funding and development of mercury education and reduction programs at the state and local levels for consumers, businesses, and institutions as an effective means to promote voluntary mercury reduction and enhancing compliance with those mandatory elements such as labeling and disposal requirements.
- The development of mercury education and training programs on mercury device removal for those who remove, recycle, repair and salvage appliances.
- Funding of a dairy manometer collection, replacement, and disposal program to remove mercury manometers at all existing working farms. Investigate the presence of mercury manometers at non-working farms and, if necessary develop a program to address any necessary removal.
- The development and funding of a collaborative fever thermometer exchange and mercury-free thermometer give-away program including the Vermont Department of Health, Solid Waste Districts and municipalities, pharmacies, health clinics and health programs for infants, children and mothers.
- Educational outreach programs to the health care community to encourage reduced use of mercury fever thermometers and other mercury-containing medical devices, where mercury-free alternatives exist.
- The Vermont State Dental Society's outreach initiatives to dental offices that encourage the adoption of best management practices for waste management and mercury recycling. Continue to communicate with the Dental Society to monitor the success of these outreach efforts. (i.e. working in cooperation with the state to develop a survey)
- The establishment of voluntary pledge programs or voluntary programs which commit businesses, manufacturers, institutions, schools and others to eliminate mercury and mercury compounds.
- Expansion of the "Universal Waste" provisions of Vermont's Hazardous Waste Management

Regulations to encompass disposal of all mercury-added products which are defined as state and federal hazardous wastes, not just lamps and thermostats.

- Continued participation by Vermont in the Mercury Task Force and other regional workgroups and efforts to implement the recommendations in the Mercury Action Plan endorsed by the New England Governors and Eastern Canadian Premiers.
- Vermont's lawsuit with the USEPA against mid-western coal-fired power plants, filed by Vermont's Attorney General, which would require significant reductions in mercury emissions.
- Federal legislation (S.673) and (S.1949) introduced by Senator Leahy to control mercury emissions from all the significant combustion sources of mercury, including fossil fuel-fired power plants, solid waste incinerators, and medical waste incinerators and establish national mercury product labeling, mercury product phase-out and manufacturer take-back programs.

INTRODUCTION

This report is the second annual report of the Advisory Committee on Mercury Pollution which was established by the 1998 Vermont legislature and charged to make recommendations to the Legislature and Executive Branch on the following:

- The extent of mercury contamination to Vermont's soil, water and air
- Health risks from mercury contamination in Vermont
- Effectiveness of established programs for reducing mercury contamination
- Methods to minimize risk of further contamination or increased health risk
- The potential costs for minimizing risks and how to pay for them
- Ways to coordinate with other states to effectively address mercury issues
- Ways to reduce mercury releases from the incineration of solid wastes

This report summarizes the current status of these issues and provides recommendations to further reduce the release of, exposure to and health risks associated with mercury to Vermonters.

LEGISLATIVE HISTORY

10. V.S.A. Section 6621d. established a labeling program for a specified list of mercury-added consumer products sold in Vermont; mandated municipal collection programs for listed mercury-added products, and started a public education on mercury. Section 6621a. established a ban on landfill disposal of labeled mercury-added products.

10. V.S.A. established the Advisory Committee on Mercury Pollution to report annually to the Legislature on matters relating to mercury contamination, health risks and risk reduction.

Section 6621d regarding product labeling was amended by the 1999 Vermont Legislature to extend the compliance date for product manufacturer labeling to March 1, 2000 (from July 1, 1999) and to require labeling plans from manufacturers.

Mercury product labeling rules were promulgated by the Agency of Natural Resources in January, 1999.

WORK OF THE COMMITTEE IN 1999

The Committee convened nine times during the calendar year 1999. The following mercury issues and initiatives were reviewed and discussed:

- The implementation of the mercury product labeling law by the Agency of Natural Resources (ANR) began with the promulgation of rules and the submission of labeling plans for mercury-added products by manufacturers. More than 2000 potential manufacturers of mercury-added products were contacted. In 1999, approximately 131 manufacturers submitted labeling plans or requests for alternative labeling. To date, Vermont has had the most extensive contact in the nation with mercury product manufacturers in regard to product labeling and has received considerable cooperation from manufacturers, several of whom are planning to label all of their mercury-added products, not just those sold for use in Vermont.
- Model regional legislation to minimize mercury releases to the environment and mercury health risks was drafted this year through the Northeast Waste Management Officials' Association (NEWMOA). This NEWMOA model mercury legislation attempts to address the regional Mercury Action Plan¹ goal of "virtual elimination of the discharge of anthropogenic mercury into the environment." The Agency of Natural Resources participated in development of this model legislation. Public meetings were held in New England in December 1999 to receive public comment. A revised final draft is expected in January 2000. The Committee began review of this model legislation and will more fully report on recommendations for legislation in its report next year. The model legislation is comprehensive, addressing issues such as mercury-added product labeling, phase-out of mercury in consumer products, bans on the sale of products that contain non-essential mercury, solid waste disposal bans, manufacturer take-back programs, and public education and outreach.
- The Agency of Natural Resources initiated the *School Science Lab and Mercury Clean-Out Project* to remove unwanted and hazardous laboratory chemicals from Vermont middle schools and high schools including mercury and mercury compounds. Under this project, the Agency of Natural Resources is collaborating with Vermont Solid Waste Districts and Alliances and the Association of Vermont Recyclers to help schools remove chemicals, including mercury, and provide training to schools on chemical use reduction, purchasing, storage, and disposal. The project is targeted to about 185 public and private schools. Each participating school pledges through a participation agreement to virtually eliminate mercury use and mercury containing products in science laboratories. Schools also agree to eliminate other mercury uses on school grounds within three years, where technically and economically feasible. In 1999, 25 schools have been enrolled in the program and chemical inventory, clean-out, and training was initiated. It is estimated that upon project completion in 2001, participation will consist of more than 100 of all middle and high schools, and it is estimated to date 70 pounds of mercury has been collected from 11 schools. Amounts have ranged from 1-25 pounds of mercury collected per school. In addition, a heightened awareness of mercury and laboratory safety will exist in our schools. The Vermont

¹ Developed by the New England Governors and Eastern Canadian Premiers

Department of Health sponsored a Mercury in Schools conference for to inform school staff and administrators of mercury risks and risk reduction measures.

- A dairy farm mercury manometer exchange program developed by the Department of Agriculture, Food & Markets (VDAFM) was reviewed. The Department completed a statewide survey of the number of mercury manometers present on farms and developed accurate cost estimates for conducting a pilot collection, replacement and disposal program. Out of the 1,760 dairy farms surveyed, 109 mercury manometers have been reported, 99 of which are currently in use, 10 which are not in use. Each manometer is estimated to contain one pound or more of mercury. There are 1760 active dairy farms in Vermont, 85 of which are estimated to house a mercury manometer, with one pound or more of mercury in each. Less information is available on mercury manometers in non-working farms. VDAFM estimates collection, removal, and replacement costs of \$500.00 per farm. The Department will seek to secure funding for a pilot in fiscal year 2001 to address 30 farms with mercury manometers at a total cost of \$15,000.
- *The Environmentally Responsible Dental Office: A Guide to Proper Waste Management in Dental Offices*, was prepared and distributed to all Vermont dental offices by the Northeast Natural Resource Center of the National Wildlife Federation (in Montpelier) and the Vermont State Dental Society. This guide describes waste prevention and waste management techniques to limit the amount of mercury and other chemicals entering the environment. Collections of stored elemental mercury wastes from dental offices occurred this past year and approximately 40 pounds of mercury were collected for recycling.
- Fluorescent lamp manufacturers represented by the National Electrical Manufacturers Association (NEMA) sued the Vermont Agency of Natural Resources to prevent it from enforcing Vermont's law and rules requiring labeling of mercury-added lamps. This resulted in a court-issued preliminary injunction, preventing the Agency from requiring labeling of lamps and their packages as the primary mechanism of informing users of the presence of mercury in these products and proper disposal methods. The case is under appeal. The Agency believes that, as a minimum, notice must be provided prior to sale, even if the injunction is upheld.
- Manufacturer take-back of old thermostats has begun in thirteen eastern states, including Vermont. Major thermostat manufacturers, that are members of the Thermostat Recycling Corporation, plan to expand their take-back program to this region. Six hundred letters to HVAC wholesalers in this region, were sent to invite them to participate in the program. Letters informing contractors of the program will be distributed in January of 2000.
- Both houses of the New Hampshire Legislature passed bills which would require municipal waste incinerators to meet a more stringent 0.028 milligram per dry standard cubic meter mercury air emission limitation; however, this standard has not yet passed as law. The Committee considered costs and impacts to Vermont towns sending solid wastes to the Wheelabrator Incinerator in Claremont, New Hampshire should this facility be required to meet the more stringent standard.
- Vermont Department of Health initiatives for at-risk populations to mercury exposure from fish consumption, including establishment of fish consumption advisories and public outreach materials were reviewed and discussed. In October 1999, the Department began dissemination of pamphlets to educate women of child bearing age of the dangers of mercury to the developing

fetus and young children, six years of age and younger, urging them to heed the fish consumption advisories. Although these fish consumption advisories only address fresh water fishes from Vermont waters, the Vermont Department of Health also provided recommendations on restricting consumption of salt water fishes such as swordfish, shark and canned tuna.

- A Mercury Education and Reduction Campaign was initiated by the Agency of Natural Resources and the state's Solid Waste Districts and Alliances. This included: a mercury information web page²; development and dissemination of two brochures, one for the general public and one for businesses on mercury in products, alternatives, and proper disposal; mercury product collection through municipal household hazardous waste collection programs; several efforts by Solid Waste Districts to run mercury thermometer exchange programs, as well as general education and outreach on mercury products. In the past year, Solid Waste Districts and municipalities collected approximately 450 pounds of mercury from devices and sources other than fluorescent lamps. Of an estimated 60 pounds of mercury contained in fluorescent lamps disposed of each year in Vermont³, Solid Waste Districts and municipalities collected approximately one pound of mercury (from over 77,000 linear feet of fluorescent lamps). Sources for mercury product collection included residential and small businesses (conditionally exempt generators). The Committee has provided and will continue to provide comment and recommendations on current and future educational efforts by the State and municipalities.
- The potential to establish fish farming operations as an alternative source of uncontaminated fish to populations such as the Abenaki and other groups with a cultural dependence on fishing and fish in the diet was reviewed and discussed. The Committee learned that establishing aquiculture and fish rearing operations for this purpose would be a complex and expensive undertaking that might not meet the needs of the intended populations.

²<http://www.anr.state.vt.us/dec/ead/mercury/merc.htm>

³Based on lamp disposal rates in *A Report to the General Assembly on the Management of Mercury Containing Lamps*, Vermont Agency of Natural Resources 1995, assuming an average of 23 mg per four-foot lamp.

COMMITTEE FINDINGS AND RECOMMENDATIONS

The current status on the seven mandates of the Advisory Committee on Mercury Pollution are discussed below with the corresponding recommendations related to these mandates.

- I. The extent of mercury contamination to Vermont's soil, water and air; and*
- II. Health risks from mercury contamination in Vermont*
- III. Effectiveness of established programs for reducing mercury contamination*

Current Status

The three types of mercury, elemental, inorganic and methylmercury, (organic and most toxic form of mercury) vary in their absorption routes in human systems. Elemental mercury is absorbed through the lungs, inorganic mercury can be absorbed through the skin or if swallowed. Methyl mercury is rapidly absorbed if swallowed, and can be absorbed through the lungs and skin.

Methyl mercury is a known developmental toxicant. It primarily attacks the developing brain with effects ranging from mild developmental delays to severe cerebral palsy, blindness and seizures. Mercury has also been associated with kidney and other neurological disorders.

The majority of Vermonters exposure to mercury is through the consumption of fish. This includes both fresh and salt-water fish. The fish caught in Vermont contain various amount of methyl mercury. The amounts of mercury in fish have necessitated the issuance of fish advisories in the State. Methyl mercury can damage the nervous system and kidneys. Studies have shown that excessive amounts of methyl mercury can cause developmental problems in the fetus and in young children. Therefore, the advisories give guidance on consumption of quantities and types of fish that will be safe. Since fish are an important source of protein and have many beneficial qualities, elimination of them as a food is not recommended. It also must be recognized that salt-water fish also contain methyl mercury. A diet, which consists of excessive amounts of fish such as tuna, shark and swordfish, is not recommended for pregnant women.

Another source of exposure to mercury in Vermont is through broken thermometers and certain other products, which contain elemental mercury. A small amount of elemental mercury can result in harmful air levels. Improper clean up, such as vacuuming, is potentially harmful to pregnant women and young children.

The Mercury Study Report to Congress (December 1997) provides an assessment of the magnitude of U.S. mercury emissions by source, the health and environmental implications of these emissions, and the availability and cost of control technologies. It is the most thorough and comprehensive human health and environmental assessment of mercury available as of 1998. *The Northeast States and Eastern Canadian Provinces Mercury Study: A Framework for Action* (February 1998) provided a more focused regional perspective on mercury contamination sources and management in this region. This study refined and

improved mercury emissions data for the northeast states that were originally developed for USEPA's *Mercury Study: Report to Congress*. It also summarized information on environmental contamination, including fish mercury levels and public health risks, and provided a framework of recommended actions to reduce mercury levels in the environment. The U.S. EPA has recently released a draft Mercury Research Strategy for the next 5-10 years that addresses four key areas of program research to be undertaken: (1) human health and wildlife effects of methylmercury;; (2) mercury transport, transformation and fate; (3) human exposure to methylmercury through the food chain; and (4) risk management of mercury and methylmercury.

The State of Vermont Fish Contaminant Monitoring Program has generated fish tissue mercury data since 1990 from 41 lakes and 10 rivers with results showing the highest amount of mercury in older fish species which consume other fishes. The species with the greatest amounts of mercury are walleye from Lake Champlain, smallmouth bass and chain pickerel. The lowest levels are found in pumpkinseed, sunfish, brown bullhead, and brook trout from streams. Program sampling has not specifically been designed to show mercury contaminant level trends over time, and more years of data collection will be necessary for this to be observed. A U.S. EPA-funded cooperative is underway involving Vermont and New Hampshire to examine the relationships between lake characteristics and mercury accumulation in fish. This project will provide Vermont with much additional fish tissue data. It will also produce information which may assist the Department of Health in validating or perhaps modifying the existing fish consumption advisory.

Levels of mercury in Vermont's air and rain have been monitored since 1992 by the Vermont Monitoring Cooperative in Underhill, VT, the longest record of this kind anywhere. All precipitation contains mercury, generally in the range of 4-20 nanograms (a billionth of a gram) per liter, averaging 8.2 nanograms per liter (1993-1998), with concentrations being greatest in the warmer months. There is a slight trend of increasing concentrations during this period. Concentrations of mercury vapor in the air are fairly steady, averaging 1.7 nanograms per cubic meter of air. These two forms of mercury yield annual wet deposition (precipitation) averaging 87 milligrams per hectare (35 milligrams per acre) and annual dry deposition (vapor) of up to 270 milligrams per hectare (there are uncertainties in calculating mercury dry deposition rates). These wet deposition data are similar to those from other monitoring stations in the northeast and Great Lakes region. This wet and dry atmospheric mercury deposition accumulates in forests and surface waters, leading to ecological effects on wildlife, humans and plants. Several research papers have been published from the Vermont data, and other studies examining sources, transport, and effects are underway. Due to Federal funding cuts, the Vermont mercury monitoring program may have to terminate in early 2000. Information about the mercury program can be found at the Vermont Monitoring Cooperative Web site at www.uvm.edu/~snrdept/vmc. See also <http://www.anr.state.vt.us/dec/waterq/remap-overview.htm> for some information on mercury in lake sediments in Vermont and New Hampshire.

Recommendations

-The Committee strongly supports the continuation of monitoring and research to identify sources and trends of mercury pollution in Vermont. It is imperative that resource scientists and managers have access

to accurate and timely data on air pollution sources and trends in order to develop appropriate strategies for addressing ecological and health effects and for supporting policy and regulatory responses to this problem. The Vermont Monitoring Cooperative will terminate due to federal funding cuts; therefore, the Committee supports state stop-gap funding and additional funding for continuation of the project.

-The Committee ~~also~~ recommends that the Agency of Natural Resources and the Department of Health coordinate their information outreach and communicate new information to the public on mercury contamination and health risk issues in a timely manner.

- The Committee supports a statewide survey to assess consumption rate of ocean fish in sensitive populations and other populations of Vermonters that consume large quantities of fish, in order to better assess human health risk from mercury exposure.

- The Committee supports funding the School Science Lab Chemical and Mercury Clean-Out Project to assure that all high schools and middle schools participate in mercury removal and receive training on proper waste prevention and management, including reducing and eliminating the use of mercury in laboratory applications.

- The Committee supports funding and development of mercury education and reduction effective means to promote voluntary mercury reduction and will enhance compliance with those mandatory elements such as labeling and disposal requirements.

***IV. Methods to minimize risk of further contamination or increased health risk; and
V. The potential costs for minimizing risks and how to pay for them***

Current Status

The Committee concurs with scientific evidence that mercury is an extremely dangerous substance and supports the regional Mercury Action Plan goal of “virtual elimination of the discharge of anthropogenic mercury into the environment.” Vermont’s current law on mercury product labeling, landfill bans, and public education and outreach will contribute to virtual elimination, but additional steps are needed to reach this goal. The model mercury legislation currently under discussion and review has many elements for consideration that compliment Vermont’s law on labeling, collection, disposal restrictions, and education.

Universal waste provisions in Vermont’s Hazardous Waste Management Regulations currently provide regulatory flexibility and relief to make it easier to handle mercury thermostats and fluorescent lamps that are classified as hazardous waste. However, other common mercury wastes such as switches and thermometers are not currently given such flexibility and relief.

There are large quantities of mercury in consumer products such as thermometers, appliances, and

electrical devices which are currently in use and will be discarded in the next decade and beyond. A great opportunity to reduce mercury release to the environment will be missed if steps are not taken to remove this mercury from the waste stream. For example, numerous appliances, including gas stoves, heaters and furnaces, washing machines, and chest freezers contain mercury devices which are removable prior to recycling and/or disposal. Much larger quantities of mercury can be recovered at potentially much lower costs than from devices such as lamps. Training and education of waste handlers and recyclers, as well as contractors such as plumbing, heating, electrical and construction contractors, is an important step that can be taken to encourage voluntary removal of mercury devices from older appliances. Some state and municipal solid waste officials received training this past year on identifying and removing such devices. Future training sessions are planned.

Several pilot programs for mercury removal have been discussed or initiated this year, including fever thermometer exchanges, mercury device removal from appliances, dairy manometer replacement, manufacturer take-back programs for devices like thermostats, school science lab chemical clean-out, and waste management education and outreach for dental offices. A combination of voluntary and mandatory efforts, including training and education, can contribute significantly to reducing future mercury releases from consumer products, including those already in use.

Recommendations

- The Committee will review and evaluate the final version of the NEWMOA model mercury legislation during 2000 and intends to make legislative recommendations for comprehensive statutory amendments in to Vermont's mercury law in 2001. However, there are some initial steps that can be taken this year that the Committee recommends:
- The Committee recommends amendment to the mercury law to require that all listed mercury products and components be subject to source separation requirements from solid waste and prohibited from disposal as a solid waste, not just products which bear a label after March 1, 2000.
- The Committee supports the development of mercury education and training programs on mercury device removal for those who remove, recycle, repair and salvage appliances. Significant quantities of mercury exist in appliances that are discarded each year. This mercury can be captured for proper recycling instead of being released to the environment. Hundreds of pounds of mercury may be captured in this way in the next several years if voluntary efforts are successful. Consideration also needs to be given to clarifying the requirement to remove mercury-added devices from appliances.
- The Committee supports funding of a dairy manometer collection, replacement, and disposal program to remove mercury manometers at all existing working farms. Investigate the presence of mercury manometers at non-working farms and, if necessary develop a program to address any necessary removal.
- The Committee recommends that Vermont place restrictions by statute on the sale of mercury fever thermometers. Mercury fever thermometer breakage poses an unnecessary risk to sensitive populations (children, mothers) that can be easily avoided with mercury-free substitutes. This should be done in cooperation with the Vermont health care community.

- The Committee supports development of a collaborative fever thermometer exchange and mercury-free thermometer give-away program including the Vermont Department of Health, Solid Waste Districts and municipalities, pharmacies, health clinics and health programs for infants, children and mothers.
- The Committee supports educational outreach programs by the Department of Health to the health care community to encourage reduced use of mercury fever thermometers and other mercury-containing medical devices, where mercury-free alternatives exist.
- The Committee supports the Vermont State Dental Society's outreach initiatives to dental offices that encourage the adoption of best management practices for waste management and mercury recycling, and will continue to work with the Vermont State Dental Society to monitor the success of these outreach efforts. (i.e. working in cooperation with the state to develop a survey)
- The Committee supports, as resources allow in the Agency of Natural Resources, development of voluntary pledge programs or other voluntary programs which commit businesses, manufacturers, institutions and others to eliminate mercury and mercury compounds. (e.g., Health Care Without Harm for health care facilities, Vermont's School Science Lab Clean-Out Program commitment to eliminate mercury; Indiana's Mercury Thermostat Reduction and Recycling Pledge Program for construction and HVAC-R contractors, Thermostat Recycling Corporation's multi-state take back program for wholesalers)
- The Committee supports expansion of the "Universal Waste" provisions of Vermont's Hazardous Waste Management Regulations to include all mercury-added products defined as state and federal hazardous waste, not just the current inclusion of lamps and thermostats. The Committee recommends that the Agency of Natural Resources begin rule making in the near future.

VI. Ways to coordinate with other states to effectively address mercury issues

Current Status

Beginning in 1995, representatives of northeast state air, water, waste and public health divisions and Environment Canada formed a Mercury Workgroup to develop the *Northeast States/Eastern Canadian Provinces Mercury Study* which was released in February 1998. This work was followed with the development of a regional Mercury Action Plan with 40 specific recommendations for action which was endorsed by the New England Governors and Eastern Canadian Premiers. Representatives from Vermont have participated in a Mercury Task Force to guide implementation of the Mercury Action Plan. The NEWMOA model legislation to reduce mercury containing waste was drafted in 1999 as an outcome of these coordination efforts. This model legislation should be ready for review after regional stakeholder involvement and comment is evaluated, and any necessary revisions to the draft model are made. Ongoing involvement by Vermont in the Mercury Task Force and other regional mercury workgroups will continue as part of efforts to implement the Mercury Action Plan.

In 1999, the Vermont Attorney General joined in USEPA litigation against operators of mid-western coal-fired power plants for violation of federal Clean Air Act . EPA alleges that more than 30 power plants in the mid-west and southeast violated requirements of the Clean Air Act by completing significant changes

to the plants and increasing emitted pollutants without obtaining necessary permits or installing pollution controls. These lawsuits seek reduction in emissions of air pollutants, including mercury, through the installation of best available control technology. New York and Connecticut have recently joined one of the suits against the operators of several of these plants. Vermont will intervene in the suit filed by EPA against American Electrical Power Company, the operator of several plants, and is evaluating the suits filed against additional plants.

Federal legislation was introduced in 1999 by Senator Leahy to control mercury emissions from combustion sources. S.673 (Omnibus Mercury Emissions Reduction Act of 1999) would amend the Clean Air Act and require EPA to promulgate mercury emission standards for fossil fuel-fired electric steam generating units, commercial and industrial boilers, solid waste incinerators, medical waste incinerators, and other commercial operations, leading to mercury emission reductions of at least 95 percent. This bill would also require mercury product labeling, phase-outs of mercury in products, source separation. S.1949 (Clean Power Plant and Modernization Act of 1999) would lead to further reductions in the fossil fuel-fired power plant emissions of mercury (the single major emission source of mercury in the U.S.) through technology improvements and promotion of alternative and clean energy sources such as solar, wind, biomass, and fuel cells.

Recommendations

- The Committee supports Vermont's participation in the Mercury Task Force and other regional workgroups and efforts to implement the recommendations in the Mercury Action Plan endorsed by the New England Governors and Eastern Canadian Premiers.
- The Committee supports Vermont's lawsuit with the USEPA against mid-western coal-fired power plants, filed by Vermont's Attorney General, which would require significant reductions in mercury emissions.

- The Committee supports federal legislation (S.673) and (S.1949) introduced by Senator Leahy to control mercury emissions from all the significant combustion sources of mercury, including fossil fuel-fired power plants, solid waste incinerators, and medical waste incinerators and establish national mercury product labeling, mercury product phase-out and manufacturer take-back programs.

VII. Ways to reduce mercury releases from the incineration of solid wastes

Current Status

Both houses of the New Hampshire Legislature passed bills which would require municipal waste incinerators to meet a more stringent 0.028 milligram per dry standard cubic meter mercury air emission limitation, as recommended in the Mercury Action Plan; however, this standard has not yet passed as law. Several Vermont towns which are under contract to send their wastes to the Claremont, N.H. incinerator (Wheelabrator), could be required to share the cost of facility should upgrades be required to meet this standard. If legislation is passed, the potential cost to Vermont towns over the seven remaining years of

the contract is \$632,000 .

Incineration of solid waste generates high levels of chemically reactive forms of mercury which are released into the environment. It is well documented that municipal and medical waste incineration has been responsible for a large proportion of atmospheric mercury deposition in the Northeast as well as nationally. As shown above, the costs of controlling mercury emissions from waste incinerators are very high (\$1.85 million to retrofit the Claremont, NH facility).

Mercury emissions from municipal waste incinerators were addressed in the 1999 Legislative Report of the Committee, where the Committee recommended that any incinerator receiving Vermont solid wastes meet this same air emission standard. The 1999 report also recommended that Vermont move away from solid waste incineration as a solid waste disposal method because of its mercury emissions and costs for pollution control. These recommendations from the 1999 Legislative Report are carried forward as referenced below.

Recommendations

- The Committee recommends state legislation that requires solid wastes destined for incineration be disposed only at facilities which meet a 0.028 milligram per dry standard cubic meter mercury air emission standard (suggested in the Regional Mercury Action Plan). In addition, this legislation should require that any solid wastes destined for incineration should be subjected to source separation programs for mercury-added products.

-The Committee recommends that Vermont, as a matter of public policy, move toward elimination of solid waste incineration. The toxicity of mercury and other emissions, coupled with the cost and difficulty of controlling them, argue against this method of waste disposal.

COMMITTEE WORK PLAN FOR 2000

The Committee's work for 2000 will address all statutory charges including extent of contamination, health risks, evaluation of state and local mercury reduction programs, new initiatives and methods to reduce mercury contamination and risk, program costs and funding needs, interstate coordination on mercury issues, and reducing mercury releases from waste incineration. In addition, the recommendations in this report will be pursued by the Committee and implementation progress will be reported.

- The Committee intends to review the NEWMOA model mercury legislation and develop recommendations for changes to Vermont's mercury law.
- The Committee will comment on and review plans and initiatives of the Vermont Department of Health, the Agency of Natural Resources, Solid Waste Districts, and others to inform and educate Vermonters to take actions to reduce risk and releases of mercury. The Committee will also review ongoing mercury reduction initiatives such as the school lab chemical clean-out project and the dairy farm manometer pilot, training for mercury device removal from appliances, as well as implementation of Vermont's labeling law.
- The Committee plans to hold a legislative information session on mercury in the environment and the initiatives being taken in Vermont to reduce mercury release and risk
- The Committee will work with the Vermont State Dental Society to review progress in adoption of best management practices for waste management by dental offices.
- The Committee will share its findings with the public through its web site.
- The Committee will address other important issues as they develop.
- The Committee will evaluate needs for educating the health care community on mercury reduction awareness.
- The Committee will evaluate and prioritize its recommendations and funding needs for implementation.

Contact Information: *If you would like information regarding items in this report, please contact Dr. Tim Scherbatskoy at (802) 656-8336 - e-mail at tscherba@zoo.uvm.edu -or- Hollie Shaner, RN, MSA at (802) 847-2399 e-mail at hshaner@aol.com.*

By the Advisory Committee on Mercury Pollution:

Co-Chair:

Tim Scherbatskoy

Co-Chair:

Hollie Shaner

Members:

Michael Bender

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Advisory Committee on Mercury Pollution 2000 Report

***Qualifications from Agency of Natural Resources and Department of Health**

The Agency of Natural Resources and the Department of Health fully support all the recommendations except the fourth recommendation under *Legislative Initiatives*. We cannot fully accept the position on incineration elimination at this time. Before taking a position on such a significant policy issue, we will need to build upon the work of the Committee to fully evaluate the public health, environmental and economic effects of this policy and the implications of its implementation.

***Qualifications from National Electric Manufacturers Association**

Dissenting Comments

Prepared by: Ric Erdheim, Senior Manager of Government Affairs, National Electrical Manufacturers (NEMA)

Comments on Report Recommendations:

The Advisory Committee on Mercury Pollution has had a productive year and there are numerous meritorious recommendations in the report. Unfortunately the report contains a few recommendations that are not cost-effective methods for addressing mercury emissions. I do not support the following recommendations.

Amend legislation to address “listed” rather than just “labeled” products. This recommendation raises an issue brought before the Committee by Jen Holliday of the Chittenden Solid Waste District. The bill addresses all labeled mercury products, no matter how much or little mercury is in the product, no matter how hard or difficult the product is to manage, no matter the number of units of the product. As a result, Ms. Holliday pointed out that she spent close to \$9,000 to recover one pound of mercury from lamps over a four-year period. This figure is likely to double over the next five years as mercury levels in disposed lamps continue to decline. She also pointed out that lamps are a difficult waste to manage because they are fragile. So I believe that changing "labeled" to "listed" products only worsens the problem in the original bill of failing to focus on priority products. Any disposal ban should focus on products from which relatively large amounts of mercury can be recovered cost effectively. The one-size-fits-all approach of all "labeled" or "listed" products will continue to result in the inefficiencies described by Jen Holliday.

Source separate all mercury-added products from solid waste destined for incineration.

Once again the report recommends addressing all products, no matter the cost or the mercury removed from the waste stream. Source separation efforts should focus on products from which relatively large amounts of mercury can be removed cost-effectively.

Recommend elimination of incineration. I believe this recommendation goes beyond the scope of the advisory committee that is to advise the Legislature and Governor on mercury issues.

Support Federal legislation (S. 673 and S. 1949) to control mercury emissions. S. 673 would require the labeling of all mercury-containing products and their eventual elimination. It assumes that labeling is feasible and effective for every product. The Federal District Court ruling in NEMA v. Sorrel concluded that such labeling was neither feasible nor effective in the case of lamps. The bill also assumes that there are alternatives for all mercury-containing products. While EPA would be given authority to grant exemptions from the phase-out, EPA does not have the staff to administer such an exemption program. The bill fails to distinguish between environmentally preferable uses of mercury such as fluorescent lamps, essential uses where there is no alternative such as button batteries and non-essential uses of mercury. The one-size fits all approach exhibited in S. 673 is an ineffective method for addressing mercury pollution.

Other Dissenting Comments:

In addition, there are four statements contained in the body of the report that are either not accurate or not justified.

**Qualifications from National Electric Manufacturers Association (Continued)*

First, the report says that EPA's Mercury Report to Congress and the subsequent mercury report from the Northeast States provide assessments of the magnitude of sources of mercury emissions. This statement was reasonably true for the time period (mid 1990s) addressed in the report. The statement is not true now. It fails to reflect the significant reductions in mercury emissions from reductions in mercury in the waste stream and improved technology at municipal waste incinerators and other facilities and the continued future emission reductions and improved control technology. For example, mercury from old batteries in the waste stream declined by 75% between 1996 and 1999. Lamp manufacturers reduced the average mercury level in a four-foot lamp by 50 between 1994 and 1999. The Thermostat Recycling Corporation recently commenced its program to recover used mercury-switch thermostats. Mercury emissions from incinerators have declined by 75% between 1996 and 2000. Therefore, the reports now provide a misleading analysis of sources of mercury emissions.

The report also says that the Committee finds that mercury is an "extremely dangerous substance." It is undoubtedly true that mercury at certain levels is dangerous. The statement in the report, however, leaves the incorrect impression that any mercury is "extremely dangerous." The overview of the EPA Mercury Study Report to Congress says the following:

The typical U.S. consumer eating fish from restaurants and grocery stores is not in danger of consuming harmful levels of methylmercury from fish and is not advised to limit fish consumption... While most U.S. consumers need not be concerned about their exposure to methylmercury, some exposures may be of concern... In this report, an analysis of dietary surveys led the EPA to conclude that between 1 and 3 percent of women of child-bearing age eat sufficient amounts of fish to be at risk from methylmercury exposure, depending on the methylmercury concentration of the fish.

This EPA statement is at odds with the statement in the report that mercury is an "extremely dangerous substance."

The Committee uses this finding that mercury is an "extremely dangerous substance" to justify the conclusion that "no mercury should be put into the environment by human activity." This conclusion is not justified by research about the threat posed by mercury. The costs to implement this recommendation do not bare any reasonable relationship to its benefits. Finally, it would result in scarce public funding not being used in the most cost-effective manner.

The Committee also uses the finding as support for Vermont's existing labeling and product ban legislation and for expanding the program. This legislation takes a one-size-fits all approach to dealing with mercury pollution. Rather than add to this law, Vermont should rethink its inefficient and ineffective approach to addressing mercury pollution by working with different industry sectors to identify cost-effective measures for different products that reflect the unique characteristics of the product.

Finally, the report makes numerous references to the model mercury-product legislation being developed. It certainly is desirable to have a coordinated effort. Since there is no final model bill at the time this report is being written and the Committee only commits to reviewing the final bill, I have no objection to the Committee's recommendation. The current draft of the model bill, however, combines the most

unreasonable elements of any idea that anyone has considered to address mercury pollution. The current draft model bill contains the same flaws that I have identified in the Advisory Committee's report above.