
Name of Organization: Michigan DEQ

Type of Organization: State

Contact Information: Mr. Steven Kratzer
MDEQ, Environmental Assistance Division, P2 Section
P.O. Box 30457
Lansing MI 48909

Phone: (517) 373 - 0939 **Extension:**

Fax: (517) 335 - 4729

E-Mail: kratzers@state.mi.us

Project Title: Michigan 'CATCH THE FEVER' Mercury Thermometer Exchange Prg.

Project Category: Pollution Prevention and Reduction - BNS

Rank by Organization (if applicable): 2

Total Funding Requested (\$): 68,159 **Project Duration:** 1 Years

Abstract:

Mercury is a highly toxic, bioaccumulative, and ubiquitous metal. It is also highly persistent in the environment. Its uptake and concentration in the food chain by predatory fish, has led to the issuance of fish advisories in 38 states. Mercury has long been recognized as one of the primary pollutants of concern for Michigan and for the Great Lakes. Controlling anthropogenic releases is a global concern.

Historically, mercury has been used in thousands of processes and applications, yet probably none so well known to the average citizen, as the common household fever thermometer.

This proposal consists of two key elements. First, it directs professional staff and resources to target mercury containing products sold at Michigan-based pharmacy chains and retailers. Through education and consensus building the objective is to encourage these retailers to voluntarily commit to phasing out the sale of mercury fever thermometers and other 'non-essential' products and devices that contain mercury. Secondly, through partnering with existing household hazardous waste (HHW) collection programs and hospitals (in those areas absent HHW facilities), a state-wide mercury fever thermometer exchange program will be undertaken. The objective is to purchase and distribute 10,000 digital thermometers throughout Michigan and thereby heighten the average citizen's sensitivity and awareness toward mercury concerns.

Geographic Areas Affected by the Project

States:

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> Illinois | <input type="checkbox"/> New York |
| <input type="checkbox"/> Indiana | <input type="checkbox"/> Pennsylvania |
| <input checked="" type="checkbox"/> Michigan | <input type="checkbox"/> Wisconsin |
| <input type="checkbox"/> Minnesota | <input type="checkbox"/> Ohio |

Lakes:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Superior | <input checked="" type="checkbox"/> Erie |
| <input checked="" type="checkbox"/> Huron | <input type="checkbox"/> Ontario |
| <input checked="" type="checkbox"/> Michigan | <input checked="" type="checkbox"/> All Lakes |

Geographic Initiatives:

- | | | | | |
|--|----------------------------------|-------------------------------------|--------------------------------------|---|
| <input type="checkbox"/> Greater Chicago | <input type="checkbox"/> NE Ohio | <input type="checkbox"/> NW Indiana | <input type="checkbox"/> SE Michigan | <input type="checkbox"/> Lake St. Clair |
|--|----------------------------------|-------------------------------------|--------------------------------------|---|

Primary Affected Area of Concern: All AOCs

Other Affected Areas of Concern:

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area:

Other Affected Biodiversity Investment Areas:

Problem Statement:

Mercury is a wide spread persistent bioaccumulative toxic (PBT) substance and its reduction is a priority in a growing number of states throughout the nation including Michigan. Many regional initiatives such as the Bi-National Toxics Strategy (BNS) and the Lake Superior, Lake Michigan and Lake Huron initiatives also strive to eliminate anthropogenic sources of mercury in the environment.

Identifying mercury sources, building stakeholder consensus and voluntarily eliminating uses of mercury has been an ongoing activity in State, Regional and National programs for over a decade. Many groups such as automobile manufacturers, dental associations, hospitals and utilities have made substantial commitments to reduce, properly manage or eliminate mercury. Emphasis on the need for mercury pollution prevention continues to build momentum throughout the country and many of the piloted programs in Michigan are being successfully replicated elsewhere.

Every year in Michigan the poison control center, MDEQ, and Michigan Department of Community Health log thousands of phone calls reporting incidents of spilled mercury. These accidents, if handled improperly, often result in adverse human health exposures and/or environmental hazards. In reviewing the databases of reported statistics, by far the most prevalent spill incidents involve broken mercury fever thermometers. Furthermore, it is estimated that these 'reported calls' represent only a minor fraction of the total number of spill events that are actually occurring throughout the state.

Since 1994 the Michigan Mercury Pollution Prevention (M2P2) Task Force has been actively working to identify mercury sources, forming partnerships, and seeking to eliminate mercury through product substitution. As this and other P2 focus groups continue to identify where mercury is used in products and devices, it is especially important that the most common uses of mercury are not overlooked. The frequency and locations of where mercury is most often spilled must also be taken into account.

Mercury may be released to the environment through spills, broken devices or improper disposal and through incineration of mercury containing discarded items. The release often is volatilized into the air or rinsed down drains, eventually finding its way to surface waters. In fact, very small amounts can yield adverse consequences. For example, studies in Minnesota have shown that as little as 1/70th of a teaspoon of elemental mercury entering a 20 acre lake annually, is enough to raise mercury levels so that fish exceed the mercury consumption advisory limits.

The positive ramifications of offering a mercury thermometer exchange were clearly

demonstrated last September, as MDEQ and MDCH piloted a mercury fever thermometer exchange for their department employees. The event was timed to coincide with and to commemorate National Pollution Prevention Week. The program

was so successful and well recieved that it prompted numerous inquiries and subsequently spawned more than a dozen mercury thermometer exchange programs in the region. Since that time the positive feedback, interest and support have been overwhelming, and are limited only by the lack of additional equipment and resources. To date, there is considerable interest and a growing number of volunteers willing to partner in a statewide program.

Proposed Work Outcome:

MDEQ officials in collaboration with environmental groups like the National Wildlife Federation and the Ecology Center will arrange to meet with key decision makers at pharmacies and Michigan based retailers such as K-Mart (Troy) and Meijers Stores (Grand Rapids). They will be presented with relevant information and asked to partner in this project and to agree to no longer carry mercury fever thermometers. Just like the recent commitment by Rite Aid (national drug store chain), not to stock or sell mercury fever thermometers, these companies may also receive recognition and nomination for special environmental awards should they choose to adopt this practice.

Next, it is proposed that ten thousand digital thermometers will be acquired and distributed state-wide to local household hazardous waste collection programs. In counties without programs or areas with incomplete geographical coverage or high population densities, additional partners such as hospitals will be recruited to serve as exchange sites. Other interested groups with the appropriate resources desiring to participate may also be welcome to partner in these efforts.

As people bring in mercury fever thermometers they would be exchanged for digital units at a rate of one per customer or family. Based on experience from pilot programs, it is likely that 2-3 times that many thermometers will be turned in, along with switches, thermostats and other mercury devices. These devices will be removed from circulation and properly handled at HHW facilities or hospitals where the infrastructure and trained personnel exist to effectively minimize potential dangers. Spill kits and spill clean up guidance will also be provided at each site. Educational material will be provided to participants via pamphlets, brochures, and through an expanded marketing campaign. The exchange events may also be timed in such a manner to coincide with other key celebrations such as Earth Day, health fairs or National Pollution Prevention Week.

Project Milestones:	Dates:
Project Start	10/2000
Contact pharmacies and retailers	12/2000
Conduct meetings with HHW directors	01/2001
Get hospitals & other partners on board	03/2001
Obtain Retailer Pledges	05/2001
Begin Thermometer Exchanges	06/2001
Wrap Up and submit Final Report	09/2001
Project End	10/2001

Project Addresses Environmental Justice

If So, Description of How:

Areas exhibiting high population densities and low incomes may be particularly reluctant or slower to make the shift away from using mercury fever thermometers. Lack of appropriate information, combined with the cost of replacement devices may inadvertently impede the growing wave of concern over common mercury containing devices. For these areas, assistance in making this transition would be especially significant. Detroiters for Environmental Justice and the Detroit River Remedial Action Plan (RAP) P2 Action Team, have also expressed interest in participating in the thermometer exchange program.

Project Addresses Education/Outreach

If So, Description of How:

Thermometers are potentially dangerous sources of mercury and may under some instances threaten public health and the environment through improper handling or improper disposal. An extremely positive and effective way to publicize the importance of this issue is through pollution prevention. By conducting a thermometer exchange program, where participants receive a digital fever thermometer in exchange for a mercury thermometer, mercury thermometers are removed from everyday use. This event affords an excellent opportunity for participants to ask questions and to receive educational brochures and information. Advertising and promotion of the event(s) also serve to stimulate discussion and debate. Citizens often hear of the dangers posed by mercury entering and cycling in the environment. Often the average person feels there is little they can do to combat a complex environmental problem. In this instance however, everyone can participate and be part of the solution. Household articles such as thermometers, barometers, thermostats, switches and other devices are available in mercury-free alternatives. Once the first step has been taken toward source reduction, people will often look for other pollution prevention opportunities.

Often people recall playing with mercury as children, both in the home and in the classroom. These people are confused about the dangers and require a deeper understanding of why mercury is now such an environmental and public health concern. The relationship between the types of mercury (elemental, organic and inorganic) and exposure routes (dermal, ingestion, inhalation) and the role(s) they play impacting the environment are all important in understanding the mercury cycle. The general public needs to become aware that mercury is a growing global concern that requires action and that each of us can play a significant role in the solution, not just large businesses or industry.

Project Budget:

	Federal Share Requested (\$)	Applicant's Share (\$)
Personnel:	22,056	1,161
Fringe:	4,395	231
Travel:	1,140	60
Equipment:	0	0
Supplies:	36,567	1,925
Contracts:	0	0
Construction:	0	0
Other:	0	0
Total Direct Costs:	64,158	3,377
Indirect Costs:	4,001	58
Total:	68,159	3,435
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

As the project develops, partnerships with pharmacies, retailers and digital thermometer manufacturers will be sought. For example, Becton-Dickinson has already contributed 700 thermometers to the preliminary effort and, as of the date of this writing, approximately half of those thermometers have been dedicated to hospital thermometer exchange programs occurring in the Lake Superior Basin as part of the Lake Superior Initiative. Other dedicated partners such as Health Care Without Harm will be sought to donate educational pamphlets and flyers that could be distributed in the program.

Description of Collaboration/Community Based Support:

This project has the full support of the Michigan Household Hazardous Waste Directors Consortium and the Michigan Health and Hospital Association. Both organizations are actively involved in mercury elimination projects and cooperatively partner with the MDEQ on a number of projects.

The Michigan Household Hazardous Waste Directors Consortium currently operate in about 45 of Michigan's 83 counties. This group is committed to expanding the range and convenience of their collection network, offering opportunity for proper disposal of household hazardous waste(HHW). Several of their collection sites have already piloted thermometer exchange events and found them to be extremely successful. Not only does the exchange event remove potentially dangerous articles from the environment, they also serve the added benefit of publicizing the HHW collection events and bring people out that might not otherwise participate. Thus both issues; proper HHW disposal and concerns about mercury are emphasized. In addition, HHW programs provide excellent locations for people to bring vials of mercury, thermostats, mercury switches, barometers, and other mercury containing devices, as they often do. These programs have the necessary staff and technical expertise to handle the material properly. They are only limited by a lack of digital thermometers and educational materials to reach the public.

The Michigan Health and Hospital Association (MHHA) is strongly committed to advancing the efforts of Hospitals for a Healthy Environment (H2E) by endorsing the Memorandum of Understanding (MOU) between the American Hospital Association and the U.S. Environmental Protection Agency. This agreement, signed in June of 1998, calls for elimination of mercury from hospitals by 2005 and establishes a 50% reduction goal for hospital waste by 2010. Michigan hospitals would be recruited to host exchanges in areas where insufficient coverage is provided by existing HHW programs.