Mercury Pollutant Minimization Program Guidance Manual For Municipalities

DNR PUB-WT-831 2006

Authors

Randy Case, Wisconsin Department of Natural Resources

Diane R. Thompson, Kari Jacobson Hedin, and Jane Edwards,
City of Superior Wastewater Division of Public Works

Karin Sieg, Recycling Connections Corporation

Acknowledgements

Many organizations played a vital role in reviewing and providing input for this document. We would like to extend a special thanks to the Wisconsin Mercury Reduction Communities.

Wisconsin Department of Natural Resources
Box 7921
Madison, WI 53707

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Funding

Funding for this guidance manual was provided through a grant from the
U.S. Environmental Protection Agency – Region 5 Waste Minimization Program.

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User's Guide To Pollutant Minimization Program Acronyms

Listed below are some of the most common acronyms and abbreviations used in the Mercury Pollutant Minimization Program Guidance Manual.

ADA	American Dental Association
AHA	American Hospital Association
AMEL	Alternative Mercury Effluent Limit
BMP	Best Management Practices
CWA	Clean Water Act
DOA	Department of Administration
FDA	Food and Drug Administration
HCWH	HealthCare Without Harm
HHW	Household Hazardous Waste
HVAC	Heating, Ventilation & Air Conditioning
ISO	International Organization of Standards
MGD	Million Gallons Per Day
NPDES	National Pollution Discharge Elimination System
NRPC	Northwest Regional Planning Commission
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Program
POTW	Publicly Owned Treatment Works
QA	Quality Assurance
QC	Quality Control
SHWEC	Solid & Hazardous Waste Education Center
SOP	Standard Operating Procedures
USEPA/EPA	U.S. Environmental Protection Agency
WDA	Wisconsin Dental Association
WDNR	Wisconsin Department of Natural Resources
Wis. Adm. Code	Wisconsin Administration Code
Wis. Stats.	Wisconsin Statutes
WLSSD	Western Lake Superior Sanitary District
WPDES	Wisconsin Pollutant Discharge Elimination System
WQBEL	Water Quality-Based Effluent Limitation
WW BMP	Wastewater Best Management Practices
WWTP	Wastewater Treatment Plant
WWW	World Wide Web

Introduction

Clean water is essential to Wisconsin's economy and quality of life. Lakes and streams provide drinking water, recreational opportunities such as swimming and boating, and habitat for fish, wildlife, and other aquatic species. Wastewater treatment plants play a vital role in maintaining the water quality standards necessary to support this environment. Mercury finds its way into municipal sanitary sewer systems from a large number of individually small sources. While treatment plants can remove a lot of mercury from wastewater streams, the only cost-effective way to reduce mercury discharges to the low levels needed to meet water quality standards is to remove mercury before it is released to the sewer system. This manual describes Wisconsin's program for developing and reporting Mercury Pollutant Minimization Programs.

Because treatment plants in nearby areas will be faced with the same requirement to reduce mercury influent to their systems, we strongly encourage municipalities to coordinate with each other in the development and implementation of their Mercury Pollutant Minimization Programs. Many Wisconsin municipalities already have experience in this work that they can share with those to whom mercury reduction activities are new. This will be particularly true for larger municipalities who can share their experience with smaller communities. Many of the specific examples used in this manual are from pilot mercury work conducted in Wisconsin over the last several years.

This manual accommodates several realities about mercury discharges into publicly owned treatment works. First, most municipal wastewater treatment plants are not meeting the water quality-based 1.3 ng/l effluent limit for mercury in their discharges to the surface waters of Wisconsin. Second, many users of sanitary sewer systems that have historically used mercury-containing products are not meeting sewer use ordinance limits already in place for their discharges to their local wastewater treatment plant. And third, the number of potentially noncompliant users is very large and represented by sectors of the community that have not traditionally been subject to wastewater regulation for metals like mercury, e.g., hospitals, dental offices, and schools.

The traditional approach to this problem would be to issue discharge permits to these many mercury discharging facilities, require periodic wastewater sampling and analysis to determine compliance with the sewer use ordinance limit for mercury, and implement stepped enforcement programs to force changes or installation of technology to achieve wastewater compliance. Monitoring and administrative costs for these procedures are substantial, and in most municipalities would need to be paid by the permitted users of the treatment plant.

This manual offers an alternative solution to this problem: mercury-using facilities that agree to implement Best Management Practices for mercury products, and document that accomplishment to the local sewerage authority, may be deemed to be compliant with wastewater discharge standards. This approach in many cases will require no permits, no wastewater sampling and analysis, and only enough oversight by the municipality to ensure that the Best Management Practices are in fact being implemented. Further, the Best Management Practices are specific to each sector of the community and are commonly used by that particular type of facility. This is a "pollution prevention" solution for mercury reduction. Facilities choosing to not implement Best Management Practices always have the option of traditional discharge regulation as provided in existing sewer use ordinances.

This manual draws on the Wisconsin Department of Natural Resources' experience in mercury reduction pilot activities with twenty municipal partners over the last several years. The manual is also consistent with USEPA Guidance on Mercury Pollutant Minimization Programs and with Wisconsin's and EPA's Wastewater Pretreatment Program. The Department has tried to make this manual as simple to use as possible, with the constraint that each discharging user facility must be accountable for implementing Best Management Practices and each municipality must be accountable for implementing a community-wide Mercury Pollutant Minimization Program.

Finally, our experience with our municipal partners produced a fourth reality: that the general public is pleased to participate in mercury reduction activities because they can see their personal contribution towards environmental protection. Many of the participating pilot communities extended their mercury reduction work to households (mercury fever thermometers); HVAC heating, ventilation, and air conditioning contractors (mercury thermostats); scrap yards (auto hood and truck mercury switches); and even dairy farms (milk house mercury manometers). While these products do not typically end up in wastewater discharges, we have explicitly given credit for this extra work in this manual.

How to Use This Manual

The Mercury Pollutant Minimization Program Guidance Manual for Municipalities is divided into several sections.

- **Chapters 1 and 2 provide background information** on mercury pollution and Mercury Pollutant Minimization Programs, and should be read before referring to the forms in Chapter 3. Many of the terms discussed throughout the manual are defined in Chapters 1 and 2.

- **Chapter 3 includes instructions on how to fill out the forms** for a Mercury Pollutant Minimization Program Plan and a Mercury Pollutant Minimization Program Annual Report, as well as the forms themselves. The directions should be reviewed carefully before filling out the forms to make sure they are completed correctly. The Wisconsin copies of this manual may also include the forms on a CD where the forms can be filled out electronically in Microsoft Excel.

- **Appendix A contains case studies** of mercury educational outreach for various sectors of the community.

- **Appendix B includes administrative rules and other guidance** related to developing a Mercury Pollutant Minimization Program, sewer use ordinances, and mercury sampling and monitoring procedures.

- **Appendices C through F give examples of completed Mercury PMP forms** based on municipal treatment plant size.

Chapter One: Mercury All Around Us

Properties and Uses of Mercury

Mercury is an Element

Imagine, long ago, hot lava flowing down a volcano in Italy. Deep within the cooling layers of rock, water rises on its way toward the surface. As the water rises it leaves deposits of sulfur, forming a red-colored mineral called cinnabar, or mercury sulfide. Elemental mercury constitutes only 0.5 parts per million of the earth's crust, making it scarcer than uranium but more plentiful than gold or silver. Ancient Romans mined cinnabar for mercury; some of the ancient Roman mines are still in use today. In Roman mythology, Mercury was a swift messenger of the gods. Elemental mercury, which is the only metal that is a liquid at room temperature, got its name from the Roman god because its high surface tension causes it to form spheres that can roll and flow very quickly. For this reason, and because it is a silver-white metal, mercury is also called quicksilver.

Figure 1. Elemental mercury sitting atop cinnabar

Mercury has Many Uses

Mercury has been found in Egyptian tombs dating back to 1500 B.C., and it has been used for centuries in medicines. While mercury is no longer sold as a dermal or oral antiseptic, an organic form continues to be used as a vaccine preservative. The ancient Greeks and Romans used mercury in cosmetics and it was also one of the primary cures for syphilis in Europe before modern times. During the medieval period, alchemists thought mercury could be hardened to produce gold. In some cultures, spiritualists associate mercury with mystic qualities and it continues to be used to "bless" homes, cars and apartments. Although its toxic effects are well understood, mercury continues to be used in a wide variety of products and manufacturing processes because it is very useful (Table 1).

Figure 2. Mercury is put in amulets by Central American spiritualists.

Elemental mercury is used in thermometers, blood pressure devices, and thermostats because its ability to expand and contract uniformly makes it useful for measuring changes in temperature and pressure. Although many liquids could be used in pressure measuring devices, mercury is used because its high density requires less space. It is also a good conductor of electricity, so it is a useful component of electrical switches.

Mercury is also used in dental fillings, paints, soaps, batteries, and fluorescent lighting. Mercury will dissolve numerous metals to form amalgams and is used to extract gold dust from rocks by dissolving the gold and then boiling off the mercury. The amalgam used in dental fillings

contains tin and silver alloyed with mercury. Because it works as a biocide, mercury has been used as a fungicide in paint, though this kind of paint is no longer sold.

Table 1. Properties and Uses Of Mercury	
PROPERTIES	**USES**
1. Liquid metal	1. Barometers, blood pressure cuffs
2. Expands/contracts with temperature	2. Thermometers
3. Conducts electricity	3. Switches, fluorescent bulbs, electrolytic production of chlorine
4. Amalgamates with other metals	4. Dental fillings, gold purification
5. Kills bacteria and fungi	5. Disinfectants, preservatives

Other Forms of Mercury

Inorganic mercury compounds occur when mercury combines with elements such as chlorine, sulfur, or oxygen, and some of these compounds can be created in a lab. These mercury compounds are also called mercury salts. Most inorganic mercury compounds are white powders or crystals, except for cinnabar (HgS), which is red and turns black after exposure to light. Some inorganic mercury compounds, such as mercuric chloride ($HgCl_2$), are violent poisons.

Figure 3. Elemental mercury. Its symbol on the periodic table of elements is "Hg."

When mercury combines with carbon, the compounds formed are called "organic" mercury compounds or organomercurials. There are a potentially large number of organic mercury compounds, but the most common organic mercury compound in the environment is methylmercury ($HgCH_3$). When elemental mercury enters a water body, certain microorganisms can convert it to methylmercury during their normal metabolic processes. Methylmercury is the form that ends up in fish tissue and is ingested by humans.

Mercury Release

Releases to the Environment

Mercury releases to the environment are from two main sources, nature and humans. Natural sources include mercury that is mobilized from the earth's crust, through volcanic activity, weathering of rocks, or forest fires. Today, most of the mercury that makes its way into the environment comes from anthropogenic (human-caused) sources.

Coal-fired power plants are the largest source of mercury released into the atmosphere, about 1,200 kg of mercury each year in Wisconsin. But mercury is also released from products and

processes during manufacture, breakage or spillage during use, and during disposal (Table 2). Remobilization of historic mercury occurs when mercury deposits from soils, sediments, water bodies, landfills, and waste tailings are disturbed.

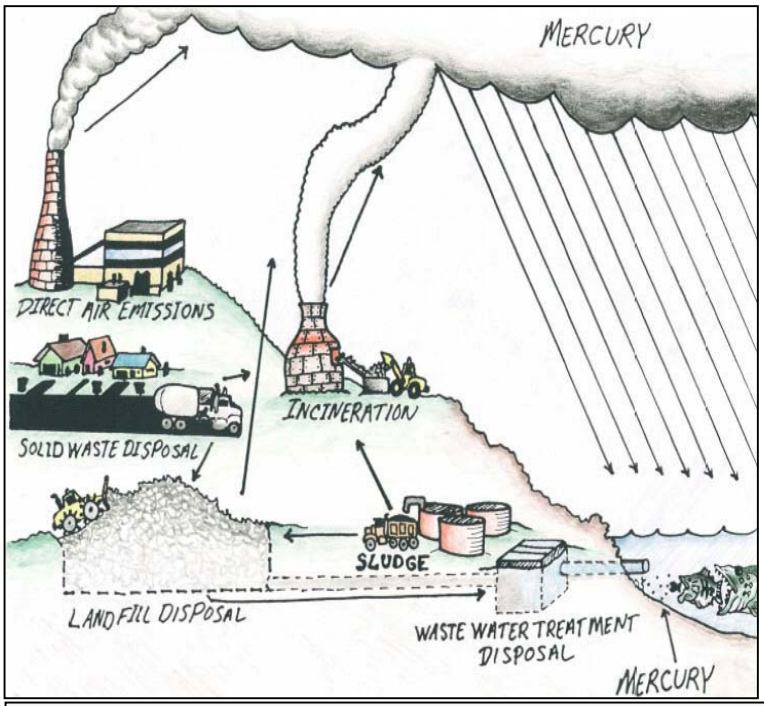
Table 2: Estimated Mercury Distribution in Wisconsin in Year 2000 From the Most Common Mercury-Containing Products

PRODUCT *To:*	*Air*	*Water*	*Land*	*Total*
Dental Amalgam[1]	205	23	883	1111
Thermostats	139	1	517	657
Fever thermometers	68	0	199	267
Fluorescent bulbs	91	0	172	263
Automobile switches	43	0	66	109
TOTALS[2]	546	24	1837	2407

units in kg Hg/year (kg = 2.2 lbs)

1. Mercury bound in an alloy with other metals.
2. An additional 600 kg Hg/year is released from other products not listed in Table 2.

Source: Barr Engineering, Minneapolis, MN and Wisconsin Department of Natural Resources.



Mercury Deposition

The deposition rates of mercury today are 1.5 to 3 times higher than they were before the industrial age. When mercury is discharged to land or water, it doesn't degrade over time. Instead, it evaporates and enters the atmosphere. Once in the atmosphere, mercury can travel for hundreds or thousands of miles before raining down on land or the surface of an ocean or lake (Figure 4). These storms are equal opportunity providers – they rain on countries and isolated locations where no man-made pollutants are produced.

Figure 4. Mercury gets into the air from several sources including coal burning and waste incineration, and it gets into wastewater from places like dental offices, schools, medical facilities, and homes. Some of this mercury eventually ends up in the fish we eat. Bioaccumulation causes the mercury concentration to be much greater in the fish than in the water.

At the same time, mercury can also be discharged from sources very close to home. In the U.S., mercury in the atmosphere tends to travel east with prevailing winds, where it rains out along the eastern seaboard (Figure 5).

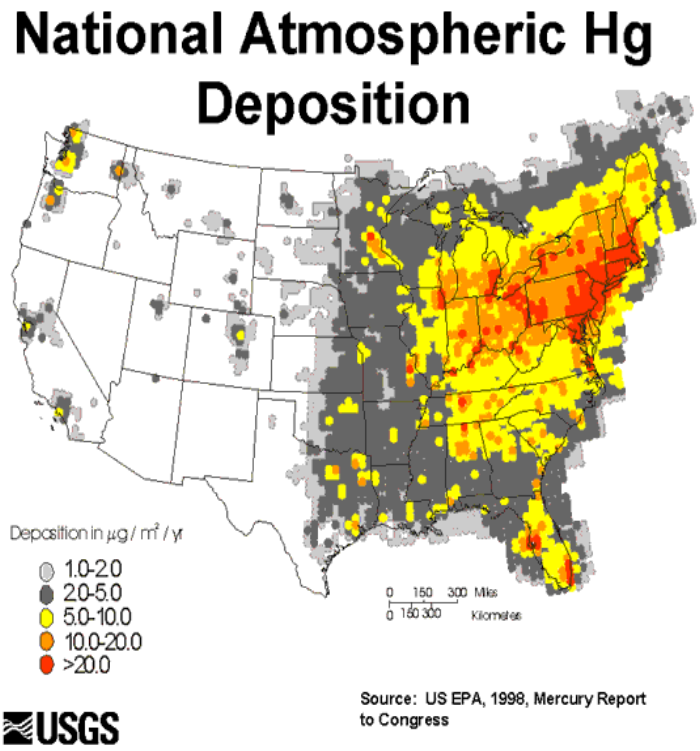


Figure 5. Mercury released into the air in industrial areas tends to blow east with prevailing winds.

What's the Problem with Mercury?

It's In the Fish

Health Problems and Mercury

People can come into contact with mercury by breathing vapors, skin absorption, and ingestion. Breathing the vapors is particularly dangerous, and can happen in the home, workplace, or anywhere mercury has been spilled. When metallic mercury is touched it can slowly pass through the skin. Metallic mercury generally does not absorb very well when swallowed. However, people can be exposed to mercury by eating fish or shellfish caught in contaminated waters. Mothers who eat these fish pass mercury to their fetuses, where it can damage the developing brains of children and may affect a child's behavior, memory, and ability to learn. In adults, accumulation of mercury can also affect the nervous system and result in a range of other health effects, including irritability, loss of coordination, and liver and kidney damage.

The most common way that people and animals are exposed to mercury is by eating contaminated fish. The mercury that falls out of the atmosphere into waterbodies and the mercury being discharged from wastewater effluent isn't highly concentrated. However, microbes in the sediment at the bottom of a lake or stream can convert mercury into methylmercury, which is a toxin of great concern. Small organisms, such as zooplankton, consume the microbes that contain methylmercury; this buildup of mercury in their tissues is called **bioaccumulation**. Small fish eat the contaminated zooplankton, and larger fish eat the smaller fish. Mercury increases up the food chain until it is many times more concentrated in living organisms than in the surrounding water, in a process called bioconcentration or **biomagnification**.

The mercury taken up by fish is distributed throughout its body, including the fillets that people eat. Specific cooking methods and trimming fat can reduce some chemicals but they do not reduce mercury in the portions typically eaten by people. When people and animals eat a lot of large predatory fish, they can accumulate enough methylmercury in their bodies to cause health problems. Methylmercury buildup in fish-eating wildlife has been linked to reproductive problems, impaired growth and development, behavioral abnormalities, and even death.

Table 3: Wisconsin's Safe Eating Guidelines for Sport Fish	
*Women of childbearing years, nursing mothers and all children under 15 may eat:**	
1 meal per week	Bluegill, sunfish, black crappie, white crappie, yellow perch or bullheads,
	AND
1 meal per month	Walleye, northern pike, smallmouth bass, largemouth bass, channel catfish, flathead catfish, white sucker, drum, burbot, sauger, sturgeon, carp, white bass, rock bass or other species.
**Muskies should not be eaten by this group of people due to high mercury content.*	
Men, and women beyond their childbearing years may eat:	
Unlimited amounts	Bluegill, sunfish, black crappie, white crappie, yellow perch, or bullheads,
	AND
1 meal per week	Walleye, northern pike, smallmouth bass, largemouth bass, channel catfish, flathead catfish, or other species.
Additional restrictive advice is necessary for some waters where fish have been found to contain higher levels of mercury. See www.dnr.wi.gov/org/water/fhp	
Fish purchased in stores and restaurants may also contain contaminants. Follow these guidelines for popular commercial species to reduce your exposure to mercury:	

Purchased Species	**Women of child-bearing age and children under 15**	**Women beyond child-bearing age, and men**
Salmon, shrimp, canned light tuna, pollock, catfish	2 meals per week	Unlimited consumption
Canned white tuna, tuna steaks, halibut	2 meals per month	1 meal per week
Shark, swordfish, king mackerel, tilefish	Do Not Eat	1 meal per month

In 2003, 45 states had mercury-related fish consumption advisories. Some advisories are statewide, while others apply to certain lakes, rivers, or coastal areas. Currently (2005), the "Safe Eating Guidelines" for mercury listed above apply to all Wisconsin lakes and rivers (other than the Great Lakes). Additional consumption advice applies to 94 waters due to particularly high concentrations of mercury. Advisories are updated as additional data are obtained. Because of the impact of mercury on the developing nervous system, children, pregnant women, and women of childbearing age must monitor their consumption of sport-caught and commercial fish. The nutritional benefit of eating fish will outweigh the risk posed by mercury as long as advisory guidelines are followed.

It's in Products that Break or Spill

Mercury-containing products do not pose a health risk as long as they are handled correctly and disposed of safely. If they are broken, liquid mercury will evaporate at room temperature and form mercury vapors. Mercury vapors are colorless and odorless, and inhaling the invisible vapor can lead to serious mercury poisoning. The higher the temperature, the more vapors will be released from liquid metallic mercury. Some people who have breathed mercury vapors report a metallic taste in their mouths. Even a small amount of mercury can lead to health and environmental problems.

Figure 6. Mercury-containing thermometers.

A Green Bay High School student took a bottle of mercury from the school's science lab in March 1999. She shared it with friends who poured the mercury on their skin and brought it to a bowling alley, where they filled the finger holes of the bowling balls and rolled them down the lanes. When the mercury spill was discovered, students were detained in their classrooms until the extent of the spill was ascertained. Four students were sent to the hospital and 88 students were put in decontamination showers, though no one was permanently injured. The total cost of the mercury spill at the school, a home, and the bowling alley was $230,000, though the cost was settled at $175,000. The family of the student who stole the mercury paid $6,000 in restitution while the remaining costs were paid by the school district.

Universal Wastes

In order to promote collection and recycling of mercury-containing products, the U.S. EPA and WDNR have included the most common mercury products in their Universal Waste Rules. These rules reduce handling and transportation requirements for wastes that otherwise would need to be managed as "hazardous wastes." But inclusion in the Universal Waste Rules, or in some cases complete exemption from Hazardous Waste Rules, is only permitted where the mercury products are recycled. Most mercury products not recycled must be managed as hazardous wastes. For more information see EPA's Discarded Mercury-Containing Equipment Rule webpage at www.epa.gov/epaoswer/hazwaste/recycle/electron/crt.htm

Figure 7. **Chronic Mercury Exposure:** Mercuric nitrate was used in the hat-making industry up until the 1940s. Hat-makers in Danbury, Connecticut developed a reputation for strange behavior related to their exposure to mercury, and the "Danbury shakes" was a term that referred to the tremors that resulted from mercury poisoning.

Sources:

1. Global Mercury Assessment. 2002. Excerpts of the full report. United Nations Environment Programme. Issued by UNEP Chemicals, Geneva, Switzerland.

2. Mercury Plan of the US EPA. 2002. URL: www.epa.gov/mercury/information.htm

3. EPA Mercury Study Report to Congress: Overview. Air and Radiation. 2003. URL: http://www.epa.gov/mercury/report.htm

4. EPA Fact Sheet: National Listing of Fish Advisories. 2004. URL: www.epa.gov/waterscience/fish

5. UWEX Why Focus on Mercury in Schools? Case Study: Impacts Of A School Mercury Spill. URL: http://www.mercuryinschools.uwex.edu/schools/why.htm

6. Universal Waste. 2002. US EPA. URL: http://www.epa.gov/epaoswer/hazwaste/id/univwast.htm

Chapter Two: Mercury Pollutant Minimization Programs

What is a Mercury Pollutant Minimization Program?

A Wisconsin municipal wastewater treatment plant needs to implement a Mercury Pollutant Minimization Program when effluent sampling and analysis show that their mercury discharges exceed the water-quality-based limit of 1.3 ng/l. Municipal treatment plants typically remove 90% or more of the mercury entering the plant, but even this high removal rate is generally not sufficient for the plant effluent to consistently meet this very low limit. The only cost-effective way to do this is to reduce mercury discharges into the treatment plant from users of the sanitary sewer system. The goal of a Mercury Pollutant Minimization Program (Mercury PMP) is to achieve and maintain municipal wastewater treatment plant mercury discharges below 1.3 ng/l by reducing or eliminating mercury discharges from users of the sanitary sewer system.

1. Mercury PMP -- Municipal Responsibilities.

Municipal responsibilities for planning and implementing a Mercury PMP are contained in NR 106.145 Wis. Adm. Code, Mercury Regulation, particularly:

NR 106.145(7)(c) – Mercury PMP;

NR 106.145(7)(f) – Mercury PMP Plan; and

NR 106.145(7)(g) – Mercury PMP Annual Report.

Municipalities initially submit a Mercury PMP Plan to the Department of Natural Resources (Department) according to their Wisconsin Pollutant Discharge Elimination System (WPDES) permit schedule. If the Plan is acceptable, annually thereafter they submit to the Department a Mercury PMP Annual Report documenting implementation of their mercury reduction program. In exchange for implementing the Mercury PMP, a temporary alternative mercury effluent limit greater than 1.3 ng/l may be granted to the municipality. At the time of their next WPDES permit renewal, the wastewater plant mercury effluent data is again evaluated to determine whether a continuing effluent limit variance and Mercury PMP are still warranted.

Municipalities have the fundamental responsibility to prevent the "pass through" of pollutants, in this case mercury, to Wisconsin surface waters from users of their sanitary sewer system. This responsibility is contained in NR 211 Wis. Adm. Code, General Pretreatment Requirements, particularly:

NR 211.10(1) and (3) – Prohibited Discharge Standards; and

NR 211.41 – POTW Action to Reduce Mercury Discharges from All Sources.

While the Department may establish a temporary alternative mercury effluent limit greater than 1.3 ng/l in a municipality's WPDES permit, the alternative limit will only be granted if users of the municipal plant are required by the municipality to minimize mercury discharges to the sanitary sewer system. The municipality needs to ultimately achieve a water-quality-based mercury discharge of 1.3 ng/l and not simply maintain their alternative mercury effluent limit.

Sections NR 106.145 and the principal sections of NR 211, Wis. Adm. Code, are included in Appendix B. In summary, these codes call for a municipal program of mercury source identification, education, discharge control, and program effectiveness evaluation. Municipalities are asked to educate users of the sanitary sewer system about mercury reduction practices, but they also have the authority to obtain user mercury reduction by the establishment of user discharge standards and implementation of formal wastewater regulatory tools.

Please note that this Guidance Manual does not prescribe any specific method for mercury source identification, specific educational outreach mechanism, or a specific program for collecting mercury by the municipality, elements of a Mercury Pollutant Minimization Program required under NR 106.145(7)(c). The Department and permittee may agree on these and other program elements appropriate to the needs and circumstances of the individual municipality. This manual is designed to facilitate methods and practices that have been shown to be effective as part of a Mercury PMP program, to measure program activity and effectiveness, and to identify program barriers, but is not a mandate for only one set of activities by any particular municipality.

2. Mercury PMP – User Responsibilities.

Treatment plant users that discharge mercury to municipal plants whose effluent does not meet 1.3 ng/l need to reduce their discharges of mercury to the greatest extent practicable, and as soon as possible, to avoid the user "pass through" prohibition of NR 211.10(1). In fact, all of the larger municipalities in Wisconsin have already adopted stringent sewer use ordinance mercury discharge limits for treatment plant users in order to prevent the pass through of mercury to Wisconsin surface waters. Smaller municipalities may also adopt such ordinance limits if necessary to reduce treatment plant mercury discharges.

Discharging mercury exposes the user to substantial wastewater regulatory costs and procedures. When municipalities implement sewer use ordinance limits, they typically issue discharge permits to treatment plant users, conduct user wastewater compliance monitoring and facility inspections, and perform stepped enforcement procedures to obtain ordinance limit compliance. These are labor-intensive procedures for both the municipality and for the sewer system user. The costs of these regulatory procedures are typically borne by the user since they are the source of the pollutant requiring control.

Mercury Best Management Practices (BMPs):

- *Reduce the use of mercury-containing products by switching to cost-effective non-mercury alternative products;*
- *Capture and recycle those mercury-containing products that continue to be used rather than discarding mercury wastes to the sanitary sewer; and*
- *Reduce the potential for mercury spills that may be discharged to drains.*

Mercury BMPs can be as general as a facility implementing a mercury-free purchasing program and training staff in mercury spill cleanup, or as specific as installing standard wastewater treatment technology for continuing discharges of mercury to the sanitary sewer system.

This is not the preferred mercury control mechanism of this Guidance Manual. Mercury is discharged into municipal wastewater treatment plants from a large number of individually small sources, and these small sources have not traditionally been regulated with the permit, monitoring, and enforcement tools of a formal wastewater control program. As an alternative, this Guidance Manual recommends streamlining these procedures for treatment plant users that simply implement, and confirm to the municipality that they have implemented, the Best Management Practices (BMPs) for mercury common to their type of business or facility. This approach reaches the same end point as a mercury control program relying on traditional regulatory procedures since the formal regulatory program would require these same mercury BMP practices, but via a set of administrative steps much more costly for both the municipality and for the sanitary sewer system user. If an individual user does not implement mercury BMPs, their wastewater discharge can still be controlled by applying sewer use ordinance mercury limits via the traditional regulatory tools noted above.

Additional discussion of the relationship between Mercury Best Management Practices, Numerical Mercury Discharge Limits in Sewer Use Ordinances, Traditional Wastewater Regulatory Procedures, and Consistency with U.S. EPA Mercury PMP Guidance are included in the Addendum at the end of this chapter.

3. Municipal Plant Users that Discharge Mercury.

Recent experience in the United States and Canada, including pilot mercury reduction work in Wisconsin, indicates that about 50% of the mercury influent to municipal wastewater treatment plants is contained in waste amalgam from dental offices; about 30% from mercury equipment breakage and laboratory chemicals from hospitals, schools, and certain industries; and 20% from residential or unknown sources. While every community is somewhat different, this Guidance Manual focuses on mercury reduction by medical facilities, dental offices, schools, and some industries because of their historical or continuing use of mercury-containing products that impact wastewater. Facilities in these sectors need to participate in a Mercury Pollutant Minimization Program in order to minimize mercury discharges to their municipal wastewater treatment plant.

The table below identifies the mercury BMP Goal for each of these sectors as defined by the relevant trade association, standard treatment technology, or by common practice. In order to optimally help achieve the very low municipal water-quality-based limit of 1.3 ng/l, these BMPs call for mercury reduction by either minimizing the use of mercury products or by maximizing the capture of waste mercury products, or both, at least to the extent practicable. Similarly, the BMP Goal Implementation Date is a reasonable time frame for BMP implementation given the status of current mercury reduction practices and the need to minimize mercury discharges to sanitary sewers as soon as possible. Many Wisconsin facilities in these sectors have already implemented mercury BMPs, in part because mercury BMPs have been actively promoted by their trade associations or because the mercury BMPs are already common practice.

Table 4. Municipal Plant Users that Discharge Mercury		
SECTOR	**BMP GOAL**	**DEFINED BY**
Hospitals/Clinics	Mercury-free	American Hospital Association and the U.S. EPA "Making Medicine Mercury Free" award criteria.
Dental Offices (With amalgam)	Maximize capture/recycle of wastewater mercury	American Dental Association, PLUS install and maintain an amalgam separator meeting the ISO 11143 standard (95% + amalgam removal from wastewater).
Schools/Colleges	Mercury-free	Wisconsin Department of Natural Resources and Wisconsin Department of Public Instruction "Green and Healthy Schools" mercury program.
General Industries	Bulk raw materials with low mercury content	Common practice for industries using large quantities of feedstock chemicals that can be contaminated with mercury when the chemicals are produced.
BMP Goal Implementation Date: As soon as practicable, but within two years following submittal of the Mercury PMP Plan.		

4. Other Community Sectors that Use Mercury Products.

The regulatory basis for this Guidance Manual is to attain municipal wastewater treatment plant compliance with Wisconsin water-quality-based effluent limits for mercury. However, a co-benefit of the Mercury PMP is the reduction of mercury releases to the air and solid waste environments from broken or discarded mercury products, even when the Mercury PMP has a wastewater focus. The experience from community mercury reduction pilot programs in Wisconsin is that municipal work with the general public on mercury thermometer recycling, HVAC contractors on mercury thermostat recycling, scrap yards on mercury auto switch recycling, and all sectors on fluorescent bulb recycling commonly occurred in parallel with mercury educational outreach to the medical, dental, school, and industrial sectors noted above.

Mercury reduction by the Other Community Sectors below is optional as part of a Mercury PMP but will be credited to the Mercury PMP if implemented, as allowed by NR 106.145(7)(f)4., Wis. Adm. Code.

Table 5. Other Community Sectors that Use Mercury Products	
SECTOR	**BMP GOAL**
General Public	Reduce use of mercury products, increase recycling
HVAC contractors	Recycle mercury thermostats
Auto scrap yards	Recycle hood/trunk mercury switches
Fluorescent Bulbs	Use and recycle fluorescent bulbs
BMP Goal Implementation Date: No implementation deadline; credit Mercury PMP after accomplishment	

Steps for Implementing a Mercury Pollutant Minimization Program

The recommended steps for implementing a municipal Mercury PMP follow the "Plan," "Do," "Check," "Act" sequence of activities familiar to Environmental Management Systems. These activities are applied to the goal of reducing mercury discharges to a municipal wastewater treatment plant:

"Plan" mercury educational outreach or regulatory activities to reduce mercury discharges by users of the sanitary sewer system;

"Do" educational outreach or regulatory activities to promote mercury BMP implementation by treatment plant users;

"Check" the progress of mercury BMP implementation and the trends in mercury discharge by the municipal wastewater treatment plant;

"Act" on your findings of mercury BMP implementation and treatment plant mercury trends by revising your planned mercury reduction activities for the next year.

Start by reading this Guidance Manual. It includes background information, instructions, forms, a mock plan, and a mock annual report that will help you submit a Mercury PMP Plan and subsequent Mercury PMP Annual Reports to the Department of Natural Resources as required by your WPDES wastewater permit.

Also read those sections of your Sewer Use Ordinance that discuss control of wastewater discharges into your treatment plant. If your plant has a federally and state approved Pretreatment Program under NR 211 Wis. Adm. Code, your ordinance will have a "local limit" for mercury and established procedures for regulating users of your sanitary sewer system. If your plant does not have a formal Pretreatment Program, your ordinance may contain a mercury discharge limit but will contain general language on controlling the discharge of pollutants to your system in instances where your plant is not meeting an effluent discharge standard, in this case, for mercury.

Wisconsin's Pilot Community Mercury Reduction Program

Between 1997 and 2003 the Wisconsin Department of Natural Resources partnered with twenty Wisconsin communities to pilot Municipal Mercury Pollutant Minimization Programs. These programs successfully collected and recycled over 13,000 pounds of mercury. Further, most mercury-containing products were replaced with non-mercury alternative products so that the reduction was permanent.

Step 1. Prepare Your Mercury PMP Plan

(Start six months before the Plan due date)

Identify and list specific medical, dental, school, and industrial facilities that will need to implement, or report to you that they have already implemented, mercury reduction practices to limit their discharge of mercury to your sanitary sewer system.

Identify your staff and other partners who will implement your Mercury PMP. If yours is a large community, consider establishing a Mercury Team. The most important partners are representatives from the Sectors identified in Table 4, and educational outreach specialists from your department, community, or from the University of Wisconsin Extension.

Review the mercury outreach that you have already conducted with your medical, dental, school, and industrial facilities. Plan for the additional outreach activities that you will conduct over the next year, including timelines, to encourage and assess implementation of mercury Best Management Practices by your treatment plant users. The mailings, workshops, onsite visits, or other activities that you use will depend on the size of your community. See Appendix A for outreach examples that have been used successfully in Wisconsin.

Use the above information and the instructions in Chapter Three of this Guidance Manual to complete the Mercury PMP Plan forms that follow the instructions. Look at the mock PMP Plans in the appendices of this manual. ***The completed forms are your Mercury PMP Plan to be submitted to the Wisconsin Department of Natural Resources.***

Step 2. Implement Your Mercury PMP Plan

(In the first year following Plan submittal to WDNR)

Conduct mercury reduction educational outreach to the medical, dental, school, and industrial facilities identified in your Mercury PMP Plan. Ask these facilities to report the status of their mercury BMP implementation, or demonstrate with analytical means that they are not discharging mercury to the municipal sewerage system. Forms 4B, 5B, 6B, and 7B in Chapter Three contain the specific sector mercury BMPs for reporting by these facilities.

Conduct mercury reduction outreach to the general public, HVAC contractors, auto scrap yards and fluorescent bulb users at your option.

Step 3. Evaluate Your Mercury PMP Progress

(Before the end of the first year following Plan submittal to WDNR)

Compile and measure medical, dental, school, and industry progress towards implementation of mercury Best Management Practices using the facility checklists suggested in Chapter Three. Also compile municipal treatment plant influent, effluent, and biosolids mercury data.

The Community Mercury Score (Form 10 in Chapter Three) is a way to measure the progress of the municipal Mercury PMP. While only a guide, this Form was designed so municipalities can

score up to 100 points after three years of a well-implemented program and should be an aid to both the municipality and the Department of Natural Resources in measuring program progress.

If the Community Mercury Score is high, most or all of the significant mercury wastewater sources in your community will have implemented mercury Best Management Practices. It may take some time beyond even three years for mercury levels in the municipal treatment plant effluent to stabilize at or below 1.3 ng/l. Once the treatment plant effluent achieves 1.3 ng/l the municipality should implement enough oversight of their medical, dental, school, and industrial community to maintain that effluent quality.

If the Community Mercury Score is low, it means that too few of the medical facilities, dental offices, schools, and industrial sources have implemented Mercury Best Management Practices, or have otherwise not demonstrated compliance with the ordinance limit for mercury. It will be necessary for the municipality in the subsequent year to accelerate educational outreach activities or to issue user discharge permits, require wastewater sampling, conduct inspections, and implement sewer use ordinance enforcement procedures to support user attainment of mercury BMPs.

Mercury PMP Measurement

The adequacy of a Mercury Pollutant Minimization Program can only be evaluated by measuring both municipal implementation of mercury outreach and regulatory activities, and user implementation of mercury Best Management Practices. These measures are particularly necessary when the mercury discharge from the municipal plant does not meet 1.3 ng/l and the source of the mercury is the users of the sanitary sewer system. The forms recommended in Chapter Three capture municipal and user mercury program performance in a concise format that satisfies reporting obligations of both NR 106.145 and NR 211 Wis. Adm. Code.

Step 4. Prepare Your Mercury PMP Annual Report

(Start one month before the Annual Report due date)

Plan for additional educational outreach activities, or formal regulatory activities, to achieve user mercury BMP implementation not already reported if treatment plant effluent continues to exceed 1.3 ng/l. These activities will be implemented in the second year of your Mercury PMP.

Use the instructions in Chapter Three of this Guidance Manual to complete the Mercury PMP Annual Report forms that follow the instructions. Look at the mock PMP Annual Reports in the Appendices. These forms effectively amend your original Mercury PMP Plan with activities to be implemented in the next year. ***The completed forms are your Mercury PMP Annual Report to be submitted to the Wisconsin Department of Natural Resources.***

Step 5. Continue to Implement Your Mercury PMP Plan

(In the second and subsequent years of program implementation)

Repeat Steps 2, 3, and 4 above according to the activities included in your previous year's Mercury PMP Annual Report.

Municipal Collaboration on Mercury PMPs

As encouraged by NR 106.145(7)(h) Wis. Adm. Code, several municipalities may collaboratively plan and implement their Mercury PMPs in order to more efficiently conduct educational outreach and mercury product recycling. This will be particularly useful in a regional or watershed approach to mercury reduction. Each of their Mercury PMP Plans and Mercury PMP Annual Reports would include descriptions of simultaneous municipal activities. But each municipality would report only the mercury BMP implementation status of individual medical, dental, school, and industrial facilities discharging to their particular wastewater treatment plant. See Chapter Three for more information.

Note on Collection System Mercury Monitoring. The focus of the Mercury PMP Plan recommended in this Guidance Manual is on reducing mercury discharges from community sectors known to use mercury-containing products that impact wastewaters. If treatment plant effluent continues to exceed 1.3 ng/l even with consistent mercury BMP implementation by medical, dental, school, and industrial facilities, it will necessary for the municipality to conduct a collection system monitoring program for mercury to determine whether there are other significant upstream mercury sources. Some municipalities may elect to do this collection system monitoring program at the same time as their mercury source reduction program and nothing in this Guidance Manual is intended to discourage the municipality from doing so. However the intention of this Manual is to focus limited municipal resources on known mercury reduction opportunities first, with the estimation that treatment plant effluent of 1.3 ng/l will not be achieved without reduction by known mercury sources and may be achieved with reduction by only those sources. If a municipality has conducted a collection system mercury monitoring program they should submit their findings as a supplement to their Mercury PMP Plan or Mercury PMP Annual Report. We have not included a separate reporting form in this Guidance Manual for a Collection System Mercury Monitoring Program.

Mercury Best Management Practices (Mercury BMPs) as a Mercury Control Mechanism

Mercury Best Management Practices and Numerical Mercury Discharge Limits in Municipal Sewer Use Ordinances

All Wisconsin municipalities with treatment plant design flows greater than 5 million gallons per day (MGD) have numerical limits on user mercury discharges in their sewer use ordinances. These limits were developed through their formal Pretreatment Programs to prevent the pass through of mercury to Wisconsin surface waters and to protect plant biosolids quality. Municipalities with design flows between 1 and 5 MGD, who are also subject to Mercury PMP

requirements, generally do not have such numerical limits for mercury in their sewer use ordinances, with some exceptions.

For municipalities with numerical mercury ordinance limits, this Guidance Manual recommends that user facilities implementing mercury BMPs be deemed compliant with the numerical limit for mercury without the necessity of wastewater sampling and analysis. These users will have already implemented the best mercury management practices for their type of facility or business. Users of the sanitary sewer system should be capable of achieving compliance with numerical ordinance limits for mercury if they faithfully implement mercury BMPs. Oppositely, facilities not implementing mercury BMPs would need to demonstrate compliance with the numerical ordinance limit by analytical means.

Municipalities with numerical mercury limits should review their sewer use ordinance to determine whether they need to modify its language to expressly allow using mercury BMPs as a demonstration of compliance with the numerical limits, but such an ordinance modification is not routinely expected by this Guidance Manual as a matter of municipal wastewater sampling discretion. But if the municipality wishes to use mercury BMPs as a replacement or substitute for numerical mercury limits, rather than as a demonstration of compliance with those limits, then the sewer use ordinance would likely need to be modified to make clear that replacement.

Similarly, this Guidance Manual does not routinely require at the time of Mercury PMP Plan submittal that the municipality re-evaluate the adequacy of their existing numerical mercury ordinance limit. The adequacy of the limit to control user mercury discharges and prevent pass through was factored into the development of the existing limit. However, municipalities may elect to review their numerical mercury ordinance limit, or may be asked by the Department or USEPA to do so, as part of their periodic Pretreatment Program updating procedures that look at all metals discharge local limits. It would be appropriate to re-evaluate the adequacy of the existing numerical mercury ordinance limit after the municipality has achieved influent mercury reductions from known mercury sources through user BMP implementation of the municipal Mercury PMP program.

For those municipalities without numerical mercury ordinance limits, this Guidance Manual does not routinely require the adoption of a specific limit for mercury discharges to the sanitary sewer system. The ordinances for these mid-sized communities do contain general language that prohibits discharges to their systems that contribute to treatment plant exceedances of effluent limits, in this case for mercury. This Guidance Manual recommends that these municipalities obtain user implementation of mercury BMPs by relying on the existing pass through prohibitions of their ordinances. If users do not do so, the municipality may need to develop and enforce numerical mercury discharge limits or narrative mercury BMP requirements in their sewer use ordinance via NR 211.10(3) Wis. Adm. Code.

If a large municipal treatment plant intends to modify their sewer use ordinance to explicitly incorporate mercury Best Management Practices, or if a mid-sized community intends to modify their sewer use ordinance to adopt a numerical or narrative local limit for mercury, they should include a schedule for doing so in their Mercury PMP Plan or subsequent Mercury PMP Annual Report.

Mercury Best Management Practices
and Traditional Wastewater Regulatory Procedures

1. User Discharge Permits. Few, if any, Wisconsin municipalities have issued discharge permits to sewerage system users in the Wastewater Sectors identified in this manual. This Guidance Manual DOES NOT recommend the issuance of discharge permits to facilities confirming their implementation of mercury BMPs, except (a) where the sewer use ordinance clearly requires the issuance of a permit to all classes of regulated facilities, or (b) where the issuance of a permit is necessary to recover municipal costs of the Mercury PMP. In either case a general discharge permit may be satisfactory. User facilities not confirming implementation of mercury BMPs may need to be issued discharge permits if necessary to support enforcement of the ordinance limit for mercury or the general prohibition on discharging pollutants to publicly owned treatment works that contribute to the municipal treatment plant not meeting final effluent limits.

2. User Inspections. This Guidance Manual DOES ask for inspections of facilities implementing mercury BMPs with a frequency that is (a) infrequent for facilities whose BMPs call for the virtual elimination of mercury products, and (b) annually for facilities whose BMPs call for continuing management of mercury wastes. For the latter, the inspection would review mercury waste management practices, maintenance of wastewater treatment equipment, and office recycling records. For large municipalities an annual program of partial user inspections and partial user self-certification of BMPs may be appropriate. In general the intensity of inspection oversight by the municipality should depend on how close the municipal treatment plant is to meeting 1.3ng/l for mercury in their effluent. Not meeting, or barely meeting, 1.3ng/l would imply a greater inspection frequency; comfortably meeting 1.3 ng/l a lesser frequency. A proposed inspection program should accompany the Mercury PMP Plan and can be included on the Chapter Three forms.

3. User Wastewater Sampling and Analysis. Sampling and analysis for low level mercury discharges by individual facilities can be difficult and expensive. This Guidance Manual DOES NOT recommend wastewater sampling and analysis at facilities confirming their implementation of mercury BMPs, except when inspections or other information suggests that mercury BMPs are not in fact being implemented. However, nothing in this Guidance Manual is intended to prevent the municipality from also determining compliance with numerical ordinance mercury limits by analytical means if they elect to do so. User facilities not confirming implementation of mercury BMPs should be asked to demonstrate compliance with the numerical ordinance limit for mercury by analytical means, including a program of self-monitoring by the user and compliance monitoring by the municipality.

4. Enforcement Procedures. This Guidance Manual DOES recommend that facilities satisfactorily implementing mercury BMPs be treated as compliant with the municipal sewer use ordinance. Facilities not confirming implementation of mercury BMPs should be determined to be compliant or noncompliant with a sewer use ordinance numerical mercury limit by analytical means, or with an ordinance narrative BMP requirement by inspection . Noncompliant facilities are subject to municipal ordinance enforcement procedures and remedies, including any

appropriate compliance schedules and monetary penalties. Compliance schedules should seek the earliest possible implementation of mercury BMPs. Monetary penalties should seek, at a minimum, cost recovery for municipal monitoring and enforcement and any savings from the delay of user BMP implementation.

Mercury Best Management Practices
and Consistency With U.S. EPA Mercury PMP Guidance

This Wisconsin Guidance Manual is believed to be consistent with the "Mercury Pollutant Minimization Program Guidance" issued by the U.S. Environmental Protection Agency – V in November 2004 and posted on the U.S.EPA website at:

http://www.epa.gov/region5/water/npdestek/npdprta.htm.

A copy of the EPA Guidance is included in Appendix B. The use of Best Management Practices as the mercury control mechanism for dischargers to sanitary sewer systems is discussed in Section 6 of U.S. EPA's Guidance.

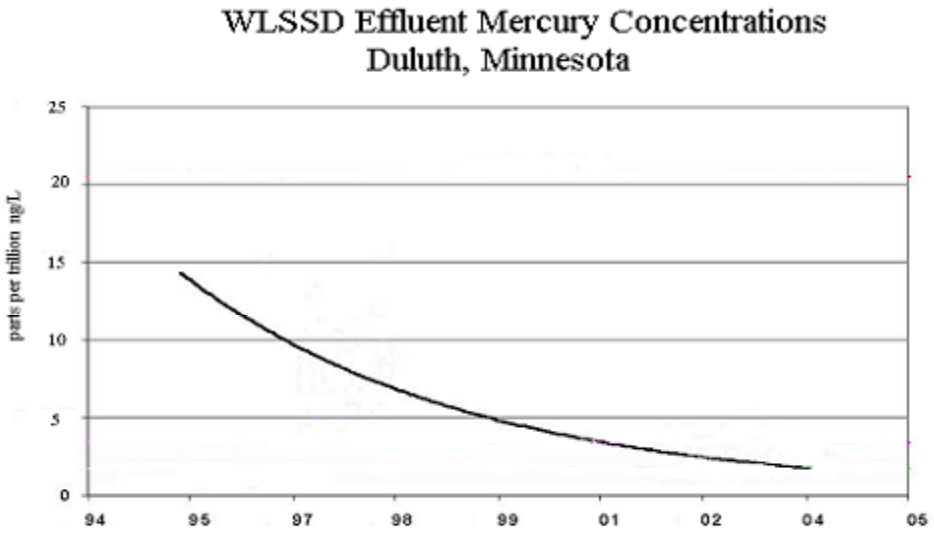


Figure 8. WLSSD effluent mercury concentrations through ten years of community mercury reduction

Chapter Three: Forms and Checklists

The following forms provide a structured format for a municipality to compile and report information on their Mercury Pollutant Minimization Program (Mercury PMP). As required by NR 106.145(7), Wis. Adm. Code, this information includes: mercury source identification, educational outreach activities, program effectiveness evaluation, and proposed program revisions. An initial Mercury PMP Plan and subsequent Mercury PMP Annual Reports can be prepared using the forms as scheduled in Table 6. Instructions for completing the forms are provided below. To assist in their preparation, a mock Plan and mock Annual Report for a small city (Smalltown WI) and a large city (Metrocity WI) are included in Appendices C through F at the end of this Guidance Manual.

Among the forms is a set of one-page checklists that can be completed by individual users of the sanitary sewer system: one for medical facilities, one for dental offices, one for schools, and one for industry. These forms list sector-specific mercury Best Management Practices (BMPs), or space for reporting wastewater mercury data if preferred. These forms will confirm to the municipality that mercury releases are being controlled or eliminated, and therefore that additional regulation of that user's wastewater discharge is unnecessary. A summary of user BMP implementation is submitted to the Wisconsin Department of Natural Resources as a Mercury PMP Annual Report effectiveness measure, but the municipality retains the individual user checklist forms. These user reports can be requested under the authority of the municipality's sewer use ordinance, as necessary.

The intention of all these forms is to streamline the reporting of community mercury reduction into a standard format that will provide useful information to the Department of Natural Resources, to the municipality, and to users of the sanitary sewer system. All of the following Mercury PMP submittals and evaluations are aided by the use of these forms:

- Preparation and review of the Mercury PMP Plan;
- Preparation and review of Mercury PMP Annual Reports;
- Measurement of individual user facility mercury reduction progress;
- Measurement of community mercury reduction progress; and,
- Mercury program consistency around Wisconsin.

However, these forms are guidance. If a municipality or municipal treatment plant user has equivalent information in a different clear and organized format, that alternative reporting format can be submitted. The Department of Natural Resources also recognizes that each municipality's mercury reduction program will be somewhat different, in particular because of differences in municipal population and treatment plant user complexity. It is always possible to discuss an alternative Mercury PMP Plan with the Department of Natural Resources prior to submission of the Plan. But the Plan must ensure measurable treatment plant progress towards meeting the mercury effluent goal of 1.3 ng/l in the shortest reasonable timeframe.

Table 6. Summary of Forms needed for Plan vs. Annual Report		
Mercury Pollutant Minimization Program Forms	**Initial Plan**	**Annual Report**
Form 1: Mercury PMP Report Cover Sheet	X	X
Form 2: Mercury PMP Summary Of Resources	X	X
Form 3: Mercury PMP Summary Of Treatment Plant Analytical Mercury Data	X	X
Form 4A: Medical Facility Inventory	X	X
Form 4B: Medical Facility Mercury Checklist		
Form 4C: Medical Facility Compliance And Outreach Summary	X	X
Form 5A: Dental Facility Inventory	X	X
Form 5B: Dental Facility Mercury Checklist		
Form 5C: Dental Facility Compliance And Outreach Summary	X	X
Form 6A: School And Educational Facility Inventory	X	X
Form 6B: School Mercury Checklist		
Form 6C: School And Educational Facility Compliance And Outreach Summary	X	X
Form 7A: Industry Inventory	X	X
Form 7B: Industry Mercury Checklist		
Form 7C: Industry Compliance And Outreach Summary	X	X
Form 8A: General Public Mercury Checklist And Outreach Summary		X
Form 8B: HVAC (Thermostat) Mercury Checklist And Outreach Summary		X
Form 8C: Auto Switch Mercury Checklist And Outreach Summary		X
Form 8D: Fluorescent Bulb Mercury Checklist And Outreach Summary		X
Form 9A: Historical Mercury PMP Score	X	X
Form 9B: Extra-Jurisdictional Mercury PMP Score	X	X
Form 10: Community Mercury PMP Score		X

Directions for Completing Forms

Form 1. Mercury PMP Report Cover Sheet

Form 1 provides basic municipal treatment plant identifying information. If this is the first time you are submitting these forms, check "Initial Plan." In subsequent years check "Annual Report" and also supply the date you submitted your original Initial Plan.

For the initial Mercury PMP Plan leave the "Mercury Effluent Limit (ng/l)" entry blank, as the limit will be determined by the Department of Natural Resources from the mercury data included in the Initial Plan. This form also identifies the person to contact regarding information contained in this report. When a report is submitted, an authorized official of the municipality must sign this form.

Form 2. Mercury PMP Summary of Resources

Form 2 provides an estimate of personnel time and costs associated with implementation of the Mercury Pollutant Minimization Program. For the Initial Plan list time and costs that went into preparation of the Mercury PMP Plan; for subsequent Annual Reports list time and costs incurred in the past year. In both reports you can describe changes in program resources that you anticipate in the coming year, but do not include future time or costs in the current Annual Report; they will be included in next year's Annual Report.

In both reports you can also describe other departments, agencies, organizations, or municipalities with whom you collaborated on your Mercury PMP Plan development or subsequent Plan implementation.

NR106.145(7)(c)3. requires "a program for collecting mercury from the permittee's sewer system users" either by the municipal permittee or by others. List the mercury recycling options that are available in your community.

Form 3. Mercury PMP Summary of Treatment Plant Analytical Mercury Data

Form 3 is a summary of the municipal treatment plant's influent, effluent, and biosolids mercury data. For the initial Mercury PMP Plan include all mercury data from the date the municipality initiated low-level mercury sampling and analysis, even if there are more than twelve months of data. All of the low-level effluent data will be used by the Department of Natural Resources to determine the need for, and to calculate, the alternative mercury effluent limit (AMEL) for the treatment plant. For the Mercury PMP Annual Report include the twelve months of data from the preceding year. Influent and effluent data should be reported in ng/l; biosolids data should be reported in mg/kg.

We encourage you to compare the most recent year's mercury data with the influent, effluent, and biosolids averages from preceding years in order to determine mercury trends. At the bottom of the form please report the numerical or narrative mercury limit in your sewer use ordinance that applies to users of the sanitary sewer system, if you have such a limit.

Forms 4 – 7. Wastewater Sectors: Medical, Dental, Schools, and Industry

Each of these four sectors has three forms: A, B, and C that are important to reporting and evaluating community mercury reduction progress that will impact wastewaters. The A and C Forms are needed to complete the Mercury PMP Plan and all three A, B, and C Forms are needed to complete the Mercury PMP Annual Report, as described below.

Forms 4A, 5A, 6A, and 7A (the A Forms). Sector Inventory Forms

The A Forms are a list of all individual facilities in each wastewater sector that may be a potential source of mercury to the municipal treatment plant. An inventory for each sector needs to be included in the initial Mercury PMP Plan, and a complete and updated inventory for each sector included with each Mercury PMP Annual Report. A "facility" is one entity in a sector, e.g., a hospital is a facility in the medical sector. For very large municipalities it may be necessary to attach additional sheets if the requested information will not fit on one form. Include only facilities that are tributary to the treatment plant for which the PMP Plan and PMP Annual Report are being prepared.

Medical facilities include all hospitals, clinics, and veterinary facilities **that have laboratories**, (including laboratories contracted or managed independently of the medical facility).

Dental facilities include all dental offices **that install or remove amalgam fillings**.

School facilities include all public and private schools **with science laboratories**, including middle schools, high schools, technical schools, colleges and universities but not elementary schools.

Industrial facilities include all industrial plants **with the potential for mercury in their wastewater**.

Notice that we have restricted the listing of facilities in each sector to those most likely to discharge mercury to the sanitary sewer system. **Industrial facilities** may also be restricted to plants which meet any one of these three criteria: (a) the municipality or industry has plant mercury effluent data and the data occasionally or regularly exceeds the sewer use ordinance numerical limit for mercury, (b) the plant discharges more than 25,000 gallons per day or more than 5% of the municipal treatment plant flow **and** the plant uses large quantities of feedstock chemicals in their manufacturing process, or (c) the municipal wastewater treatment plant itself. Industrial wastewaters may be either piped or hauled to the municipal treatment plant. It is anticipated that few industrial facilities will need to be included in the Mercury PMP inventory.

Forms 4B, 5B, 6B, and 7B (the B Forms). Facility Mercury BMP Checklists

In the first year following submission of the initial Mercury PMP Plan, mail or deliver the appropriate Facility Mercury Checklist (B Form) to each facility identified on the sector inventory A Form. The B Form should be accompanied by a cover letter stating what they are for and why it is important for each facility to complete the best management practices checklist and return it to the municipality in a timely manner. If some facilities do not return the forms, follow-up letters or site visits should be implemented in order to determine that facility's current

mercury management practices. Alternatively, a few facilities may elect to demonstrate that they are not discharging mercury by wastewater sampling and analysis. Most facilities are expected to complete the Best Management Practices and not perform effluent analysis.

A summary of the checklist responses, but not the B Forms themselves, will be included on the Compliance and Outreach Summary (C Form) as part of each year's Mercury PMP Annual Report. The completed and signed B Forms should be retained by the municipality at least until the municipal treatment plant achieves and maintains final effluent mercury at or below 1.3 ng/l.

Forms 4C, 5C, 6C, and 7C (the C Forms). Sector Compliance and Outreach Summary Forms

Only the "Outreach Accomplished" and "Outreach Planned" sections of the C Forms are submitted with the initial Mercury PMP Plan. The "Outreach Accomplished," "Outreach Planned," and the three Compliance Columns of the C Forms are submitted with the Mercury PMP Annual Report. A separate C Form is needed for each wastewater sector, paired with the separate inventory A Form for each sector. As with the A Forms, more than one sheet of the C Forms may be necessary to list all individual facilities in a wastewater sector that are tributary to a large municipality.

Outreach Summary. There are two kinds of mercury reduction outreach summarized on the C Forms: general outreach on the top of each form (general mailings, multiple-facility workshops, etc.) and individual facility outreach in the middle of each form (name of facility, individual facility site visits, mercury best management practices inspections, wastewater outfall sampling, etc.).

In the initial Mercury PMP Plan list the date and type of historical "Outreach Accomplished," and next year's "Outreach Planned," for each wastewater sector. Use the general and individual facility parts of the C Form as appropriate. The list of individual facilities on the C Form for a wastewater sector should match the inventory list of individual facilities on the A Form for that same sector. Use the C Forms in the same manner for the Mercury PMP Annual Report with "Outreach Accomplished" including just activities performed during the past year and "Outreach Planned" in the coming year. Remember that you should list outreach accomplished or planned at the listed facilities whether performed by you or by some other partner with whom you have collaborated.

Early in the Mercury PMP Program, much of the mercury educational outreach may be general and aimed at whole wastewater sectors. Over time, individual facility outreach should more closely target facilities that have not yet reported implementation of mercury best management practices (BMPs). However, as noted under **User Inspections in Chapter Two** of this Guidance Manual, there does need to be at least some level of confirmation oversight by the municipality even at facilities reporting BMP implementation. General mercury educational outreach, BMP non-implementing outreach, and BMP continuing oversight should all be planned and reported on the C Forms.

Compliance Summary. As part of your Outreach Summary above, you will have already listed each facility from the wastewater sector inventory Form A in the middle left column of the C

Form. In your Mercury PMP Annual Report (these columns are left blank in the Mercury PMP Plan) use the information from the individual returned B Forms to complete the three compliance columns in the middle of the C Form. Indicate with a simple check whether a facility:

- First column - has implemented **all** wastewater best management practices; or

- Second column - has reported a schedule to implement **all** wastewater best management practices (or has implemented some practices and scheduled all the other practices); or

- Third column - has submitted wastewater data demonstrating compliance with the sewer use ordinance discharge limit for mercury.

- Check only one box per facility. In reviewing the B Forms note that the "wastewater" best management practices on the B Forms are only those practices that are not starred or are not listed as optional. Some discretion may be necessary in interpreting whether a particular user facility has implemented all the mercury reduction practices that could impact their wastewater discharges.

- Facilities that have not returned a B Form, or equivalent mercury management practices information, should have **no** column checked.

- Facilities with **any** wastewater mercury management practices that are neither accomplished nor scheduled, and have no compliance data, should have **no** column checked.

- Facilities with schedules for **any** wastewater mercury management practices that extend beyond two years from the date of municipal Mercury PMP Plan submittal, and have no compliance data, should have **no** column checked.

Those facilities not reporting implementation of all wastewater mercury best management practices, nor with mercury compliance data, should receive mercury reduction outreach in the coming year. The type of outreach should be scheduled in the middle right column of the C Form. It will be necessary to update these facilities' individual B Forms, and consequently their compliance entry on the C Form with the next Mercury PMP Annual Report.

At the bottom of each wastewater sector C Form add up the number of facilities with checks in each compliance column and calculate the percent checks using the number of facilities inventoried in that sector (the A Form) as the base denominator. Add the three column percents and enter the total on the C Form bottom line and on the appropriate line of Form 10 Community Mercury PMP Score. The total percent will be a number between 0 and 100 depending on what fraction of facilities in this sector have implemented mercury best management practices, or are scheduled to implement those practices within a reasonable time period. This is your mercury reduction performance measure for that particular sector of your community.

Forms 8A – 8D. Other Community Sectors: General Public, HVAC, Auto Switch, and Fluorescent Bulbs

Each of these four sectors has one form: 8A, 8B, 8C, and 8D. These forms do **not** need to be submitted with the initial Mercury PMP Plan but they **may** be submitted with a Mercury PMP Annual Report.

Municipalities are not required to target these sectors with mercury reduction activities because spilled or broken mercury products in these sectors generally do not directly impact mercury discharges to the wastewater treatment plant. However, our experience from the pilot community mercury reduction work in Wisconsin is that mercury reduction outreach to these secondary sectors may commonly occur along with outreach to the wastewater Medical, Dental, School, and Industry sectors. If a municipality conducts mercury reduction activities with these sectors, the Department of Natural Resources will give some additional credit to the Mercury PMP program. Again, these activities within the reporting municipality may be performed by the municipality itself or by some other partner with whom the municipality has collaborated.

Each of the 8A-8D Forms should be completed with work accomplished in the last twelve months (since the preceding year's Mercury PMP Annual Report), as described below.

Form 8A. General Public Mercury Checklist and Outreach Summary

In the first table, first column, list specific mercury-containing household products such as thermometers and thermostats. In the second column list any ordinances that have resulted in the discontinued sale or ban of that product. In the last column, indicate the number, weight, or volume of household products that have been recycled as a result of municipal mercury outreach activities over the last 12 months, if known. Do not include fluorescent bulbs on this form – Form 8D is specifically devoted to fluorescent bulb outreach and recycling.

The second table lists possible mercury-related outreach activities targeted to the general public. Indicate the date in the past year that a certain outreach activity took place by entering it in the appropriate column. If a particular outreach activity is not listed, enter it into the "Other" column and briefly describe the activity. The General Public sector evaluation is at the bottom of the form; the number of outreach events relative to the municipality's size determines the score. Count the number of distinct outreach events listed in the second table and multiply that number by the municipality's "facility factor." The facility factor is determined by the wastewater treatment plant's average daily flow, in millions of gallons per day (MGD). A key is included in the right-hand box at the bottom of the form. Enter the product of these two numbers in the indicated space. This is reported on Form 10 in the score area for this General Public Mercury PMP Score (do not enter a number larger than 100).

Form 8B. HVAC (Thermostat) Mercury Checklist and Outreach Summary

In the first table, list the Heating, Ventilation, and Air Conditioning (HVAC) wholesalers/contractors and retail stores that collect and recycle mercury thermostats. This list should only include HVAC wholesalers and contractors, not general construction contractors within the service area. Below the first table, provide the number of HVAC wholesalers/contractors in the service area as a whole (do not include retail stores), including

those that do not collect and recycle mercury thermostats. This number will be used to determine the HVAC Mercury PMP score.

The second table lists possible mercury-related outreach activities aimed at the HVAC industry. List the date in the past year that a certain outreach activity took place in the appropriate column. If a particular outreach activity is not listed, enter it in the "Other" column and describe the activity. The HVAC industry sector evaluation is at the bottom of the form. Divide the number of HVAC wholesalers/contractors (not retail stores) listed in the first table by the number you entered below the first table and put it in the given space at the bottom of the form. This HVAC (Thermostat) Mercury PMP Score is reported in From 10 in the score area for this sector.

Form 8C. Auto Switch Mercury Checklist and Outreach Summary

In the first table, list the auto scrap yards and dealerships that remove and recycle mercury hood and trunk switches. At the bottom of the table, list the total number of scrap yards and dealerships in the service area, even those that do not remove and recycle mercury switches. This number will be used to determine the auto mercury switch PMP score.

The second table lists possible mercury-related outreach activities targeted to auto scrap yards or dealerships. Enter the date in the past year that a certain outreach activity took place by listing it in the appropriate column. If a particular outreach activity is not listed, enter it into the "Other" column and describe the activity. The auto scrap yard/dealership sector evaluation is at the bottom of the form. Divide the number of scrap yards and dealerships that collect and recycle mercury switches by the number you entered below the first table and put it in the given space at the bottom of the form. This Auto Switch Mercury PMP Score is reported on Form 10 in the score area for the corresponding sector.

Form 8D. Fluorescent Bulb Mercury Checklist and Outreach Summary

In the first table, list participation by businesses in recycling their burned-out fluorescent bulbs, including both continuous and one-time "CleanSweep" events in the first column. In the second column, list participation by households.

The second table lists possible fluorescent bulb recycling outreach. Enter the date that an outreach activity took place in the past year by listing it in the appropriate column. If a particular outreach activity is not listed, enter it in the "Other" column and describe the activity. The fluorescent lamp sector evaluation is at the bottom of the form; the number of outreach events relative to the municipality's size determines the score. Count the number of distinct outreach events listed in the second table and multiply that number by the municipality's "facility factor." Facility factor is determined by the wastewater treatment plant's average daily flow, in millions of gallons per day (MGD). A key is included in the right-hand box at the bottom of the form. Enter the product of these two numbers in the indicated space. The Fluorescent Bulb Sector Score is reported on Form 10 in the score area for this sector (do not enter a number larger than 100).

Forms 9A - 9B. Optional Community Mercury Scores: Historical and Extrajurisdictional

Many municipalities have conducted, or continue to conduct, two kinds of mercury reduction work that will not be fully credited to their Mercury Pollutant Minimization Program by using the Wastewater Sector and Other Community Sector reporting forms described above:

- Historical mercury reduction work that preceded the development of their Mercury PMP Plan; and,

- Extra-jurisdictional mercury reduction work that occurred, or continues to occur, outside the boundary of their sewer service area.

These activities can be credited to the Mercury PMP by using Forms 9A and 9B as described below.

Form 9A. Historical Mercury PMP Score

Because this form only documents mercury reduction outreach and accomplishment conducted before the formal Mercury PMP Plan was submitted, it will not change from year to year. However, this form should be submitted with the Mercury PMP Plan as a record of the range of historical mercury reduction work in the community, and with each Mercury PMP Annual Report for credit to the Mercury PMP program. Of course if no mercury reduction work was implemented prior to Mercury PMP Plan submittal, this form should not be attached to either the Plan or the Annual Report.

The form is divided into outreach aimed at wastewater sectors, other community sectors, and at least one other mercury product: "dairy manometer" refers to farms that participated in a WDNR program to replace their milk house mercury manometer with a non-mercury vacuum gauge. For each historical outreach activity and sector accomplishment put a check in the corresponding box. To calculate the Historical Mercury Score, simply count the number of boxes checked and include the number on the bottom of Form 9A and on the appropriate line of Form 10.

Form 9B. Extra-jurisdictional Mercury PMP Score

This form documents a municipality's mercury reduction outreach and accomplishment outside the municipal treatment plant service area. This work may be either historical or ongoing or both. This form should be submitted with the Mercury PMP Plan as a record of historical mercury reduction work outside the service area, and with each Mercury PMP Annual Report for ongoing credit to the Mercury PMP program. For the Mercury PMP Annual Report, include only activities and accomplishments that occurred in the last twelve months (since the preceding year's Mercury PMP Annual Report). Of course if no extra-jurisdictional mercury reduction work has, or is, occurring this form should not be attached to either the Plan or Annual Report. Form 9B is completed with checks and tallied in the same manner as Form 9A above.

Notice that if two municipalities were collaborating on their mercury reduction programs they would both get credit for extra-jurisdictional work in the other community, as long as they actually did educational outreach within the other community's treatment plant service area. If

only one of the municipalities did the outreach in both communities only that one municipality could claim the extra-jurisdictional credit. Again, the Department of Natural Resources encourages collaboration between municipalities on their mercury reduction programs.

Form 10. Community Mercury PMP Score

Form 10 is used as one measure of the progress of the municipal Mercury Pollutant Minimization Program. While only a guide, this Form was designed so municipalities should score 100+ points after three years of a well-implemented program. The scores from the Wastewater Sectors (Forms 4C, 5C, 6C and 7C), the Other Community Sectors (Forms 8A, 8B, 8C and 8D), and the Historical and Extra-jurisdictional Forms 9A and 9B are compiled on Form 10. On one sheet the municipality, the users of the municipal sanitary sewer system, and the Department of Natural Resources can view the performance of different areas of the Mercury PMP program.

Form 10 is not submitted with the Mercury PMP Plan because the mercury reduction activities necessary to complete these forms will not have been implemented at the time the Plan is submitted. Form 10 should be submitted with each Mercury PMP Annual Report as one program performance measure. Of course the Form 3 Summary of Treatment Plant Analytical Mercury Data is another program performance measure, with attainment of 1.3 ng/l in the treatment plant effluent as the most important measure of all.

Wastewater Sectors

Enter the Medical Sector score from Form 4C, the Dental Sector score from Form 5C, the School Sector score from Form 6C, and Industry Sector score from Form 7C. The "Weighting Factor" corresponds to the relative contribution of mercury influent to your municipal treatment plant that is attributable to each sector; the weighting factors must add to 1. Use the Weighting Factors shown in brackets ( ) on Form 10 unless you know that a different percentage mercury is discharged to your plant from these sectors. To get the "Weighted Sector Score," multiply the Sector Score by the Weighting Factor for that sector. Add the Weighted Sector Scores and enter the value (which will be between 0 and 100) in the "Total Wastewater Sectors Score" box.

Other Community Sectors

Although you are not required to enter a score for the Other Community Sectors, you can get credit for your mercury reduction work with these sectors by completing this section of Form 10. Enter the General Public score from Form 8A, the HVAC score from Form 8B, the Auto Switch score from Form 8C, and the Fluorescent Bulb score from Form 8D. The "Weighting Factor" for the Other Community Sectors reflects whether or not a State Pretreatment Program Control Authority wants to credit the municipality for mercury reduction work with the non-wastewater sectors. Wisconsin does want to give this credit, although the total score for the Other Community Sectors cannot be as high as for the Wastewater Sectors. Use the Weighting Factor shown on Form 10. To get the "Weighted Sector Score," multiply the Sector Score by the Weighting Factor for that sector. Add the Weighted Sector Scores and enter the value (which will be between 0 and 40) in the "Total Optional Sectors Score" box.

Other Credits

These credits are also optional. Enter the Historical Score from Form 9A and the Extra-jurisdictional Score from Form 9B. The Weighting Factors and the method of calculating Weighted Scores are the same as for the Other Community Sectors above. Add the Weighted Scores and enter the value (which will be between 0 and 20) in the "Total Other PMP Credits Score" box.

Community Mercury PMP Score

Sum the Total Wastewater Sectors Score, the Total Other Community Sectors Score, and the Total Other PMP Credit Score to get the Community Mercury PMP Score. Notice that you can score 100 points if all of the individual facilities in your Medical, Dental, School, and Industry Wastewater Sectors have implemented their mercury Best Management Practices, even if no work was done with the Other Community Sectors or for Historical or Extra-jurisdictional Credit. Alternatively, you will not reach 100 points by only working with the Other Community Sectors or receiving credit for Historical or Extra-jurisdictional work. Facilities in the Wastewater Sectors release mercury to the sanitary sewer system and must implement mercury BMPs, or demonstrate by analytical means that they do not discharge mercury, if your municipality is to achieve a final effluent of 1.3 ng/l.

Forms are intentionally placed on individual pages with nothing on the back to facilitate photocopying for facilities that chose to do so.

FORM 1: Mercury PMP Report Cover Sheet

WPDES Permit Holder or Sewer Authority Name: _____

Initial Plan: _____ Annual Report _____ and Date Initial Plan Submitted _____

Report Date: _____ Period Covered by This Report: _____

Name of Treatment Plant(s)	WPDES Permit Number	Mercury Effluent Limit (ng/l)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Person to contact concerning information contained in this report:

Name: _____

Title: _____

Mailing Address: _____

City, State, Zip Code: _____

Telephone No. _____

E-mail: _____

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

_____ _____

Date Title of Official

_____ _____

Name of Official Signature of Official

FORM 2: Mercury PMP Summary of Resources

1. Person(s) implementing PMP _____ Title _____

_____ _____

_____ _____

_____ _____

_____ _____

2. Total Person-Hours [1] _____

Total Cost [2] _____

3. Are there any anticipated changes in treatment plant resources that would significantly change program hours or costs during the subsequent year, such as involving or hiring more personnel, purchasing equipment to implement the pollutant minimization program, or conducting compliance monitoring?

_____Yes _____No If yes, explain:

4. Collaboration on mercury reduction activities is encouraged. Did any other municipal departments, county agencies, non-profit organizations, or other municipalities help implement part of your mercury reduction program?

_____Yes _____No If yes, explain:

5. A program for collecting mercury from the permittee's sewer system users is required. List all available options for recycling mercury including household hazardous waste centers, clean sweep events, and collection events hosted by the POTW.

Recycling Option	Frequency of Availability

[1] Include time of all staff involved in administering and implementing the various program areas, e.g. Pretreatment Coordinator, Superintendent of POTW, Clerical Staff, Field Monitoring Personnel, Laboratory Personnel, and others.

[2] Include all administrative, monitoring, laboratory staff, and equipment costs including monitoring/analytical work done by an outside laboratory.

FORM 3: Mercury PMP Summary of Treatment Plant Analytical Mercury Data

Influent		Effluent		Biosolids	
Date	Concentration ng/L	Date	Concentration ng/L	Date	Concentration mg/kg
Average		Average		Average	
Test Method		Test Method		Test Method	
Average from 1 year ago		Average from 1 year ago		Average from 1 year ago	
Average from 2 years ago		Average from 2 years ago		Average from 2 years ago	
Average from 3 years ago		Average from 3 years ago		Average from 3 years ago	
Laboratory doing the wastewater analysis:					
Laboratory doing the biosolids analysis:					

Is there a numerical or narrative mercury limit in your sewer use ordinance? _____

If yes, what is it? _____

_____

FORM 4A: Medical Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone

[1] List should include all hospitals, clinics and veterinary facilities with diagnostic laboratories (including laboratories contracted or managed independently of the medical facility).

FORM 4B: Medical Facility Mercury Checklist

Best Management Practices for Mercury are taken from the AHA/EPA "Making Medicine Mercury-Free" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy				1. Has your facility established a mercury plan and timeline for the reduction and eventual elimination of mercury-containing equipment and chemicals?
				2. Has your facility implemented an Environmentally Preferable Purchasing (EPP) policy for mercury products and a process to regularly review mercury use reduction and elimination progress?
				3. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees?
Mercury Products				4. Has your facility replaced patient mercury thermometers?
				5. Has your facility replaced all or majority (75%) of mercury sphygmomanometers?
				6. Has your facility replaced all or majority (75%) of mercury clinical devices (bougies, miller-abbott tubes, dilators, etc)?
				7. Has your facility inventoried and labeled all mercury-containing facility devices (switches, thermostats, etc.)? **
				8. Has your facility implemented a program to recycle fluorescent lamps? **
				9. Has your facility implemented battery collection programs? **
Lab				10. Has your facility replaced all or majority (75%) of mercury lab thermometers?
				11. Has your facility replaced B5/Zenkers stains with non-mercury substitute?
				12. Has your facility inventoried mercury-containing lab chemicals?

** May not affect wastewater

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BMPs)

Sampling Location _____Mercury Effluent Concentration _____ Date _____

(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

Name of Facility | Address | Size of Facility (Number of beds, employees, or other)

Printed Name of Official | Signature | Title | Phone | Date

FORM 4C: Medical Facility Compliance and Outreach Summary

General Outreach to All Medical Facilities

Outreach Accomplished	Outreach Planned

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach to Individual Medical Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

Notes:

_____ % Implemented All WW BMPs
_____ % Scheduled to Implement All WW BMPs
_____ % In Compliance with Local Wastewater Limits

_____ Total % Compliant (Medical Mercury PMP Score)

Enter on Form 10 under IA: Medical Sector Score

FORM 5A: Dental Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone

[1] List should include all dental facilities that install or remove amalgam fillings. Dental facilities not working with amalgam do not need to be included.

FORM 5B: Dental Facility Mercury Checklist

Best Management Practices are those defined by the ADA and Installation of an Amalgam Separator meeting ISO 11143 Standards.

Compliance with the ADA recommended mercury management practices plus the installation and maintenance of an amalgam separator meeting ISO 11143 standards may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated. If you do not place or remove amalgam fillings, check here, sign and return form. _____

Yes	No	Date	Best Management Practice
			1. Has all bulk mercury been eliminated from your stock at your dental office?
			2. Does your dental office use precapsulated alloys?
			3. Does your dental office recycle disposable amalgam capsules?
			4. Does your dental office capture and recycle non-contact scrap amalgam?
			5. Does your dental office capture and recycle contact amalgam including the contents of chair-side traps?
			6. Does your dental office recycle contact amalgam retained by the vacuum pump filter?
			7. Does your dental office disinfect and recycle extracted teeth with amalgam fillings?
			8. Does your dental office use non-chlorine, non-bleach line cleaners that minimize the dissolution of amalgam?
			9. Does your dental office have and maintain an amalgam separator meeting ISO standards? Manufacturer: _____Model: _____

Name and address of vendor where amalgam is recycled: _____

Wastewater Sampling and Analysis (Not required for facilities scheduling or implementing best management practices as defined above.)

Sampling Location _____ Mercury Effluent Concentration _____ Date _____

(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

_____

Name of Facility Address Size of Facility (Number of chairs, employees, or other)

_____

Printed Name of Official Signature Title Phone Date

FORM 5C: Dental Facility Compliance and Outreach Summary

General Outreach to All Dental Facilities

Outreach Accomplished	Outreach Planned

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Dental Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

_____ % Implemented All BMPs
_____ % Scheduled to Implement All BMPs
_____ % In Compliance with Local Wastewater Limits

_____ Total % Compliant (Dental Mercury PMP Score)

Enter on Form 10 under IB: Dental Sector Score

Notes:

FORM 6A: School and Educational Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone

[1] List should include all middle schools, high schools, technical schools, colleges, and universities.

FORM 6B: School Mercury Checklist

Best Management Practices for Mercury are taken from the WDNR's "Green and Healthy Schools" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy				1. Has your school completed a mercury products inventory for the entire school?
				2. Does your school have an action plan in place to eliminate mercury-containing items that were found as a result of the inventory?
Mercury Products				3. Has all elemental mercury been eliminated from classrooms at your school?
				4. Have all mercury compounds been eliminated from classrooms and storerooms?
				5. Have all mercury lab thermometers been eliminated from the classrooms?
				6. Have all mercury lab barometers been eliminated from the classrooms?
				7. Have all mercury fever thermometers been eliminated from the nurse's office?
				8. Have all mercury blood-pressure cuffs been eliminated from the nurse's office?
				9. Are all mercury-containing items being stored in airtight, unbreakable containers?
				10. Has the danger of a mercury spill been mitigated by having a mercury spill kit and trained staffed to use the kit?
Optional				11. If your school has completed any of these activities, check below: ____ Classroom presentations on mercury ____ Recycling of fluorescent bulbs _____ Phase-out of mercury thermostats _____ Recycling of mercury batteries

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BMPs)

Sampling Location _____ Mercury Effluent Concentration _____ Date _____

(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

_____

Name of Facility Address Size of Facility (Number of students, employees, or other)

_____

Printed Name of Official Signature Title Phone Date

FORM 6C: School and Educational Facility Compliance and Outreach Summary

General Outreach to All School and Educational Facilities

Outreach Accomplished	Outreach Planned

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual School and Educational Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

_____ % Implemented All BMPs
_____ % Scheduled to Implement All BMPs
_____ % In Compliance with Local Wastewater Limits
_____ Total % Compliant (School Mercury PMP Score)

Enter on Form 10 under IC: School Sector Score

Notes:

FORM 7A: Industry Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone

[1] List should include all industries and businesses identified by the POTW as having potential for mercury wastewater contributions (see instructions).

FORM 7B: Industry Mercury Checklist

Best Management Practices for Mercury are Defined as Listed Below

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy				1. Has your facility established a mercury policy statement that includes the reduction or virtual elimination of mercury?
				2. Has your facility developed a plan to phase-out mercury-containing devices?
				3. Has your facility implemented a chemical management program that includes pre-purchase review and approval?
				4. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees about these protocols?
Devices				5. Has your facility inventoried all mercury-containing devices (such as switches, thermostats, etc)? **
				6. Has your facility labeled mercury-containing devices to recycle at the end of life? **
				7. Has your facility implemented a program to recycle fluorescent lamps? **
				8. Does your facility properly recover and recycle elemental mercury and mercury-containing products? **
Chemicals				9. Has your facility requested certificates of analysis for bulk chemicals known to have potential mercury contamination?
				10. Has your facility reduced the use of mercury-containing chemicals as much as feasible?
				11. If applicable, has your facility inventoried mercury-containing lab chemicals, thermometers and other devices with a plan for non-mercury product substitution?

** May not effect wastewater

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BMPs.)

Sampling Location _____ Mercury Effluent Concentration _____ Date _____
(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

_____

Name of Facility Address Phone

_____

Printed Name of Official Signature Title Date

FORM 7C: Industry Compliance and Outreach Summary

General Outreach to All Industrial Facilities

Outreach Accomplished	Outreach Planned

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Industrial Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date. Add additional pages as necessary.

Sector Evaluation

_____ % Implemented All WW BMPs
_____ % Scheduled to Implement All WW BMPs
_____ In Compliance with Local Wastewater Limits

_____ Total % Compliant (Industry Mercury PMP Score)

Enter on Form 10 under ID: Industry Sector Score

Notes:

Form 8A: General Public Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as reducing household use of new mercury-containing products and recycling (rather than discarding) old mercury-containing products.

List participation by households in reducing their use of new mercury containing products (i.e.: retail stores that no longer sell mercury fever thermometers) and participation by households in recycling their old mercury-containing products (i.e.: "CleanSweep" events for mercury thermometers). Include adoption of local ordinances that affect mercury product sale or recycling. *Note: Common household mercury products include fever and other thermometers, thermostats, "silent" light switches, and containers of liquid mercury.* Attach additional sheets as necessary.

Household Mercury Product	Discontinued Sale (Describe)	Recycled Products (Quantity)

Outreach activities to households (and retail stores). List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date						
Date						
Date						
Date						
Date						

Sector Evaluation

The score for the General Public Sector is calculated based on a formula that uses POTW size and the number of outreach events. *The maximum value for the general public sector score is 100.*

# of outreach events x **facility factor** = **General Public Mercury PMP Score**

Enter on Form 10 under IIA: General Public Sector Score

Facility Size (MGD)	Facility Factor
1------4.9	10
5-----49.9	5
50----250	1

FORM 8B: HVAC (Thermostat) Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as collecting and recycling mercury thermostats.

List HVAC wholesalers and contractors that collect and recycle mercury thermostats; include retail stores that offer this service. Attach additional sheets as necessary.

Name	Address	City/State Zip Code	Type of Facility

Estimated total number of HVAC wholesalers and contractors in service area: _____

Outreach activities to HVAC wholesalers and contractors. List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date						
Date						
Date						
Date						
Date						

Sector Evaluation

_____ **HVAC (Thermostat) Mercury PMP Score**
(% HVAC wholesalers and contractors collecting and recycling mercury thermostats in service area).

Enter on Form 10 under IIB: HVAC Sector Score

Notes:

FORM 8C: Auto Switch Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as removing and recycling auto mercury switches.

List auto-scrap yards that remove and recycle mercury hood and trunk switches; include dealerships that perform this same service. Attach additional sheets as necessary.

Name	Address	City/State/Zip Code	Type of Facility

Estimated total number of auto scrap yards and dealerships in service area: _____

Outreach activities to auto scrap yards and dealerships. List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date						
Date						
Date						
Date						
Date						

Sector Evaluation

Notes:

_____ **Auto Switch Mercury PMP Score**
(% auto scrap yards and dealerships removing and recycling mercury hood and trunk switches in service area).

Enter on Form 10 under IIC: Auto Switch Sector Score

Form 8D: Fluorescent Bulb Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as increasing business and household use of energy-efficient low-mercury fluorescent bulbs and recycling (rather than discarding) burned out fluorescent bulbs.

List participation by businesses and households in recycling their burned out fluorescent bulbs, including both continuous and one-time "CleanSweep" events. Include adoption of local ordinances that affect fluorescent bulb recycling. Attach additional pages as necessary.

Business Fluorescent Bulb Recycling (Quantity, %, or other measures)	Household Fluorescent Bulb Recycling (Quantity, %, or other measures)

Outreach activities to businesses, households (and retail stores) promoting fluorescent bulb recycling. List date accomplished. Attach additional pages as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date						
Date						
Date						
Date						
Date						

Sector Evaluation

The score for the Fluorescent Bulb Sector is calculated based on a formula that uses POTW size and the number of outreach events. *The maximum value for the fluorescent bulb sector score is 100.*

# of outreach events x **facility factor** = **Fluorescent Bulb Mercury PMP Score**

Enter on Form 10 under IID: Fluorescent Bulb Sector Score

Facility Size (MGD)	Facility Factor
1------4.9	10
5-----49.9	5
50----250	1

FORM 9A: Historical Mercury PMP Score

This form gives credit to your POTW for mercury reduction projects completed before implementing a Mercury PMP. The information on the form will not change from year to year. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors (dairy manometer outreach refers to farms that have participated in replacing and recycling their milk house mercury manometers). For each outreach activity that your POTW has done in the past, put a check in the corresponding box. To calculate your Historical Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*										
	Dental										
	School										
	Industry										
Other Community Sectors	*General Public*										
	HVAC										
	Auto Switch										
	Fluorescent Bulb										
	Dairy Manometer										
	Other - Define										

Sector Evaluation:

Notes:

_____ **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIA: Historical Score

FORM 9B: Extra-jurisdictional Mercury PMP Score

This form gives credit for mercury projects your POTW has completed outside the treatment plant service area. For the initial plan, include all activities you have implemented. For the annual report, include all activities that have occurred only in the past 12 months. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors. For each outreach activity or sector accomplishment, put a check in the corresponding box. To calculate your Extra-jurisdictional Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	**Mailings/ Surveys**	**Collection Events**	**Workshops/ Community Events**	**Site Visits/ Personal Contacts**	**Other: Describe**	**Replaced Mercury Products**	**Recycled Mercury Products**	**Installed Mercury Treatment**	**Other - Describe**
Wastewater Sectors	*Medical*										
	Dental										
	School										
	Industry										
Other Community Sectors	*General Public*										
	HVAC										
	Auto Switch										
	Fluorescent Bulb										
	Dairy Manometer										
	Other - Define										

Sector Evaluation: *Notes:*

_____ **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

· ***Annual Report: Enter on Form 10 under IIIB: Extra-jurisdictional Score***

FORM 10: Community Mercury PMP Score

Facility Name: _____ Report Date: _____

I. Wastewater Sectors: (**Should** to be included in Mercury PMP Plan)

Sector	Sector Score	x	Weighting Factor*	=	Weighted Sector Score
A: Medical (from Form 4C)	_____	x	_____(0.15)	=	_____
B: Dental (from Form 5C)	_____	x	_____(0.50)	=	_____
C: School (from Form 6C)	_____	x	_____(0.15)	=	_____
D: Industry (from Form 7C)	_____	x	_____(0.20)	=	_____

Total Wastewater Sectors Score [ ]

* Weighting factor is the relative fraction of mercury to POTW that is attributable to each sector. If you know what fraction comes from each sector you can adjust accordingly. The weighting factors must add up to 1. Use default values in parenthesis above if unknown.

II. Other Community Sectors: (**May** be included in Mercury PMP Plan)

Sector	Sector Score	x	Weighting Factor**	=	Weighted Sector Score
A: General Public (from Form 8A)	_____	x	0.1	=	_____
B: HVAC (from Form 8B)	_____	x	0.1	=	_____
C: Auto Switch (from Form 8C)	_____	x	0.1	=	_____
D: Fluorescent Bulb (from Form 8D)	_____	x	0.1	=	_____

Total Other Community Sectors Score [ ]

** Weighting factor is between 0.0 and 0.1. Wisconsin's weighting factor is 0.1.

III. Other Credits: (**May** be included in Mercury PMP Plan)

Other	Score	x	Weighting Factor**	=	Weighted Score
A: Historical (from Form 9A)	_____	x	0.1	=	_____
B: Extra-jurisdictional (from Form 9B)	_____	x	0.1	=	_____

Total Other PMP Credits Score [ ]

** Weighting factor is between 0.0 and 0.1. Wisconsin's weighting factor is 0.1.

IV. Community Mercury PMP Score:

Total Score

Sum of Wastewater Sectors, Other Community Sectors and Other PMP Credits [ ]

Introduction

By providing information from communities with successful mercury-reduction experience, Appendix A is a helpful resource for treatment plants and others interested in eliminating mercury from their community. The case studies included here are organized by the following sectors: medical facilities, dental facilities, schools, industry, and the general community. Other sectors that can be targeted for mercury reduction include HVAC contractors, the auto industry, and dairy farmers who use mercury-containing manometers. Educational programs targeting the sectors promote mercury-reduction activities based on Best Management Practices (BMPs) specific to each sector. These programs focus on alerting the people who work in these sectors to sources of mercury in their homes and workplaces. The programs teach participants how to replace mercury-containing items with mercury-free alternatives and stress the importance of recycling mercury, thereby preventing its release into wastewater and the environment. Appendix A gives examples of mercury outreach programs that have worked well for each sector, and provides other resources to help get mercury-reduction programs off the ground.

When a treatment plant is developing a mercury reduction strategy, it helps to form partnerships with local solid and hazardous waste departments; health officials, environmental or other public interest organizations, academics and outreach specialists, analytical labs that run mercury samples, mercury recyclers, and others. Participation in statewide or regional efforts (e.g. dental or hospital associations) and coordinating with neighboring treatment plant staff will also greatly improve a treatment plant's ability to provide outreach and education within its jurisdiction. It also helps to recognize the achievements of sectors that have completed successful mercury reduction activities, as this will encourage participation by other stakeholders in each sector.

Table 7. Outreach Options That Work Well For Each Sector

SECTOR	**OUTREACH TOOLS FOR MERCURY REDUCTION**							
	Outreach Activities					**Sector Accomplishments**		
Wastewater Sectors	Ads in Paper Displays	Mailed Information	Workshop Presentations	Site Visit/ Personal Contact	Thermometer Exchange	Mercury Audit/ Phase-Out	Mercury Recycling Programs	Mercury Treatment
Medical			✓	✓	✓	✓	✓	
Dental		✓	✓	✓			✓	✓
Schools		✓	✓	✓	✓	✓	✓	
Industry		✓		✓		✓	✓	✓
Other Sectors								
General Public	✓	✓	✓	✓	✓	✓	✓	
HVAC	✓	✓		✓			✓	
Auto Switch	✓	✓		✓			✓	
Fluorescent Bulbs	✓	✓	✓	✓			✓	
Dairy Manometers		✓	✓	✓			✓	

Medical Facilities

To reduce mercury, hospitals should implement Best Management Practices (BMPs) outlined in the agreement made between the American Hospital Association and the U.S. Environmental Protection Agency (USEPA) – see the following website for the Memorandum of Understanding: http://www.h2e-online.org/about/mou.htm. The BMPs include a mercury inventory and phase-out of mercury-containing products complemented by a mercury-free purchasing policy.

Most of the mercury in medical facilities is found in sphygmomanometers, thermometers, and bougie tubes (Table 8). It is also found in some chemicals such as Zenker's solution and in pharmaceuticals containing thimerosal.

Table 8. Common Mercury-Containing Items In Hospitals And Their Mercury-Free Alternatives

HOSPITAL ITEMS THAT CONTAIN MERCURY	MERCURY-FREE ALTERNATIVES
Sphygmomanometers	Aneroid and digital sphygmomanometers
Thermometers	Digital electronic and galistan thermometers
Cantor tubes	Tungsten-filled tubes
Miller Abbot tubes	Water-filled tubes
Bougie tubes	Silicone, tungsten, or jelly-filled tubes
Histological fixatives (B5/Zenker's)	Zinc chloride and zinc formalin
Laboratory chemicals	Substitute with mercury-free chemicals that serve a similar purpose or go with a supplier that tests for low-level mercury content in chemicals

***See "Mercury Websites for Medical Facilities" below for comprehensive guidance on mercury sources and mercury reduction for hospitals and clinics.

Outreach Tools

- Medical community workshops and conferences
- Collaboration with hospital administration/doctors/nurses to audit hospital for mercury or teach mercury awareness
- Thermometer exchanges
- Mercury recycling programs
- Educational posters in hospital hallways and waiting rooms
- Educational flyers distributed in pay and billing envelopes

Figure 9 Mercury-containing sphygmomanometer

Medical Community Workshops

From 1998 to 2001, the communities of Superior/Ashland, Milwaukee/Racine/Kenosha, Green Bay/Appleton, and Stevens Point/Wausau/Marshfield each gave workshops to help their medical communities become mercury-free. Superior's workshops were titled "Creating a Safe Healthcare Community" and "Becoming a Mercury-Free Medical Community." Sessions educated members of the medical community on these mercury regulations, which healthcare-related products contain these toxins, and actions the medical community can take to prevent the release of these toxins to the environment. The Mayo Clinic of Rochester MN and St. Mary's Hospital of Duluth MN presented case studies of mercury reduction efforts. The workshops were aimed at all healthcare providers (hospitals, nursing homes, dental offices, veterinarians) within 90 minutes of Superior. Regional experts were invited to provide their experiences and knowledge about these issues. For more information on the workshops, go to the following website: http://www.ci.superior.wi.us/publicwks/wastewater/Workshops.htm

Topics to be included in a medical workshop:

- Regulations pertaining to medical facilities (air, waste, water)
  - Federal regulations
  - State regulations
  - Local regulations
- Mercury in Wastewater
  - Great Lakes Water Quality Initiative
  - Water-quality-based effluent limits
  - Local sewer use ordinance limits
- Mercury Safety
  - Environmental effects of mercury
  - Health effects of mercury
  - Chemistry of mercury and methylmercury
  - Impacts/Cleanup of a mercury spill
- Mercury Reduction Programs
  - Pollution Minimization Programs
  - Case studies by local medical facilities

RECYCLING CONNECTIONS CORPORATION
Innovative Solutions for a Better Environment

Recycling Connections Corporation in Central Wisconsin received funding from the EPA to inform area hospitals, clinics, nursing homes, blood banks, and assisted living centers about mercury issues and free recycling through the Central Wisconsin Mercury Reduction Program. This information was disseminated through direct mailings, e-mails, and phone contacts. In addition, a Medical and Dental Mercury Workshop was held on March 2003 in Stevens Point, Wisconsin. The workshop received support and sponsorship from the area's major hospitals and clinics; 55 people attended. Many medical facilities had initiated mercury reduction programs even before the workshop.

Thermometer Exchanges

Figure 10 Mercury-containing fever thermometer

Hospitals can become important hubs for mercury pollution prevention efforts. The purpose of a thermometer exchange is to reduce the risk of mercury contamination in homes and at work and to educate the public about the hazards of mercury. Dental offices, schools, industries, and others interested in conducting a thermometer exchange can also use the information provided here.

Setting Up a Thermometer Exchange:

Promoting the event

This is an opportunity to work with local media and community partners to raise awareness about mercury and the thermometer exchange. Consider the following promotion methods:

- Newspaper, including neighborhood papers
- Radio spots
- Community newsletters and e-mail lists
- Fliers to employees and patients
- Community websites
- Posters on site
- Inserts in employee pay envelopes
- Use your imagination and get the word out

Advertisement for a thermometer exchange should have much more information than just the "when" and the "where" of the event. Any advertisement should request that all thermometers to be placed in two sealed plastic bags to minimize the risk of a thermometer breaking or of mercury being spilled. Request that other mercury-containing items not be brought to the exchange; provide a phone number for a separate drop-off of these products.

Determine number and type of non-mercury replacement thermometers

If too many replacement thermometers are ordered, there will be an excess supply. Conversely, not having enough thermometers means that participants will be unwilling to give away their mercury-containing thermometers for free. The number of mercury-free thermometers to provide is often simplified by the program's budget. The organization sponsoring the exchange often pays for the thermometers from its budget. Some organizations ask for a donation to help defray the cost of the thermometers.

Managing collected mercury thermometers

Make plans for managing the thermometers well before the mercury exchange. Arrange for bulk pick-ups of thermometers for recycling before the event. Although having a spill at a thermometer exchange is rare, make sure there is a mercury spill-kit available on site.

What to expect
There is potential to see all types of products at the collection events. Every type of thermometer will be brought in, including different types of fever thermometers, outdoor alcohol and bimetal thermometers, small bottles of mercury and potentially other mercury-containing items. A six-foot tall mercury-containing school barometer was brought into one thermometer exchange. Be prepared to accept a few mercury-containing products other than just thermometers. Arrange for mercury product removal and recycling immediately following the exchange event.

Measures of Success
Be sure to keep track of the number of mercury-containing thermometers that are received, as well as the number and type of any other equipment that might be received. Promote the exchange success by using some of the same media outlets that were used to promote the event.

Making Medicine Mercury Free Award

Hospitals for a Healthy Environment (H2E) is a voluntary program that helps medical facilities work to reduce pollutants such as mercury. The Making Medicine Mercury Free Award is a one-time award given to facilities that have met the challenge of becoming virtually "mercury free." Here's what Jan Path from Tomah Memorial Hospital in Wisconsin had to say about their award:

Eliminating mercury use in the facility:
1. Back in 1998 we got rid of all but three mercury blood pressure cuffs. We did this through Wisconsin's first mercury reclamation program.
2. By 1999 we had eliminated use of mercury thermometers except lab and special hypothermic ones in the ER. Even those were phased out by 2001. To my knowledge we have none in the whole hospital now.
3. We checked feeding tubes and other GI equipment for mercury content and found none.
4. The hardest part for us was thermostats/pressure gauges on the boilers. We have them labeled and have planned to phase them out as we are able. Fire boxes are mercury free.
5. We also checked pharmaceuticals for mercury content. In one case we switched to a more expensive vaccine that does not contain mercury. We wrote manufacturers and asked them to eliminate mercury in other products. We still have some products with mercury content, but have a list, and are working on phasing out.
6. We checked for mercury content in many lab chemicals---not 100% there yet, but again aware and working on it.
7. Cleaning chemicals is also a work in progress. We use only a bleach that does not contain mercury.
8. We recycle all fluorescent and some other types of lamps. We recycle all computers.
9. We have conducted several thermometer drives for the public. We have done radio and newspaper ads on the dangers of mercury, and how to clean up a spill. We train staff how to clean a spill.
10. We let our new employees know our philosophy on the environment and especially mercury on hire.
11. We also have a policy with our position statement and purchasing policy to avoid mercury.

I hope this gives you a rough idea of what applying for the award entailed.
"Make each day a masterpiece of health and well being. Live well. Feel great."

Jan Path RN
Employee Health/Infection Control
Tomah Memorial Hospital
Tomah. Wisconsin

Mercury Websites for Medical Facilities

Hospitals for a Healthy Environment: Making Medicine Mercury Free BMP Guidelines: http://www.h2e-online.org/awards/mercury.htm

A self-assessment for hospitals, including a checklist to aid in mercury-reduction activities: http://www.h2e-online.org/pubs/MainAssessment.pdf (see page 12)

Healthcare Without Harm: http://www.noharm.org/mercury/issue

Sustainable Hospitals: http://www.sustainablehospitals.org/HTMLSrc/SiteMap.html

General Guidelines for Preventing Mercury Pollution in Medical Facilities: http://www.epa.gov/seahome/mercury/src/guidels.htm#guide

The EPA publication for helping hospitals build and maintain mercury elimination programs: http://www.epa.gov/grtlakes/bnsdocs/merchealth/mercury.pdf.

How to hold a thermometer exchange: http://www.noharm.org/library/docs/Going_Green_How_to_Hold_a_Mercury_Thermometer_.pdf

Dental Facilities

To reduce mercury releases, all dental offices that place or remove amalgam should implement the amalgam management practices called for by the American Dental Association. These practices include capturing and recycling all forms of waste amalgam from empty capsules, excess scrap, chair side traps and vacuum filters. Because of their high capture efficiency and consistent performance, dental offices in Wisconsin with very low mercury discharge limits also need to install and maintain an amalgam separator in their wastewater line. It is important that the municipal treatment plant share influent and effluent mercury sampling results with the dental community, who will want to know that their efforts are achieving good results. Unlike other sectors that will eliminate use of mercury containing products, the use of dental amalgam ("silver fillings") is expected to continue as an effective and affordable tooth repair.

If work in a dental office is limited to work that does not involve placing or removing amalgam, such as orthodontics, periodontics, oral and maxillo-facial surgery, endodontics, or prosthodontics, then amalgam management practices and amalgam separators are not required.

Dental Amalgam Management Guidance Materials

The University of Wisconsin Extension – Solid and Hazardous Waste Education Center (SHWEC) maintains a website with dental amalgam guidance materials relevant to Wisconsin (website: http://www.shwec.uwm.edu then click on Wisconsin Dental Mercury Pollution Prevention at the bottom of the page). There are many useful publications listed on this website. Most recently SHWEC partnered with the Milwaukee Metropolitan Sewerage District and Greater Milwaukee Dental Association to publish a guide, "Amalgam Management for Dental Offices." This guide includes the following topics: 1) Best Management Practices for Amalgam; 2) Choosing an Amalgam Separator for your Dental Office; and 3) Amalgam Separator Case Studies for ten dental offices in the Milwaukee area. The "Best Management Practices for Amalgam" and "Amalgam Separator Flow Sheet" pages are reproduced below.

Outreach Tools

- Informational mailings to dentists, dental assistants, and other staff
- Surveys of dentists concerning their amalgam recycling practices in their offices
- Dental community presentations and workshops
- Collaboration with individual dentists and their staff to promote amalgam capture and recycling
- Amalgam recycling programs made available through municipal household waste/very small quantity generator events and facilities.

Figure 11 Amalgam capsule

Best Management Practices for Amalgam

Best Management Practices for Amalgam

DO	DO NOT
Use precapsulated alloys and stock a variety of capsule sizes	Use bulk mercury
Recycle used amalgam capsules	Put amalgam capsules in biohazard containers, infectious waste containers (red bags) or regular garbage
Salvage, store, and recycle non-contact amalgam (scrap amalgam)	Put non-contact amalgam in biohazard containers, infectious waste containers (red bags) or regular garbage
Salvage amalgam pieces from restorations after removal (contact amalgam) and recycle the amalgam waste	Put contact amalgam in biohazard containers, infectious waste containers (red bags) or regular garbage
Use chair-side traps to retain amalgam and recycle their contents	Rinse chair-side traps containing amalgam over sinks or other drains
Recycle the contents retained by the vacuum pump filter or other amalgam collection device	Rinse vacuum pump filters or other amalgam collection device over sinks or other drains
Recycle extracted teeth that contain amalgam restorations*	Put extracted teeth with amalgam restorations in biohazard containers, infectious waste containers (red bags) or regular garbage
Use line cleaners that do NOT contain bleach or other chlorine compounds	Use line cleaners that contain bleach or other chlorinecompounds
RECYCLE AS MUCH AMALGAM WASTE AS POSSIBLE	FLUSH AMALGAM WASTE DOWN A SINK, TOILET, OR OTHER DRAIN

*Confirm with your recycler whether it accepts extracted teeth. Disinfect extracted teeth by storing them in an airtight container with a solution of glutaraldehyde or 10% formalin until they are removed for recycling with your other amalgam waste.

References:

(1) Wisconsin Dental Association, *Recycling Amalgam Waste and Other Best Management Practices for your Dental Office,* www.wda.org/member_benefits/amalgam.htm.
(2) American Dental Association, *Best Management Practices for Amalgam Waste,* March 2004; www.ada.org/prof/resources/topics/topics_amalgamwaste.pdf

Choosing an Amalgam Separator for Your Office

Choosing an Amalgam Separator for Your Dental Office

425.SB.0404

More and more dentists are considering purchasing amalgam separator units to decrease the amount of amalgam in the wastewater leaving their offices. Although this decision is a positive one for the environment, it is not necessarily an easy one for the dentist. These units differ in terms of capacity, physical dimensions, amalgam removal process, how captured amalgam is removed and recycled, how easily they are serviced and how often, and how much they cost to buy and operate. Without some guidance, evaluating amalgam separators can be like comparing apples and oranges. This guide was designed to help dentists identify their specific needs and the key aspects of their office systems that determine which separator unit(s) will be most suitable for their operations.

Step 1 of this guide is a decision flow sheet. By answering a series of questions relating to your office set-up, the dentist is led to an initial list of separator units that will probably work for his or her office. These questions include:

- Are your amalgam generating chairs centrally plumbed?
- Does your office have a wet ring or dry vacuum pump system?
- Is the space available for installing a separator unit at office grade or below grade?
- Do you need to install the separator ahead of or after either the wet ring or dry vacuum pump system?

The dentist's answer to each of these questions will lead him or her to an appropriate set of potential separators for evaluation. The evaluation of these options is conducted in

Step 2 of the guide is a matrix that allows a comparison of the initial list of separator units generated in Step 1, helping the dentist zero in on which unit(s) is the best for his or her dental practice. The matrix provides both qualitative and quantitative comparisons of 15 different amalgam separator units produced by 11 different companies. The units have been commercially available since early 2004. It also provides telephone and web site contact information for each manufacturer.

The evaluation criteria include:

Model Dimensions—shows the height, width and depth, indicating how much space each unit requires.

Flow Capacity—indicates the number of chairs (anywhere from 1 to 25) that can be serviced by one unit.

Ease of Maintenance—a ranking of 1 to 3 shows the relative ease of maintenance compared to other units.

Frequency of Maintenance—a ranking of 1 to 3, along with more specific information where available, indicates how often amalgam waste must be removed from the unit.

Recycling Program Included?—indicates whether the manufacturer provides for an automatic system for removing and recycling the waste amalgam captured in the unit.

Purchase Cost—provides both actual cost and a relative (1 to 3) ranking among units.

O&M Cost—provides a relative ranking of operation and maintenance costs as well as specific information where available.

Five-Year System Cost—provides both an estimated five-year cost (purchase plus O&M costs) and a relative ranking among units.

After working through the flow sheet (Step 1) and the matrix (Step 2), the dentist should have a good idea about which unit(s) is most suitable for his or her specific circumstances. Hopefully, this exercise will also result in a list of more specific questions for your dental equipment supplier or the separator manufacturer. Working together with your supplier or manufacturer's rep, you should now be sufficiently prepared to purchase an amalgam separator unit that will meet your needs and protect the environment for many years to come.

SHWEC

Small Community

Superior Wastewater Treatment Division of Public Works

The Superior Wastewater Division of Public Works developed a workshop and visited fourteen area dental offices, by appointment, in Douglas County. All dental office personnel participating in the program earned one Continuing Education Credit by completing and passing a test developed by the Minnesota Dental Association. As part of this program, each dentist participating in the BMP workshop had the opportunity to win a free amalgam separator. The City also provided a $100 rebate to any participating dentist who purchased and installed an amalgam separator. In addition to the awarded separator, six other dentists used the incentive program to install separators. Only one dentist had a separator installed before the program started. Of Superior's seventeen dentists, nine have separators by 6/2005. See this program at the City of Superior's Pollution Prevention website at:
http://www.ci.superior.wi.us/publicwks/wastewater/dental.htm

Intermediate Community

The Western Lake Superior Sanitary District

The Western Lake Superior Sanitary District (WLSSD), in northeastern Minnesota, provides ongoing pollution-prevention education. By building trust and rapport with area dentists, WLSSD has been able to educate dental practices in their service area about mercury reduction and disposal. WLSSD started a program in 1992 that included a survey of local dentists to better understand their use of dental amalgam and waste management practices. The first annual amalgam recycling report showed that approximately 522 pounds of waste material, which contained amalgam, was collected for recycling. Eighty-eight percent of dental practices responded to the survey conducted by WLSSD

In 1993, WLSSD found that the wastewater from just one medical building averaged 0.3 gram of mercury per dentist each day. The WLSSD partnered with the Northeast Minnesota Dental District to develop a manual for dealing with dental office wastes. Two years after the manual was distributed to all dentists in the area, mercury in the effluent from the same building was reduced to 0.086 grams per dentist per day. A manual called *Blueprint for Mercury Elimination* outlines these efforts. The manual is available online at:
http://www.wlssd.com/publications/Blueprint%20for%20mercury/Revised%20Blueprint%20for%20Mercu.pdf

WLSSD then developed a program to train dental staff on how to recycle amalgam waste. The program included training at all the offices in the service area, presentations at local dental society meetings, and written material. Dentists and dental assistants themselves conducted some of the presentations. Each dentist that collects mercury from excess mix, chair-side trap amalgam, vacuum pump trap sludge, and separator sludge recycles 1-2 pounds of mercury per year. WLSSD has installed approved amalgam separators in 57 out of the 58 practices in the service area. Their wastewater treatment plant is currently running very close

to the required mercury effluent limit of 1.3 ng/L, which is one-tenth of the mercury effluent levels in 1992.

Large Community

The Milwaukee Metropolitan Sewerage District (MMSD)

In early 2004 the Milwaukee Metropolitan Sewerage District passed s.11.214 "Amalgam Management at Dental Offices" as an addition to their sewer use ordinance. The ordinance requires the implementation of the Wisconsin Dental Association's amalgam management practices upon adoption of the ordinance and the installation of amalgam separators by February 2, 2008. An annual progress report from dental offices on advancement towards these goals is also required. The text of this ordinance is provided in Appendix B of this Guidance Manual, along with two clarifying documents on "Amalgam Rule Special Cases" and "Guidance for Complying with the Recordkeeping Requirements for Amalgam Waste."

The Sewerage District worked with the Greater Milwaukee Dental Association, the Wisconsin Dental Association, and the University of Wisconsin Extension – Solid and Hazardous Waste Education Center to develop guidance materials for the dental amalgam program. Ten case studies of amalgam separator installation by Milwaukee-area dentists were included in the guidance materials (see above). The Sewerage District is currently conducting dental office visits to assess amalgam management practices. By early 2006, 36% of Milwaukee's 340 applicable dental offices have already installed amalgam separators, well ahead of the 2008 obligation for doing so.

Mercury Websites for Dentists

Wisconsin Dental Mercury Pollution Prevention Program:
http://www3.uwm.edu/Dept/shwec/dental/dental.cfm

Wisconsin Dental Association, *Recycling Amalgam Waste and Other Best Management Practices for Your Dental Office.*
http://www.wda.org/member_benefits/amalgam.htm

American Dental Association Best Management Practices for Amalgam Waste:
http://www.ada.org/prof/resources/topics/amalgam_bmp.asp

Dental Mercury: Environmental Issues: http://www.dentalmercury.com/

Waste Management Tips for Dentists:
http://www.city.palo-alto.ca.us/cleanbay/pdf/dentalposter.pdf

Schools

To reduce mercury, schools should implement the mercury product assessment and virtual elimination outlined in the mercury section of Wisconsin's Green and Healthy Schools Program (website: http://www.dnr.wi.gov/greenandhealthyschools/). The requirements include an inventory, phase-out of mercury-containing products (Table 9) and mercury spill prevention.

Table 9. Common Mercury-Containing Items In Schools And Their Mercury-Free Alternatives	
SCHOOL ITEMS THAT CONTAIN MERCURY	**MERCURY-FREE ALTERNATIVES**
Thermometers (Lab)	Alcohol or other non-mercury liquid
Barometers (Lab)	Aneroid or digital barometers
Bulk Liquid Mercury (Lab)	Video tape of liquid mercury and its properties
Laboratory chemicals	Substitute with mercury-free chemicals that serve a similar purpose or go with a supplier that tests for low-level mercury content in chemicals
Sphygmomanometers (nurse's office)	Aneroid and digital sphygmomanometers
Thermometers (nurse's office)	Digital electronic and galistan thermometers

Outreach Tools

- Mailings to students, parents, and teachers
- Teacher workshops and conferences
- Collaboration with school administration/teachers to audit school for mercury or teach mercury awareness
- School pledges to become mercury-free
- Thermometer exchanges (see Medical Facilities Section)
- Mercury recycling programs
- Educational posters in school hallways

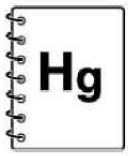
Figure 12 Mercury-containing thermometers.

Wisconsin's Green and Healthy Schools Program

Wisconsin's Green & Healthy Schools program is a web-based, voluntary program available to all public and private elementary, middle, and high schools across Wisconsin. Schools qualifying to be a Green & Healthy School must complete a mercury audit (see below) to help everyone at the school identify mercury-containing items and become familiar with the school's mercury disposal and storage practices. Once mercury is located in the school, staff and students can work on its spill management and elimination. Schools must include mercury in the curriculum and the school must be virtually mercury-free. "Virtually mercury-free" is defined as not having elemental mercury or mercury-containing equipment present in classrooms. As of early 2006, 38 schools have taken the first step in becoming a Green & Healthy School.

Wisconsin's Green and Healthy Schools Program: Mercury Assessment

Note that Sections, A, B, and C of this mercury assessment are on the School Mercury Checklist (Form 6B). Section D is optional under the Mercury PMP Plan since it does not directly impact discharges of mercury to wastewater from the school.



Mercury Section

Green & Healthy Schools Assessment

Mercury is found in very small amounts naturally in the environment; however, it is a substance that can have some very harmful effects on human health and the environment if it is spilled or disposed of improperly. Replacing mercury-containing items such as thermometers, barometers, and thermostats with mercury-free alternatives can minimize risk to the environment and human health. This section will help you identify mercury-containing items and become familiar with the school's mercury disposal and storage practices. Once mercury is located in your school you can work to become a "mercury free school".

School Name: _____ **Date:** _____

Conducted By:

_____ _____

_____ _____

_____ _____

Reminder: Students should not handle mercury products while completing this section of the Green Schools Assessment. A teacher, principal or maintenance person should accompany students on this section of the audit.

A. Science Classrooms (Chemistry, Physics, and Biology)

1. What mercury containing items are in the classrooms?

	Number or Amount
☐ Elemental Mercury	_____
☐ Mercury Compounds	_____
☐ Mercury Thermometers	_____
☐ Mercury Barometers (use caution, these may be open ended)	_____
☐ Other_____	_____
☐ None	

2. Where are the mercury containing items being stored? (Use Caution! Do not handle containers.)
   - ☐ Cabinet--- Locked Unlocked
   - ☐ Closet----- Locked Unlocked
   - ☐ Storage Rooms--- Locked Unlocked
   - ☐ Containers-- Non-breakable Breakable
   - ☐ Other_____

3. Are all mercury items in storage contained in air-tight, non-breakable containers or double bagged with air tight "zip-loc" bags?
   ☐ Yes ☐ No

   If NO, please inform school staff NOT to remove the mercury from its current container. Simply over package the item so that it is air-tight and break resistant!

Mercury Section
Green & Healthy Schools Assessment

B. Nurse's Office

1. What mercury-containing items are in the nurse's office?

		Number or amount
☐	Mercury Thermometers	_____
☐	Blood Pressure Measuring Devices (Sphygmomanometer)	_____
☐	Other _____	_____
☐	None	

2. Has the nurse recommended replacing mercury-containing items such as sphygmomanometers or thermometers with mercury-free alternatives?

☐ Yes
☐ No If not, why?_____

C. Other

1. Are there any mercury-containing thermostats in your school?

		Number
☐	Yes	_____
☐	No	

If yes, are they labeled as containing mercury?
☐ Yes ☐ No

2. How does your school handle "burned out" fluorescent bulbs?

❑ Recycled
❑ Disposed of as hazardous waste
❑ Thrown in the trash
❑ Other _____

3. If recycled, what does your recycler do with these bulbs?

4. Does your school have a mercury spill kit?

☐ Yes ☐ No

If yes, where is it located?

5. Does your school have a written procedure for handling mercury spills?
☐ Yes ☐ No

6. Has staff been trained on the dangers of mercury and how to handle spills?
☐ Yes ☐ No

7. Is there a designated person trained in spill control procedures for mercury?
☐ Yes If yes, who? _____
☐ No

Go to the following web site for directions on how to clean up mercury spills.
http://dhfs.wisconsin.gov/eh/H1thHaz/fs/HGlgspills.htın

Mercury Section
Green & Healthy Schools Assessment

8. Has there ever been a spill of mercury in your school (i.e. broken thermometer)?
☐ Yes ☐ No

9. Has your school ever had a reported* mercury spill?

If yes, what happened as a result of the spill?

D. Curriculum and Community

1. Does your school teach the environmental and health effects of mercury pollution as part of the curriculum?
☐ Yes ☐ No

If yes, in what subject is it included and at which grade levels?

2. Does your community have a mercury collection program to encourage the proper disposal and handling of mercury-containing items?
☐ Yes ☐ No

3. Can new mercury-containing fever thermometers be purchased at local pharmacies?
☐ Yes ☐ No

4. Does your community have any regulations concerning the sale or disposal/recycling of mercury containing products?
☐ Yes ☐ No

If yes, how are local citizens being informed about them?

☐ Yes ☐ No

*Wisconsin Reporting Requirements: A mercury spill must be reported if it is one pound or more. If less than one pound, the spill must be reported unless the following four conditions are met:

1) has evaporated or been cleaned up in accordance with NR 700-726
2) does not adversely impact or threaten to adversely impact the air, lands, waters of the state as a single discharge, or when accumulated with past discharges
3) does not cause or threaten to cause chronic/acute human health impacts
4) does not present or threaten to present a fire or explosion or other safety hazard

Go to the following web site for a more detailed explanation of the Wisconsin Spill Reporting Requirements:
http://www.dnr.state.wi.us/org/aw/rr/spills/index.htm

All mercury and mercury-containing items should be recycled. See the following web site for disposal and contact information http://www.dnr.state.wi.us/org/caer/cea/mercury/contacts.htm

Mercury Clean Sweep in the Milwaukee Metropolitan Sewerage District

The Milwaukee Metropolitan Sewerage District offered a bounty program for mercury equipment in secondary schools within the District (see Table 10 below for the number of items collected). Five dollars were offered for each mercury laboratory thermometer, fifty dollars for each mercury barometer, and twenty dollars for each mercury blood pressure cuff from school nurses' offices. Participating schools pledged to replace surrendered mercury equipment with mercury-free alternatives. Certificates of accomplishment were presented in a public ceremony to participating school districts. Total cost of the bounty rewards was $17,315, which is far less than the cost of cleaning up just one mercury spill (see box below).

Table 10 Milwaukee Metropolitan Sewerage District Collections during the Bounty Program

Item	Phase I Collections (Fall 2000) From 32 Secondary Schools	Phase II Collections (Fall 2001) From 31 Secondary Schools
Lab thermometers	2043	1156
Barometers	8	14
Blood Pressure Cuffs	1	10
Bulk Liquid Mercury (lbs)	217	17.6

Mercury Shakedown in Northwest Wisconsin

This Mercury Shakedown aims to bring mercury education to schools throughout northwestern Wisconsin. Schools receive educational materials related to recognizing mercury in their homes and how to substitute safe alternatives for mercury-containing devices. From 2000 to 2001 the Bounty Program had over 30 schools participate in collecting mercury devices and distributing non-mercury alternatives, which led to the collection of almost 200 pounds of mercury. Schools participating in the Mercury Shakedown can receive technical assistance from the University of Wisconsin-Extension's Solid and Hazardous Waste Education Center during a mercury audit and they can have the Northwest Regional Planning Commission's Clean Sweep Program collect and recycle mercury items for free while funds are available. Schools are encouraged to sign a pledge to proclaim their commitment to becoming mercury-free. Over 80 schools in 10 northern Wisconsin counties have participated in the Mercury Shakedown, with thousands of hazardous waste items collected and recycled.

For more information about this project, go to:
http://www.ci.superior.wi.us/publicwks/wastewater/school.htm

Mercury Makes Headlines at Wisconsin Schools

1) A student took a small container of mercury from a science classroom at Green Bay East high School in 1999. The spilled mercury contaminated a school, a local bowling alley, and a student's home. Cleanup costs reached $200,000.

2) A mercury barometer spilled during a move from Fond du Lac's old high school to their new high school in 2001, contaminating both schools and the moving van.

3) Elemental mercury spilled from a mercury manometer in a chemistry class at Stoughton High School in 2004. Cleanup costs for 4 tablespoons of mercury spread throughout the lab cost $65,000.

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Similar examples of mercury spills can be found in every state. Michigan, Indiana, and Illinois have banned mercury-containing laboratory equipment from all schools statewide.

Mercury Websites for Schools

Mercury in Schools:
http://www.mercuryinschools.uwex.edu/home.htm

Indiana's Mercury Reduction and Recycling for Schools Pledge Program:
http://www.in.gov/idem/enviroed/mercury/

State Mercury School Programs: http://www.epa.gov/epaoswer/hazwaste/mercury/school.htm

Minnesota's Mercury-Free Zone Program:
http://www.pca.state.mn.us/programs/mercury-free

Industry

Industries can conduct programs that inventory mercury use in their facilities and target it for elimination. As part of a mercury inventory, industries need to test their high volume chemicals to see which ones contain mercury, as this may be their biggest source of mercury in their effluent. Industries should also make sure they are adhering to regulations set by the Universal Waste Rule for handling and disposal of mercury-containing items such as thermostats, fluorescent bulbs, and batteries. These BMPs should also include a mercury-free purchasing policy. Remember that the municipal wastewater treatment plant itself needs to be evaluated as a potential source of mercury discharge.

Testing Mercury Content in Chemicals

If the concentration of mercury in a chemical is less than 1% of the whole, most Material Safety Data Sheets (MSDS) do not include information about the mercury content. Write to the chemical supplier and request a Certificate of Analysis for mercury in the chemical. When a Certificate of Analysis is sent back to the industry by the chemical vendor, it should include the exact amount of mercury found in each product. They should also include their method of testing; the Vapor Test is most frequently used to analyze mercury content. Once the concentration of the mercury in the product has been determined, the purchasing staff at a particular industry needs to decide whether this level of mercury is acceptable; if not, a new supplier with lower mercury levels in its products should be chosen.

Table 11. Common Mercury-Containing Items In Industry And Their Mercury-Free Alternatives

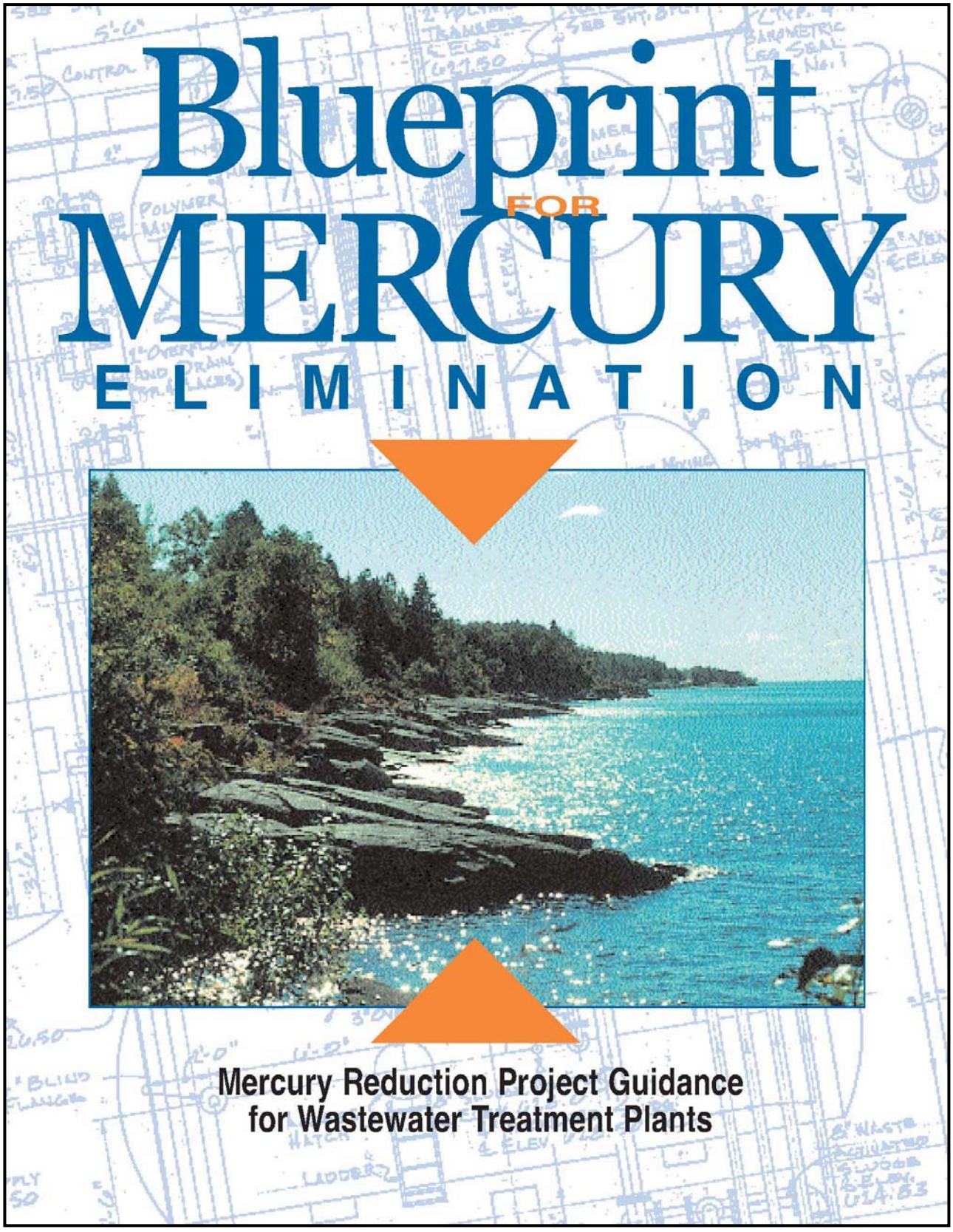
INDUSTRIAL ITEMS THAT CONTAIN MERCURY	MERCURY-FREE ALTERNATIVES
Switches	Mechanical and digital switches
Industrial Thermometers	Digital electronic and galistan thermometers
Hydrometers/Hygrometers	Alcohol/spirit-filled hydrometers/hygrometers
Flow meters	Digital or ball-actuated flow meters
Manometers	Aneroid or digital manometers
Chemicals, Production and Laboratory	Substitute with mercury-free chemicals that serve a similar purpose or use a supplier that tests for low-level mercury content in chemicals

Outreach Tools

- Mercury reduction workshops or conferences for industry managers
- Collaboration with industry management to promote mercury product/chemical audit and phase out
- Employee education through posters, safety training, or mailings
- Mercury recycling programs

Figure 13 Mercury-containing industrial switch

Blueprint for Mercury Elimination



Success Story #3:

Potlatch Corporation

Potlatch Corporation operates an integrated pulp and paper mill in Cloquet, Minnesota, that produces fine coated printing papers. After primary treatment, it discharges its effluent to WLSSD for secondary treatment. In mid-1994, the mill and WLSSD identified mercury spikes as high as one ppb in wastewater from the mill. Potlatch accounts for about 35 percent of the flow to the WLSSD treatment plant, so this amount of mercury was a significant contribution. A pollution prevention assessment team consisting of Potlatch and WLSSD staff, along with chemical engineering students from the University of Minnesota-Duluth, was formed to identify the source of the mercury. Potlatch had previously implemented a pollution-prevention program that included extensive use of mercury-free alternatives and a mercury recycling program. Potlatch had also investigated sewer lines to ensure that mercury was not trapped in sewers where it could be released into the wastewater during high flow conditions.

The assessment team focused on mercury as a contaminant in raw materials. Rather than analyzing every feedstock chemical individually, wastewater effluent analysis was used to locate mercury sources within the manufacturing process. The mercury was traced to the bleaching process, and the feedstock chemicals analyzed for mercury included sodium hydroxide (caustic soda), sulfuric acid and chlorine dioxide. Based on these analyses, along with telephone surveys of chemical suppliers, the source was determined to be sulfuric acid. The mill was receiving sulfuric acid from a lead smelter and its mercury content was significantly higher than would normally be expected, as high as 10,000 ppb. As a result of switching to an alternative source of sulfuric acid, the mercury concentration in the mill's effluent was reduced by 98 percent.

Potlatch recommends the following pollution prevention procedures for products and feedstock chemicals:

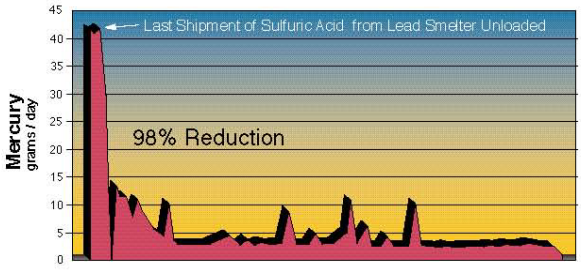
1) Inform chemical suppliers about the concern for mercury contamination in feedstock chemicals. Because mercury is not listed on an MSDS request, the mercury content, expressed in parts per billion, is included on a Certificate of Analysis (see example appendix C). Mercury content expressed as a percentage is not adequate.

2) Implement a chemical management program that includes pre-purchase review and approval by environmental staff.

3) Require that all engineering projects be reviewed by environmental staff in order to discuss potential environmental impacts specific to mercury or other chemicals of concern.

4) Practice the basics of pollution prevention: a) know where mercury is found; b) use mercury-free alternatives; c) properly recover and recycle elemental mercury and mercury-containing products.

Mercury Mass Flow in Primary Wastewater Effluent



January thru September 1995

Prescription for Mercury and PCB Elimination

Prescription for Mercury and PCB Elimination

Mercury and PCB Reduction Guidance for Oil Refineries

A joint project between
City of Superior Wastewater
Division of Public Works
and
Murphy Oil USA Superior Refinery

TABLE 4. STEPS TAKEN TO INVENTORY AND REDUCE MERCURY AT MURPHY OIL

1) Researched general information about mercury and oil refineries (Appendix 1). Learned about everyday procedures and mercury management practices at Murphy.

2) Conducted an inventory of all products and processes that contained or used mercury within the plant. Searched various resources and locations in the refinery with the help of Murphy Oil staff (Appendix 2).

3) Identified chemicals in use at the refinery that contained mercury (Appendix 3). In some cases the supplier of the chemical had to be contacted to request a Certificate of Analysis detailing the concentration of mercury in their product (see Appendix 4 for copy of sample letter and Certificates of Analysis).

4) Identified mercury-containing devices or process; logged them onto a data sheet (see Appendix 5 for copies of inventory sheet).

5) Labeled mercury-containing equipment that remain in use. Labels notify employees to properly recycle end-of-life equipment.

6) Brought elemental mercury found on site to a recycling facility in Spooner, WI.

7) Identified cost-effective alternatives to many of the mercury-containing products and processes at the refinery (Appendix 6).

8) Developed a mercury management policy (Appendix 7) and a mercury-free purchasing policy (Appendix 8).

9) Developed a standardized mercury spill policy as part of the safety procedures at the plant (Appendix 9).

Potlatch Paper Mill and the Western Lake Superior Sanitary District

Potlatch, a pulp and paper mill in Cloquet, Minnesota sharply reduced mercury discharges by switching to a supplier of mercury-free sulfuric acid. See *Blueprint for Mercury Elimination* on the preceding pages and at http://www.wlssd.com/publications/Blueprint%20for%20mercury/Revised%20Blueprint%20for%20Mercu.pdf

Murphy Oil USA and the City of Superior Wastewater Division of Public Works

The City of Superior Wastewater Division of Public Works helped an oil refinery in Superior, Wisconsin conduct a systematic inventory of mercury-containing equipment. Together they implemented a phase-out of these products through a mercury-free purchasing program. See *Prescription for Mercury and PCB Elimination* on preceding pages and at http://www.ci.superior.wi.us/publicwks/wastewater/MurphyProject.htm

Three Steel Mills

Bethlehem Steel Burns Harbor, Ispat Inland-East Chicago, and US Steel-Gary have developed mercury reduction plans, focusing primarily on mercury-containing devices, under a voluntary agreement with USEPA, Indiana Department of Environmental Management, and the Lake Michigan Forum. The steel industries have agreed to inventory mercury stored on site, mercury in devices and materials, and mercury in significant waste streams. The agreement also commits the industries to identify, where possible, alternatives to mercury-containing equipment and materials, and to develop reduction plans that include reduction goals, planned actions, and an implementation schedule. They have also agreed to help promote mercury reduction among their suppliers. The "Guide to Mercury Reduction in Industrial and Commercial Settings" is available online at http://delta-institute.org/publications/Steel-Hg-Report-0627011.pdf.

Mercury Self-Assessment for Sewage Treatment Plants

The Delta Institute of Chicago Illinois has developed a list of possible sources of mercury at sewage treatment plants. The listing of equipment and chemicals is also useful for other industries. The self-assessment checklist can be found at: http://delta-institute.org/pollprev/mercury/selfassess.php.

Mercury Websites for Industries

An Investigation of Alternatives to Mercury-Containing Products
http://www.state.me.us/dep/mercury/reports.htm
Sources of Mercury in Industrial Facilities
http://www.glrppr.org/docs/mercury_in_industry.htm
Wisconsin Mercury Sourcebook: Chapter on Mercury Use in the Metals Industry:
http://www.epa.gov/glnpo/bnsdocs/hgsbook/metal.pdf
Waste Categories for the Universal Waste Rule:
http://www.epa.gov/epaoswer/hazwaste/id/univwast/wasts.htm#battery
Mercury Challenge promotes voluntary, systematic elimination of mercury-containing equipment from industrial sites:
http://www.epa.gov/epaoswer/hazwaste/minimize/mercchall.htm

Household/General Public

Educating the general public about mercury is important both to reinforce the reduction initiatives being implemented by local medical facilities, dental offices, schools, and industry and to reduce the potential for household mercury spills. Public participation in mercury collections will be much more effective if there is a convenient and free location to drop off household products, even if the drop-off location is only open on occasional advertised dates. An effective way to reduce the purchase of new mercury-containing products is to ban their sale, and many communities are passing ordinances to do just that. Almost all household mercury-containing products have mercury-free alternatives that are cost-effective and work just as well.

Many state and local organizations have developed posters, brochures, pamphlets, and flyers for specific mercury-related programs. The Internet has a tremendous amount of information on all aspects of mercury (see the websites listed below). Using laminated pictures and text downloaded from reliable websites, an organization can develop a display board to bring to local events such as a fish-and-game shows, health fairs, homeowner fairs, seminars and workshops, area county fairs, and any special events that encourage environmental awareness. Fliers, brochures, and pamphlets can be set out on the table for the public to take home and read at their leisure. Local mercury drop-off options can be added to the pamphlet text.

Table 12. Common Household Items That Contain Mercury And Their Mercury-Free Alternatives.

HOUSEHOLD ITEMS THAT CONTAIN MERCURY	MERCURY-FREE ALTERNATIVES
Thermometers (fever)	Digital electronic and galistan thermometers
Thermostats	Digital electronic thermostats
Light switches (“Silent”)	Light switches (click type)
Containers of liquid mercury	No alternative (none needed) Recycle/Don’t spill
Fluorescent light bulbs	Use but recycle at end of life
Sphygmomanometers	Aneroid and digital sphygmomanometers

Outreach Tools

- Displays at community events
- Public Service Announcements
- Establish a local mercury website
- Thermometer exchanges
- Promote mercury clean sweeps

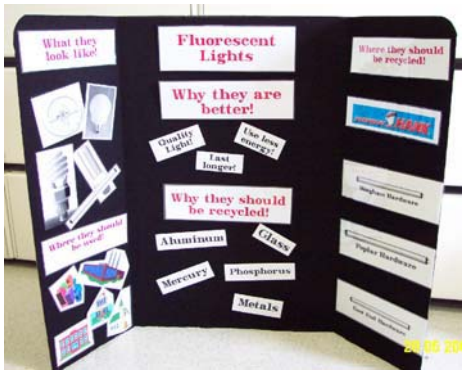
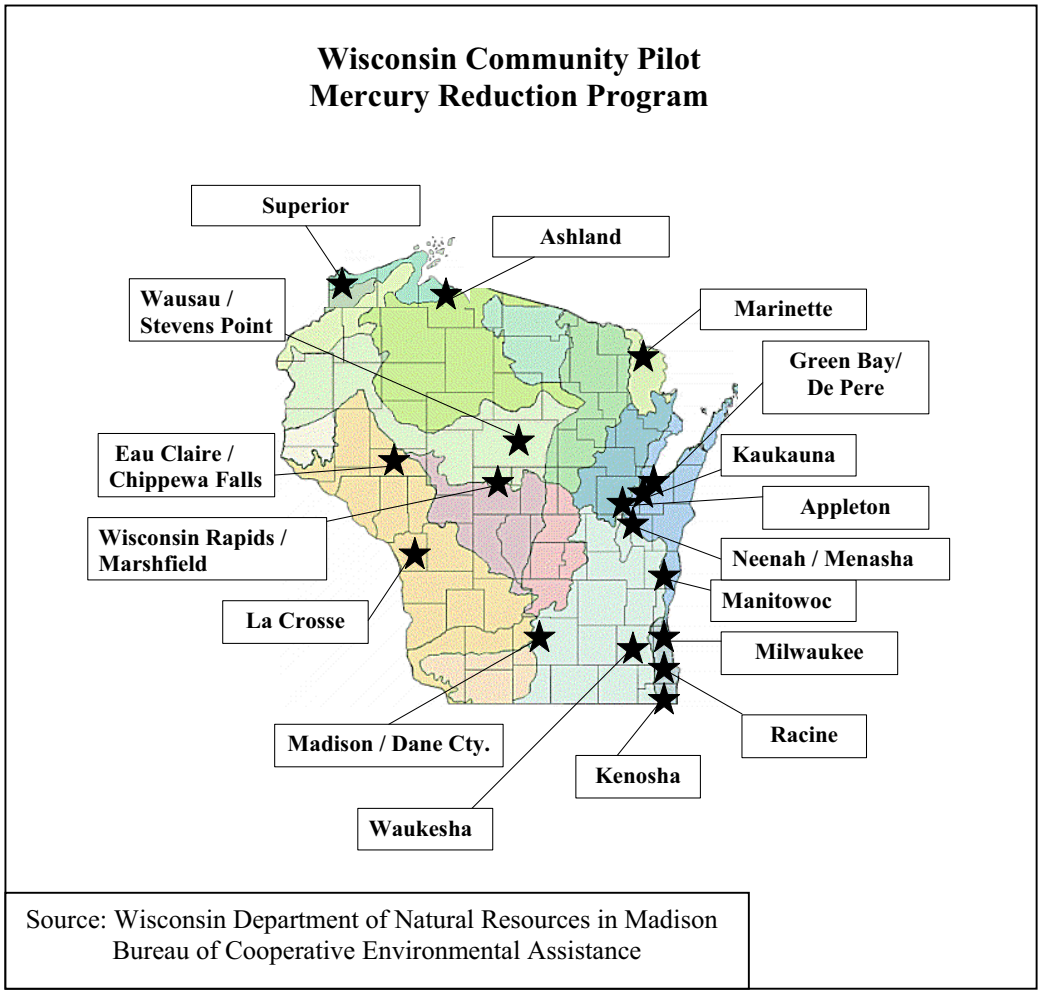


Figure 14 An educational display about mercury.



Between 1997 and 2003 the Wisconsin DNR partnered with 20 municipalities to pilot community mercury reduction activities. Through local programs of public education and free recycling, these communities collected over 13,000 lbs of elemental mercury from hospitals, dental offices, schools, and industries. The experiences from this pilot program form much of the core of this Guidance Manual.

A Sampler of General Public Mercury Reduction Activities in Wisconsin

Central Wisconsin (Wausau, Stevens Point, Wisconsin Rapids and Marshfield) established mercury reduction collection sites in each community. This program, coordinated by Recycling Connections Corporation, Inc. of Plover, recycled 1,100 pounds of mercury through an extensive media and website program.

Eau Claire and neighboring counties collected mercury products at periodic HHW collection sites and special clean sweep events: 145 lbs of mercury recycled.

Green Bay MSD conducted their own public mercury reduction outreach as well as coordinated work by other communities: 680 lbs of mercury recycled in Green Bay.

Manitowoc and neighboring communities conducted extensive public educational outreach and special collection events: 200 lbs of mercury recycled.

Marinette conducted public outreach followed by a digital thermometer award program and a voluntary retailer recycling program: 190 lbs of mercury recycled.

A Sampler of Wisconsin Mercury Thermometer Exchanges

Appleton hosted a community mercury clean sweep offering free digital fever thermometers as an exchange incentive: 115 lbs of mercury recycled.

LaCrosse exchanged free digital fever thermometers for mercury products at a series of collections at fire stations: 45 lbs of mercury recycled.

Madison MSD area communities were able to exchange mercury fever thermometers for digital thermometers at 18 local Walgreen stores: 400 lbs of mercury recycled.

Racine conducted many thermometer exchanges, in part with funding from a local corporate sponsor: 88 lbs of mercury recycled.

Superior has also conducted many thermometer exchanges. In the spring of 2002, students from Pattison School collected and exchanged over 500 mercury items.

Figure 15 Thermometer exchange conducted by students at East Middle School.

Waukesha County coordinated a mercury thermometer exchange with Wal-Mart, Walgreen, and Aurora Pharmacy stores: 4,000 mercury fever thermometers recycled.

A Sampler of Wisconsin Mercury Product Ordinances

Ashland banned the sale of most mercury-containing products except for fluorescent bulbs and the use of dental amalgam. See copy of ordinance in Appendix B.

Dane County banned the sale of mercury fever thermometers, and required retailers of mercury thermostats and fluorescent lamps to offer a take-back program for recycling.

Marinette passed an ordinance requiring the recycling of fluorescent bulbs and the removal of mercury products from building prior to demolition.

Milwaukee MSD passed an ordinance requiring the installation of amalgam separators in dental offices by February 1, 2008. See copy of ordinance in Appendix B.

Racine and Superior banned the sale of mercury fever thermometers; Superior also banned the landfilling of fluorescent bulbs.

Household Mercury Spill Cleanup Options

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State of Wisconsin

TOXIC CHEMICAL SERIES

HOUSEHOLD MERCURY SPILL CLEAN UP OPTIONS

Mercury is also known as: Quicksilver, Liquid Silver *It's chemical reference number (CAS) is: 7539-97-6*

Department of Health and Family Services Publication # PPH-7143 Department of Natural Resources Publication # PUB-RR-629

WHAT IS MERCURY?

Mercury is a heavy, shiny, silvery-white poisonous metal that is a liquid at room temperature. Mercury can be found in thermometers, barometers, thermostats, dental offices, blood-pressure devices, fluorescent light bulbs and even in some tennis shoes that light up. Liquid mercury evaporates at room temperature and gives off harmful, invisible, odorless vapors. Mercury is a fast-moving liquid and spreads quickly, so promptly containing and controlling both the liquid and its vapors are very important.

Breathing mercury vapors is most harmful to people, but mercury can also be harmful when swallowed or when it contacts broken skin. Our bodies do not absorb liquid mercury very well through unbroken skin.

HOW CAN I PREVENT MERCURY SPILLS?

Replace mercury-containing products with safer alternatives. Electronic thermometers and blood-pressure devices are available that won't spill liquid mercury. Also, recycle all mercury-containing items such as fluorescent bulbs and old electrical switches instead of throwing them in the trash.

HOW SHOULD I DEAL WITH SPILLED MERCURY?

Get people out of the spill area immediately. Keep uninvolved people and pets away until the spill is completely cleaned up. Blow fresh air into the area to dilute the mercury's invisible, odorless, harmful vapors. If you can, determine how much mercury was spilled. If you are unsure about how best to proceed, or if you are worried whether people have been exposed to mercury vapors, call your local Poison Control Center, local fire department HAZMAT team or the Department of Health and Family Services' 24-hour answering service at (608) 258-0099 for advice. Report the spill to the Wisconsin Department of Natural Resources (DNR) by calling the 24-hour hotline at 1-800-943-0003.

Do not try to vacuum up spilled mercury with an ordinary household vacuum cleaner - it will only make more vapors and spread poisonous mercury vapors all over the house!

FOR SMALL SPILLS

Small spills are those involving less than a dime-sized puddle of mercury metal. These small spills can be scooped up using a small, disposable dustpan or sucked up using a syringe or an eye dropper, but this method doesn't deal with the vapor problem. Safety equipment, if available, should include disposable liquid-proof gloves and eye protection.

The most effective way to clean up mercury spills is to first spread sand, clay or sawdust in a circle around the spill to stop the mercury from spreading. Then add an "amalgamating" powder to the spill to make the mercury solid and reduce evaporation. (Mercury clean up kits containing amalgamating powders are available through safety supply companies and from some local health departments.) Once the mercury spill turns into a solid amalgam (a few minutes), the vapor hazard is reduced and the material can be easily picked up and put in a sealed plastic bag.

FOR LARGE SPILLS

Mercury spills larger than a dime-sized puddle should be handled by hazardous material cleanup professionals or an environmental cleanup contractor. Check your local yellow pages or call your regional DNR office for help in finding a professional cleanup contractor.

HOW WILL I KNOW ALL THE MERCURY IS GONE?

People trained to handle small spills can use commercial "mercury indicating" powders. These indicating powders change color overnight when they touch liquid mercury. If the surface where the mercury was spilled has many gaps or cracks, such as carpeting or wood, some of the mercury may be very difficult to find and remove.

For larger spills, air monitoring should be done as part of the environmental cleanup contractor's procedure. Once all visible mercury has been cleaned up, the contractor will monitor the air in the area to determine whether harmful vapor levels are gone.

HOW SHOULD I DISPOSE OF MERCURY WASTE?

All mercury waste should be put into a vapor-proof, sturdy unbreakable container to prevent re-spreading the contamination if the container is dropped. Plastic jars or other thick-walled plastic bottles work well. Anything that touched or held the liquid mercury, including anything used to clean up the mercury, should also be considered contaminated and may need to be disposed of as mercury waste. Only testing by a qualified professional can determine whether clothing and other items are safe to keep.

Most mercury waste should not be put into the regular trash. Call your regional DNR office for advice on disposal options that will keep the mercury contamination from spreading and also satisfy state and local laws.

Seek medical advice if you have any symptoms that you think may be related to mercury exposure.

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. A separate fact sheet on liquid mercury is available from the Wisconsin Division of Public Health at the address below. For more information, contact the local Poison Control Center (the number is on the inside cover of most phone books), your local public health agency, the Wisconsin DNR World-Wide Website at *www.dnr.state.wi.us/org/aw/rr/spills/index.htm* or the Wisconsin Division of Public Health, P.O. Box 2659, Madison, Wisconsin 53701-2659; Phone (608) 267-2987.

Prepared by the Wisconsin Department of Health and Family Services' Division of Public Health and the Wisconsin Department of Natural Resources Bureau for Remediation and Redevelopment with funds from the Comprehensive Environmental Response, Compensation, and Liability Act trust fund through an interagency agreement with the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services.

Printed on recycled paper (PPH 7143) (RR-629) (7/99)

Mercury Websites for Midwest Great Lakes States

Illinois: http://app.idph.state.il.us/envhealth/mercury/
Indiana: http://www.in.gov/idem/mercury
Michigan: http://www.michigan.gov/deq/0,1607,7-135-3585_4127_4175-11684--,00.html
Minnesota: http://www.moea.state.mn.us/berc/mercury.cfm
Ohio: http://www.epa.state.oh.us/ocapp/p2/mercury_pbt/Mercury%20Challenge_Web.pdf
Wisconsin: http://www.dnr.state.wi.us/org/caer/cea/mercury

Indiana House Act 1901: Household Mercury Inventory Sheet:

Household Mercury Search

Contact IDEM at 800-988-7901 for free mercury stickers.

Use this Mercury Search to locate mercury containing items in your home. Mark them with stickers or some other form of identification as a reminder to ensure the mercury gets recycled. Store these items out of children's reach. Handle the products carefully to avoid breakage or spills. Remove unnecessary mercury-containing items from your home and take them to your local mercury recycling site.

_____ Thermometers - silver-colored liquid inside.
_____ Thermostats - nonelectronic.
_____ Fluorescent and other mercury vapor lighting - HID (high intensity discharge), metal halide, high-pressure sodium and neon bulbs.
_____ Automotive headlamps - blue tint when lit.
_____ Pilot light sensors - in some gas appliances: stoves, ovens, clothes dryers, water heaters, furnaces, space heaters.
_____ Gauges - barometers, manometers, blood pressure and vacuum gauges with silver-colored liquid.
_____ Switches and relays - in some chest freezers, pre-1972 washing machines, sump and bilge pumps, electric space heaters, silent light switches, vehicles and farm equipment.
_____ Clothes irons - automatic or tilt shut-offs.
_____ Elemental mercury - silver-colored liquid metal sometimes found in children's chemistry sets.
_____ Vintage toys - toy drawing screens and mercury maze games.
_____ LA Gear® athletic shoes - made before 1997 with flashing lights in soles.
_____ Batteries - mercuric oxide and some alkaline batteries.
_____ Paint - latex manufactured before 1990, and some oil base-paints; check the label.
_____ Thimerosal or merbromin - in some antibacterial products.

Disposing of Mercury-Containing Items

Keep these items out of the trash. When products containing mercury are placed in the trash or mercury is poured down the drain, it does not disappear. It finds its way into the environment from waste incinerators, landfills and wastewater treatment facilities. Take mercury containing items to your local solid waste management district, or in Marion County, contact the ToxDrop at 317-327-4TOX.

Cleaning up Mercury Spills

Even tiny mercury spills are difficult cleanups. Never use a vacuum cleaner or shop vac! For small mercury spills such as those from fever thermometers or for broken fluorescent light bulbs, follow instructions for cleaning up a small household mercury spill [pdf] 28K. If human contact with mercury occurs, call the Indiana Poison Center at (800) 382-9097.

M.A.P. Mercury Awareness Program

For additional information on household mercury, see the web at www.in.gov/idem/ctap/mercury.

IDEM

Programs for Specific Mercury-Containing Products

All it takes is a creative idea to encourage the public or local businesses to inventory and recycle the following mercury-containing devices. The case studies listed below are given as examples for device-specific programs that communities and businesses can put in place, emphasizing the importance of collaborative efforts.

Thermostats

Mechanical thermostats contain an elemental mercury switch that can release mercury into the environment if the thermostat housing is damaged during replacement or demolition. These thermostats should be recycled at the end of their useful life. Digital thermostats are recommended for upgrades or new construction because they do not contain mercury and are more energy efficient.

Outreach Tools

- Mail thermostat recycling literature to HVAC wholesalers and contractors
- HVAC community workshops and conferences
- Onsite visits to HVAC businesses
- Promote thermostat recycling to homeowners at trade shows and other community events (See Households/General Public Outreach)

Figure 16 Mercury-containing thermostats

The Thermostat Recycling Corporation (TRC) is a non-profit corporation funded by thermostat manufacturers to simplify recycling mercury from end-of-life thermostats. Heating, Ventilation, and Air Conditioning (HVAC) wholesalers can request a mercury thermostat recycling bin from the TRC Corporation for a one-time charge of $15. When HVAC contractors remove thermostats from homes or businesses, they are asked to drop them off with the wholesaler where they purchase their new thermostats. The wholesaler ships the filled bin back to TRC at **no charge**. All brands of wall-mounted thermostats are included in the TRC Program.

The TRC Program began in 1998 and has collected and recycled 336,000 thermostats, recovering a total of 3,000 pounds of elemental mercury through 2004. Many Wisconsin HVAC wholesalers and contractors participate in the TRC Program but many are still not aware how easy participation can be. A community mercury reduction program can readily promote the TRC Program as part of their educational outreach. The website below contains instructions for participating in the TRC Program.

Mercury Website for Thermostats

Thermostat Recycling Corporation:
http://www.nema.org/trc

Product Stewardship Institute Thermostat Project:
http://www.productstewardship.us/prod_mercury_project.html

Automotive Switches

Automobiles produced before 2003 may use mercury switches for hood and trunk convenience lighting. These switches should be removed and recycled because they are an important source of mercury air emissions from steel mills. New cars do not use mercury switches.

Outreach Tools

- Onsite visits to service centers or scrap yards
- Public events to replace mercury switches at technical schools or auto dealerships

Figure 17 Mercury-containing auto switch

End-of-Life Vehicles

The Wisconsin Department of Natural Resources partnered with Concerned Auto Recyclers of Wisconsin (CARS) to clip and recycle hood and trunk mercury switches to established consolidation sites where they are picked up at **no charge** by a commercial mercury-recycling vendor. One hundred fifty salvage yards participate in the program and have recycled 800 pounds of mercury waste over the last 4 years. Participating yards receive a recognition certificate from the Department. More information on Wisconsin's program can be found at the website below.

In-Use Vehicles

In early Fall 2003, a Switch-Out day was set for the vehicle repair department at Wisconsin Indianhead Technical College (WITC) in northwestern Wisconsin. Any person who wanted to make sure that their vehicle did not contain a mercury switch could have their car inspected and their switch replaced in a matter of minutes. This community event brought renewed awareness to mercury. To put together a similar program, contact local Technical Colleges that work with automotive students to have a Switch-Out day where local residents can have their car checked for mercury switches. When a car does have a mercury switch, it can be replaced free of charge. This helps educate both the public and the future automotive specialists that may come into contact with these switches. Similar "switch the switch" projects can be sponsored by auto dealerships.

Figure 18 Checking for mercury-containing switches at WITC

Mercury Websites for the Auto Industry

WDNR Mercury Switch Recycling Program
http://www.dnr.state.wi.us/org/caer/cea/assistance/scrap/switches/index.htm

Toxics in Vehicles: Mercury
http://www.cleancarcampaign.org/pdfs/toxicsinvehicles_mercury.pdf

State Mercury Car Switch Initiatives:
http://www.epa.gov/epaoswer/hazwaste/mercury/st-car-switch.htm

Fluorescent Bulbs

Even though fluorescent bulbs contain mercury, they are much more energy efficient than incandescent (non-mercury) bulbs, so less mercury is released to the atmosphere from burning coal for electricity when fluorescent bulbs are used. Use fluorescent bulbs but recycle them when they burn out!

Figure 19 Mercury-containing fluorescent bulb

Outreach Tools

- Mail fluorescent bulb recycling literature to business sectors
- Onsite visits to business sectors using many fluorescent bulbs
- Educational posters and public outreach announcements about recycling fluorescent bulbs
- Promote fluorescent bulbs and fluorescent bulb recycling at trade shows and other community events
- Establish a local mercury website

City of Superior

In conjunction with a City Council Ordinance banning the landfilling of fluorescent bulbs, the City of Superior, Wisconsin enacted a Bulb Recycling Program, stressing the need to recycle all parts of the bulb, especially mercury. The program is conducted through a partnership between the City of Superior, Murphy Oil USA, Superior Water Light and Power, and local Hardware Hank home centers. Citizens of Douglas County can submit a coupon, downloadable from the website or available from local Hardware Hank Stores, for $1.00 off the cost of recycling per bulb. Since recycling most bulbs cost $1.00, recycling is usually free. The program began in the fall of 2000 and will continue through 2005 or as long as funding is available. As of June 2005, the program has successfully recycled more than 10,000 fluorescent bulbs. More information can be found at the website below.

City of Marinette

In 2002, the City of Marinette Wastewater Treatment Plant offered mercury-free thermometers to people who turned in 5 fluorescent bulbs. This program was promoted in "City Lines," a city newsletter delivered to all water/sewer users, as well as on the radio and in the newspaper.

Participants in the program were required to pay an at-cost fee based on the length of the fluorescent bulbs they turned in ($0.30/4ft, $0.45/over 4ft, and various costs for specialty bulbs). During the month-long span of the program, over 2500 bulbs were turned in; Marinette attributes this success to a convenient drop-off location, a reward (the mercury-free thermometers), and substantial amounts of free advertising.

Mercury Website for Fluorescent Bulbs

City of Superior Fluorescent Bulb Recycling Program:
http://www.ci.superior.wi.us/publicwks/wastewater/fluorescent%20bulbs.htm

INFORM – Fluorescent Lamps:
http://www.informinc.org/fact_P3fluorescentlamps.php

Bulb Recycling Resource: http://www.nema.org/lamprecycle/

Association of Lighting and Mercury Recyclers: http://www.almr.org/

Dairy Manometers

The Wisconsin Department of Natural Resources is working with dairy equipment dealers to phase out the use of mercury-containing dairy manometers, which are used to measure vacuum pressure in dairy barn milking systems. The program effectively replaces mercury-containing manometers with digital manometers. Farmers that volunteer to replace their mercury-filled manometer with a mercury-free gauge receive a $200 reimbursement from the DNR. The mercury manometer is recycled at **no charge**. As of 2005, 532 mercury-containing manometers have been collected, containing 405 pounds of elemental mercury.

Figure 20 Mercury-containing manometers

Outreach Tools

- Mail information about mercury manometer replacement to dairy equipment dealers
- Onsite visits to dairy farms

Mercury Website for Dairy Manometers

Dairy Manometer Replacement Program:
http://www.dnr.state.wi.us/org/caer/cea/mercury/program.htm#Dairy

MERCURY POLLUTANT MINIMIZATION PROGRAM GUIDANCE
U.S. EPA Region 5, NPDES Programs Branch
November 2004

1. Background and Overview

The following Guidance has been developed in conjunction with the Region 5 states, to address situations where a Pollutant Minimization Program (PMP) is required in a state-issued NPDES permit as a result of the permittee receiving a variance from the underlying state water quality standard for mercury. Many of the specific recommendations are drawn from existing guidance and practices of the Region 5 states. As guidance, this document does not create any obligations enforceable by any party. Both industrial and municipal permittees may be required to develop PMPs; however, because of the more complex and indirect nature of mercury contributions within these systems, the recommendations in this guidance pertain primarily to Publicly Owned Treatment Works (POTWs). Each POTW affected by PMP requirements will need to determine how it intends to comply. To the extent that other nearby POTWs will be faced with the same requirements, however, EPA and the States strongly encourage POTWs to coordinate with other POTWs in both the development of their PMP Plans, and in their implementation activities to identify and reduce mercury loadings from source sectors.

While it is expected that specific permit language and conditions will vary (see Ohio sample PMP permit language, included in Attachment 1), there are a number of important elements for a mercury PMP.

1. A Program Plan, which lays out the POTW's commitments for:
   a. Identification of potential sources of mercury that contribute to discharge levels;
   b. Reasonable, cost-effective activities designed to reduce or eliminate mercury loadings from identified sources;
   c. Tracking mercury source reduction implementation and mercury source monitoring;
   d. Monitoring the POTW's influent, effluent and biosolids, including at least quarterly influent monitoring;
   e. Resources and staffing;
2. Implementation of cost-effective control measures for direct and indirect contributors; and
3. An annual status report submitted to the Permitting Authority, which includes:
   a. A list of potential mercury sources;
   b. A summary of actions taken to reduce or eliminate mercury discharges to enable the POTW to progress toward meeting the water quality based effluent limitation (WQBEL);
   c. Mercury source reduction implementation, source monitoring results, and influent, effluent and biosolids results for the previous year;
   d. Proposed adjustments to the Program Plan, based on the findings of 3.c.

The PMP is meant to be a self-revising process. Results from annual reports need to be used to make necessary revisions to the Program Plan and the implementation activities in subsequent years to address problems discovered, and investigate new areas where the pollutant might be found. The goal of the PMP is to move the POTW's effluent level towards, and to achieve as soon as is practicable the level specified by the underlying water quality based effluent limit necessary to comply with the mercury water quality criteria (which will generally be 1.3 ng/l in the Great Lakes Basin and elsewhere in the Region 5 states). When this goal is realized, that is, when the discharger can be reasonably expected to be in compliance with the WQBEL, then the PMP requirements can be removed from the permit. Where a POTW believes

it has identified all known sources of mercury, and has fully implemented control strategies with respect to those sources, yet remains unable to meet the underlying WQBEL, it should document those findings in its annual reports, and revise subsequent program plans accordingly.
Each element is discussed below.

2. Program Plans

2.1 Requirements to develop PMP Plans.

Requirements to conduct initial monitoring and develop a mercury PMP will be included in a POTW's NPDES permit at the time of reissuance (where a variance has been granted concurrently), as a condition for receiving a variance from the water quality standard on which the water quality-based effluent limit for mercury is based, or as triggered by results showing a reasonable potential for violating water quality criteria, based on monitoring conducted during the life of the permit. States have generally been allowing six to eighteen months for development and submittal of Program Plans, depending on the extent to which the state requires additional data collection in support of the Plan, and the POTW's previous experience with regard to mercury minimization.

2.2 Identification of potential sources of mercury that contribute to discharge levels (to be updated at least annually).

Sources of mercury within a POTW system can be identified using two basic methods: 1) review of existing information sources, and 2) sampling at various points within the sewer system. These activities can be done separately, but an initial review of types and locations of existing users within a system will help design a monitoring plan which focuses on the most potentially significant contributors. The Program Plan should therefore include a review of existing information regarding industrial, commercial and domestic users of a POTW system. For some source sectors, including most of those in the matrix in Table 1, all individual facilities should be considered likely sources of mercury. For others, such as manufacturing facilities or other Significant Industrial Users, review of production processes, materials usage and discharge information should be evaluated. Studies and other literature such as source sector analyses from other POTWs (see http://www.epa.gov/Region5/air/mercury/mercury.html and http://delta-institute.org/pollprev/mercury/mercury.php), and EPA development documents and Industrial Sector Notebooks on specific industrial categories can be useful sources of information.

Existing influent, effluent and biosolids data should also be evaluated, as well as other available information such as storm water inputs, groundwater (Inflow & Infiltration) inputs, and wastestreams or sewers tributary to the treatment plant. While some States and POTWs may be interested in establishing a mass balance of all mercury inputs so as to be able to characterize controllable versus uncontrollable contributions, it is recommended that the primary focus be on information indicating community sectors and/or geographic locations which are the source of potentially significant contributions.

2.3 Development of Control Strategies

The Program Plan next should describe the POTW's prioritized approach for development of Control Strategies for various source sectors, based on review of existing data and the results of subsequent monitoring. The Plan should also describe any other mercury reduction activities which have already been carried out in a community, as these activities may be substantial and will form a base for the additional activities that will need to be done. At minimum, the sectors in Table 1 reflect direct dischargers of mercury to POTWs, and should be addressed as part of a POTW's mercury PMP. Consideration should also be given to addressing the sectors in Table 2. Although mercury is generally not directly released to POTWs from these sources, they may still pose a significant threat to a POTW's

compliance with its mercury effluent limits. Accidental breakage of mercury-containing devices such as thermometers, while infrequent, may be enough to increase short-term loadings to a POTW. Where a POTW also receives stormwater runoff, mercury levels could be elevated if mercury-containing devices are left at locations such as demolition sites or scrap yards. **NOTE: While we believe that all of the activities listed in Table 1 can be valuable tools in reducing mercury discharges, specific activities and performance measures chosen by a POTW may vary from those recommended below in order to most efficiently implement effective mercury reduction outreach or other controls. These recommendations are based on current information and experience. They may be reevaluated if sector-specific or other relevant national guidance is developed.** Ultimately, activities should be selected by a POTW as part of its mercury control strategy based on the potential of those activities to reduce mercury loadings to its sewer system, and thus to its effluent and biosolids. Whatever approach is taken initially, progress should be monitored with respect to both participation levels and mercury loading reductions. This tracking may indicate the need to change course as necessary for a given sector.

In addition to describing the proposed activities for each sector, the Plan should also include a schedule for implementation which identifies milestones as appropriate.

Table 1 - Direct Contributors to Address in Mercury PMPs

Sector	*Activity*	*Performance Measure*	*Goal*
Medical- Hospitals, clinics, nursing homes, veterinarians	-Mail AHA BMP literature -Workshops -Onsite visits -BMP requirements -Permits	Date/content Participation Reduction Progress, quantity recycled Adoption/implementation	-Mercury-free wherever practicable -Spill management
Dental clinics	-Mail appropriate BMP literature -Mtgs with dentists -Onsite visits -Survey(s) -Adherence to ADA's BMPs (voluntary or mandatory) -Mercury recycling (voluntary or mandatory) -Adoption of removal equipment meeting ISO standards (voluntary or mandatory) -Permits	Date/content Participation Adoption/implementation Quantity recycled Adoption/implementation [Note: Certain facilities do not use or generate mercury, and some measures may not be applicable to them]	-Capture and recycle mercury used or generated -Minimize mercury discharges
Schools-Secondary	-Mail BMP literature -Workshops -Onsite visits -Permits	Date/content Participation Reduction progress Quantity of mercury recycled	-Mercury-free wherever practicable -Spill management

Sector	*Activity*	*Performance Measure*	*Goal*
Schools-Colleges/Technical, laboratories	see Medical and School sectors	see Medical and School sectors	
Other industries and businesses with potential for mercury contributions	-Mail chemical/equipment literature -Onsite visit during pretreatment inspection -Application of local limits and/or require BMPs/IU PMP in IU permits	Date/content Reduction progress Quantity of mercury recycled	-Phaseout of mercury containing devices and chemicals -Spill management
POTWs, other municipal departments and agencies, hauled waste	-Evaluate chemical /equipment usage -Evaluate domestic and nondomestic wastes hauled to POTW, *see activities from other sectors as appropriate*	Reduction progress Quantity recycled	-Phaseout of mercury containing devices and chemicals -Spill management
General public	-Promote mercury clean sweeps -Displays at community events - Public Service Announcements -Outreach at schools -Establish local mercury website	Date/contents Quantity of mercury recycled Website hits	-Reduced use of mercury containing products -Recycling of mercury products -Spill management

Table 2 - Indirect Contributors to Address in Mercury PMPs

Sector	*Activity*	*Performance Measure*	*Goal*
Thermostats-HVAC Wholesalers/Contractors, Retail stores	-Mail Thermostat Recycling Corp. literature -Workshop -Trade assoc. coordination -Onsite visits -Surveys	Date/content Participation Recycling progress Quantity of mercury recycled	-All captured and recycled -Spill management
Automobile and appliance switches	-Onsite visits-service centers -Replace hood/trunk switches -Onsite visits-scrap yards -Clip & Recycle switches	Date/content Participation Quantity recycled	-All captured and recycled -Spill management
Dairy manometers	-Mail information -Promote use of non-mercury manometers	Date/content Participation Quantity recycled	-All captured and recycled -Spill management
Outside POTW boundaries	see all sectors above	see all sectors above	see all sectors above

2.3.1. Stakeholder Engagement

To be Effective, control strategies should be tailored to the specific source sector. These strategies will need to include forming partnerships with stakeholders such as trade associations, industrial or commercial representatives, local solid and hazardous waste officials, municipal and county health officials, POTW treatment plant and pretreatment staff, environmental or other public interest organizations, technical assistance providers, academics, equipment vendors, analytical labs that run mercury samples, mercury recyclers and others. Participation in statewide or regional efforts (e.g. state dental or hospital associations**,** state and local school agencies and boards) will also greatly improve a POTW's ability to provide outreach and education to association members within its jurisdiction. In addition, local recognition of successful facility or sector mercury reduction activities has proven to be a popular means of encouraging facility participation, and should be strongly encouraged.

POTWs and other municipal departments can be sources of mercury, and can serve as role models for addressing mercury in their communities (see references under wastewater treatment plants and municipal departments).

Collection programs for community residents (e.g. bulk mercury from dentists, thermometer take-backs) have proven effective in removing stocks of mercury from the community that could otherwise end up in wastewater or the solid waste stream, and serve to raise awareness for the importance of mercury reduction efforts. The availability of mercury recycling vendors, whether public or private, is crucial to the success of these collection programs as well as recycling from other sectors, and should be identified, and established if necessary, early in program planning and implementation.

While existing authority should generally be adequate, legal authority issues may need to be considered for some of the strategies. For example, POTWs should evaluate their legal authority to ensure that they are able to require Industrial Users to:

- Develop mercury minimization plans;
- Comply with narrative BMP requirements;
- Apply numeric local limits to non-significant industrial users; and
- Permit non-significant industrial users.

In order to improve the efficiency of educational outreach and mercury product recycling efforts, municipalities should be encouraged to collaborate with others in their area in the preparation and implementation of Mercury PMPs, at least with respect to the control strategies.

2.4 Monitoring of potential sources of mercury

In addition to review of existing information, PMP plans should also lay out a POTW's plans for monitoring known and suspected sources of mercury. POTW monitoring of source reduction activities using the types of performance measures included in Tables 1 and 2 is one way for both the POTW and states to determine whether a POTW is meeting its PMP commitments. For example, Wisconsin has established a goal of schools becoming mercury-free. POTWs would be able to monitor and report their progress towards this goal by reporting the number of schools within their jurisdiction, the number of mercury assessments conducted at these schools, and the number that have become mercury free. Where this approach is taken, it is recommended that some spot-test or random sampling program be maintained to measure progress of educational programs, and to identify any odd "hot spots" that may show up.

POTWs should consider determining the baseline level of BMP implementation for various sectors, which may be important in establishing the potential mercury load reductions for these sectors.

The Water Quality Guidance for the Great Lakes System, 40 CFR 132, Appendix F, Procedure 8.D. requires semi-annual monitoring of potential sources of the subject pollutant, and quarterly monitoring of the wastewater treatment plant influent where a PMP is required due to a water quality-based effluent limit being below the quantification level. While the PMP and associated monitoring requirements in the federal Great Lakes rules are not directly applicable for state-issued mercury variances, they should nonetheless be considered in development of an effective monitoring plan.. Where there are large numbers of individual sources (like residential areas), representative sampling could be conducted to determine how much a given type of source adds to the system load, and to gauge the effectiveness of outreach efforts. In some situations, monitoring methods other than chemical analysis (such as mass- or materials-balance, which rely on assumptions of loadings per individual source rather than chemical analysis) may be appropriate, such as where there are a large number of facilities with low individual loadings, where individual effluent monitoring on a large scale is impractical, or for episodic dischargers such as dentists. In general, the plan should lay out a monitoring schedule that will allow the permittee to establish baseline levels, determine the effectiveness of various activities and track progress of the PMP.

To ensure that potential sources are not missed, it is also recommended that plans include an in-sewer monitoring scheme that begins with sampling main sewers coming into the treatment plant, and working back through the system to identify particular sources. This may need to include sampling of sediments within sewers or drainage ditches tributary to the sewers to determine if in-place pollutants are contributing to the loading.

Sampling and analytical methods used in conducting these monitoring plans may vary, based on the purposes for which the data will be used, and the location of the sample within the POTW. Given the need to compare results with variance-based limits and the underlying water quality-based effluent limits, methods 1669 and 1631 will need to be used for effluent monitoring. However, while these methods can be successfully run on Industrial User effluents and other points within a POTW, less sensitive methods and less-strict sampling protocol may be appropriate for some influent or collection system samples.

POTW influent levels are commonly in the 50 to 200 ng/L range. Collection system samples may be higher in certain parts of the system. EPA Methods 1669 and 1631 are performance based. This means that " alternate procedures may be used so long as these procedures are demonstrated to yield reliable results." Stated another way, less stringent procedures may be used as long as contamination levels are maintained at acceptable levels and sensitivity and other quality control requirements are maintained.

- Sample contamination - Method 1631E, Section 9.4.5.2 indicates that the field blank concentration must be no greater than 0.5 ng/L or one-fifth the level in the associated sample, whichever is greater.
- Method sensitivity - Method 1631E, Section 9.1.2.1 indicates that the Method Detection Limit (MDL) of the method used must be no greater than 0.2 ng/L or one-third the regulatory compliance level, which ever is greater.
- Other quality control - Requirements in Method 1631 regarding standards, method blanks, matrix spikes and matrix spike duplicates must still be followed.
- High concentration samples - Whenever possible, laboratories should be notified when high concentration samples are being submitted so they can select less sensitive procedures or perform necessary dilutions. Failure to identify high concentration samples may compromise the quality of low level results and shut down the instrument for extended periods while the laboratory decontaminates the system.
- Use of Less Sensitive Methods - Although samples may be diluted to bring sample concentrations into the working range for method 1631, it is also appropriate to select less sensitive methods for higher concentration samples. Section 9.1.2 of method 1631E allows certain modifications of the method when less sensitivity is required. Laboratories may substitute the detector with a cold vapor atomic absorption system (CVAAS) similar to that used in method 245.1. The initial preconcentration on the gold amalgam may be omitted, making the method functionally equivalent to method 245.7. For samples expected to have concentrations in excess of 500 ng/L (0.5 ug/L), the traditional dilutional method 245.1 can be useful. However, be aware that the potassium permanganate used in the method acts as a mercury scavenger, so results may have a high bias.

Typical Mercury Concentrations and Method Options For Wastewater Sources
[Estimates based on WDNR observations]

Source	*Typical Concentration*	*Method Options*
POTW wastewater influent	50 - 500 ng/L	1631 (dilution) 1631 modified (245.7*)
POTW wastewater effluent	1 - 20 ng/L	1631
POTW sludge or biosolids	0.2 - 30 mg/Kg (dry weight)	SW 846-7471B
POTW Collection System	50 - 1000 ng/L	1631 (dilution) 1631 modified (245.7) 1631 modified (CVAAS) 245.1 (optimized & dedicated instrument)
Industrial Effluent -general	Variable	1631 1631 modified (245.7) 1631 modified (CVAAS)
Industrial Effluent - mercury process or contaminated feedstock	Variable	1631 modified (245.7) 1631 modified (CVAAS) 1631 (dilution) 245.1
Surface Water	0.2 - 10 ng/L	1631
Dental office discharge **	episodic discharges ranging *from 1,000- 12,000,000* ng/L	245.1 1631 modified (CVAAS) 1631 modified (245.7)

***** Seattle Metro 1991; Massachusetts (MWRA) 1997; Barrucci (San Francisco) 1992, 1993; Pima County, AZ, 1991.***

Additional details on appropriate sampling and analytical procedures are discussed in WDNR's Guidance for Collecting Samples for Total Mercury Analysis to Meet Wastewater Permit Requirements in Wisconsin sampling guidance, (attachment 2).

2.5 Resources and Staffing

Lastly, Program Plans need to summarize the resources and staff that will be committed to implementation of mercury PMPs. Specifically, Plans should indicate the source and amount of funding that will be available to carry them out. They should also include the number and position of Full Time Equivalents that will be devoted to PMP implementation. Where other POTWs, municipal agencies, or trade associations will be helping to plan or implement mercury reduction activities, those resources and staffing estimates should be included as well.

2.6 State approval of the plans

The states will be reviewing and approving POTW PMP plans to ensure that implementation moves the POTW towards the goal of maintaining mercury concentrations at or below the WQBEL. As indicated in section 2.1, POTWs will generally be required to submit proposed plans within a reasonable period of time (typically 6-18 months) from reissuance of the POTW's NPDES permit, or as required by the permitting authority as a condition for receiving a variance.

Proposed plans should be reviewed based on addressing the specified elements discussed above. As indicated above, proposing activities in the "indirect contributors" section (Table 2) should generally not be accepted *instead of* activities in the "direct contributors" section (Table 1), although the value of addressing those additional sectors should be considered as part of the evaluation of adequacy of the overall plan. Similar consideration should be given to activities that address sources outside a POTW's jurisdictional boundaries. POTWs would need to address comments and make necessary revisions prior to state approval of the plans. Upon plan approval, implementation would be required as a condition of the POTW's NPDES permit. POTWs are encouraged, however, to begin implementation activities such as monitoring, outreach to dischargers and internal audits prior to final approval, or prior to a PMP being required.

An example of a PMP developed by a POTW in Michigan is included in Attachment 3.

3. Program Implementation

Upon approval of its Plan, the POTW will be responsible for carrying out and tracking implementation of its source reduction strategies, and conducting the specified monitoring. While U.S. EPA, the states and others are engaged in identifying the best approaches for addressing mercury sources in the various sectors, much work has been done in this area. POTWs should be encouraged to review available information, and to the greatest extent possible adopt approaches that others have found to be effective. Several of the States in Region 5 have already identified materials that can be used or revised as necessary for distribution to sources in several sectors; these materials are referenced in references and websites below. Other sources of mercury pollution prevention and waste minimization information are available at http://www.epa.gov/Region5/air/mercury/mercury.html.

4. Annual status reports

PMP reports are an important element of state approved plans, and will generally be required to be submitted one year after the Program goes into effect, and annually thereafter. For POTWs with pretreatment programs, these reports can be submitted with their Annual Pretreatment Report. Reports should include a summary of potential sources of the pollutant, a summary of all source control activities, and results of source reduction monitoring and wastewater sampling for the previous year. Proposed adjustments to the Program should also be included.

4.1 Potential mercury sources

The annual report should identify individual facilities or targeted groups within the various sectors covered by the plan. A list of new potential sources that have been identified as a result of monitoring or other evaluation should also be provided. Status of these facilities with respect to the goals laid out for the different sectors should be provided, as described in section 4.3 below.

4.2 Summary of actions taken to reduce or eliminate mercury discharges

This section would include actions taken in response to monitoring results discussed below, and in furtherance of the control strategies laid out in the Plan. Progress with respect to identified goals for the various sectors should be discussed. If no actions were taken to address an identified source or sector, an explanation should be provided. Historic mercury source reduction activities, as well as *recent* actions taken in the last year, should be included in this summary. This will give the municipality credit for all their activities to date regarding the various sectors, and will facilitate review of the annual report.

4.3 Source Reduction and Wastewater Monitoring results

All mercury data collected during the previous year should be included with the annual report. This would include tracking of source reduction activities with respect to established sector-specific performance measures as discussed in section 2.4, as well as influent, effluent, biosolids data, and data collected from potential sources. Sampling dates, method of analysis, the laboratory name, and appropriate units should accompany any wastewater monitoring results.

The Water Quality Guidance for the Great Lakes System calls for at least quarterly influent monitoring for POTWs implementing PMPs. Several of the states have viewed this as a minimum requirement for both influent and effluent, but have required additional, generally monthly monitoring, for larger POTWs (those with flows of greater than 5 million gallons per day). In addition, these states have generally required biosolids monitoring from one to four times per year, with the frequency varying based on the volume of biosolids generated. Collection of biosolids data is important in tracking progress in reducing mercury releases to the environment; tracking effluent levels alone will not fully indicate progress in reducing mercury releases to the environment.

4.4 Revision of plans

Finally, the Annual Report would need to include any proposed adjustments to a POTW's Program Plan where municipal activities have not been implemented as originally agreed to, source reduction implementation has not occurred, or source reduction implementation has occurred, but has not been effective in reducing mercury discharges (after accounting for sample variability).

5. Compliance determinations under state NPDES programs

Compliance with the permit provisions for a POTW with mercury limitations based on a variance from the water quality standard would be determined by evaluating two components of the permit. First, the concentration in the POTW's effluent would be compared to the currently achievable level as established through the state's variance process. Second, the facility would need to be in compliance with the PMP requirements of the permit. Specifically, it would need to have developed the PMP Plan, and then fulfilled the commitments established and agreed to in the approved Plan. After approval of the initial plan, compliance would be evaluated primarily through review of the annual status report, to determine whether the POTW had adequately identified known and potential mercury sources, had carried out the activities it committed to, and had satisfied the specific source reduction and wastewater monitoring requirements. Evaluations for subsequent years would need to take into account revisions described in the previous year's annual report. Where a POTW has coordinated with other POTWs, the reports from the communities should be reviewed as a group.

6. Approaches to Establishing Local Limits for Mercury

6.1 Background on local limits

Local limitations are generally developed by POTWs to implement the general and specific prohibitions of the General Pretreatment Regulations, 40 CFR 403, and are established to prevent discharges that cause pass through, interference, or which threaten worker health and safety. EPA's Local Limits Development Guidance (EPA 833-R-04-002A, July 2004) identifies fifteen pollutants, including mercury, which are presumed to be pollutants of concern, and should be evaluated to determine whether local limits should be established. Where established, local limits for mercury and other pollutants are typically expressed as daily maximum and/or a longer term average concentration.

The National Pretreatment Program, and the underlying General Pretreatment Regulations apply to Industrial Users (IU). An IU is defined as a source of indirect discharge, which in turn is defined as the introduction of pollutants into a POTW from any nondomestic source regulated under Section 307(b)(c) or (d) of the Clean Water Act (40 CFR 403.3(g)). Thus, all non-domestic users of a POTW, which would be considered any user except for a household or dwelling unit, are considered Industrial Users, and are thus subject to Pretreatment Standards and Requirements. And while many POTWs have established local limits for mercury, with some applying these limits to hospitals and other Significant Industrial Users (SIU), mercury local limits have generally not been enforced against "commercial" facilities such as dental clinics, schools, etc. Where these facilities have been addressed, it has generally been through voluntary outreach and education efforts. As discussed in this PMP guidance, promotion of voluntary source reduction will remain an integral part of PMPs. In order to increase participation in implementing Best Management Practices and other source reduction strategies to achieve the greatest possible mercury reductions, however, POTWs will need to consider application of local limits for these commercial users.

6.2 Best management practices (BMPs) as local limits

Ensuring compliance by all industrial and commercial facilities within a POTW's jurisdiction with uniform concentration-based mercury limits will generally not be desirable or feasible. As an alternative, some POTWs have established mercury limits that apply to all IUs, but then establish alternative methods that can be used by certain commercial or industrial sectors to demonstrate compliance with the limits.

The issue of using requirements for Best Management Practices instead of or in addition to numeric local limits was addressed in EPA's Pretreatment Streamlining Proposal (64 FR 39563, July 22,1999). As discussed in that proposal, the Pretreatment Regulations do not specifically address the use of BMPs as local limits, and are not clear as to whether BMPs can satisfy current requirements for development and implementation of local limits. However, as pointed out in the proposal, The Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (EPA 833/B-87/202, December 1987) provides general information on the use of BMPs as local limits. Specifically, the guidance explains, ``The development and implementation of numeric local limits is not always the only appropriate or practical method for preventing pollutant pass through and interference, or for protecting POTW worker health and safety. Control of chemical spills and slug discharges to the POTW through formal chemical or waste management plans can go a long way toward preventing problems. A local requirement for an IU to develop and submit such a plan can be considered as a type of narrative local limit and can be a useful supplement to numeric limits."

Recognizing that some POTWs are already using BMPs to control certain wastewater discharges where they found it impractical to apply a numeric effluent limit, EPA proposed to clarify that best management practices developed by POTWs may serve as local limits required by 40 CFR 403.5(c)(3), and that such BMPs would be enforceable under 40 CFR 403.5(d). While this clarification has not yet been finalized,

U.S. EPA Region 5 believes that BMPs developed by POTWs to prevent pass through and interference would be considered enforceable local limits under 40 CFR 403.5(c), and supports this approach.

6.2.1 Sector-specific mercury BMPs

With respect to mercury, some cities are implementing formal regulatory programs for controlling mercury discharges from dental facilities, which were identified in a 2002 Association of Metropolitan Sewerage Agency study as the largest source of mercury to evaluated POTWs (Mercury Source Control & Pollution Prevention Program Evaluation (March 2002). Voluntary and regulatory programs, along with case studies, are discussed in the Binational Toxics Strategy Mercury Workgroup report Options for Dental Mercury Reduction Programs: Information for State/Provincial and Local Governments (updated April 2004). In general, these programs focus on implementation by dental facilities of BMPs such as those adopted by the American Dental Association (ADA), as well as installation of amalgam separators. Amalgam separators are devices that remove amalgam from wastewater before it leaves the dental clinic. As pointed out in a video developed by the ADA and the Naval Institute for Dental and Biomedical Research entitled "Dental Amalgam and Best Management Practices" (http://www.ada.org/prof/resources/topics/amalgam_bmp.asp), the use of amalgam separators can substantially reduce levels of dental mercury that reach wastewater treatment plants, and studies in several communities where separators have been adopted have shown marked reduction in mercury levels in municipal wastewater treatment plant sludge.

To control potential mercury releases from schools, Indiana, like some other states, has adopted legislation prohibiting schools from using or purchasing most mercury commodities, compounds or equipment. Satisfaction of these state requirements or implementation of state programs for inventorying and elimination of mercury in schools could be incorporated into local requirements for schools. Likewise, hospitals and medical clinics could be required to implement BMPs adopted by the American Hospital Association.

6.3 Incorporating BMPs into the technical evaluation of local limits

As discussed in the Pretreatment Streamlining proposal:

> For BMPs to be considered local limits under 40 CFR 403.5(c), they must protect against pass through and/or interference. This will require the POTW to evaluate the BMPs during the technical evaluation of its local limits. During the technical evaluation for local limits, the POTW will determine the maximum allowable headworks loadings (MAHL) for pollutants of concern. This MAHL will then be allocated to the different contributing sectors of the service area, such as domestic loadings, commercial loadings, industrial loadings and a safety factor.
>
> Based on these considerations, the POTW will decide how to control the different contributing sectors in order to protect against pass through and interference. Often the POTW simply allocates a portion of the loading to control industrial contributions; this is considered to be the maximum allowable industrial load (MAIL). The MAIL is then converted into the local limit which is often expressed as an across-the-board concentration applicable to all industrial sources or all "users of the POTW." This is not the only way local limits can be developed. Another option available to the POTW is to apply the MAIL to all industrial and commercial sources and to use a mixture of BMPs and numeric limits to control industrial and commercial sources of pollutants. Whatever the allocation scenario, the BMPs are developed by the POTW to protect against pass through and interference, and are local limits."

Thus, POTWs providing for use of BMPs by certain commercial or industrial sectors as an enforceable alternative to numeric mercury limits will need to review the basis of their underlying numeric limits. What may previously have been considered "uncontrollable" loadings from commercial facilities may now be considered "controllable" loadings. The recharacterization would result in the shifting of loading from the domestic background to the MAIL. Under ordinary circumstances, POTWs using BMPs as local limits would be able to provide an evaluation that implementation of the numeric limit plus implementation of BMPs for specific sectors should result in the calculated MAIL being met.

Available data, however, indicates that mercury local limits calculations for many Great Lakes dischargers would result in negative local limits. In other words, the domestic loading alone may exceed the MAHL, leaving no allowable loading to allocate to commercial or industrial users. This is mainly a function of the estimated domestic loading (the mercury loading from an "average" person multiplied by the number of residents), and the water quality based effluent limit (WQBEL) (A report prepared for the Association of Metropolitan Sewerage Agencies utilized a value of 17.2 ug/day/person (Mercury Source Control & Pollution Prevention Program Evaluation (March 2002)). This situation will pose a significant challenge to POTWs responsible for developing technically based local limits that prevent pass through and interference, as well as the States that must approve these limits. One option for addressing this situation would be to set the local limit equal to the POTW's NPDES limit, adjusted for the mercury removal efficiency (which appears to be above 90 percent at most POTWs). Thus, if the WQBEL is 1.3 ng/l, the local limit would be between 13 and 26 ng/l (1.3 ng/l /1-.9= 13 ng/l; 1.3 ng/l /1-.95=26 ng/l). The rationale in support of this approach is that facilities with such a limit would not be contributing to pass through. This approach appears to be more practical than other, even more stringent alternatives, and would serve as a clear incentive to meet BMPs instead of the numeric limit. Even under this approach, however, opportunities for reductions in mercury discharges may be very limited in some circumstances. Where a nondomestic user discharges above the local limit due primarily or entirely to mercury in sanitary waste, BMP requirements may not have an effect.

6.4 Structuring BMP-based limits

There are a variety of ways to set mercury local limits, from establishment of uniform concentration limits, to setting technology-based limits based on achievability using certain practices or treatment technologies for different sectors. Regardless of how the numeric limit is established, the Ordinance could then provide users an alternative means of demonstrating compliance with the limit through the use of BMPs. To be considered enforceable local limits under 40 CFR 403.5(c), mercury BMPs developed by POTWs should include the common elements listed below. Depending on the sector being controlled, however, certain elements such as installation of treatment or prohibitions on practices, may not be applicable.

- Specific notice to affected users of requirements and enforceability
- Installation of treatment
- Requirements for or prohibitions on certain practices, activities or discharges
- Requirements for operation and maintenance of treatment units
- Reporting and records retention for O&M activities
- Certification and reporting of compliance
- Re-opener for a permit and local limits to be applied at the POTW's discretion
- Other requirements as determined by the POTW

As discussed above, dentists could be given the option of satisfying locally-imposed ordinance and/or permit requirements by installing an ISO 11143 approved amalgam separator, and complying with other BMPs established under the Ordinance. Compliance in such cases would be determined by review of certifications by facilities that they are satisfying those requirements, and/or by random inspections and records review by the POTW. Under this approach, those choosing not to install this equipment or follow

the BMPs should be required by the Ordinance to obtain a permit within a specified time frame, and monitor and report their compliance with the numeric limit. The POTW would also determine compliance by these facilities with the numeric limit through traditional wastewater sampling.

Similarly, hospitals, schools and potentially even Significant Industrial Users could be allowed to implement BMPs specific to their sectors as an alternative to demonstrating compliance with a numeric local limit.

6.5 Timing of local limit evaluations

Normally, POTWs with Pretreatment Programs are required to conduct technical local limit evaluations within six to twelve months from the effective date of NPDES permit reissuance. In the case of mercury, the evaluation may be significantly influenced by information generated in the course of the PMP development process. Thus, we recommend requiring mercury local limit re-evaluations to be provided subsequent to submittal of PMP plans, although the plans should include the municipality's intentions and a schedule for data collection and proposal of revised numeric limits. Where a POTW plans on using BMP-based limits, the plan should also include a schedule for revising the Sewer Use Ordinance.

References

1. Pollutant Minimization Programs Guidance, Ohio Environmental Protection Agency, Division of Surface Water, August 13, 1998, http://www.epa.state.oh.us/dsw/guidance/guidance.html

2. The Use of Best Management Practices (BMPs) as Industrial Local Pretreatment Limits, Ohio Environmental Protection Agency, Division of Surface Water, August 13, 1998, http://www.epa.state.oh.us/dsw/guidance/guidance.html.

3. Municipal Mercury Pollutant Minimization Program (Mercury PMP), Wisconsin Department of Natural Resources, Bureau of Water
http://www.dnr.state.wi.us/org/caer/cea/mercury/index.htm.

4. Procedure for Reviewing Pollutant Minimization Programs, Michigan Department of Environmental Quality, Surface Water Quality Division, August 2002. Please contact Grace Scott, Pretreatment Coordinator, at 517/335-4107.

5. Mercury Source Control & Pollution Prevention Program Evaluation- Final Report, Association of Metropolitan Sewerage Agencies, March 2002.

Websites

General Mercury:

http://www.epa.gov/Region5/air/mercury/mercury.html

Medical Mercury:

http://www.h2e-online.org

http://www.michigan.gov/deq/0,1607,7-135-3585_4127_4175-35423--,00.html

Dental Mercury:

American Dental Association Best Management Practices, and
"Dental Amalgam and Best Management Practices" (Video), American Dental Association and the Naval Institute for Dental and Biomedical Research
http://www.ada.org/prof/resources/topics/amalgam_bmp.asp

http://www.dentalmercury.com

Options for Dental Mercury Reduction Programs: Information for State/Provincial and Local Governments, A Report of the Binational Toxics Strategy Mercury Workgroup Co-Chairs
http://www.epa.gov/region5/air/mercury/dentaloptions3.pdf

Evaluation of Amalgam Removal Equipment and Dental Clinic Loadings to the Sanitary Sewer, Metropolitan Council Environmental Services and Minnesota Dental Association, December 21, 2001.
http://delta-institute.org/pollprev/mercury/linkfiles/Separator%20Comparison%20Chart.htm

Schools:

http://www.mercuryinschools.uwex.edu

General Public:

http://www.epa.gov/mercury/

North Carolina Division of Pollution Prevention and Environmental Assistance
http://www.p2pays.org/mercury/

General Industry:

http://www.nwf.org/nwfWebAdmin/binaryVault/mercuryproducts.pdf

http://www.state.me.us/dep/mercury/lcspfinal.pdf

Dairy manometers:

http://www.dnr.state.wi.us/org/caer/cea/mercury/program.htm#Dairy

http://www.deq.state.mi.us/documents/deq-ead-p2-ag-richro.pdf

Wastewater Treatment Plants:

http://delta-institute.org/pollprev/mercury/mercury.php

http://delta-institute.org/pollprev/mercury/selfassess.php

Auto Switch:

http://www.dec.state.ny.us/website/ppu/p2autosw.html

http://www.deq.state.mi.us/documents/deq-ess-p2-mercury-michiganswitchstudy.pdf

[Note: The following attachments are intended as examples only, and are not intended to serve as models or templates]

Attachment 1- Sample NPDES Permit Language Regarding Mercury PMP Requirements, Ohio Environmental Protection Agency, Division of Surface Water
http://www.epa.state.oh.us/dsw/guidance/permit7.pdf

Attachment 2- Wisconsin DNR Guidance for Collecting Samples for Total Mercury Analysis to Meet Wastewater Permit Requirements in Wisconsin, 2003.
http://dnr.wi.gov/org/water/wm/ww/mercury/clean_hands.pdf

Attachment 3- Holly, Michigan Pollutant Minimization Program, March 2003.
http://www.epa.gov/region5/water/npdestek/MercuryHolly_PMP_4-03_final.pdf

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD
AMENDING AND CREATING RULES

The Wisconsin Natural Resources Board proposes an order to amend NR 106.04(5) and NR 211 subch. IV (title) and to create NR 106.145, 211.41 and NR 219, Table B, item 35f. relating to regulating mercury in wastewater discharge permits.

WT-12-02

Analysis Prepared by the Department of Natural Resources

Statutory authority: chs. 281 and 283, Stats.
Statutes interpreted: ss. 283.15, 283.31, Stats.

This action provides a common-sense approach to regulating mercury in wastewater effluents. It adds a new high-sensitivity analytical method to NR 219 that allows mercury to be accurately measured in surface waters and wastewater effluents. A new section in NR 106 makes a finding that wastewater treatment technology for mercury is impractical and requires wastewater permittees to implement pollution prevention programs in exchange for water quality standards variances. A new section in NR 211 requires municipal entities to impose source reduction measures on users of their sewer systems.

SECTION 1. NR 106.04(5) is amended to read:

NR 106.04(5) For purposes of this chapter, a cost-effective pollutant minimization program is an activity which has as its goal the reduction of all potential sources of the pollutant for the purpose of maintaining the effluent at or below the water quality based effluent limitation. The pollutant minimization programs specified in ss. NR 106.05 (8), 106.06(6) (d), ~~and~~ 106.07(6) (f) and 106.145(7) shall include investigation of treatment technologies and efficiencies, process changes, wastewater reuse or other pollution prevention techniques that are appropriate for that facility, taking account of the permittee's overall treatment strategies, facilities plans and operational circumstances. Past documented pollution prevention or treatment efforts may be used to satisfy all or part of a pollution minimization program requirement. The permittee shall submit to the department an annual status report on the progress of a pollutant minimization program.

SECTION 2. NR 106.145 is created to read:

NR 106.145 Mercury regulation. This section provides an alternative means of regulating mercury in WPDES permits through the establishment of alternative mercury effluent limitations and other requirements and is intended as a supplement to the authority and procedures contained in other sections of this chapter. For purposes of this section, an alternative mercury effluent limitation represents a variance to water quality standards specified in chs. NR 102 to 105.

(1) FINDINGS. On the effective date of this rule … [revisor inserts date], the department finds all of the following:

(a) Requiring all dischargers of mercury to remove mercury using wastewater treatment technology to achieve discharge concentrations necessary to meet water quality standards would result in substantial and widespread adverse social and economic impacts.

(b) Representative data on the relatively low concentrations of mercury in wastewater are rare and methods for collecting that data have only recently been developed.

(c) Appropriate mercury source reduction activities are environmentally preferable to wastewater treatment technology in many cases because wastewater treatment for mercury produces a sludge or other resultant wastewater stream that can be as much or more of an environmental liability than the untreated effluent.

(2) DETERMINING THE NECESSITY OF MERCURY EFFLUENT LIMITATIONS. (a) The department shall determine whether a mercury effluent limitation is necessary using the procedures in s. NR 106.05.

(b) For the determination under par. (a), the department shall use representative data that comply with all of the following:

1. Data shall meet the sampling and analysis requirements of subs. (9) and (10).

2. Data shall consist of at least 12 monitoring results spaced out over a period of at least 2 years.

(3) DATA GENERATION. (a) In this paragraph, "major municipal discharge" and "minor municipal discharge" have the meanings specified in s. NR 200.02(7) and (8). If an applicant in any of the categories specified in this subsection does not have sufficient discharge data that meet the criteria of sub. (2) at the time of application for permit reissuance, the reissued permit shall require the permittee to monitor and report mercury at the following frequency and location:

1. Monthly influent and effluent for a major municipal discharge with an average flow rate greater than or equal to 5 million gallons per day.

2. Once every 3 months influent and effluent for a major municipal discharge with an average flow rate greater than or equal to one million gallons per day but less than 5 million gallons per day.

3. Once every 3 months influent and effluent for a minor municipal discharge if there are 2 or more exceedances in the last 5 years of the high quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5).

4. Monthly effluent for an industrial discharge that the department determines is likely to contribute net discharges of mercury to the environment or if sludge or biosolids mercury concentrations indicate a source of mercury.

5. Once every 3 months effluent for an industrial discharge with an average flow rate, excluding noncontact cooling water as defined in s. NR 205.03(21), of more than 100,000 gallons per day and the department has no information on mercury concentrations in similar discharges. The department may exempt discharges in this category if the department determines that there is little risk that the effluent will contain mercury.

Note: Any permittee who believes that a significant portion of the mercury in its effluent originates from its intake of surface water is encouraged to provide results of intake monitoring.

6. The department may reduce monitoring frequency from monthly to once every 3 months for discharges described in subds. 1. and 4. after at least 12 representative results have been generated.

(b) The department may require mercury monitoring for other discharges not included in one of the categories specified in par. (a) if the department has a reasonable expectation that the discharge includes significant quantities of mercury.

(c) Permittees shall collect and analyze samples according to the requirements in subs. (9) and (10).

(4) ALTERNATIVE MERCURY EFFLUENT LIMITATION ELIGIBILITY. (a) When the department makes a determination of the necessity for a water quality based effluent limitation for mercury under sub. (2), the department shall determine if an alternative mercury effluent limitation is justified based on information submitted by the permittee in an alternative mercury effluent limitation application.

(b) The department may not establish an alternative mercury effluent limitation for a new discharge to waters in the Great Lakes system, as defined in s. NR 102.12(1), unless the proposed discharge is necessary to alleviate an imminent and substantial danger to the public health or welfare. For the purposes of this section, a new discharger is any building, structure, facility or installation from which there is or may be a discharge of pollutants, as defined in s. NR 200.02(4), the construction of which commenced after the effective date of this rule …[revisor inserts date]. An existing discharger that relocates its outfall after the effective date of this rule …[revisor inserts date] may not be considered a new discharger for purposes of this paragraph. Relocation includes the diversion of a discharge from a land treatment system or systems to a surface water.

(c) The term of an alternative mercury effluent limitation may not extend beyond the term of the permit.

(d) An alternative mercury effluent limitation may be renewed using the procedures and requirements in subs. (5) to (8). An alternative mercury effluent limitation may not be renewed if the permittee did not substantially comply with all of the mercury-regulation conditions of the previous permit.

(5) CALCULATION OF AN ALTERNATIVE MERCURY EFFLUENT LIMITATION. (a) An alternative mercury effluent limitation shall equal the upper 99^{th} percentile of representative daily discharge concentrations as calculated under s. NR 106.05(4)(a), except as provided in par. (c).

(b) The alternative mercury effluent limitation shall be expressed as a daily maximum concentration.

(c) An alternative mercury effluent limitation may not be greater than the alternative mercury effluent limitation contained in the previous permit, unless the permittee demonstrates that the previous alternative mercury effluent limitation was based on monitoring that did not represent actual discharge concentrations.

(6) DEPARTMENT ACTION ON ALTERNATIVE MERCURY EFFLUENT LIMITATION APPLICATIONS. (a) The department shall establish an alternative mercury effluent limitation for a discharger when all of the following have been met:

1. The information provided in the alternative mercury effluent limitation application described in sub. (8) supports establishing the alternative mercury effluent limitation.

2. The permittee and the department agree upon the alternative mercury effluent limitation and the specific permit language requiring implementation of the pollution minimization program described in sub. (7).

(b) If the information provided in the alternative mercury effluent limitation application does not support establishing an alternative mercury effluent limitation or if the department and the permittee cannot agree on the alternative mercury effluent limitation and the specific permit language incorporating the pollutant minimization program, the department shall include the water quality based effluent limitation or limitations in the permit. This paragraph does not prohibit the department from seeking and the applicant providing supplemental information after the initial application is submitted.

(c) If the department grants an alternative mercury effluent limitation, the permit shall require monitoring subject to the data quality requirements of subs. (9) and (10), at the following locations:

1. Effluent for both municipal and industrial discharges.

2. Influent and sludge or biosolids for major and minor municipal discharges.

(7) POLLUTANT MINIMIZATION PROGRAMS. (a) If the department grants an alternative mercury effluent limitation under sub. (6), the reissued permit shall require the permittee to implement a pollutant minimization program as defined in s. NR 106.04(5) and detailed for mercury in this subsection.

(b) If the reissued permit requires monthly data generation under sub. (3)(a) 1. or 4., the permit shall contain a special condition that triggers a pollutant minimization program if the first 24 months of data demonstrate that a limit will be necessary under sub. (2). The permit shall also require that the permittee do all of the following:

1. Submit to the department within 36 months of permit reissuance a pollutant minimization program plan meeting the requirements specified in this subsection.

2. Implement the pollutant minimization program following submittal of the plan.

3. Submit the first annual status report required in par. (g) within 48 months of permit reissuance.

(c) For municipal permittees, a pollutant minimization program shall consist of all of the following elements:

1. Source identification.

2. Activities to help educate the general public, health professionals, school teachers, laboratory personnel or other professionals about ways to reduce use of mercury-containing products, recycle mercury-containing products and prevent spills.

3. A program for collecting mercury from the permittee's sewer system users. This program may be independently operated by the permittee, jointly by the permittee and others or by another governmental unit.

4. Other activities that the department, in consultation with the permittee, deems appropriate for the individual permittee's circumstances.

(d) For industrial permittees, a pollutant minimization program may consist of any of the following elements:

1. Source identification and inventory.

2. Improvement of operational, maintenance or management practices.

3. Substitution of raw materials or chemical additives with low-mercury alternatives.

4. Institution of alternative processes.

(e) In assessing the appropriate elements for a pollutant minimization program, the department may consider any of the following:

1. The type of discharger.

2. The operations that generate the wastewater.

3. The level of mercury in the effluent, influent and biosolids or sludge.

4. The costs of potential source reduction measures.

5. The environmental costs and benefits of the pollutant minimization program elements.

6. The characteristics of the community in which the discharger is located.

7. The opportunities for material substitution.

8. The opportunities available for support from or cooperation with other organizations.

9. The actions the discharger has taken in the past to reduce mercury use or discharges.

10. Any other relevant information.

(f) The pollutant minimization program plan shall include all of the following:

1. Identify specific activities to be undertaken and a relative timeline to implement those activities.

2. State which, if any, activities have already been implemented and how effective they were in reducing potential and actual mercury discharges.

3. Commit the permittee to document how the pollutant minimization program plan was implemented including measures such as the number of contacts of various types made, programs implemented and other activities.

4. Provide for steps to measure the effectiveness of the pollution minimization program elements in reducing potential and actual mercury discharges. Where the permittee regularly monitors influent, effluent, sludge or biosolids for mercury, measures shall include any changes in mercury concentrations over comparable historic data. Where practicable, other measures or estimates of mercury reductions from programs such as mercury recycling, collection or disposal may also be included.

(g) Within 12 months of the beginning of implementation of the pollutant minimization program and annually thereafter, the permittee shall report to the department on the progress of the pollutant minimization program as required in s. NR 106.04(5). This annual report shall include all of the following:

1. An evaluation of the effectiveness of the program in accordance with the plan.

2. Identification of barriers that have limited program effectiveness and adjustments to the program that will be implemented during the next year to help address these barriers.

(h) Permittees may collaborate with one another or other parties to plan and implement a pollutant minimization program.

Note: Permittees that do not prepare or effectively implement a pollutant minimization program are subject to regulatory requirements for mercury, without alternative mercury effluent limitations to water quality standards. For municipal permittees this may mean development and enforcement of mercury discharge standards for users of the public sewerage system pursuant to s. NR 211.10(3). For users of the municipal sewerage system this may mean changes in processes, installation of treatment technology, or other means to comply with the municipal mercury discharge standards pursuant to s. NR 211.10 (1). Implementation of the municipal mercury discharge standards may require a program of user discharge permits and wastewater discharge monitoring.

(8) ALTERNATIVE MERCURY EFFLUENT LIMITATION APPLICATIONS. (a) To apply for an alternative mercury effluent limitation under this section, a permittee shall do all of the following:

1. Submit an alternative mercury effluent limitation application at the same time as the application for permit reissuance following data generation.

2. State the basis for concluding that wastewater treatment technology for mercury is impractical.

3. Supply representative effluent monitoring results of sufficient number and analytical sensitivity to quantify with reasonable certainty the concentration and mass of mercury discharged. Representative sample results shall meet all of the following requirements:

a. Be of sufficient quantity to allow calculation of the upper 99th percentile values pursuant to s. NR 106.05(5).

b. Reasonably represent current conditions.

c. Meet the data quality requirements of subs. (9) and (10).

d. Represent a time period of at least 2 years.

4. Submit a pollution minimization program plan described in sub. (7)(f).

(b) A permittee applying for renewal of an alternative mercury effluent limitation previously granted shall follow the procedures in par. (a) except for all of the following:

1. The permittee shall submit information indicating whether the permittee substantially complied with mercury regulation conditions of the existing permit.

2. A new pollutant minimization program plan shall re-evaluate the plan required under the previous permit.

(9) SAMPLING REQUIREMENTS. (a) Sample types may be grab or 24-hour composite. "Grab sample" and "24-hour composite sample" have the meanings specified in s. NR 218.04.

(b) Sample collection methods shall be consistent with *EPA Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Level*s, EPA-821-R-96-011.

Note: This method provides flexible procedures for collecting samples under clean conditions. Sample collection personnel may modify this procedure or eliminate steps if the modification does not lead to unacceptable contamination of the samples. This method may be accessed on the department's website at http://www.dnr.state.wi.us/org/water/wm/ww/mercury/1669.pdf.

(c) Requirements for field blanks are as follows. A field blank means an aliquot of mercury-free reagent water that is placed in a sample container, shipped to the field and treated as a sample in all respects, including contact with the sampling devices and exposure to sampling site conditions, filtration, storage, preservation, and all analytical procedures. The purpose of the field blank is to determine whether the field or sample transporting procedures and environments have contaminated the sample:

1. At least one field blank shall be collected at each site for each day a sample is collected. If more than one sample is collected in a day, at least one field blank for each 10 samples collected on that day shall be collected.

2. If mercury or any potentially interfering substance is found in the field blank at a concentration equal to or greater than 0.5 ng/L, the limit of detection or one-fifth the level in the associated sample, whichever is greater, results for associated samples may not be used for regulatory compliance purposes unless the conditions in subd. 3. are met.

3. If at least 3 field blanks are collected on a day when samples are collected and the average mercury concentration of the field blanks plus 2 standard deviations is less than or equal to one-half of the level in the associated sample or less than the lowest water quality criterion for mercury found in ch. NR 105, whichever is greater, results may be used.

Note: As of the effective date of this rule … [revisor inserts date] the lowest water quality criterion listed in the ch. NR 105 is 1.3 ng/L.

4. Once a permittee demonstrates the ability to collect samples from a given site using an established procedure that meet the use-criteria of subd. 2., the permittee may decrease the number of field blanks to no fewer than one field blank for each 4 sampling days.

a. The initial demonstration shall consist of at least 6 consecutive sampling days.

b. If the permittee makes significant changes to the sampling procedure or sampling personnel, the 6-day demonstration shall be repeated.

c. If after reducing the field blank frequency, a field blank fails to meet the use-criteria, the permittee shall take corrective action and return to collecting field blanks on each sampling day until it can meet the use-criteria for at least 3 consecutive sampling days.

d. In no case may the permittee decrease field blanks to fewer than one for each 10 samples.

5. The permittee shall report, but may not subtract, field blank concentrations when reporting sample results.

Note: When using the data, the department may subtract field blanks from sample concentrations on a case-by-case basis.

(10) LABORATORY ANALYSIS REQUIREMENTS. (a) In this subsection, "method blank", "matrix spike" and "limit of detection" have the meanings specified in s. NR 149.03.

(b) The analytical method used shall be sensitive enough to quantify mercury concentrations in the sample or mercury concentrations down to the lowest water quality criterion found in ch. NR 105, whichever is greater.

(c) The department may exempt a permittee from the sensitivity requirement in par. (b) if the permittee can demonstrate to the department's satisfaction that the specific effluent matrix does not allow this level of sensitivity using the most sensitive approved method with all reasonable precautions.

(d) The laboratory performing the analyses shall be certified under ch. NR 149 for low-level mercury analyses. Until low-level mercury certification is available, the lab shall be certified under ch. NR 149 for mercury and recognized by the department as having demonstrated its low-level mercury capabilities under the emerging technology provision contained in s. NR 149.12(2).

(e) Method blanks analyzed concurrently with samples shall be reported with sample results. Method blanks may be subtracted from sample results unless concentrations of mercury in the method blank exceed the laboratory’s limit of detection, 0.5 ng/L or 5% of the sample concentration, whichever is greater.

(f) Matrix spikes analyzed concurrently with samples shall have recoveries between 71 and 125 percent.

(11) DATA REJECTION. The department may reject any sample results if data quality requirements specified in subs. (9) and (10) are not met or if results are produced by a laboratory that is not in compliance with certification requirements specified in ch. NR 149.

(12) APPLICABILITY OF THE VARIANCE PROCESS UNDER S. 283.15, STATS. If a water quality based effluent limitation is included in a permit under sub. (6)(b), a permittee may apply to the department for a variance from the water quality standard used to derive the limitation following the procedure specified in s. 283.15, Stats. Where a permittee has been granted an alternative mercury effluent limitation under this section, the procedures of s. 283.15, Stats. are not applicable.

SECTION 3. Subchapter IV of ch. NR 211 (title) is amended to read:

Subchapter IV—Regulation of chloride and mercury sources

SECTION 4. NR 211.41 is created to read:

NR 211.41 POTW action to reduce mercury discharges from all sources. Notwithstanding all other provisions of this chapter, a POTW shall develop and enforce any specific standards or requirements and implement any source reduction activities that are necessary to assure compliance with requirements established in s. NR 106.145. These standards, requirements and source reduction activities apply to mercury discharges to the POTW from all relevant sources, including but not limited to industrial, commercial and residential sources.

SECTION 5. NR 219 TABLE B, Item 35f. is created to read:

TABLE B

LIST OF APPROVED INORGANIC TEST PROCEDURES FOR WASTEWATER

	Parameter, Units & Methods	EPA[1]	SW-846[11,7]	Standard Methods[2,2m]	ASTM[3]	USGS[4]	Other
35f.	Mercury, Total - Low Level, ng/L[40]						
	Cold vapor atomic fluorescence (CVAF) with purge and trap concentration	1631D					
	CVAF without purge and trap concentration	245.7					

[40] Quality control requirements for low level mercury are found in s. NR 106.145 (9) and (10). Low-level mercury methods are performance-based so some method modifications are allowable, provided quality control requirements are met. If an atomic absorption detector is substituted for the atomic fluorescence detector, the appropriate method citation is 245.1 (manual) or 245.2 (automated). If method 1631 is modified to eliminate the purge and trap step, the appropriate method citation is 245.7.

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on June 26, 2002

The rules shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin *August 26, 2002*

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By */s/ Darrell Bazzell*
Darrell Bazzell, Secretary

(SEAL)

Wisconsin NR 211 General Pretreatment Requirements

Chapter NR 211
GENERAL PRETREATMENT REQUIREMENTS

NR 211.01 Purpose. The purpose of this chapter is to establish, under s. 283.55 (2), Stats., the responsibilities of industrial users and of publicly owned treatment works in preventing the discharge into publicly owned treatment works of pollutants which will interfere with the operation of the POTW, which will pass through the POTW treatment works insufficiently treated, or which will impair the use or disposal of POTW sludge.

NR 211.02 Applicability. The provisions of this chapter apply to industrial users and to publicly owned treatment works which receive or may receive wastewater from such industrial users.

NR 211.03 Definitions. The following special definitions are applicable to terms used in this chapter. Definitions of other terms are set forth in ch. NR 205 and ch. 283, Stats.

(6) "Indirect discharge" means the introduction of pollutants into a POTW from any point source other than residential or commercial sources that discharge only domestic waste. Method of introduction includes, but is not limited to, by pipe, truck, or rail car.

(7) "Industrial user" means any source of indirect discharge.

(10) "Pass through" means the discharge of pollutants through the POTW to waters of the state in quantities or concentrations which, alone or in conjunction with the discharge or discharges from other sources, causes a violation or increases the magnitude or duration of a violation of any requirement of the POTW's WPDES permit.

NR 211.10 Prohibited discharge standards.

(1) Industrial users may not discharge pollutants into a POTW which pass through or interfere with the operation or performance of the POTW, and thereby cause or significantly contribute to a violation of the POTW's WPDES permit.

(3) (a) POTWs developing pretreatment programs under subchapter II shall develop specific prohibited discharge standards to enforce the general prohibitions of subs. (1) and (2). All other POTWs shall, where the contributions of industrial users result in pass–through or interference and the resulting permit violation is likely to recur, develop and enforce specific prohibited discharge standards which, together with appropriate operation changes, are necessary to ensure continued compliance with the POTW's WPDES permit.

(b) This subsection is not intended to require pretreatment as a substitute for adequate municipal treatment.

(c) Specific prohibited discharge standards may not be developed and enforced by the POTW without giving prior notice to persons or groups who have requested notice and an opportunity to respond.

(d) Where specific prohibited discharge standards are developed by a POTW under this subsection, they shall be deemed pretreatment standards for the purposes of s. 283.55 (2), Stats.

Total Mercury Monitoring Procedures
For Meeting WPDES Permit Requirements (For Permittees)
5/21/03

This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations, and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

General Precautions

Mercury poses special problems in regulating its release to the environment. Its presence at even very low concentrations in surface water can cause it to accumulate in fish, causing health problems for humans and other mammals who consume those fish. In November 2002, DNR implemented a special regulatory approach under the WPDES program for mercury that acknowledges the special challenges with regulating a substance that causes problems at such low levels. Section NR 106.145, Wisconsin Administrative Code contains the main framework for that new regulatory approach.

Persons required to perform mercury analysis by their wastewater permits must use an extremely sensitive test method that can be affected by even slight contamination not related to the mercury level in the wastewater. This contamination of samples or sample containers may originate from the air, sampling personnel or contacted surfaces. To avoid this contamination and to properly collect clean samples for mercury analysis, you should have a team of at least two people with a good understanding of potential sources of contamination. The team should follow the "clean hands/dirty hands" technique referenced in s. NR 106.145(9), Wis. Adm. Code and described below (excerpted from EPA *Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*). This technique is also demonstrated in the EPA video *Sampling Ambient and Effluent Waters for Trace Metals*.

Because even slight contamination can adversely affect effluent or background sample results, the new rule contains some requirements that are unique to Wisconsin's toxic substances regulatory program. For example, each day you collect samples, you must generate and analyze a field blank. A field blank is a portion of mercury-free water that is processed through the full sequence of sampling steps (s. NR 106.145(9), Wis. Adm. Code).

You can grab a sample by dipping the sample bottle directly into the water stream to be sampled or holding the bottle under a flowing spigot. If it becomes necessary, for safety or logistical reasons, to use a sampling pole to allow reaching a water stream, take precautions to thoroughly clean any surfaces of the sampling apparatus that will contact the sample bottle.

EPA Method 1669 is performance-based. This means that less stringent procedures may be used as long as contamination levels are maintained at acceptable levels. S. NR 106.145(9) specifies the acceptable contamination as a percentage of sample mercury concentrations. Therefore, somewhat higher levels of sample contamination are acceptable for POTW influent samples, which will often be collected using automatic samplers that are subject to more contamination.

Similarly, less sensitive laboratory test methods may be used for samples having higher mercury concentrations, such as influent samples.

Persons wishing more information might visit the DNR web site at http://www.dnr.state.wi.us/org/water/wm/ww/mercury/mercury.htm. Information available includes links to the Wisconsin Administrative Code, pollutant minimization program materials and other low-level mercury monitoring information including EPA Methods 1631 (testing) and 1669 (sampling).

Contracting with a Laboratory

To meet the requirements of s. NR 106.145(10), Wis. Adm. Code, the laboratory that conducts your mercury analyses:

- Must be Wisconsin-certified and must be recognized for low level mercury capability
- Must have a limit of quantitation (LOQ) at or below the level in your sample or 1.3 ng/L, whichever is greater. We expect effluent and intake samples to generally fall in the 1 to 10 ng/L range.
- May use a less sensitive method for POTW influent samples. POTW influent levels are commonly in the 50 to 200 ng/L range.

Arrangements that should be made ahead of time:

- Discuss with the lab what supplies you need them to provide (correct number of double-bagged sample bottles, mercury-free water for blanks or rinsing, plastic or non-talc latex gloves, other cleaned equipment) or what you should obtain yourself.
- Determine a means of shipping your samples that is convenient for you and the lab.

Pursuant to s. NR 106.145(10)(d), you must contract with a laboratory that is certified under ch. NR 149 for low-level mercury analyses, or a lab that has been certified under ch. NR 149 for mercury and recognized by the Department as having low-level mercury capabilities under the emerging technology provisions of s. NR 149.12(2). As of May 15, 2003, the labs listed below are recognized under s. NR 149.12(2). The locations, phone numbers and approximate LOQs are also listed. For list updates, including deletions and additions, consult http://www.dnr.state.wi.us/org/es/science/lc/info/Hg_low.htm.

Laboratory Name	City and state	Phone number	Approx. LOQ
Northern Lake Service	Crandon, WI	(715) 478-2777	0.2 ng/L
S-F Analytical	Milwaukee, WI	(800) 300-6700	50 ng/L
En Chem	Kimberly, WI	(920) 469-2436	0.5 ng/L
Frontier Geosciences	Seattle, WA	(206) 622-6960	0.2 ng/L
Battelle Marine Sciences	Sequim, WA	(360) 681-3650	0.5 ng/L
Brooks Rand LTD	Seattle, WA	(206) 632-6206	0.5 ng/L
North Shore Analytical	Duluth, MN	(218) 729-4658	0.3 ng/L

Supplies and Equipment Recommended

- A shipping container for the sampling event to identify and protect bottles
- The correct quantity of properly cleaned and prepared glass or fluoropolymer (teflon®) bottles (polyethylene bottles should not be used), stored in double self-seal plastic bags (remember blank and extra bottles, if glass, to account for breakage)
- Lab water, for blanks, in containers and sealed in plastic bags
- Provision for labeling samples (pre-labeled outer bags or other method)
- A sampling table and clean plastic sheeting to cover the table top and plastic clamps or other provision for retaining the plastic sheet on the table (the table may not be necessary if you don't have to set down bottles or you may set them down on another plastic-covered surface)
- Data log book and lab sheets or chain of custody sheets
- Personal protective equipment that you would normally use when collecting samples at the sample collection site
- Tyvek® (or equivalent) coveralls for sampling personnel (unnecessary if you are able to collect uncontaminated samples without them)
- Clean sampling pole stored in protective covering with a detachable piece (preferably plastic and previously cleaned and stored in a plastic bag) that may be used to securely hold the sample bottle (not necessary if you are able to dip the sample bottle directly into the water to be sampled)

Sampling Locations

If possible, select a location where the sample can be grabbed by dipping the sample bottle directly into the water stream to be sampled. If it becomes necessary, for safety or logistical reasons, to use a sampling pole to allow reaching a water stream, make the necessary provisions for securing the sample bottle to the pole in such a way as to avoid contamination of the outside of the bottle. Sampling teams have used various inventions that compliment the clean hands/dirty hands procedure. Your laboratory or DNR contact may be able to suggest a set-up that will work for your situation.

To minimize cross-contamination, collect the field blank first and then the cleanest sample and finally the dirtiest sample. Change gloves in between.

- Effluents and intake samples should be grab samples
- You may collect intake samples (for industrial facilities whose water supply is withdrawn from the receiving water) directly up-river to the intake structure or at an in-plant structure prior to use or potential contamination. If ice cover creates problems with obtaining sample, contact your DNR representative to work out a mutually acceptable solution.
- You may sample chlorinated effluents at a point before or after chlorination.
- You should collect a POTW influent sample as an aliquot from the composite sampler bottle.

Sample Collection

Attachment 1 shows step-by-step mercury sample and field blank collection procedures.

Preservation and Storage for Total Mercury

Ship collected samples to the lab following the procedures you and your lab agreed to.

- Refrigeration of samples for total mercury analysis is not required. In very cold weather, prevent the samples from freezing such as by shipping overnight.

- Follow the instructions of your laboratory for chemical preservation, if any. Preservation of samples in the field is optional. The Department recommends omitting field preservation, thereby eliminating that step as a potential source of contamination.
  Note: Sample bottles that contain acid preservative may need to be shipped in accordance with the federal hazardous materials rules (49 CFR, Part 172).

Reporting Data to DNR

Data for total mercury for all sample locations and grab sample field blanks must be reported to the Department on Discharge Monitoring Reports (DMRs). Limit of detection (LOD) and limit of quantitation (LOQ) values reported to you by your lab must also be reported on the DMR. The value reported in the field blank column on the DMR should be the one generated by the grab field blank procedure. See the attachment for discussion of influent field blanks.

Pursuant to ss. NR 106.145(9) and (10), labs must report results of both field blanks and method blanks on reports sent to clients. Labs may correct reported sample results based on method blank concentrations if criteria are met and clearly shown on reports. Labs or permittees **may not** correct sample results by subtracting results of field blanks.

Future Sample Quality Improvement

S. NR 106.145(10)(b), Wis. Adm. Code requires that the analytical method used for a sample must be sensitive enough to quantify actual mercury concentrations in the sample, or down to 1.3 ng/L, whichever is greater. If a sample result is greater than 1.3 ng/L but falls below the LOQ that your lab reported, your lab did not use a sensitive enough method. If that happens, your lab should retest the sample using a more sensitive method. If your lab is unable to perform a more sensitive method, the lab should subcontract to a lab capable of meeting the necessary sensitivity. If you are unable to acquire data that meets these requirements for any monitoring period, we recommend that you report the sample result with the LOD and LOQ from the less sensitive method on the DMR and then contact another lab to perform future analyses.

S. NR 106.145(9)(c), Wis. Adm. Code requires that field blank sample results must not exceed a) one-fifth the level in the sample, b) the test LOD or c) 0.5 ng/L, whichever is greatest. If results of the monitoring reported by the lab indicate higher field blank contamination, you should still submit the results of samples and field blanks, as reported by your lab, on the DMR. However, for future monitoring events, take steps to reduce contamination by investigating potential sources of contamination and taking corrective steps on your sampling procedures.

If you have questions, contact your lab or your DNR representative or Tom Mugan at (608) 266-7420 or Donalea Dinsmore at (608) 266- 8948.

Attachment 1 - Clean Hands/Dirty Hands
Basic Sampling Procedure Excerpted from EPA Method 1669

Recommended Step-by-step Procedure

This is the basic procedure for collecting one sample. It should give sampling personnel an idea on which surfaces each person on the team may touch. To incorporate collection of field blanks into the procedure you may add a third person (another clean hands) to the team or you may try a procedure where "Clean hands" sets sample bottles down on previously spread plastic sheeting. Descriptions of possible field blank procedures follow the basic procedures for collecting samples.

1. Both members of the team carry the equipment near to the sampling site.
2. Both members remove Tyvek® suits from protective bag and put them on (if used).
3. Designate one member of the team as "clean hands" and the other as "dirty hands".
4. "Dirty hands" opens a bag containing non-talc gloves.
5. "Clean hands" removes a pair of clean gloves and puts them on. "Clean hands" touches only the inner bag and sample bottle from this point on.
6. "Dirty hands" removes a pair of clean gloves and puts them on.
7. "Dirty hands" removes an empty bagged sample bottle from the shipping container (and closes the container) and opens the outer bag.
8. "Clean hands" opens the inner bag, removes the bottle, and folds down the inner bag.
9. "Dirty hands" seals the outer bag and puts it back in the shipping container.
10. "Clean hands" removes the bottle cap and holds the cap in one hand.
11. With the other hand, "Clean hands" fills the sample bottle by dipping into the flowing water stream, taking care to keep their hand "downstream" of the inlet of the sample bottle. The bottle is filled, leaving a slight headspace. "Clean hands" tightly screws the cap back onto the bottle.
12. "Dirty hands" retrieves the bags and opens the outer bag.
13. "Clean hands" reaches inside to re-open the inner bag, puts the sample bottle inside and seals the inner bag.
14. "Dirty hands" seals the outer bag and places the bagged sample into the shipping container.
15. One member of the team then records the sample bottle number with description and other relevant data.

Field Blank Collection Procedures

Again, it may be useful to use a third person (another "clean hands") for field blank collection. Alternatively, the "Clean hands" person may set sample bottles or field blank bottles down on previously spread, clean plastic sheeting. The grab field blank procedures check for contamination using sampling procedures for grab procedures that are used for effluent samples or (for industrial facilities) intake samples. Report results of the grab sample field blank on the Discharge Monitoring Report each time you report grab sample results.

Note: A field blank is a volume of mercury-free water (usually shipped from the lab) that is processed through the full sequence of sampling steps. Contrast this to a trip blank that is a bottle that "goes along for the ride" but remains unopened at the sampling site.

Possible grab field blank procedure #1 uses a procedure where sample bottles come from the lab filled with mercury-free water. Once "Clean hands" retrieves a full sample bottle from the inner bag, "Cleans hands" pours the contents out to waste and sets the bottle and cap on the plastic sheeting. "Clean hands" then retrieves a second full bottle from its inner bag, removes the cap and pours its contents into the first bottle. The first bottle now becomes the field blank and is repacked into its double bag. The second bottle that has been emptied is now used to collect the sample according to the above procedure.

Possible grab field blank procedure #2 uses a large double-bagged container of mercury-free water supplied by the lab. After opening the field blank bottle outer bag for "Clean hands", "Dirty hands" seals and temporarily stores the outer bag. "Dirty hands" then retrieves the filled large water bottle and opens the outer bag while supporting the bottle. "Clean hands" removes the cap from the field blank bottle and sets both on the plastic sheeting and then opens the inner bag of the large water bottle, removes the lid and exposes the mouth of the container so "Dirty hands" can pour from it. As "Dirty hands" pours, "Clean hands" picks up the field blank bottle and collects the field blank. "Clean hands" caps the field blank bottle, sets it on the plastic sheeting then recaps the large water bottle and seals the inside bag. "Dirty hands" then seals the outer bag, returns the large bottle to the shipping container, retrieves the double bag for the field blank bottle and reopens the outer bag for "clean hands" to replace the field blank.

Composite sampler field blank procedures may be appropriate when a permit requires a POTW to collect influent composite samples. Since a field blank is processed through the entire sampling procedure, a composite sampler field blank (used for influent) will not be the same as an effluent grab sample field blank (used for effluent). You report results of the **grab sample** field blank on the Discharge Monitoring Report each time that you report grab-sample results. Assessing influent sample contamination is more appropriately done as part of the pollutant minimization program documentation required by NR 106.145(7).

The sampling equipment and sample collection container should be cleaned and the tubing should be replaced regularly. Because influent levels of mercury typically exceed 50 ng/L, you can expect any bias imparted by ambient contamination to be overwhelmed by the sample concentration. The logistical barriers of collecting a field blank through the composite sampler may be difficult enough to overcome that it may be necessary to devise other means of assessing contamination in these samples. For example, comparing a grab sample with a sample "grabbed" simultaneously by the automatic sampler might provide an indication of the level of contamination introduced by the sample coming in contact with sampler lines, piping, sub-samplers or composite containers

If you do collect a composite sampler field blank, you will need a large container of mercury-free water like the one described in grab field blank procedure #2. Since there are different types of samplers in use, procedures will vary with the sampler type. For suction tube samplers, draw a volume of mercury-free water out of a storage vessel, through the tubing and pump and into the composite container. For flow-through samplers, you will need to devise a way to transfer some of the mercury-free water into the sub-sampler mechanism. Once the blank water is in the composite container, use clean hands/dirty hands procedures to transfer a mixed (such as by swirling) aliquot into the field blank bottle.

Milwaukee Metropolitan Sewerage District
Amalgam Management at Dental Offices Ordinance

11.214 Amalgam Management at Dental Offices

(1) This section applies to any dental office that places or removes amalgam. If work in a dental office is limited to work that does not involve placing or removing amalgam, such as orthodontics, periodontics, oral and maxillo-facial surgery, endodontics, or prosthodontics, then this section does not apply.

(2) All dental offices shall implement best management practices for amalgam as established by the Wisconsin Dental Association.

(3) Within the shortest reasonable time, but not later than February 1, 2008, every vacuum system where amalgam is placed or removed shall include an amalgam separator that meets the criteria of the International Standards Organization (ISO 11143). Dental offices shall install, operate, and maintain the amalgam separator according to instructions provided by the manufacturer. The amalgam separator shall have a design and capacity appropriate for the size and type of vacuum system.

(4) On or before February 1, 2005, each dental office shall submit a report that certifies the implementation of the management practices required by sub. (2) and identifies the contractors used to remove amalgam waste within the last twelve months.

(5) On or before February 1, 2006, each dental office shall provide a schedule for the installation of the amalgam separator required by sub. (3).

(6) On or before February 1, 2007, each dental office shall provide a report providing the following information.

(a) If installation of the amalgam separator is complete, then the report shall identify the installation date, the manufacturer, and the model name.

(b) If installation of the amalgam separator is incomplete, then the report shall briefly explain the delay, provide an installation schedule, and identify the manufacturer and the model name of the amalgam separator that will be installed.

(7) If a dental office has provided a report according to sub. (6)(b), then the dental office shall notify the District of the completion of installation within five days after completion.

(8) The District shall provide forms for reporting the information required by subs. (4), (5), (6), and (7).

(9) From the contractors used to remove amalgam waste, dental offices shall obtain records for each shipment showing: the volume or mass of amalgam waste shipped; the name and address of the destination; and the name and address of the contractor. Dental offices shall

maintain these records for a minimum of five years. Dental offices shall make these records available to the District for inspection and copying upon request from the District.

(10) Dental offices shall allow the District to inspect the vacuum system, amalgam separator, and amalgam waste storage areas.

(11) Inspections shall occur during the normal operating schedule of the dental office. The District shall inspect dental offices according to appointments made in advance, as long as this advanced notice does not impede enforcement of this section.

(12) If a dental office is implementing the management practices required by sub. (2) and is operating and maintaining the amalgam separator required by sub. (3), then any numerical discharge limit for mercury established in any other section of this chapter does not apply.

[Adopted by the Commission of the Milwaukee Metropolitan Sewerage District on January 26, 2004]

Milwaukee Metropolitan Sewerage District
Amalgam Rule Special Cases

February 9, 2005

1. Do general practice dentists who do not have vacuum systems need to implement an amalgam separator?

No. These offices are not required to implement separators.

Amalgam separators are designed for vacuum systems. The ISO standard is based upon a vacuum system. The rule did not anticipate general practice dental offices without vacuum systems.

The universe of these offices is small and will contract with time. So far, three dentists have indicated that they do not have vacuum systems. These dentists are semi-retired, working only two or three days per week. Each of these dentists has an office with only one chair. These offices have cuspidors.

Although a separator is not required, these offices must implement BMPs. In this case, BMPs would include recycling the amalgam collected in the cuspidor trap.

2. Is a medical clinic required to have a separator when dental work occurs one day per month and when the vacuum system is a mobile, self-contained system carried into the clinic by the dentist?

No. The medical clinic is not required to have a separator.

The dentist indicated that he was providing free dental care to poor people at an inner-city medical clinic. The dentist used large amounts of amalgam. The vacuum collects one to two liters of wastewater by the end of the day. The dentist drained the wastewater into a sink at the clinic at the end of the day.

Decanting the wastewater through a filter and recycling the filter with the captured amalgam would be appropriate. A coffee filter or something similar would be sufficient. The dentist indicated that he would do this filtering.

3. Is an endodontist, who occasionally drills into an amalgam filling when doing a root canal, required to have a separator?

No. The office is not required to have a separator.

General practice dental offices are the focus of the rules. According to the dentist who asked the question, drilling through amalgam is not frequent, but not unusual. It occurs several times per year.

This interpretation may need to be reviewed in the future, especially if additional mercury reductions need to be achieved at the treatment plants.

In the future, an amendment that added a specific threshold, such as 10 removals per year, might be useful.

Although not required now, voluntary installation would be appreciated.

4. Is a pediatric dentist required to have a separator when the dentist does not place amalgam but removes amalgam fillings a few times per year?

No. The office is not required to have a separator.

Although amalgam discharges are not zero, the removal of amalgam is sufficiently unforeseeable that this office qualifies as an office that "does not place or remove" amalgam.

In the future, an amendment that added a specific threshold, such as 10 removals per year, might be useful.

Although not required now, voluntary installation would be appreciated.

5. Is a separator fabricated by a dentist for the dentist's own office acceptable?

No, except in the special case discussed below. Although a dentist may be able to fabricate a device from materials acquired from a local hardware store and this device may be similar in design to commercially available separators, this device does not have the ISO certification required by the rules.

In rare cases, a dental office may have unique circumstances for which no separator is commercially available. For example, a dental clinic may have a combination of a large size and a complex vacuum system. In this case, the dental office would need to submit information showing: (1) its unique circumstances, (2) why no ISO-approved separator is applicable, and (3) its custom-designed separator would achieve performance consistent with the ISO standard. ISO approved separators are available for large systems, so these special circumstances would be very rare.

Milwaukee Metropolitan Sewerage District
Guidance for Complying with the
Record Keeping Requirements for Amalgam Waste

November 24, 2004

To comply with sec. 11.214(9), MMSD Rules, amalgam recycling records at dental offices need to include the following information. This information may be provided by contractors, such as transporters, recyclers, or vendors, or records created by the dental office. The presence of the information is critical, but the type, format, or creator of the record is not.

(1) The name, address, and telephone number of the initial recipient of the amalgam waste.
Examples include Safety Kleen, DRNA, Amalgaway, Enviro-Chem, etc.

The identity of the transporter (examples: post office, UPS, Fed-Ex) is not critical.

The location where the mercury will be recovered, such as Mercury Waste Solutions, Onyx, or others, might not be the initial recipient and is not critical for these records. However, to protect yourself from future liability, you may want to request that the initial recipient of the amalgam waste provide you with a written certification of recycling. The initial recipient should be able to provide you with the name and address of the company that will complete the mercury recycling process. Amalgam waste not recycled must be managed as a hazardous waste.

(2) A shipping date and a volume or mass for each shipment.
Example: 11/01/2004 - 1 container – 5 gallons
11/01/2004 - 1 container – 2 lbs.

Sources that can provide the volume or mass include, but are not limited to:

(A) Receipts from initial recipient (Safety Kleen, DRNA, Amalgaway, Enviro-Chem, etc.)
(B) Receipts from the transporter of the material (Fed Ex, UPS, Post Office, etc.)
(C) Receipts from the vendor providing the amalgam recycling container
(D) Receipts from the vendor recycling waste from an amalgam separator

AN ORDINANCE REGULATING MERCURY CONTAINING DEVICES IN THE CITY OF ASHLAND

The Mayor and the Common Council of the City of Ashland do ordain as follows:

406.10 Sale of Mercury-Containing Products Prohibited

It shall be unlawful for any retailer or commercial enterprise or proprietor to sell, offer to sell, or distribute any device containing fifty or more milligrams of mercury, excluding dental amalgams.

406.20 Removal of Mercury-Containing Devices Before Demolition

All mercury containing devices must be removed from properties before demolition.

406.30 Penalty

Any person, firm, or corporation that violates any provision of this ordinance shall forfeit not less than $100 for each offense, plus the cost of prosecution.

406.40 Effective Date

This ordinance shall take effect on August 15, 2002, following passage and publication.

FORM 1: Mercury Report Cover Sheet

WPDES Permit Holder or Sewer Authority Name: Smalltown WWTP

Initial Plan: x Annual Report ____ and Date Initial Plan Submitted _____

Report Date: 1-1-2006 Period Covered by This Report: To 1-1-2006

Name of Treatment Plant(s)	WPDES Permit Number	Mercury Effluent Limit
Smalltown WWTP	WI #98765	None yet

Person to contact concerning information contained in this report:

Name: Jerry Newhouse

Title: Plant Manager

Mailing Address: 1234 Sludge Road

City, State, Zip Code: Smalltown, WI 55555

Telephone No. 555-4567

E-mail: jerry@sludge.com

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

1/1/2006
Date

WWTP Administrator
Title of Official

John Foreman
Name of Official

John Foreman
Signature of Official

FORM 2: Summary of Mercury Resources

1.Person(s) implementing Pollutant Minimization Program	Title
John Foreman	WWTP Administrator
Stella Jones	Secretary

2. Total Person-Hours [1] 120

Total Cost [2] $1800

3. Are there any anticipated changes in treatment plant resources that would significantly change program hours or costs during the subsequent year, such as involving or hiring more personnel, purchasing equipment to implement the pollutant minimization program, or conducting compliance monitoring?

__X__ Yes _____ No If yes, explain.

Part-time (10 hours/wk) person to be hired to implement programs

4. Collaboration on mercury reduction activities is encouraged. Did any other municipal departments, county agencies, non-profit organizations, or other municipalities help implement part of your mercury reduction program?

_____Yes _____x_____No If yes, explain:

5. A program for collecting mercury from the permittee's sewer system users is required. List all available options for recycling mercury including household hazardous waste centers, clean sweep events, and collection events hosted by the POTW.

Recycling Option	Frequency of Availability
You Can Do It Recycling	Annual CleanSweep

[1] Include time of all staff involved in administering and implementing the various program areas, e.g. Pretreatment Coordinator, Superintendent of POTW, Clerical Staff, Field Monitoring Personnel, Laboratory Personnel, and others.

[2] Include all administrative, monitoring, laboratory staff, and equipment costs including monitoring/analytical work done by an outside laboratory.

FORM 3: Summary of Treatment Plant Analytical Mercury Data

Influent		Effluent		Biosolids	
Date	Concentration ng/L	Date	Concentration ng/L	Date	Concentration mg/kg
1/7/2002	253	1/8/2002	2.9	1/8/2002	1.4
4/7/2002	194	4/8/2002	3.7	4/8/2002	2.4
7/5/2002	163	7/6/2002	2.3	7/7/2002	0.6
10/2/2002	222	10/3/2002	1.5	10/3/2002	1.6
1/11/2003	171	1/12/2003	2.4	1/16/2003	0.8
4/2/2003	202	4/3/2003	2.5	4/7/2003	1.1
7/7/2003	296	7/8/2003	1.4	7/12/2003	2.3
10/1/2003	248	10/2/2003	2.4	10/6/2003	1.4
1/5/2004	87	1/6/2004	3.3	1/10/2004	2.0
4/8/2004	136	4/9/2004	3.8	4/13/2004	3.0
7/1/2004	265	7/2/2004	1.8	7/6/2004	0.8
10/6/2004	217	10/7/2004	2.0	10/11/2004	1.3
1/4/2005	101	1/5/2005	3.0	1/5/2005	1.3
4/28/2005	345	4/29/2005	2.8	4/2/2005	1.4
7/15/2005	157	7/16/2005	1.9	7/20/2005	1.2
10/1/2005	274	10/2/2005	4.4	10/10/2005	0.9
Average	208	Average	2.6	Average	1.5
Test Method	EPA 245.2	Test Method	EPA 1631	Test Method	EPA 7470A
Average from 1 year ago		Average from 1 year ago		Average from 1 year ago	
Average from 2 years ago		Average from 2 years ago		Average from 2 years ago	
Average from 3 years ago		Average from 3 years ago		Average from 3 years ago	
Laboratory doing the wastewater analysis:		Northland Labs			
Laboratory doing the biosolids analysis:		Northland Labs			

Is there a numerical or narrative mercury limit in your sewer use ordinance? No

If yes, what is it? _____

FORM 4A: Medical Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Smalltown Hospital	1 Hospital Dr.	Smalltown, WI 55555	Hospital	Max Hopeman	555-0000
Main Clinic	1221 Main St.	Smalltown, WI 55555	Clinic	Katie Basina	555-5007
Animal Mall Clinic	Sailor Mall	Smalltown, WI 55555	Veterinary	Tom Goode	555-3311
County Road Clinic	7007 County Rd A	Smalltown, WI 55555	Veterinary	Dr. Ed McMahn	555-0123
Children's Clinic	707 County Rd B	Smalltown, WI 55555	Clinic	Dr. Mark Drake	555-1312

[1] List should include all hospitals, clinics and veterinary facilities with diagnostic laboratories (including laboratories contracted or managed independently of the medical facility).

FORM 4C: Medical Facility Compliance and Outreach Summary

General Outreach to All Medical Facilities

Outreach Accomplished	Outreach Planned
Hg thermometer collection at hospital/clinics	Mail Form 4B Feb 2006
	Personal Contact Mar & Apr 2006

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach to Individual Medical Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Smalltown Hospital					
Main Clinic					
Animal Mall					
County Road Clinic					
Children's Clinic					

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation *Notes:*

_____ % Implemented All WW BMPs
_____ % Scheduled to Implement All WW BMPs
_____ % In Compliance with Local Wastewater Limits

_____ Total % Compliant (Medical Mercury PMP Score)

Enter on Form 10 under IA: Medical Sector Score

FORM 5A: Dental Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Larson Dental	5 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Larson	555-1234
Johnson Dental	10 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Johnson	555-2278
Anderson Dental	15 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Anderson	555-8281
Peterson Dental	20 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Peterson	555-0007
Nelson Dental	25 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Nelson	555-1987

[1] List should include all dental facilities that install or remove amalgam fillings. Dental facilities not working with amalgam do not need to be included.

FORM 5C: Dental Facility Compliance and Outreach Summary

General Outreach to All Dental Facilities

Outreach Accomplished	Outreach Planned
	Mail Form 5B 2/2006
	Gather Information on Separators 7/2006

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Dental Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Larson Dental					
Johnson Dental					
Anderson Dental					
Peterson Dental					
Nelson Dental					

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

____ % Implemented All BMPs
____ % Scheduled to Implement All BMPs
____ % In Compliance with Local Wastewater Limits

____ Total % Compliant (Dental Mercury PMP Score)

Enter on Form 10 under IB: Dental Sector Score

Notes:

FORM 6A: School and Educational Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Smalltown Comm College	200 E 1 St	Smalltown, WI 55555	College	Dr. Steven Berg	555-7766
Central High School	500 Central Avenue	Smalltown, WI 55555	High School	J. Johnson	555-7871
Smalltown Middle School	600 Central Avenue	Smalltown, WI 55555	Middle School	B Boyd	555-3711

[1] List should include all middle schools, high schools, technical schools, colleges, and universities.

FORM 6C: School and Educational Facility Compliance and Outreach Summary

General Outreach to All School and Educational Facilities

Outreach Accomplished	Outreach Planned
	Mail Form 6B 2/2006
	PowerPoint Presentations Fall 2006

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual School and Educational Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Smalltown Comm College					Presentation Dec 2006
Central High School					
Smalltown Middle School					Presentation Sept 2006

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

_____ % Implemented All BMPs
_____ % Scheduled to Implement All BMPs
_____ % In Compliance with Local Wastewater Limits
_____ Total % Compliant (School Mercury PMP Score)

Enter on Form 10 under IC: School Sector Score

Notes:

FORM 7A: Industry Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Widget Mfg Corp	1030 County Rd A	Smalltown, WI 55555	Widget Mfg	D R Thompson	555-1379
Smalltown WWTP	1234 Sludge Road	Smalltown, WI 55555	Wastewater Treatment	Jerry Newhouse	555-4567

[1] List should include all industries and businesses identified by the POTW as having potential for mercury wastewater contributions (see instructions).

FORM 7C: Industry Compliance and Outreach Summary

General Outreach to All Industrial Facilities

Outreach Accomplished	Outreach Planned

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Industrial Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Widget Mfg Corp					Mail Form 7B Mar 2006 Site Visit Summer 2006
Smalltown WWTP					Mercury self-assessmen Summer 2006

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date. Add additional pages as necessary.

Sector Evaluation

_____ % Implemented All WW BMPs
_____ % Scheduled to Implement All WW BMPs
_____ % In Compliance with Local Wastewater Limits

_____ Total % Compliant (Industry Mercury PMP Score)

Enter on Form 10 under ID: Industry Sector Score

Notes:

FORM 9A: Historical Mercury PMP Score

This form gives credit to your POTW for mercury reduction projects completed before implementing a Mercury PMP. The information on the form will not change from year to year. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors (dairy manometer outreach refers to farms that have participated in replacing and recycling their milkhouse mercury manometers). For each outreach activity that your POTW has done in the past, put a check in the corresponding box. To calculate your Historical Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*			X					X		
	Dental										
	School										
	Industry										
Other Community Sectors	*General Public*	X		X				X	X		
	HVAC										
	Auto Switch										
	Fluorescent Bulb	X	X								
	Dairy Manometer										
	Other - Define										

Notes:

8 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIA: Historical Score

FORM 9B: Extra-jurisdictional Mercury PMP Score

This form gives credit for mercury projects your POTW has completed outside the treatment plant service area. For the initial plan, include all activities you have implemented. For the annual report, include all activities that have occurred only in the past 12 months. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors. For each outreach activity or sector accomplishment, put a check in the corresponding box. To calculate your Extra-jurisdictional Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*										
	Dental										
	School										
	Industry										
Other Community Sectors	*General Public*	X									
	HVAC										
	Auto Switch										
	Fluorescent Bulb										
	Dairy Manometer										
	Other - Define										

Notes:

1 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIB: Extra-jurisdictional Score

FORM 1: Mercury Report Cover Sheet

WPDES Permit Holder or Sewer Authority Name: Smalltown WWTP

Initial Plan ____ Annual Report X and Date Initial Plan Submitted 1-1-2006

Report Date: 1-1-2007 Period Covered by This Report: 1-1-2006 to 12-31-2006

Name of Treatment Plant(s)	WPDES Permit Number	Mercury Effluent Limit (ng/l)
Smalltown WWTP	WI #98765	XXX.X ng/l

Person to contact concerning information contained in this report:

Name: Jerry Newhouse

Title: Plant Manager

Mailing Address: 1234 Sludge Rd

City, State, Zip Code: Smalltown WI 55555

Telephone No. 555-4567

E-mail: jerry@sludge.com

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

1/1/2007
Date

WWTP Administrator
Title of Official

John Foreman
Name of Official

John Foreman
Signature of Official

FORM 2: Summary of Mercury Resources

1.Person(s) implementing Pollutant Minimization Program	Title
John Foreman	WWTP Administrator
Stella Jones	Secretary
Ruth Olman	Mercury Research Asst
Jerry Newhouse	Plant Manager

2. Total Person-Hours [1] 510

Total Cost [2] $7650

3. Are there any anticipated changes in treatment plant resources that would significantly change program hours or costs during the subsequent year, such as involving or hiring more personnel, purchasing equipment to implement the pollutant minimization program, or conducting compliance monitoring?

__x__ Yes _____ No If yes, explain.

Part-time Mercury Research Assistant to increase hours to complete new projects

4. Collaboration on mercury reduction activities is encouraged. Did any other municipal departments, county agencies, non-profit organizations, or other municipalities help implement part of your mercury reduction program?

_____Yes _____x_____No If yes, explain:

5. A program for collecting mercury from the permittee's sewer system users is required. List all available options for recycling mercury including household hazardous waste centers, clean sweep events, and collection events hosted by the POTW.

Recycling Option	Frequency of Availability
You Can Do It Recycling	Annual CleanSweep
Thermometer Exchange	Ongoing at WWTP
Fluorescent Bulb Recycling	Ongoing/Hardware store

[1] Include time of all staff involved in administering and implementing the various program areas, e.g. Pretreatment Coordinator, Superintendent of POTW, Clerical Staff, Field Monitoring Personnel, Laboratory Personnel, and others.

[2] Include all administrative, monitoring, laboratory staff, and equipment costs including monitoring/analytical work done by an outside laboratory.

FORM 3: Summary of Treatment Plant Analytical Mercury Data

Influent		Effluent		Biosolids	
Date	Concentration ng/L	Date	Concentration ng/L	Date	Concentration mg/kg
1-15-06	201	1-16-06	4.4	1-22-06	2.7
4-14-06	199	4-15-06	1.0	4-28-06	0.8
7-8-06	239	7-9-06	1.1	7-8-06	1.4
10-24-06	154	10-25-06	3.8	10-30-06	1.6
Average	198	Average	2.6	Average	1.6
Test Method	EPA 245.2	Test Method	EPA 1631	Test Method	EPA 7470A
Average from 1 year ago	208	Average from 1 year ago	2.6	Average from 1 year ago	1.5
Average from 2 years ago		Average from 2 years ago		Average from 2 years ago	
Average from 3 years ago		Average from 3 years ago		Average from 3 years ago	
Laboratory doing the wastewater analysis:		Northland Labs			
Laboratory doing the biosolids analysis:		Northland Labs			

Is there a numerical or narrative mercury limit in your sewer use ordinance? No

If yes, what is it? _____

_____

FORM 4A: Medical Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Smalltown Hospital	1 Hospital Dr.	Smalltown, WI 55555	Hospital	Max Hopeman	555-0000
Main Clinic	1221 Main St.	Smalltown, WI 55555	Clinic	Katie Basina	555-5007
Animal Mall Clinic	Sailor Mall	Smalltown, WI 55555	Veterinary	Tom Goode	555-3311
Country Road Clinic	7007 County Rd A	Smalltown, WI 55555	Veterinary	Dr. Ed McMahn	555-0123
Children's Clinic	707 County Rd B	Smalltown, WI 55555	Clinic	Dr. Mark Drake	555-1312

[1] List should include all hospitals, clinics and veterinary facilities with diagnostic laboratories (including laboratories contracted or managed independently of the medical facility).

FORM 4B: Medical Facility Mercury Checklist

Best Management Practices for Mercury are taken from the AHA/EPA "Making Medicine Mercury-Free" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy	X		2005	1. Has your facility established a mercury plan and timeline for the reduction and eventual elimination of mercury-containing equipment and chemicals?
	X		2005	2. Has your facility implemented an Environmentally Preferable Purchasing (EPP) policy for mercury products and a process to regularly review mercury use reduction and elimination progress?
	X		2005	3. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees?
Mercury Products	X			4. Has your facility replaced patient mercury thermometers?
		X	12-07	5. Has your facility replaced all or majority (75%) of mercury sphygmomanometers?
	X			6. Has your facility replaced all or majority (75%) of mercury clinical devices (bougies, miller-abbott tubes, dilators, etc)?
	X			7. Has your facility inventoried and labeled all mercury-containing facility devices (switches, thermostats, etc.)? **
	X		Ongoing	8. Has your facility implemented a program to recycle fluorescent lamps? **
		X	12-07	9. Has your facility implemented battery collection programs? **
Lab		X	Ongoing	10. Has your facility replaced all or majority (75%) of mercury lab thermometers?
	X			11. Has your facility replaced B5/Zenkers stains with non-mercury substitute?
	X			12. Has your facility inventoried mercury-containing lab chemicals?

** May not affect wastewater

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BI

Sampling Location _____ Mercury Effluent Concentration _____ Date _

(Attach summ

This facility has implemented some WW BMPs and scheduled the rest. They get a check under scheduled all "WW BMPs" on Form 4C.

I have personally examined and am familiar with the information submitted in this document and attachments. Based upo immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, acc

Smalltown Hospital	1 Hospital Drive	50 beds
Name of Facility	Address	Size of Facility (Number of beds, employees, or other)

Dr. Max Hopeman	Dr. Max Hopeman	Hospital Administrator	555-0000	3-01-06
Printed Name of Official	Signature	Title	Phone	Date

FORM 4B: Medical Facility Mercury Checklist

Best Management Practices for Mercury are taken from the AHA/EPA "Making Medicine Mercury-Free" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy	X		2005	1. Has your facility established a mercury plan and timeline for the reduction and eventual elimination of mercury-containing equipment and chemicals?
	X		2005	2. Has your facility implemented an Environmentally Preferable Purchasing (EPP) policy for mercury products and a process to regularly review mercury use reduction and elimination progress?
	X		2005	3. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees?
Mercury Products	X		2003	4. Has your facility replaced patient mercury thermometers?
	X		2002	5. Has your facility replaced all or majority (75%) of mercury sphygmomanometers?
	X		2004	6. Has your facility replaced all or majority (75%) of mercury clinical devices (bougies, miller-abbott tubes, dilators, etc)?
	X		2005	7. Has your facility inventoried and labeled all mercury-containing facility devices (switches, thermostats, etc.)? **
	X		2004	8. Has your facility implemented a program to recycle fluorescent lamps? **
	X		2004	9. Has your facility implemented battery collection programs? **
Lab	X		2004	10. Has your facility replaced all or majority (75%) of mercury lab thermometers?
	X		2004	11. Has your facility replaced B5/Zenkers stains with non-mercury substitute?
	X		2005	12. Has your facility inventoried mercury-containing lab chemicals?

** May not affect wastewater

This facility has implemented all BMPs. They get a check under implemented all WW BMPs on Form 4C.

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BMP

Sampling Location _____Mercury Effluent Concentration _____ Date ____

(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon m
immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

Main Clinic	1221 Main St	9 employees
Name of Facility	Address	Size of Facility (Number of beds, employees, or other)

Dr. Katherine Basina	Dr. Katherine Basina	Hospital Administrator	555-5007	4-1-06
Printed Name of Official	Signature	Title	Phone	Date

FORM 4B: Medical Facility Mercury Checklist

Best Management Practices for Mercury are taken from the AHA/EPA "Making Medicine Mercury-Free" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy				1. Has your facility established a mercury plan and timeline for the reduction and eventual elimination of mercury-containing equipment and chemicals?
		√		2. Has your facility implemented an Environmentally Preferable Purchasing (EPP) policy for mercury products and a process to regularly review mercury use reduction and elimination progress?
	√		1/2005	3. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees?
Mercury Products	√		1/2005	4. Has your facility replaced patient mercury thermometers?
		--		5. Has your facility replaced all or majority (75%) of mercury sphygmomanometers?
	√			6. Has your facility replaced all or majority (75%) of mercury clinical devices (bougies, miller-abbott tubes, dilators, etc)?
		√		7. Has your facility inventoried and labeled all mercury-containing facility devices (switches, thermostats, etc.)? **
	√		2000	8. Has your facility implemented a program to recycle fluorescent lamps? **
		√		9. Has your facility implemented battery collection programs? **
Lab		√	6/2007	10. Has your facility replaced all or majority (75%) of mercury lab thermometers?
				11. Has your facility replaced B5/Zenkers stains with non-mercury substitute?
				12. Has your facility inventoried mercury-containing lab chemicals?

** May not affect wastewater

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BI

Sampling Location _____ Mercury Effluent Concentration _____ Date _

(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upo
immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, acc

This facility has implemented and scheduled some WW BMPs. However some questions were not answered. They get no check on Form 4C.

Animal Mall Clinic	Sailor Mall	14 employee
Name of Facility	Address	Size of Facility (Number of beds, employees, or other)

Tom Goode	Tom Goode	Owner	555-3311	6-21-2006
Printed Name of Official	Signature	Title	Phone	Date

FORM 4B: Medical Facility Mercury Checklist

Best Management Practices for Mercury are taken from the AHA/EPA "Making Medicine Mercury-Free" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy		X	NA	1. Has your facility established a mercury plan and timeline for the reduction and eventual elimination of mercury-containing equipment and chemicals?
		X	NA	2. Has your facility implemented an Environmentally Preferable Purchasing (EPP) policy for mercury products and a process to regularly review mercury use reduction and elimination progress?
		We don't use mercury!		3. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees?
Mercury Products			NA	4. Has your facility replaced patient mercury thermometers?
			NA	5. Has your facility replaced all or majority (75%) of mercury sphygmomanometers?
			NA	6. Has your facility replaced all or majority (75%) of mercury clinical devices (bougies, miller-abbott tubes, dilators, etc)?
			NA	7. Has your facility inventoried and labeled all mercury-containing facility devices (switches, thermostats, etc.)? **
	X		2004	8. Has your facility implemented a program to recycle fluorescent lamps? **
	X		2004	9. Has your facility implemented battery collection programs? **
Lab			NA	10. Has your facility replaced all or majority (75%) of mercury lab thermometers?
			NA	11. Has your facility replaced B5/Zenkers stains with non-mercury substitute?
			NA	12. Has your facility inventoried mercury-containing lab chemicals?

** May not affect wastewater

This facility does not use mercury products that affect wastewater. It should be removed from the inventory.

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement all BI

Sampling Location _____ Mercury Effluent Concentration _____ Date _____

(Attach summary if multiple wastewater outfalls)

I have personally examined and am familiar with the information submitted in this document and attachments. Based upo[illegible] immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

Country Road Clinic	7007 County Rd A	11 employees
Name of Facility	Address	Size of Facility (Number of beds, employees, or other)

Dr. Ed McMahn	Dr. Ed McMahn	Owner	555-0123	8-21-2006
Printed Name of Official	Signature	Title	Phone	Date

FORM 4B: Medical Facility Mercury Checklist

Best Management Practices for Mercury are taken from the AHA/EPA "Making Medicine Mercury-Free" Criteria.

Compliance with these BMPs may be considered as compliance with the local sewer use ordinance limit for mercury; wastewater sampling and analysis may also be waived by the municipality. It is the intention of the Mercury Pollutant Minimization Program to encourage implementation of mercury BMPs. Report date BMP implemented, or if not implemented, date anticipated.

	Yes	No	Date	Best Management Practice
Policy		X	2007	1. Has your facility established a mercury plan and timeline for the reduction and eventual elimination of mercury-containing equipment and chemicals?
		X	2007	2. Has your facility implemented an Environmentally Preferable Purchasing (EPP) policy for mercury products and a process to regularly review mercury use reduction and elimination progress?
	X		2005	3. Has your facility established mercury management protocols for safe handling, mercury spill clean up procedures, disposal procedures, and education and training of employees?
Mercury Products	X		2006	4. Has your facility replaced patient mercury thermometers?
		X	2006	5. Has your facility replaced all or majority (75%) of mercury sphygmomanometers?
		X	2006	6. Has your facility replaced all or majority (75%) of mercury clinical devices (bougies, miller-abbott tubes, dilators, etc)?
		X		7. Has your facility inventoried and labeled all mercury-containing facility devices (switches, thermostats, etc.)? **
	X		Ongoing	8. Has your facility implemented a program to recycle fluorescent lamps? **
		X		9. Has your facility implemented battery collection programs? **
Lab		X	2007	10. Has your facility replaced all or majority (75%) of mercury lab thermometers?
		X	2007	11. Has your facility replaced B5/Zenkers stains with non-mercury substitute?
	X		2005	12. Has your facility inventoried mercury-containing lab chemicals?

** May not affect wastewater

Wastewater Sampling and Analysis (Not required for facilities implementing or scheduled to implement

Sampling Location _____Mercury Effluent Concentration _____ D
(Attach summary if multiple wastewater outfalls)

This facility has implemented or scheduled all BMPs except 7 & 9. As BMPs 7 and 9 do not affect wastewater they get a check under scheduled all WW BMPs on Form 4C.

I have personally examined and am familiar with the information submitted in this document and attachments. Base
immediately responsible for obtaining the information reported herein, I believe that the submitted information is tru

Children's Clinic	707 County Rd B	7 emp		
Name of Facility	Address	Size of Facility (Number of beds, employees, or other)		
Dr. Mark Drake	Dr. Mark Drake	Administrator	555-1312	9-21-2006
Printed Name of Official	Signature	Title	Phone	Date

FORM 4C: Medical Facility Compliance and Outreach Summary

General Outreach to All Medical Facilities

Outreach Accomplished	Outreach Planned
Mailed Form 4B 2/06	Personal Contact summer 07
Personal Visits summer 06	Thermometer Collection 4/07

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach to Individual Medical Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Smalltown Hospital		X			
Main Clinic	X				
Animal Mall					
Country Road Clinic					
Children's Clinic		X			

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

Notes:

20	% Implemented All WW BMPs
40	% Scheduled to Implement All WW BMPs
0	% In Compliance with Local Wastewater Limits
60	Total % Compliant (Medical Mercury PMP Score)

Enter on Form 10 under IA: Medical Sector Score

FORM 5A: Dental Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Larson Dental	5 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Larson	555-1234
Johnson Dental	10 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Johnson	555-2278
Anderson Dental	15 Medical Arts Bldg	Smalltown, WI 55555	Dental Office	Dr. Anderson	555-8281
Peterson Dental	20 Medical Arts Bldg	Smalltown, WI 55555	Oral Surgeon	Dr. Peterson	555-0007
Nelson Dental	25 Medical Arts Bldg	Smalltown, WI 55555	Dental Clinic	Dr. Nelson	555-1987

[1] List should include all dental facilities that install or remove amalgam fillings. Dental facilities not working with amalgam do not need to be included.

FORM 5C: Dental Facility Compliance and Outreach Summary

General Outreach to All Dental Facilities

Outreach Accomplished	Outreach Planned
Mailed Form 5B Feb 2006	Personal contact with offices that did not return correctly completed Form 5B 1/07
Contacted offices throughout 06	Provide information on amalgam and separators 6/2007

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Dental Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Larson Dental		X		Personal visit 5/2006, has separator	
Johnson Dental					Followup call Apr
Anderson Dental					Visit May
Peterson Dental					Visit May
Nelson Dental	X			Installed separator 3/2006	

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

20	% Implemented All BMPs
20	% Scheduled to Implement All BMPs
0	% In Compliance with Local Wastewater Limits
40	Total % Compliant (Dental Mercury PMP Score)

Enter on Form 10 under IB: Dental Sector Score

Notes:

FORM 6A: School and Educational Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Smalltown Comm College	200 E 1 St	Smalltown, WI 55555	College	Dr. Steven Berg	555-7766
Central High School	500 Central Avenue	Smalltown, WI 55555	High School	J. Johnson	555-7871
Smalltown Middle School	600 Central Avenue	Smalltown, WI 55555	Middle School	B. Boyd	555-3711

[1] List should include all middle schools, high schools, technical schools, colleges, and universities.

FORM 6C: School and Educational Facility Compliance and Outreach Summary

General Outreach to All School and Educational Facilities

Outreach Accomplished	Outreach Planned
Mail Form 6B March 2006	Personal visit Fall 2007
Develop PowerPoint Presentations April 2006	

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual School and Educational Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Smalltown Comm College					Presentation Sept 2007
Central High School					Visit Oct 2007
Smalltown Middle School					Visit Oct 2007 Visit with Clancy

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

Notes:

0%	% Implemented All BMPs
0%	% Scheduled to Implement All BMPs
0%	% In Compliance with Local Wastewater Limits
0%	Total % Compliant (School Mercury PMP Score)

Enter on Form 10 under IC: School Sector Score

FORM 7A: Industry Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Widget Mfg Corp	1030 Cty Rd A	Smalltown, WI 55555	Widget Mfg	D R Thompson	555-1379
Smalltown WWTP	1234 Sludge Road	Smalltown, WI 55555	Wastewater Treatment	Jerry Newhouse	555-4567

[1] List should include all industries and businesses identified by the POTW as having potential for mercury wastewater contributions (see instructions).

FORM 7C: Industry Compliance and Outreach Summary

General Outreach to All Industrial Facilities

Outreach Accomplished	Outreach Planned
	Continued attempts will be made to work with this company throughout the year.

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Industrial Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Widget Mfg Corp				Mailed Form 7B Mar 2006 Follow-up calls Apr & Aug 2006	Letter of non-compliance 2-2007
Smalltown WWTP		x		Mercury self-assessment Summer 2006	

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date. Add additional pages as necessary.

Sector Evaluation

0	% Implemented All BMPs
50	% Scheduled to Implement All BMPs
0	% In Compliance with Local Wastewater Limits
50	Total % Compliant (Industry Mercury PMP Score)

Enter on Form 10 under ID: Industry Sector Score

Notes:

Unable to schedule visit with Widget Mfg Corp. Has not returned Form B or answered phone calls.

Form 8A: General Public Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as reducing household use of new mercury-containing products and recycling (rather than discarding) old mercury-containing products.

List participation by households in reducing their use of new mercury containing products (i.e.: retail stores that no longer sell mercury fever thermometers) and participation by households in recycling their old mercury-containing products (i.e.: "CleanSweep" events for mercury thermometers). Include adoption of local ordinances that affect mercury product sale or recycling. *Note: Common household mercury products include fever and other thermometers, thermostats, "silent" light switches, and containers of liquid mercury.* Attach additional sheets as necessary.

Household Mercury Product	Discontinued Sale (Describe)	Recycled Products (Quantity)
Thermometers		422
CleanSweep		Unknown

Outreach activities to households (and retail stores). List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date	Jan 2006		April 2006			City Council Mar 2006
Date	Mar 2006					
Date						
Date						
Date						

Sector Evaluation

The score for the General Public Sector is calculated based on a formula that uses POTW size and the number of outreach events. *The maximum value for the general public sector score is 100.*

4	x	10	=	40
# of outreach events		**facility factor**		**General Public Mercury PMP Score**

Enter on Form 10 under IIA: General Public Sector Score

Design Flow (MGD)	Facility Factor
1------4.9	10
5-----49.9	5
50----250	1

FORM 8B: HVAC (Thermostat) Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as collecting and recycling mercury thermostats.

List HVAC wholesalers and contractors that collect and recycle mercury thermostats; include retail stores that offer this service. Attach additional sheets as necessary.

Name	Address	City/State Zip Code	Type of Facility

Estimated total number of HVAC wholesalers and contractors in service area: 2

Outreach activities to HVAC wholesalers and contractors. List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date						
Date						
Date						
Date						
Date						

Sector Evaluation

0 **HVAC (Thermostat) Mercury PMP Score**
(% HVAC wholesalers and contractors collecting and recycling mercury thermostats in service area).

Enter on Form 10 under IIB: HVAC Sector Score

Notes: Baccus is considering being a drop off site for Thermometer Exchange Program - wants more info

FORM 8C: Auto Switch Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as removing and recycling auto mercury switches.

List auto-scrap yards that remove and recycle mercury hood and trunk switches; include dealerships that perform this same service. Attach additional sheets as necessary.

Name	Address	City/State/Zip Code	Type of Facility

Estimated total number of auto scrap yards and dealerships in service area: 2

Outreach activities to auto scrap yards and dealerships. List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date					6-2006	
Date						
Date						
Date						
Date						

Sector Evaluation

Notes:

0 **Auto Switch Mercury PMP Score**
(% auto scrap yards and dealerships removing and recycling mercury hood and trunk switches in service area).

Form 8D: Fluorescent Bulb Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as increasing business and household use of energy-efficient low-mercury fluorescent bulbs and recycling (rather than discarding) burned out fluorescent bulbs.

List participation by businesses and households in recycling their burned out fluorescent bulbs, including both continuous and one-time "CleanSweep" events. Include adoption of local ordinances that affect fluorescent bulb recycling. Attach additional pages as necessary.

Business Fluorescent Bulb Recycling (Quantity, %, or other measures)	Household Fluorescent Bulb Recycling (Quantity, %, or other measures)

Outreach activities to businesses, households (and retail stores) promoting fluorescent bulb recycling. List date accomplished. Attach additional pages as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date	June 2006		CleanSweep 7/06			
Date						
Date						
Date						
Date						

Sector Evaluation

The score for the Fluorescent Bulb Sector is calculated based on a formula that uses POTW size and the number of outreach events. *The maximum value for the fluorescent bulb sector score is 100.*

2	x	10	=	20
# of outreach events		**facility factor**		**Fluorescent Bulb Mercury PMP Score**

_____ ***Enter on Form 10 under IID: Fluorescent Bulb Sector Score***

Design Flow (MGD)	Facility Factor
1------4.9	10
5-----49.9	5
50----250	1

FORM 9A: Historical Mercury PMP Score

This form gives credit to your POTW for mercury reduction projects completed before implementing a Mercury PMP. The information on the form will not change from year to year. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors (dairy manometer outreach refers to farms that have participated in replacing and recycling their milk house mercury manometers). For each outreach activity that your POTW has done in the past, put a check in the corresponding box. To calculate your Historical Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*			X					X		
	Dental										
	School										
	Industry										
Other Community Sectors	*General Public*	X		X				X	X		
	HVAC										
	Auto Switch										
	Fluorescent Bulb	X	X								
	Dairy Manometer										
	Other - Define										

Notes:

8 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIA: Historical Score

FORM 9B: Extra-jurisdictional Mercury PMP Score

This form gives credit for mercury projects your POTW has completed outside the treatment plant service area. For the initial plan, include all activities you have implemented. For the annual report, include all activities that have occurred only in the past 12 months. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors. For each outreach activity or sector accomplishment, put a check in the corresponding box. To calculate your Extra-jurisdictional Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*										
	Dental										
	School										
	Industry										
Other Community Sectors	*General Public*	X									
	HVAC										
	Auto Switch										
	Fluorescent Bulb										
	Dairy Manometer										
	Other - Define										

Notes:

1 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIB: Extra-jurisdictional Score

FORM 10: Community Mercury PMP Score

Facility Name: Smalltown WWTP Report Date: 1-1-2007

I. Wastewater Sectors: (**Should** to be included in Mercury PMP Plan)

Sector	Sector Score	x	Weighting Factor*	=	Weighted Sector Score
A: Medical (from Form 4C)	75	x	(0.15)	=	11.3
B: Dental (from Form 5C)	40	x	(0.50)	=	20
C: School (from Form 6C)	0	x	(0.15)	=	0
D: Industry (from Form 7C)	50	x	(0.20)	=	10

Total Wastewater Sectors Score: 41.3

* Weighting factor is the relative fraction of mercury to POTW that is attributable to each sector. If you know what fraction comes from each sector you can adjust accordingly. The weighting factors must add up to 1. Use default values in parenthesis above if unknown.

II. Other Community Sectors: (**May** be included in Mercury PMP Plan)

Sector	Sector Score	x	Weighting Factor**	=	Weighted Sector Score
A: General Public (from Form 8A)	40	x	0.1	=	4
B: HVAC (from Form 8B)	0	x	0.1	=	0
C: Auto Switch (from Form 8C)	0	x	0.1	=	0
D: Fluorescent Bulb (from Form 8D)	20	x	0.1	=	2

Total Other Community Sectors Score: 6

** Weighting factor is between 0.0 and 0.1. Wisconsin's weighting factor is 0.1.

III. Other Credits: (**May** be included in Mercury PMP Plan)

Other	Score	x	Weighting Factor**	=	Weighted Score
A: Historical (from Form 9A)	8	x	0.1	=	0.8
B: Extra-jurisdictional (from Form 9B)	1	x	0.1	=	0.1

Total Other PMP Credits Score: 0.9

** Weighting factor is between 0.0 and 0.1. Wisconsin's weighting factor is 0.1.

IV. Community Mercury PMP Score:

Total Score

Sum of Wastewater Sectors, Other Community Sectors and Other PMP Credits: 48.2

FORM 1: Mercury Report Cover Sheet

WPDES Permit Holder or Sewer Authority Name: Metrocity Wisconsin

Initial Plan X Annual Report ____ and Date Initial Plan Submitted _____

Report Date: 1/1/06 Period Covered by This Report: To date

Name of Treatment Plant(s)	WPDES Permit Number	Mercury Effluent Limit (ng/l)
Metrocity Utility	WI-00000001	None yet

Person to contact concerning information contained in this report:

Name: James Wolland

Title: Operations Manager

Mailing Address: 1800 Bay Front Dr

City, State, Zip Code: Metrocity, WI 55555

Telephone No. 555-5050

E-mail: james.wolland@metro.com

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

1-7-06
Date

Wastewater Administrator
Title of Official

Michael Burtness
Name of Official

Michael Burtness
Signature of Official

FORM 2: Summary of Mercury Resources

1. Person(s) implementing PMP	Title
James Wolland	Operations Manager
Terri Hammond	Pretreatment Coordinator
Sandy Evans	Secretary

2. Total Person-Hours [1] 600
Total Cost [2] $12,000

3. Are there any anticipated changes in treatment plant resources that would significantly change program hours or costs during the subsequent year, such as involving or hiring more personnel, purchasing equipment to implement the pollutant minimization program, or conducting compliance monitoring?

X Yes _____ No If yes, explain.

Will be hiring part-time (1/2) mercury reduction specialist
33% of Pretreatment Coordinator's time

4. Collaboration on mercury reduction activities is encouraged. Did any other municipal departments, county agencies, non-profit organizations, or other municipalities help implement part of your mercury reduction program?

_____ Yes x No If yes, explain:

5. A program for collecting mercury from the permittee's sewer system users is required. List all available options for recycling mercury including household hazardous waste centers, clean sweep events, and collection events hosted by the POTW.

Recycling Option	Frequency of Availability
Metrocity Hazardous Waste Facility	M, W, F 8-4:30
Thermometer Exchange	4 times in 2 years
Thermostat Collection	Ongoing/Honeywell

[1] Include time of all staff involved in administering and implementing the various program areas, e.g. Pretreatment Coordinator, Superintendent of POTW, Clerical Staff, Field Monitoring Personnel, Laboratory Personnel, and others.

[2] Include all administrative, monitoring, laboratory staff, and equipment costs including monitoring/analytical work done by an outside laboratory.

FORM 3: Summary of Treatment Plant Analytical Mercury Data

Influent		Effluent		Biosolids	
Date	Concentration ng/L	Date	Concentration ng/L	Date	Concentration mg/kg
7/3/2003	358	7/4/2003	4.1	7/3/2003	7.5
8/4/2003	205	8/5/2003	7.2		
9/5/2003	189	9/6/2003	5.4		
10/2/2003	255	10/3/2003	4.8	10/2/2003	6.4
11/7/2003	266	11/8/2003	2.4		
12/1/2003	310	12/2/2003	6.0		
1/5/2004	299	1/6/2004	4.8	1/5/2004	4.8
2/8/2004	215	2/9/2004	4.4		
3/1/2004	302	3/2/2004	2.8		
4/6/2004	276	4/7/2004	3.7	4/6/2004	5.4
5/5/2004	248	5/6/2004	8.6		
6/4/2004	294	6/5/2004	3.4		
7/7/2004	148	7/8/2004	4.5	7/7/2004	6.5
8/5/2004	259	8/6/2004	4.8		
9/1/2004	481	9/2/2004	4.1		
10/7/2004	245	10/8/2004	3.7	10/7/2004	9.0
11/5/2004	476	11/6/2004	5.8		
12/8/2004	321	12/7/2004	4.2		
1/1/2005	411	1/2/2005	3.9	1/1/2005	6.8
2/2/2005	243	2/3/2005	3.7		
3/3/2005	222	3/4/2005	2.2		
4/4/2005	194	4/5/2005	1.7	4/4/2005	5.7
5/5/2005	247	5/6/2005	2.7		

6/6/2005	264	6/7/2005	2.5		
7/7/2005	641	7/8/2005	9.9	7/7/2005	6.4
8/8/2005	206	8/9/2005	2.3		
9/9/2005	216	9/10/2005	2.8		
10/10/2005	284	10/11/2005	3.1	10/10/2005	7.7
11/11/2005	319	11/12/2005	3.9		
12/1/2005	207	12/2/2005	2.8		
Average	287	Average	4.2	Average	6.6
Test Method	EPA 1631	Test Method	EPA 1631	Test Method	EPA 7470A
Average from 1 year ago		Average from 1 year ago		Average from 1 year ago	
Average from 2 years ago		Average from 2 years ago		Average from 2 years ago	
Average from 3 years ago		Average from 3 years ago		Average from 3 years ago	
Laboratory doing the wastewater analysis:			Northland Chem Labs		
Laboratory doing the biosolids analysis:			Northland Chem Labs		

Is there a numerical or narrative mercury limit in your sewer use ordinance? Yes

If yes, what is it? 0.01 mg/l

FORM 4A: Medical Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Metro Memorial Hosp	614 1st Ave W	Metrocity WI 55555	Hospital	Dr. Jeff Abelt	555-1234
St Luke's Hospital	5814 Grand Ave	Metrocity WI 55555	Hospital	Tom Hohl	555-1235
Soldier Clinic	1201 Tower Ave	Metrocity WI 55555	Clinic	Cliff Nelson	555-1236
Campbell Clinic	6001 E Superior St	Metrocity WI 55555	Clinic	Dr. Dana Rose	555-1237
Arrowhead Clinic	122 2nd St West	Metrocity WI 55555	Clinic	Louise Boyd	555-1238
Rodgers Pet Hosp	4631 Mike Rd	Metrocity WI 55555	Veterinarian	Frank Skalko DVM	555-1239
Metrocity Vet	1225 Port Rd	Metrocity WI 55555	Veterinarian	Lucy Grina DVM	555-1230
Diabetes Clinic	225 S Central Ave	Metrocity WI 55555	Clinic	Dr. Jeff Bruckman	555-0101
Solem Clinic	5454 Solem Rd	Metrocity WI 55555	Clinic	Ralph Venmar	555-6150
Dey-Ferguson Center	2321 W 1 St	Metrocity WI 55555	Clinic	Douglas Dey	555-5506
Surgical Center Limited	1313 Cummings Ave	Metrocity WI 55555	Medical Center	Marty Dove	555-8980
Leone Family Clinic	231 E 1 St	Metrocity WI 55555	Clinic	Dr. Linda Leone	555-1601
Gentiva Health Center	325 Lake Ave	Metrocity WI 55555	Clinic	David Dove	555-2800

[1]List should include all hospitals, clinics and veterinary facilities with diagnostic laboratories (including laboratories contracted or managed independently of the medical facility).

FORM 4C: Medical Facility Compliance and Outreach Summary

General Outreach to All Medical Facilities

Outreach Accomplished	Outreach Planned
Mailed information October 05	Mailing Form 4B January 06
	Personal Visits Spring 06

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach to Individual Medical Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Metro Memorial Hosp					
St Luke's Hospital				Site visit 11/2005	
Soldier Clinic					
Campbell Clinic					
Arrowhead Clinic				Site visit 10/2005	Help develop plan
" "					
Gentiva Health Center					

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

Notes:

_____ % Implemented All WW BMPs
_____ % Scheduled to Implement All WW BMPs
_____ % In Compliance with Local Wastewater Limits

_____ Total % Compliant (Medical Mercury PMP Score)

Enter on Form 10 under IA: Medical Sector Score

FORM 5A: Dental Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Pediatric Dentistry	700 W Milwaukee St	Metrocity, WI 55555	Dental Office	Dr. Adams	555-1000
The Gentle Dentist	700 W Milwaukee St	Metrocity, WI 55555	Dental Office	Dr. Nice	555-1010
Johns Dental Clinic	700 W State St	Metrocity, WI 55555	Dental Clinic	Dr. Johns	555-1020
Metro Dentistry	7009 Donna Drive	Metrocity, WI 55555	Dental Office	Dr. McKay	555-1030
Nelson Oral Surgery	701 E 11th St	Metrocity, WI 55555	Oral Surgery	Dr. Nelson	555-1040
A-Z Dentistry	701 E 11th St	Metrocity, WI 55555	Dental Office	Dr. Arthur	555-1050
No More Pain Ltd.	702 Pflaum Rd	Metrocity, WI 55555	Dental Office	Dr. Ouellette	555-1060
Piedmont Dentists	705 Ross St	Metrocity, WI 55555	Dental Clinic	Lea Smithson	555-1070
Metro A1 Dentists	7500 Milwaukee Ave	Metrocity, WI 55555	Dental Office	Rick Schneider	555-1080
Metrocity DDS	707 N Webb Ave	Metrocity, WI 55555	Dental Office	Dr. Hedin	555-1090
Dr. Jane Dove DDS	710 E Madison St	Metrocity, WI 55555	Dental Office	Dr. Dove	555-1100
Dr. John Smith	710 S Main St	Metrocity, WI 55555	Dental Office	John Smith	555-1110
Dr. Mark Marks	711 7th St W	Metrocity, WI 55555	Dental Office	Mindy Marks	555-1120
"	"	"	"	"	"
"	"	"	"	"	"
Dental Health Care	705 Park St	Metrocity, WI 55555	Dental Clinic	Mr. Al Peters	555-2470
Dental Periodontics	7206 West Ave S	Metrocity, WI 55555	Dental Clinic	Dr. Tribb	555-2480

[1] List should include all dental facilities that install or remove amalgam fillings. Dental facilities not working with amalgam do not need to be included.

FORM 5C: Dental Facility Compliance and Outreach Summary

General Outreach to All Dental Facilities

Outreach Accomplished	Outreach Planned
Spoke at local dental meeting on new requirements 7/05	Send out 5B Forms to all dentists 2/2006
Attended workshop on dental mercury and BMPs 9/05	Work with City Attorney and City Council on Sewer Use Ordinance revision 3/2006
	Host mercury workshop for dentists with neighboring communities 9/2006

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Dental Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Pediatric Dentistry					
The Gentle Dentist					
Johns Dental Clinic					
Metro Dentistry				Installed separator 11/2005	
Nelson Oral Surgery					
"					
"					
Dental Periodontics					

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

_____ % Implemented All BMPs
_____ % Scheduled to Implement All BMPs
_____ % In Compliance with Local Wastewater Limits
_____ Total % Compliant (Dental Mercury PMP Score)

Enter on Form 10 under IB: Dental Sector Score

Notes:

Two dentists have installed separators, unknown if they have implemented all compliance requirements

FORM 6A: School and Educational Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Washington High School	2525 N Sherman Blvd	Metro, WI 55555	high school	Kevin Knudson	555-1234
Riverside High School	1615 E Locust St	Metro, WI 55555	high school	John Gevens	555-2345
Superior Senior High	4200 N Holton St	Metro, WI 55555	high school	Kirk Haugest	555-3456
Sixth Street Academy	615 W Washington St	Metro, WI 55555	middle school	Mike J Malyuk	555-4567
Eagle Middle School	971 W Windlake Ave	Metro, WI 55555	middle school	Robert Kent	555-5678
Roosevelt Middle School	800 W Walnut St	Metro, WI 55555	middle school	Donald R Smith	555-6789
Douglas Comm. Academy	3620 N 18th St	Metro, WI 55555	middle school	Chris Ligocki	555-7890
Million Village School	1011 W Center St	Metro, WI 55555	middle school	Barbara Link	555-0666
Fritsche Middle School	2969 S Howell Ave	Metro, WI 55555	middle school	Rick Conroy	555-8956
East Middle School	1202 Pierce St	Metro, WI 55555	middle school	Chris Wesling	555-7845
Wisconsin Tech College	2100 W 9th Ave	Metro, WI 55555	college	William Fisher	555-8520
UW Metro	64 W Green Tree Rd	Metro, WI 55555	college	Richard Jones	555-0258
St. Thomas Academy	615 Main St	Metro, WI 55555	college	Doug Waitrovich	555-7777

[1] List should include all middle schools, high schools, technical schools, colleges, and universities.

FORM 6C: School and Educational Facility Compliance and Outreach Summary

General Outreach to All School and Educational Facilities

Outreach Accomplished	Outreach Planned
Recycled lab thermometers 8/2005	Send Form 6B 1/2006
	Prepare Presentations April - June 2006
	Curriculum information Sept 2006

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual School and Educational Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Washington High School					
Riverside High School					
Superior Sr High School					
Sixth Street Academy					
"					
"					
UW Metro				Recycled mercury products 05	
St. Thomas Academy					

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

_____ % Implemented All BMPs
_____ % Scheduled to Implement All BMPs
_____ % In Compliance with Local Wastewater Limits
_____ Total % Compliant (School Mercury PMP Score)

Enter on Form 10 under IC: School Sector Score

Notes:

FORM 7A: Industry Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
PR Paper Industries	130 Industry Center	Metrocity WI 55555	Paper mill	James Bodin	555-5543
Gerlach Industries	PO Box 1500	Metrocity WI 55555	Paper Products	Peter Gerlach	555-5589
Jane Doe Chemicals	130 Maple Dr	Metrocity WI 55555	Chemical Mfg	Sally Tarnowski	555-5895
John Doe Chemicals	155 Industry Center	Metrocity WI 55555	RD Chemical Co	Gerald Welholm	555-5876
Shell Refinery	PO Box 190	Metrocity WI 55555	Refinery	Nick Zuber	555-8741
Metrocity Utility	1800 Bay Front Dr.	Metrocity WI 55555	Wastewater Treatment	James Wolland	555-5050

[1] List should include all industries and businesses identified by the POTW as having potential for mercury wastewater contributions (see instructions).

FORM 7C: Industry Compliance and Outreach Summary

General Outreach to All Industrial Facilities

Outreach Accomplished	Outreach Planned
	Contact industries 6/2006
	Mail Info 4/2006
	Mailed Form 7B 2/2006

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Industrial Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
PR Paper Industries					
Gerlach Industries					
Jane Doe Chemicals					
John Doe Chemicals					
Shell Refinery					
Metrocity Utility					Mercury self-assessment Summer 2006

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date. Add additional pages as necessary.

Sector Evaluation

Notes:

_____ % Implemented All WW BMPs
_____ % Scheduled to Implement All WW BMPs
_____ % In Compliance with Local Wastewater Limits
_____ Total % Compliant (Industry Mercury PMP Score)

Enter on Form 10 under ID: Industry Sector Score

FORM 9A: Historical Mercury PMP Score

This form gives credit to your POTW for mercury reduction projects completed before implementing a Mercury PMP. The information on the form will not change from year to year. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors (dairy manometer outreach refers to farms that have participated in replacing and recycling their milk house mercury manometers). For each outreach activity that your POTW has done in the past, put a check in the corresponding box. To calculate your Historical Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*		√								
	Dental				√						
	School								√		
	Industry										
Other Community Sectors	*General Public*	√		√				√	√		
	HVAC								√		
	Auto Switch										
	Fluorescent Bulb	√		√					√		
	Dairy Manometer										
	Other - Define										

Sector Evaluation:

Notes:

11 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIA: Historical Score

FORM 9B: Extra-jurisdictional Mercury PMP Score

This form gives credit for mercury projects your POTW has completed outside the treatment plant service area. For the initial plan, include all activities you have implemented. For the annual report, include all activities that have occurred only in the past 12 months. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors. For each outreach activity or sector accomplishment, put a check in the corresponding box. To calculate your Extra-jurisdictional Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*		√								
	Dental				√						
	School										
	Industry										
Other Community Sectors	*General Public*	√		√							
	HVAC										
	Auto Switch										
	Fluorescent Bulb	√		√							
	Dairy Manometer		√								
	Other - Define										

Sector Evaluation: *Notes:*

7 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIB: Extra-jurisdictional Score

FORM 1: Mercury Report Cover Sheet

WPDES Permit Holder or Sewer Authority Name: Metrocity Wisconsin

Initial Plan _____ Annual Report X and Date Initial Plan Submitted 1/1/06

Report Date: 1/1/07 Period Covered by This Report: 1/1/06 – 1/1/07

Name of Treatment Plant(s)	WPDES Permit Number	Mercury Effluent Limit (ng/l)
Metrocity Utility	WI-00000001	xx.x ng/l

Person to contact concerning information contained in this report:

Name: James Wolland

Title: Operations Manager

Mailing Address: 1800 Bay Front Dr

City, State, Zip Code: Metrocity, WI 55555

Telephone No. 555-5050

E-mail: james.wolland@metro.com

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of the individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete.

1/1/07
Date

Wastewater Administrator
Title of Official

Michael Burtness
Name of Official

Michael Burtness
Signature of Official

FORM 2: Summary of Mercury Resources

1. Person(s) implementing PMP	Title
James Wolland	Operations Manager
Terri Hammond	Pretreatment Coordinator
Sandy Evans	Secretary
Elizabeth Schlichting	Mercury Specialist

2. Total Person-Hours [1] 2400

Total Cost [2] $44,000

3. Are there any anticipated changes in treatment plant resources that would significantly change program hours or costs during the subsequent year, such as involving or hiring more personnel, purchasing equipment to implement the pollutant minimization program, or conducting compliance monitoring?

X Yes _____No If yes, explain.

Will be working with legal professionals to revise ordinance and require separators. Will work with web developers to develop website.

4. Collaboration on mercury reduction activities is encouraged. Did any other municipal departments, county agencies, non-profit organizations, or other municipalities help implement part of your mercury reduction program?

x Yes _____No If yes, explain:

Worked with City Attorney to revise ordinance. Worked with Urbancity and Suburbia to host a dental workshop in Urbancity.

5. A program for collecting mercury from the permittee's sewer system users is required. List all available options for recycling mercury including household hazardous waste centers, clean sweep events, and collection events hosted by the POTW.

Recycling Option	Frequency of Availability
Metrocity Hazardous Waste Facility	M, W, F 8-4:30
Thermometer Exchange	Twice a year
Thermostat Collection	Ongoing/Honeywell
Mercury Waste Solutions	By appointment

[1] Include time of all staff involved in administering and implementing the various program areas, e.g. Pretreatment Coordinator, Superintendent of POTW, Clerical Staff, Field Monitoring Personnel, Laboratory Personnel, and others.

[2] Include all administrative, monitoring, laboratory staff, and equipment costs including monitoring/analytical work done by an outside laboratory.

FORM 3: Summary of Treatment Plant Analytical Mercury Data

Influent		Effluent		Biosolids	
Date	Concentration ng/L	Date	Concentration ng/L	Date	Concentration mg/kg
1-16-06	287	1-18-06	4.2	1-5-06	4.2
2-18-06	265	2-20-06	4.4		
3-13-06	325	3-15-06	3.8		
4-12-06	189	4-14-06	2.4	4-20-06	5.2
5-20-06	198	5-22-06	2.3		
6-15-06	178	6-17-06	2.7		
7-7-06	303	7-9-06	1.8	7-15-06	2.8
8-8-06	277	8-10-06	2.7		
9-10-06	253	9-11-06	3.0		
10-17-06	275	10-20-06	2.8	10-17-06	6.9
11-11-06	257	11-13-06	1.9		
12-13-06	274	12-15-06	4.4		
Average	257	Average	3.0	Average	4.8
Test Method	EPA 1631	Test Method	EPA 1631	Test Method	EPA 7470A
Average from 1 year ago	287	Average from 1 year ago	4.2	Average from 1 year ago	6.6
Average from 2 years ago		Average from 2 years ago		Average from 2 years ago	
Average from 3 years ago		Average from 3 years ago		Average from 3 years ago	
Laboratory doing the wastewater analysis:		Northland Chem Labs			
Laboratory doing the biosolids analysis:		Northland Chem Labs			

Is there a numerical or narrative mercury limit in your sewer use ordinance? Yes

If yes, what is it? 0.01 mg/l

FORM 4A: Medical Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Metro Memorial Hosp	614 1st Ave W	Metrocity WI 55555	Hospital	Dr. Jeff Abelt	555-1234
St Luke's Hospital	5814 Grand Ave	Metrocity WI 55555	Hospital	Tom Hohl	555-1235
Soldier Clinic	1201 Tower Ave	Metrocity WI 55555	Clinic	Cliff Nelson	555-1236
Campbell Clinic	6001 E Superior St	Metrocity WI 55555	Clinic	Dr. Dana Rose	555-1237
Arrowhead Clinic	122 2nd St West	Metrocity WI 55555	Clinic	Louise Boyd	555-1238
Rodgers Pet Hosp	4631 Mike Rd	Metrocity WI 55555	Veterinarian	Frank Skalko DVM	555-1239
Metrocity Vet	1225 Port Rd	Metrocity WI 55555	Veterinarian	Lucy Grina DVM	555-1230
Diabetes Clinic	225 S Central Ave	Metrocity WI 55555	Clinic	Dr. Jeff Bruckman	555-0101
Solem Clinic	5454 Solem Rd	Metrocity WI 55555	Clinic	Ralph Venmar	555-6150
Dey-Ferguson Center	2321 W 1 St	Metrocity WI 55555	Clinic	Douglas Dey	555-5506
Surgical Center Limited	1313 Cummings Ave	Metrocity WI 55555	Medical Center	Marty Dove	555-8980
Leone Family Clinic	231 E 1 St	Metrocity WI 55555	Clinic	Dr. Linda Leone	555-1601
Gentiva Health Center	325 Lake Ave	Metrocity WI 55555	Clinic	David Dove	555-2800

[1] List should include all hospitals, clinics and veterinary facilities with diagnostics laboratories (including laboratories contracted or managed independently of the medical facility).

FORM 4C: Medical Facility Compliance and Outreach Summary

General Outreach to All Medical Facilities

Outreach Accomplished	Outreach Planned
Mailed Form 4B 3-2006	Personal Contacts Spring 07
Newspaper Article 5-06, Paid Advertisement 9-06	Facility Evaluations Fall 07
Thermometer collections at hospitals and clinics 9-06	

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach to Individual Medical Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Metro Memorial Hosp	X			Personal Visit Fall 2006	
St Luke's Hospital		X		Personal Visit Fall 2006	Follow up June 2007
Soldier Clinic					Visit 2007
Campbell Clinic			X	Analysis July 2006	
Arrowhead Clinic					Mail Feb 07
" "					
Gentiva Health Center	X				Follow up Apr 2007

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

Notes:

28	% Implemented All WW BMPs
14	% Scheduled to Implement All WW BMPs
14	% In Compliance with Local Wastewater Limits
56	Total % Compliant (Medical Mercury PMP Score)

Enter on Form 10 under IA: Medical Sector Score

FORM 5A: Dental Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Pediatric Dentistry	700 W Milwaukee St	Metrocity, WI 55555	Dental Office	Dr. Adams	555-1000
The Gentle Dentist	700 W Milwaukee St	Metrocity, WI 55555	Dental Office	Dr. Nice	555-1010
Johns Dental Clinic	700 W State St	Metrocity, WI 55555	Dental Clinic	Dr. Johns	555-1020
Metro Dentistry	7009 Donna Drive	Metrocity, WI 55555	Dental Office	Dr. McKay	555-1030
Nelson Oral Surgery	701 E 11th St	Metrocity, WI 55555	Oral Surgery	Dr. Nelson	555-1040
No More Pain Ltd.	702 Pflaum Rd	Metrocity, WI 55555	Dental Office	Dr. Ouellette	555-1060
Piedmont Dentists	705 Ross St	Metrocity, WI 55555	Dental Clinic	Lea Smithson	555-1070
Metro A1 Dentists	7500 Milwaukee Ave	Metrocity, WI 55555	Dental Office	Rick Schneider	555-1080
Metrocity DDS	707 N Webb Ave	Metrocity, WI 55555	Dental Office	Dr. Hedin	555-1090
Dr. John Smith	710 S Main St	Metrocity, WI 55555	Dental Office	John Smith	555-1110
Dr. Mark Marks	711 7th St W	Metrocity, WI 55555	Dental Office	Mindy Marks	555-1120
"	"	"	"	"	"
"	"	"	"	"	"
Dental Health Care	705 Park St	Metrocity, WI 55555	Dental Clinic	Mr. Al Peters	555-2470
Dental Periodontics	7206 West Ave S	Metrocity, WI 55555	Dental Clinic	Dr. Tribb	555-2480
Family Dental Care	777 West Ave S	Metrocity, WI 55555	Dental Clinic	Dr. Wallgren	555-2490
Case Dental Clinic	7415 Madison Road	Metrocity, WI 55555	Dental Office	Dr. Charles	555-2500

[1] List should include all dental facilities that install or remove amalgam fillings. Dental facilities not working with amalgam do not need to be included.

FORM 5C: Dental Facility Compliance and Outreach Summary

General Outreach to All Dental Facilities

Outreach Accomplished	Outreach Planned
Sent out Form 5B to all dentists 4/06	Develop display for outreach events 3/07
Dental workshop 7/06	Meet with local dental association 5/07
Revised city ordinance to require separators on 1/1/08	Work with web developer to produce a website Spring 07

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Dental Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Pediatric Dentistry					Site visit spring 07
The Gentle Dentist	X			Site visit 8/06	
Johns Dental Clinic				Sampling 9/06	
Metro Dentistry		X			Site visit summer 07
~~Nelson Oral Surgery~~	(Retired)				
"					
"					
Case Dental Clinic	X	(New)			

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

6	% Implemented All BMPs
15	% Scheduled to Implement All BMPs
0	% In Compliance with Local Wastewater Limits
21	Total % Compliant (Dental Mercury PMP Score)

Enter on Form 10 under IB: Dental Sector Score

Notes:

Metrocity assisted in Dental Workshop held in Urbancity in July. 44 dentists from Metrocity attended. Dentist Karl Thompson gave a case study presentation on the separator he installed last year.

FORM 6A: School and Educational Facility Inventory[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
Washington High School	2525 N Sherman Blvd	Metro, WI 55555	high school	Kevin Knudson	555-1234
Riverside High School	1615 E Locust St	Metro, WI 55555	high school	John Gevens	555-2345
Superior Senior High	4200 N Holton St	Metro, WI 55555	high school	Kirk Haugest	555-3456
Sixth Street Academy	615 W Washington St	Metro, WI 55555	middle school	Mike J Malyuk	555-4567
Eagle Middle School	971 W Windlake Ave	Metro, WI 55555	middle school	Robert Kent	555-5678
Roosevelt Middle School	800 W Walnut St	Metro, WI 55555	middle school	Donald R Smith	555-6789
Douglas Comm. Academy	3620 N 18th St	Metro, WI 55555	middle school	Chris Ligocki	555-7890
Million Village School	1011 W Center St	Metro, WI 55555	middle school	Barbara Link	555-0666
Fritsche Middle School	2969 S Howell Ave	Metro, WI 55555	middle school	Rick Conroy	555-8956
East Middle School	1202 Pierce St	Metro, WI 55555	middle school	Chris Wesling	555-7845
Wisconsin Tech College	2100 W 9th Ave	Metro, WI 55555	college	William Fisher	555-8520
UW Metro	64 W Green Tree Rd	Metro, WI 55555	college	Richard Jones	555-0258
St. Thomas Academy	615 Main St	Metro, WI 55555	college	Doug Waitrovich	555-7777

[1] List should include all middle schools, high schools, technical schools, colleges, and universities.

FORM 6C: School and Educational Facility Compliance and Outreach Summary

General Outreach to All School and Educational Facilities

Outreach Accomplished	Outreach Planned
Mailed letter Aug 2005	Give presentations - 2007
Mailed Form 6B Feb 2006	Help develop inventories Spring 2007
Developed presentation and information 2006	

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual School and Educational Facilities

Name of Facility	Implemented All BMPs	Scheduled All BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
Washington High School		√		Presentations and inventory spring 07	
Riverside High School					
Superior Sr High School					
Sixth Street Academy				Presentations and inventory spring 07	
" "					
UW Metro					
St. Thomas Academy		√		Presentations and inventory fall 07	

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date.

Sector Evaluation

Notes:

0	% Implemented All BMPs
12	% Scheduled to Implement All BMPs
0	% In Compliance with Local Wastewater Limits
12	Total % Compliant (School Mercury PMP Score)

Enter on Form 10 under IC: School Sector Score

FORM 7A: Industry InventoryT[1]

Name	Address	City, State, Zip Code	Type of Facility	Contact	Phone
PR Paper Industries	130 Industry Center	Metrocity WI 55555	Paper mill	James Bodin	555-5543
Gerlach Industries	PO Box 1500	Metrocity WI 55555	Paper Products	Peter Gerlach	555-5589
Jane Doe Chemicals	130 Maple Dr	Metrocity WI 55555	Chemical Mfg	Sally Tarnowski	555-5895
John Doe Chemicals	155 Industry Center	Metrocity WI 55555	RD Chemical Co	Gerald Welholm	555-5876
Shell Refinery	PO Box 190	Metrocity WI 55555	Refinery	Nick Zuber	555-8741
Metrocity Utility	1800 Bay Front Dr.	Metrocity WI 55555	Wastewater Treatment	James Wolland	555-5050

[1] List should include all industries and businesses identified by the POTW as having potential for mercury wastewater contributions (see instructions).

FORM 7C: Industry Compliance and Outreach Summary

General Outreach to All Industrial Facilities

Outreach Accomplished	Outreach Planned
Mailed form 7B Feb 2006	Personal Contact during spring 2007
	Mail updated info and industry material Apr 2007

Outreach may include newspaper articles or advertisements, mailings, workshops, speaking engagements, etc. Identify type and date.

Compliance and Specific Outreach for Individual Industrial Facilities

Name of Facility	Implemented All WW BMPs	Scheduled All WW BMPs	Wastewater Analysis	Outreach Accomplished	Outreach Planned
PR Paper Industries		Summer 2007		Inventory/process Summer 2006	
Gerlach Industries					Feb 2007
Jane Doe Chemicals					Mar 2007
John Doe Chemicals					Mar 2007
Shell Refinery					Mar 2007
Metrocity Utility		X		Mercury self-assessment Summer 2006	

Outreach may include a site visit, an inspection, sampling, etc. Identify type and date. Add additional pages as necessary.

Sector Evaluation

Notes:

0	% Implemented All WW BMPs
33	% Scheduled to Implement All WW BMPs
0	% In Compliance with Local Wastewater Limits
33	Total % Compliant (Industry Mercury PMP Score)

Enter on Form 10 under ID: Industry Sector Score

Form 8A: General Public Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as reducing household use of new mercury-containing products and recycling (rather than discarding) old mercury-containing products.

List participation by households in reducing their use of new mercury containing products (i.e.: retail stores that no longer sell mercury fever thermometers) and participation by households in recycling their old mercury-containing products (i.e.: "CleanSweep" events for mercury thermometers). Include adoption of local ordinances that affect mercury product sale or recycling. *Note: Common household mercury products include fever and other thermometers, thermostats, "silent" light switches, and containers of liquid mercury.* Attach additional sheets as necessary.

Household Mercury Product	Discontinued Sale (Describe)	Recycled Products (Quantity)
Fever Thermometers	Ordinance 6-03	3,220
Thermostats		72

Outreach activities to households (and retail stores). List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date	6-2006	7-5-06	6-2006	8-2006		
Date		9-13-06	10-2006			
Date			12-2006			
Date						

Sector Evaluation

The score for the General Public Sector is calculated based on a formula that uses POTW size and the number of outreach events. *The maximum value for the general public sector score is 100.*

7	x	5	=	35
# of outreach events		**facility factor**		**General Public Mercury PMP Score**

Enter on Form 10 under IIA: General Public Sector Score

Facility Size (MGD)	Facility Factor
1------4.9	10
5-----49.9	5
50----250	1

FORM 8B: HVAC (Thermostat) Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as collecting and recycling mercury thermostats.

List HVAC wholesalers and contractors that collect and recycle mercury thermostats; include retail stores that offer this service. Attach additional sheets as necessary.

Name	Address	City/State Zip Code	Type of Facility
Northern Mechanics	4747 Rice Rd	Metrocity	Business Supply
Grainger Industries	Hwy 10	Metrocity	Business Supply
Business Supply	1515 Oak Rd	Metrocity	Business Supply
H & H Industries	4050 Rice Rd	Metrocity	Business Supply

Total number of HVAC wholesalers and contractors in service area: 16

Outreach activities to HVAC wholesalers and contractors. List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date		2-2006			4-2006	
Date					6-2006	
Date						
Date						

Sector Evaluation

25 **HVAC (Thermostat) Mercury PMP Score**
(% HVAC wholesalers and contractors collecting and recycling mercury thermostats in service area).

Enter on Form 10 under IIB: HVAC Sector Score

Notes:

All dealers encouraged to participate in the Thermostat Recycling Program

FORM 8C: Auto Switch Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as removing and recycling auto mercury switches.

List auto-scrap yards that remove and recycle mercury hood and trunk switches; include dealerships that perform this same service. Attach additional sheets as necessary.

Name	Address	City/State/Zip Code	Type of Facility
Martin Auto Body	15 Center Ave	Metrocity	Auto Sales/Repair
Proctor Collision	200 Proctor Ave	Metrocity	Auto Repair
Johnson Auto	2660 East 1 St	Metrocity	Auto Sales
Badger Junk Yard	Cty Rd A	Metrocity	Junk Yard
" "			
" "			
Larson Buick	2665 East 1 St	Metrocity	Auto Sales

Total number of auto scrap yards and dealerships in service area: 30

Outreach activities to auto scrap yards and dealerships. List date accomplished. Attach additional sheets as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date	11-06		12-06		6-2006	
Date						
Date						
Date						

Sector Evaluation

Notes:

30% **Auto Switch Mercury PMP Score** (% auto scrap yards and dealerships removing and recycling mercury hood and trunk switches in service area.

Enter on Form 10 under IIC: Auto Switch Sector Score

Form 8D: Fluorescent Bulb Mercury Checklist and Outreach Summary

Best Management Practices for mercury are defined as increasing business and household use of energy-efficient low-mercury fluorescent bulbs and recycling (rather than discarding) burned out fluorescent bulbs.

List participation by businesses and households in recycling their burned out fluorescent bulbs, including both continuous and one-time "CleanSweep" events. Include adoption of local ordinances that affect fluorescent bulb recycling. Attach additional pages as necessary.

Business Fluorescent Bulb Recycling (Quantity, %, or other measures)	Household Fluorescent Bulb Recycling (Quantity, %, or other measures)
Information Distributed	CleanSweep Bulb Collection

Outreach activities to businesses, households (and retail stores) promoting fluorescent bulb recycling. List date accomplished. Attach additional pages as necessary.

Activity:	Website/Ads in Paper/Displays	Mailings/Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe
Date	5-2006		6-2006			
Date						
Date						
Date						
Date						

Sector Evaluation

The score for the Fluorescent Bulb Sector is calculated based on a formula that uses POTW size and the number of outreach events. *The maximum value for the fluorescent bulb sector score is 100.*

2	x	5	=	10
# of outreach events		**facility factor**		**Fluorescent Bulb Mercury PMP Score**

Enter on Form 10 under IID: Fluorescent Bulb Sector Score

Facility Size (MGD)	Facility Factor
1------4.9	10
5-----49.9	5
50----250	1

FORM 9A: Historical Mercury PMP Score

This form gives credit to your POTW for mercury reduction projects completed before implementing a Mercury PMP. The information on the form will not change from year to year. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors (dairy manometer outreach refers to farms that have participated in replacing and recycling their milk house mercury manometers). For each outreach activity that your POTW has done in the past, put a check in the corresponding box. To calculate your Historical Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*		√								
	Dental				√						
	School								√		
	Industry										
Other Community Sectors	*General Public*	√		√				√	√		
	HVAC								√		
	Auto Switch										
	Fluorescent Bulb	√		√					√		
	Dairy Manometer										
	Other - Define										

Notes:

11 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIA: Historical Score

FORM 9B: Extra-jurisdictional Mercury PMP Score

This form gives credit for mercury projects your POTW has completed outside the treatment plant service area. For the initial plan, include all activities you have implemented. For the annual report, include all activities that have occurred only in the past 12 months. The form is divided into outreach aimed at wastewater sectors and outreach aimed at optional sectors. For each outreach activity or sector accomplishment, put a check in the corresponding box. To calculate your Extra-jurisdictional Mercury Score, count the total number of boxes checked and enter that number in the box on the bottom of the page and also on Form 10.

		OUTREACH ACTIVITIES						SECTOR ACCOMPLISHMENTS			
		Ads in Paper/ Displays/ Website	Mailings/ Surveys	Collection Events	Workshops/ Community Events	Site Visits/ Personal Contacts	Other: Describe	Replaced Mercury Products	Recycled Mercury Products	Installed Mercury Treatment	Other - Describe
Wastewater Sectors	*Medical*										
	Dental				X		Created presentation				
	School										
	Industry										
Other Community Sectors	*General Public*	X							X		
	HVAC										
	Auto Switch										
	Fluorescent Bulb	X							X		
	Dairy Manometer		X								
	Other - Define										

Notes:

7 **Number of Mercury Outreach Activities and Mercury Sector Accomplishments:** (Total boxes checked)

For Annual Report: Enter on Form 10 under IIIB: Extra-jurisdictional Score

FORM 10: Community Mercury PMP Score

Facility Name: Metrocity WWTP Report Date: 1-1-07

I. Wastewater Sectors: (**Should** to be included in Mercury PMP Plan)

Sector	Sector Score	x	Weighting Factor*	=	Weighted Sector Score
A: Medical (from Form 4C)	56	x	(0.15)	=	8.4
B: Dental (from Form 5C)	21	x	(0.50)	=	10.5
C: School (from Form 6C)	12	x	(0.15)	=	1.8
D: Industry (from Form 7C)	33	x	(0.20)	=	6.6
			Total Wastewater Sectors Score		27.3

* Weighting factor is the relative fraction of mercury to POTW that is attributable to each sector. If you know what fraction comes from each sector you can adjust accordingly. The weighting factors must add up to 1. Use default values in parenthesis above if unknown.

II. Other Community Sectors: (**May** be included in Mercury PMP Plan)

Sector	Sector Score	x	Weighting Factor**	=	Weighted Sector Score
A: General Public (from Form 8A)	35	x	0.1	=	3.5
B: HVAC (from Form 8B)	25	x	0.1	=	2.5
C: Auto Switch (from Form 8C)	30	x	0.1	=	3.0
D: Fluorescent Bulb (from Form 8D)	10	x	0.1	=	1.0
			Total Other Community Sector Score		10.0

** Weighting Factor is between 0.0 and 0.1. Wisconsin's weighting factor is 0.1.

III. Other Credits: (**May** be included in Mercury PMP Plan)

Other	Score	x	Weighting Factor**	=	Weighted Score
A: Historical (from Form 9A)	11	x	0.1	=	1.1
B: Extra-jurisdictional (from Form 9B)	7	x	0.1	=	0.7
			Total Other PMP Credits Score		1.8

** Weighting Factor is between 0.0 and 0.1. Wisconsin's weighting factor is 0.1.

IV. Community Mercury PMP Score:

Total Score

Sum of Wastewater Sectors, Other Community Sectors and Other PMP Credits: 39.1