

8. Generic PMP Implementation Components

8.1 Checklists

The PMP is prepared, submitted and reviewed in three parts, each documented in a Report. The following three Sections list the items that should be included in each Report. These can be considered "checklists" that can be used to assure that all three parts of your PMP address all necessary items.

Part 1 - The Plan and Its Management - Shortly following establishment of the requirement for a Pollutant Minimization Program, the **Part I Report** is prepared and submitted. This serves as a "**Plan of Study**" for the Pollutant Minimization Program.

The Part I Report documents the planning for the PMP; explains the rationale behind the requirement for the PMP, identifies those involved and delineates other elements necessary to PMP development and implementation.

The Part I Report is to be submitted to the overseeing regulatory review agency at an early date to secure prior approval for work to be done in Part II. The following are the items that should be included in the Part I Report .

a. People

- 1) Project Manager (List name, title, organizational responsibilities carried in addition to the PMP, and any other pertinent information)
- 2) Project Workforce and other staff to be involved. Delineate each by name, title and responsibilities.
 1. Assigned Full or Part-Time (Specify which; if part-time, specify the percentage of time anticipated for the PMP)
 2. Others
- 3) Contact List (List names, organizations, titles, addresses, etc. of people who will or may be consulted in PMP development and implementation)
- 4) Document processes to be used to set up the networks of people partnered with and/or consulted in pursuing the potential or actual sources of the target pollutant(s)

b. Background; Project Management; Policy

- 1) Summary description of the study approach to be used in the PMP
- 2) Statement of policy from facility management, including hierarchy of pollution prevention
- 3) Background Information (Explanation of why the particular pollutant(s) was/were targeted.
 - a) Reasonable potential analysis
 - b) SPDES Permit and its supporting fact sheet
 - c) Pertinent Water Quality Standards
- 4) Mission statement and statement of goals and objectives
- 5) Identification of Project Management techniques to be used
- 6) Time-line and/or schedule, delineating the method for bench-marking progress and including interim and final regulatory review/approval points
- 7) Deliverables or specific products at various phases of PMP development and implementation
- 8) Project Budget, including delineation of any external funding sources
- 9) Outline of process to enhance stakeholder involvement and "buy-in" to PMP goals and objectives

c. Compilation of Preparatory Information

- 1) Documentation of, and pertinent information from, Cooperative Agreements (e.g. contracts or intermunicipal agreements with external entities in the context of facility operations)
- 2) A general description of the sewer system monitoring plan
- 3) Tabulation of the sources of potential information on sources of the target pollutant(s) such as facility data, industrial user permits and monitoring data, the Hazardous Waste Registry, Toxic Release Inventory and others.
- 4) Citation of the authority the facility has to implement the PMP and/or a copy of the statement of that authority

d. Laboratory

- 1) Delineation of the Lab Plan
- 2) Specification of methods, detection levels and QA/QC
- 3) Identification of the laboratory or laboratories that are to perform the analyses

Part 2 - Study and Source Identification - The *Part 2 Report* presents data, analyses, conclusions and statements of intended actions. (TOGS 1.3.3 calls for this report - identified as the PMP - to be submitted within six months after the date of the permit establishing the requirement for the PMP.) This serves as a “*Plan of Action*” for the PMP. Following approval of the Part II Report, approved actions are taken.

Following approval of Part 1, work begins on acquiring, compiling, organizing and analyzing information within the Pollutant Minimization Program. The Part 2 Report documents the gathering and analysis of information required to identify and quantify source of the target pollutant[s].

a. Data summaries and presentation (tables, charts, etc.)

Information from a search of all practical repositories of information in addition to those specifically listed below on the target pollutant(s). The information should address factors such as composition, uses and other pertinent information.

- 1) Toxics Release Inventory
- 2) Hazardous Site Registry
- 3) List of known sources
- 4) Data generated from reviewing industrial user permits
- 5) Data generated from reviewing cooperative agreements
- 6) Data generated from reviewing WWTP internal processes
- 7) Facility operating data and regulatory monitoring reports
- 8) Data from current sewer system monitoring and any other pertinent sewer system data
- 9) Existing Significant Industrial User Sampling Results
- 10) Results of User Survey

- 11) Mass Balance and Headworks Analysis
- 12) Data generated from additional industrial user sampling
- 13) List of possible sources (i.e. not previously listed above as “known”)
- 14) Data generated from Trackdowns

b. Evaluation and analysis of data (including calculations, charts, graphs, etc.)

- 1) Statements identifying sources
- 2) Estimates of feasible reductions
- 3) Recommendations, conclusions, next steps (i.e., those leading to Part 3)

Part 3 - Pollutant Minimization Action - The *Part 3 Report* documents actions taken and results obtained, indicates aspects begun during the PMP which are to be kept ongoing and recommends any further actions. Approval of the Part 3 Report documents the conclusion of the PMP.

a. Required Progress Reports and Project Management Tracking

b. Additional Significant Industrial User Sampling

c. Steps to address sources (specific steps will depend on findings of earlier Parts and of earlier work in this Part)

d. Conclusions

e. Next Steps

B. Template - Just as the Checklist has three main components, the following Template does also.

In essence, the Template is basically an expansion of the Checklist, intended to show a suggested format for presenting the information.

Pollutant Minimization Plan - Part 1 Report

Utility Name and Identifying Information

Name _____ SPDES Number _____

Mailing Address _____

_____ Zip _____

Telephone (____) _____ Fax (____) _____

E-mail Address _____

1. People involved on the Project

a. Project Manager

Name _____

Title _____

Approximate percent of time anticipated devoted to PMP

Development _____

Summary of additional organizational responsibilities

Additional Comment _____

b. Additional Workforce Involved with PMP Development

1. Staff to be assigned full or part-time

a) Name _____

Title _____ % Time to PMP _____

PMP Development function _____

b) Name _____

Title _____ % Time to PMP _____

PMP Development function _____

c) Name _____

Title _____ % Time to PMP _____

PMP Development function _____

(Add as many as necessary)

2. Additional staff involved with the Project

a) Name _____

Title _____

PMP Development function _____

b) Name _____

Title _____

PMP Development function _____

c) Name _____

Title _____

PMP Development function _____

(Add as many as necessary)

3. Attach an **Organization Chart** for the Utility or Facility depicting the Reporting and Working Relationships, particularly relating to PMP Development

4. The anticipated **total number of work-hours** for PMP

Development is _____

c. The following **people and/or organizations may be consulted**

in PMP Development

1. Individual Name _____ Title _____

Organization _____

Address _____

_____ Zip _____

Telephone (____) _____ E-Mail Address _____

Area(s) of expertise related to PMP Development _____

2. Individual Name _____ Title _____

Organization _____

Address _____
_____ Zip _____
Telephone _____ () _____ E-Mail Address _____
Area(s) of expertise related to PMP Development _____

3. Individual Name _____ Title _____
Organization _____
Address _____
_____ Zip _____
Telephone _____ () _____ E-Mail Address _____
Area(s) of expertise related to PMP Development _____

(Add as many as necessary)

d. Summarize the processes that will be used to develop partnerships
in pursuit of PMP Development

**2. Background; Project Management; Policy (See Chapter 3, Section B for
examples)**

a. Summarize the study approach to be used in the PMP

b. Statement of policy from facility management, including hierarchy of pollution prevention

c. Background Information (e.g. Explanation of why mercury was targeted).

d. Mission statement and statement of goals and objectives

Mission:

Goals: _____

Objectives: _____

e. Project Management techniques to be used

f. Project schedule

g. Specific Deliverables at various points in the above schedule

h. Project Budget, including delineation of any external funding sources

i. Outline of process to enhance stakeholder involvement and "buy-in" to PMP goals and objectives

Pollutant Minimization Plan - Part 2 Report
Utility Name and Identifying Information

Name _____ SPDES Number _____

Mailing Address _____

_____ Zip _____

Telephone _____ Fax (_____) _____

E-mail Address _____

(Note - each of the Sections delineated below will likely need to be several pages in length in the actual Part 2 Report.)

1. Presentation of Pertinent Pre-Existing and Readily Available

Data

(Note - This section of the Part 2 Report should tabulate and present pertinent charts, graphs and calculations for data from:

- 1) Toxics Release Inventory
- 2) Hazardous Site Registry
- 3) Known sources
- 4) Industrial user permits
- 5) Cooperative agreements
- 6) WWTP Internal processes
- 7) Facility operations (including sludge data) and regulatory monitoring reports
- 8) Current sewer system monitoring and any other pertinent sewer system data
- 9) Existing Significant Industrial User Sampling Results

2. Presentation of Results of Surveys and Direct Contacts

(Note - This section of the Part 2 Report should tabulate and present pertinent charts and graphs for information determined from surveys of and direct contacts with current contributors of the

target pollutant.)

3. Present the Pollutant Mass Balance for the Wastewater System

4. Present the Headworks Analysis for the Facility

5. Present the results of the self-audit for the Wastewater System

Depending on the results presented in the preceding five Sections, any or all of the following may also be needed in the Part 2 Report.

6. Present the results of the enhanced system sampling program (internal and/ or SIU) if conducted.

7. Present the results of any track down projects.

8. Using all of the above, establish current loads and projected feasible reductions. (Use the appropriate measurement units and sampling periods to present the current and projected data most accurately.)

Target Pollutant (name and chemical formula) _____

Source	Total Waste Discharged into System	Amount of Target Pollutant Discharged (Current)		Range of Reductions that May be Achieved Under PMP		Resultant Amount of Target Pollutant if Reductions Occur	
		Units (e.g. grams/day)		Units (e.g. grams/day)		Units (e.g. grams/day)	
		Average	Peak	Minimum	Maximum	Minimum	Maximum
ID #1							
ID #2							
(continue for as many as needed)							
System Total							

Pollutant Minimization Plan - Part 3 Report

Utility Name and Identifying Information

Name _____ SPDES Number _____

Mailing Address _____

_____ Zip _____

Telephone _____ Fax (____) _____

E-mail Address _____

(Contents of the Part 3 Report will be specific to the results of each PMP)

9. "How to Get the PMP Rolling-"

9.1 Overview

This chapter will highlight some of the material touched on in some of the preceding chapters. It will provide additional details on areas pertaining to actually getting moving on your PMP and will provide some resources for getting it rolling.

9.2 Mobilize Management

9.2.1 Who Is Management?

Management of a wastewater facility includes the on-site facility manager and any staff that person formally designates as part of the "management team." Management also includes certain off-site people whose decisions may impact the facility, such as a system general manager. In the context of being mobilized behind the PMP, management should also be considered to include a utility board or other elected officials designated to oversee the facility.

9.2.2 How Can I Mobilize Management of My Facility?

Management support and direction are the essential first steps to a successful PMP. Chapter 3 presented the basic information that management will need and the basic steps that management should be encouraged to take. Management's primary concern must be for the attainment of the overall mission and goals of the system and/or facility. Your initial job is to have management see that the PMP is an integral part of system/facility mission and goals. Most, if not all of the following items mentioned in Chapter 3 as being reasons a PMP should be pursued should be embodied in the system/facility's mission and goals:

- Compliance with regulatory requirements
- Avoidance of cost of additional treatment
- Reduced cost of residual handling
- Improved environmental protection
- Better acceptance of the wastewater system/facility in the community

9.2.3 What Steps Should Management Take?

At appropriate times throughout PMP initiation, development and implementation, Management should...

- a. Take steps to see that the necessary elements of the PMP become embodied in the system/facility' s mission, goals to the extent not already embodied.
- b. Review and approve the PMP mission and plan.
- c. Issue the statement establishing the system/facility' s policy regarding the PMP. (See the example statement for mercury presented in chapter 3.)
- d. Formally designate the PMP project manager
- e. Assure adequate staff and other resources are supplied for immediate efforts and reliably planned for future efforts. These resources should include all aspects necessary for the PMP, including personnel directly assigned and those who will need to provide support. Support goes beyond simply approving the PMP mission and issuing the policy statement. It means making difficult decisions in support of the PMP when conflicts arise as they almost certainly will regarding work assignments, laboratory charges and other elements of the PMP.
- f. Review and endorse the PMP as it progresses through the six steps detailed in Chapters 3 and 5

9.3 Mobilize the PMP Team

9.3.1 Who mobilizes the Team?

Early in PMP development, management designates a PMP Project Manager or PMP Team Leader. Management will also likely determine the team members, hopefully on the recommendation of, or at least in consultation with, the Project Manager. The Project Manager is responsible for moving the Team ahead, using the following steps. Complementary aspects of many of the steps are described in Chapter 3.

9.3.2 Assemble the Team and Take Initial Steps

- Prepare a Mission Statement for the PMP.
- If management has not yet issued a PMP Policy Statement, the Team should propose one at an early date.
- Organize the Team and establish necessary procedures. The Team will need to meet

regularly to review progress, make assignments and adjustments and refine the Plan it will develop.

Effective meetings can be instrumental in achieving PMP success and effective meetings do not happen by accident. The Project Manager is the Team Leader is responsible to assure that the Team meets its objectives and that any necessary meetings are effective and efficient.

Various resources and techniques can be usefully employed in helping the Team work smoothly. Because meetings are such an important part of enabling the Team to produce, care should be taken to see that they are as effective as possible. Each meeting should have the following:

- Assigned roles
 - **Facilitator** - Assigned to moderate the meeting, making sure each Team member actively participates as the meeting progresses and that none unduly dominates. The facilitator also assures that the Team stays focused on the agreed-upon purposes of the meeting. It is sometimes useful to have an outside facilitator; that is one who does not have a stake in the Team's work. If the Team uses a facilitator from within the Team then the role should rotate among the members from meeting to meeting. The Team Leader can serve as the facilitator, but if doing so needs to be sure not to let the roles merge. The leader needs to focus on substance and be sure that PMP Development Plan objectives are accomplished. The facilitator needs to focus on procedures the Team is using, making sure that they are effective in enabling the Team to progress toward desired meeting outcomes.
 - **Scribe** - A Team member assigned to record important directions, conclusions and decisions, preferably on a flip chart pad in large, legible print for all to see as they are being deliberated and agreed upon. They also should subsequently be typed and distributed by e-mail or hard copy. The scribe should also note any responsibilities assigned during the meeting, who is responsible and the date the action is due.
 - **Timekeeper** - It is useful to designate a member at each meeting to keep track of the time against an agreed-upon agenda. The most useful way of doing this is to have the timekeeper give notice to the Team when a certain amount of designated time remains for a given item. The Team can then determine whether to draw to a meaningful conclusion on the item, expand the time allotted for that item or conclude on time and re-visit the item in the future.
- **Agenda** - An agenda should be distributed to the Team members in advance of each meeting so that all can be prepared for the items to be included. The agenda should be more than simply a list of items. It should also include for each item:

- Time to be allotted;
- How it will be dealt with (presentation, discussion, brainstorming, etc.);
- Result expected (e.g. *a sampling plan will be developed* or *a survey instrument will be prepared*);
- Individuals responsible for bringing information or other resources needed and/or to present information to the Team.

The first item on the agenda should always be review of the agenda that had been distributed and modification as needed. The last items should be a recap of assignments and a solicitation of ideas for improving subsequent meetings.

- **Ground Rules** should be established at the first meeting and adjusted as needed in subsequent meetings. They should address expected Team member behavior during meetings. This would include Team expectations about such items as punctuality, cell phone and pager use during meetings, and need (or preferably lack of need) to respect a hierarchical relationship among the members.
- **Procedures** - The Team should have available for its use a variety of procedures it could use to move toward desired outcomes for each item on its agenda. The Team Leader and Facilitator should agree in advance on the best procedure(s) for each item.

The procedures could include:

- **I-Time** is a brief period of silence after introduction of an item to allow Team members to gather their thoughts. It is often useful to ask the members to take a minute to think about an item and then have each jot one or two thoughts on a sheet of paper.
- **Go-Around** is an orderly way of collecting a number of thoughts about an item. The facilitator "goes around" by asking each Team member in turn to share one thought about the item. Members can pass if they have no further thought and the go-around continues until all of everyone's contributions are gathered and noted. I-Time and the Go-Around are often used in sequence.
- **Brainstorming** is the free-wheeling, spontaneous offering of ideas from all Team members in no particular order. During the actual brainstorming, there should be no discussion of any idea raised. In particular, there should be no judgement (either positive or negative) expressed by anyone, particularly the facilitator.
- The above procedures will produce lists of ideas about subject issues. Whether resulting from Go-Around or Brainstorming, these lists should be recorded on Flip chart pads for visibility by all. **Combining** of ideas on such lists is often needed because of similarity among them. A useful technique for combining is to consider each item in turn and ask the Team whether it is the same or nearly the same as any item preceding it.
- Once the Team has compiled a list of unique ideas on the issue at hand, Prioritizing is usually needed in order to establish a cohesive approach to its resolution. One technique for prioritizing is called *Multi-voting*. Using this technique, members all get a number of votes to cast for the item(s) each thinks is the most promising approach to dealing with the subject. The number is usually about ¼ of the number of items on the list. Each member can cast

his or her votes as desired - all for a single idea, or split them among ideas. This should produce a prioritized list of logical approaches to dealing with a given subject.

- **Decision-Making** - Before the Team confronts any issue, it should have complete understanding of the way decisions on the issue will be made. Sometimes it is necessary or desirable that the leader or someone at a higher level of management make a *unilateral* decision based on input the Team provides. As long as the Team understands the necessity and is informed in advance, this usually does not present a problem. Often, Teams seek to make decisions by *consensus*. However, consensus is a frequently misunderstood word. True consensus demands that all members of the Team agree to support the decision, not merely accept it. Voting on a question to decide it (*democratic* decision making) has an attractive sound, but except for insignificant matters, is usually not a good means of making Team decisions. Unless the Team votes unanimously on a question, there is at least one "loser." Teams should not place members in the position of "losing," particularly when other members of the Team are on the "winning" side.

9.3.3 **Develop a Plan and Take Action** (See Chapters 3 and 7)

9.4 **Mobilize the Wastewater System 's Workforce**

The power of the workforce is not limited to the formally designated PMP Team. The entire system/utility workforce can be a powerful tool for minimizing pollution. This is particularly true for staff whose responsibilities bring them into contact with dischargers and the public. The more they know and the stronger they feel about persistent toxics, particularly the potential sources and the environmental and health risks posed, the greater benefit to the PMP they can be.

The mission and policy statements articulated by management should be an important first step in mobilizing staff, but more is needed. Newsletters, workshops and other in-house communication techniques should be used to inform and educate staff. In these communications, emphasize the benefits that could accrue to staff from success in a PMP. Areas that can help to motivate staff to actively support the PMP include likely improvements in:

- Public Health and Environmental Quality
- Workplace health and safety
- Facility O&M

9.5 Mobilize the Public

If you are responsible for a PMP for your system/facility, you need to personalize it for the people your system/facility serves so that they will actively support your efforts. Your public is much more likely to actively support your PMP if it knows that persistent toxics discharged to the collection system ...

- Cost them money for treatment;
- May cost them money and embarrassment for regulatory non-compliance;
- Are likely to cause harm, either by passing through the treatment system into the aquatic environment or by being transferred to the air or land.

How do you get that message out? The most efficient way is by convincing the news media to work with you on spreading the word. Figure 9.1 is a draft of a news release that you can adapt for your own use.

Getting the news media interested in your PMP is not as easy as it sounds. The news media receives many unsolicited news releases every day. To increase the chance of having your PMP receive the attention you want try to make the media's job easier by presenting your news release in a format and style that makes it easy for them to use.

News releases should be short (preferably a single page), but at the same time, should present all important information - this includes the name of your utility/facility, the purpose of the release, and a contact at the utility/facility. You increase the chances of the media using your information if, in advance of sending it, you target specific contacts at your local media. Call them first to inform them personally about the importance of the PMP and let them you'll be sending out a news release. After you've sent the news release, call them again to make sure they've received it and to answer any questions they might have. The best assurance for getting your information in front of the public is to have built up credibility with the people in the media that you're targeting. This obviously is something you cannot do overnight, but something that takes many instances of you being open, honest and responsive to them.

In addition to distributing a press release, consider which of the following may be applicable to your situation

- Telephone and visit local media people and inform them of your PMP and its importance; keep them informed as your PMP progresses. Invite them to tour of your facility and provide them information on wastewater treatment and the risks imposed by the targeted pollutant(s);
- Develop public service announcements for local television and radio stations to use;
- Provide tours of your facility to the public, particularly to groups with an interest in the PMP.
- Develop educational materials, such as pamphlets, displays or posters and make them available for public use and distribution. The Onondaga County Department of Drainage and Sanitation has developed a number of such materials. Several that are targeted at Mercury reduction are included on the CD version of this manual as Appendices (See the list at the end of this Chapter).

Work with groups in your community that either already have or may develop goals allied to the PMP. These could include local environmental groups or other more broadly organized groups.

(Insert your utility/facility logo and letterhead)

NEWS RELEASE

Anvtown Wastewater Treatment System Launches Campaign to Reduce Torie Pollution

July 1, 2004 - The **Anvtown Wastewater System** opens a campaign aimed at reducing levels of (insert name of target pollutant[s]) that arrived at the **Anvtown** Facility. **Anvtown** Superintendent, **Pat Waters**, says that the campaign will focus on cooperative efforts with sources of (insert name of target pollutant[s])) to prevent it from being introduced to the wastewater system in the first place. Waters highlights that this approach offers the most efficient and economical means of protecting the environment. "Preventing the entry of (insert name of target pollutant[s]) into our system will save money that would otherwise have to be spent to improve our ability to treat it at the plant. Prevention will also provide more reliable environmental protection and compliance with New York State and Federal regulations."

(Insert name of target pollutant[s]) is a persistent organic pollutant, meaning that once it has been introduced to the environment, it remains toxic and increases in concentration in organisms along the food chain. (Insert description of risks imposed by the target pollutant[s]).

Anvtown is establishing partnerships with contributors of (insert name of target pollutant[s]) to the **Anvtown Wastewater System** to reduce or eliminate their contributions. "We invite everyone interested to work in partnership with us," said Waters.

For more information, contact:

A. B. Smith

Pollutant Minimization Program Director

Anvtown Wastewater System

Tel: (999) 555-9999

Fax: (999) 555-9998

Email: absmith@anytownww.gov

(note: Replace items in bold, italicized, underlined print with your own information)

Figure 9.1 Template for a news release about the PMP

9.6 Mobilize Those Who Discharge into the System

Chapter 7 details most steps needed to develop the partnerships that should be formed to assist in planning and implementing the PMP. Participation by local leadership among those who use or discharge the target pollutant(s) is a key to PMP success. Personal contact is essential to gaining that participation. For example, in the case of involving leadership from the local dental community in a mercury PMP, the links presented on the NYSDA web site (http://www.nysdental.org/resource_links/index.cfm) contain leadership names and telephone contact information for local dental societies throughout New York. An introductory telephone call to leadership followed by a formal mail contact and solicitation to participate would be first steps to forming the recommended Advisory Group.

Another means of involvement is through surveying actual and potential dischargers of the target pollutant to gain necessary use and discharge information. The Western Lake Superior Sanitary District (WLSSD) has prepared a *Blueprint for Mercury Elimination*. Appendices to that document include a number of survey items that would be excellent models for PMP surveys. They are:

- Telephone Survey Template (regarding product specifications)
- Medical Facility Mail Survey
- Operations and Maintenance Hazardous Waste Checklist
- Dental Office Waste Management Survey

The Blueprint and appendices can be located by following the publications link at the WLSSD web site (<http://www.wlssd.duluth.mn.us/index.html>).

Appendices

The CD version of this manual contains the following appendices

CD-A. M.A.P. (Mercury Awareness Program) Brochure, produced by the Onondaga County

Department of Drainage and Sanitation (now the Onondaga County Department of Water Environment Protection)

CD-B. Environmental Best Management Practices for Dental Offices, produced by the Onondaga County Department of Water Environment Protection

CD-C. Environmental and Safety Advances for Health Care Facilities, produced by the Onondaga County Department of Drainage and Sanitation (now the Onondaga County Department of Water Environment Protection) and Bristol Myers Squibb Company

CD-D. Reducing Mercury Use in Health Care: Promoting a Healthier Environment - A How to Manual; Monroe County Department of Health in cooperation with Strong Memorial Hospital and the Monroe County Department of Environmental Services Rochester, New York; funded by U.S Environmental Protection Agency

10. Application of Generic PMP Phased Approach - EXAMPLE - Developing a PMP for Discharges of Mercury (Hg) to a POTW:

Note that the Steps in this Section of the Chapter are the same as presented in *Chapter 7* for the process presented generically.

Step 1 (Phase 1a) - Target the pollutant or pollutants to be addressed - i.e., identify the problem pollutants.

Why does this manual use Hg as an example?

1. Hg is a pollutant for which a number of POTWs will need to develop PMPs.
2. Hg is very toxic; it has significant human and environmental impacts.
3. Considerable pollutant prevention, pollutant reduction or source control programs for Mercury have been undertaken in many locations already; techniques are documented and readily available.

Step 2 (Phase 1b) - Lay the groundwork for the PMP

- A. Get top management support and establish direction
 1. Need for PMP
 - a. Fish consumption advisories exist in 24 states due to Hg levels in fish - Mercury bioaccumulates in fish flesh at very high rates and is harmful to humans even if consumed at low levels.
 - b. To protect humans from consuming fish that contain mercury the NYSDEC ambient water quality standard is 0.7 parts per trillion (ppt) dissolved (see TOGS 1.1.1)
 - c. The EPA method 1631 detection limit (MDL) for Mercury is 0.2 (ppt) and the level that can be reasonably quantified (PQL) is 0.5 ppt. A list of laboratories is attached.

d. At the same time Mercury is prevalent in industrial and municipal discharges at levels that exceed or far exceed the standard in accordance with the following approximate numbers:

- 'Minimized ' POTW Effluents: 2 to 45 ppt
- 'Minimized' POTW Influent: 100 to 200 ppt
- Mean of 75 Maine POTW effluents: 11 ppt
- Mean of 10 Maine Industrial effluents: 24 ppt
- Mean of 4 Michigan POTW effluents: 10 ppt
- Mean of 7 Michigan Industrial effluents: 21 ppt
 - Ambient: 0.27 to 5.9 ppt dissolved, 0.26 to 250 total recoverable (Hudson river and tributaries)
 - Rainfall: 2 to 44 ppt (Vermont)
 - Hospitals: 300 to 5,400 ppt
 - Dentists: Up to 35,000 ppt
 - Residential: Average 100 ppt
 - Industrial Laundries: 700 ppt
 - Laboratories: Up to 5000 ppt
 - Art Studios: Up to 310 ppt
 - Painting/Stripping: Up to 125,000,000 ppt
 - Landfill Leachate: 700 to 2,000 ppt

e. It is very difficult to treat mercury to the very low levels necessary to meet limits based on the ambient water quality standard. It is likely impossible to treat Mercury once it has become diluted and mixed with sanitary sewage.

f. New York State is choosing to require Mercury reductions as close to the source as possible.

g. State and Federal regulations are being enacted to ban use of mercury in products.

h. A Pollutant Minimization Program is required by the POTW SPDES permit.

i. A Pollutant Minimization Program is a requirement to obtain a Water Quality Standards variance.

2. Benefits of PMP

- a. Lower costs than treatment at POTW
 - b. A PMP may offer a legal option for water quality-based effluent limits that cannot be achieved
 - c. What is kept out of the system doesn't need to be treated or disposed of
 - d. User groups that represent certain sources can be cultivated to work cooperatively to reduce Mercury use and discharge to the system. Will need to address and include non-permitted users. Identified sources include dental offices, hospitals, laboratories, auto recyclers and residences.
 - e. Community good will
 - f. Permit compliance
3. Estimated costs of developing the PMP (Need to be quantified for specific dischargers)
- a. internal costs
 - 1) staff time
 - 2) equipment
 - 3) travel
 - 4) other
 - b. Additional
 - 1) SUO may need to be amended to include BMPs for user groups as an enforceable mechanism
 - 2) projected need for consultants
 - 3) lab support
 - 4) other

4. Mission Statement (example): *Insert here the Name of Utility or Facility, through cooperative and other means, will reduce entry of mercury into our wastewater system to the absolute minimum possible. We will do this by identifying all sources of mercury and working cooperatively with those responsible for each source to eliminate the source where possible and reduce it to the absolute minimum where elimination is impossible. We will use appropriate regulatory mechanisms where cooperation is not forthcoming.*

5. Policy Direction (example): *Insert here the Name of Utility or Facility hereby establishes the policy of eliminating where possible the entry of mercury into its wastewater system through development of a Pollutant Minimization Program (PMP) for mercury. Further, in specific instances where elimination of entry of mercury proves impossible, the policy is to reduce it to the maximum extent possible. This PMP has full management support, as indicated by commitment of resources including commitment of necessary staff and allocation of other necessary resources. This PMP will call for actions by those responsible for sources of mercury to eliminate or drastically reduce discharge of mercury to the wastewater system. Our policy is to work cooperatively with individual dischargers and with professional and trade associations and others that represent groups of dischargers to obtain voluntary elimination or reduction. Our policy is also to vigorously use appropriate enforcement where cooperation and voluntary action are not forthcoming or adequately productive.*

(to be signed by Utility/Facility CEO)

6. Scope and Impact
 - a. The PMP will address both sources permitted for the discharge of mercury into the system and sources not permitted.
 - b. Currently identified sources include dental offices, hospitals, laboratories, auto recyclers, and residences
 - c. Recent legislation addresses dental use of mercury. In July 2004, New York joined a growing number of states in adopting legislation that recognizes the

importance of labeling and responsibly managing the waste from mercury-added consumer products. The new law stipulates the following:

- * Products with mercury content must be labeled.
- * Waste from products containing Hg must not be incinerated.
- * Waste from products containing Hg must be managed separately from other solid waste according to regulations developed by DEC.
- * Participation of New York State in the Interstate Mercury Education & Recycling Clearinghouse (IMERC) of the Northeast Waste Management Officials' Association (NEWMOA) has been endorsed.
- * Sales of mercury thermometers and novelty products containing mercury are restricted.
- * Purchase and use of elemental mercury by primary and secondary schools is prohibited.
- * Sales of elemental mercury except for specific research, dental and manufacturing uses are limited.
- * Recommendations on reducing mercury pollution will be made by an advisory committee.

For further information about this topic, please check DEC's Web Site or contact Peter M. Pettit or James Honan at (518) 402-8705.

Pursuant to Environmental Conservation Law (ECL) Section 27-0926, as enacted by Chapter 506, Laws of 2002, the New York State Department of Environmental Conservation (NYSDEC) is in the process of developing a draft regulation, 6 NYCRR Subpart 374-4 - Standards for the Management of Elemental Mercury and Dental Amalgam Wastes at Dental Facilities.

The NYSDEC held informal public workshops and received comments on a proposed regulation in April and May of 2004, and is currently evaluating those comments. Updates to the development of a draft regulation will be posted on the DEC website.

- d. Sources may be required to alter procedures and/or equipment to achieve elimination or reduction

7. Attach current Sewer Use Ordinance (SUO) if it is deemed adequate to secure the necessary actions. If the current SUO is deemed inadequate, attach a draft of a proposed new or amended SUO and the plan for enacting it.
 8. The PMP Development Team is to monitor progress and report to the General Manager no less frequently than monthly. The reports will include the following at the minimum:
 - a. Levels of mercury influent to the treatment facility (or facilities)
 - b. Lists of Best Management Practices programs needed and instituted throughout the wastewater system.
 - c. Logs of compliance and non-compliance with programs of Best Management Practices instituted by sources of mercury into the system.
 - d. Descriptions of education and outreach programs, focused on performance effectiveness of those programs.
- B. Utility/Facility Management Assembles the PMP Development Team (See generic material in Chapter 7 for team make-up, etc.)
1. Team Formulates Development Plan based on Items A.3 - A.8 above
 - a. Time Line
 - 1) Plan preparations actually begin at some time prior to effective date of the permit that requires it. These preparations all necessary actions (forming partnerships, beginning to identify sources, do some initial enhanced sampling, etc.). However, care should be taken to not make too much of a resource investment before the Part 1 Report (Plan of Study) is submitted to and approved by the regulatory agency.
 - 2) Permit Enacted (“Day 1”)
 - 3) Completion and Submission of Part 1 Report (Day 1 + 2 months)
 - 4) Pollutant Mass Balance complete on a schedule agreed upon with the regulatory agency
 - 5) Sources Identified; any necessary trackdowns complete on a schedule agreed upon with the regulatory agency

- 6) Potential sources identified on a schedule agreed upon with the regulatory agency
 - 7) Part 2 Report Submitted (Day 1 + 6 months)
2. PMP Actions begin (Following approval of Part 2 Report)

Step 3 (Phase 1c) - Develop partnerships, identify stakeholders. and consult with partners and stakeholders

- A. Meet with appropriate regulatory agencies
 1. NYSDEC
 - a. See Appendix B for PMP contacts and reference to DEC Regional Engineers and DEC Regional Water Managers listings.
 - b. Tom Corbett, NYSDEC (working with auto recyclers to recycle mercury switches)
 3. USEPA (list appropriate names/contacts)
- B. Develop contact network
 1. Set up contact meetings with groups, associations and organizations
 - a. Association of Metropolitan Sewerage Agencies (AMSA) - Mercury Source Report
 - b. New York Dental Association (NYDA) (<http://www.nysdental.org/>) and Local Dental Associations. The NYDA site contains links to local dental societies at the following page:
http://www.nysdental.org/resource_links/index.cfm
 - c. See attached source list for Hospital Associations
 - d. Colleges and High Schools
 - e. Laboratories
 - f. Auto recyclers
 2. Web sites dealing with mercury pollution prevention
 - a. Mercury list serve on the internet
join-mercury_policy@lyris.newmoa.org

- b. Mercury in Massachusetts
(www.state.ma.us/dep/files/mercury/hgtoc.htm)
 - c. Wisconsin Mercury SourceBook
(www.epa.gov/glnpo/bnsdocs/hgsbook/index.html)
 - d. MASCO (Medical Academic and Scientific Community Organization, Inc.)
(www.masco.org/mercury/index.htm)
 - e. Mercury Headworks Analysis for 2000 prepared for Palo Alto RWQCP, Revised January 2002
(www.city.palo-alto.ca.us/cleanbay/pdf/mermassbal02.pdf)
 - f. Other
- C. Form and convene an Advisory Group - from above sectors, preferably in utility/facility service area. At each stage of the program brief the advisory group and solicit input.
- D. Additional measures to secure stakeholder support

Step 4 (Phase 2a) - Gather information

A. Review Existing Information

1. Facility operating and reported data, especially on sludge; sewer monitoring data
2. Industrial user permits and monitoring data
3. Toxic Release Inventory
4. NYS Hazardous Site Registry
5. Historical records of industrial sites (which may indicate use of Hg in the past, while current site use may not suggest that)

B. Establish baseline information

1. Research origins and uses of Hg. Knowledge of the uses may help trackdown of unknown sources
2. Survey Dentist Offices, Hospitals, Laboratories, Auto recyclers and facilities that are or appear likely to be mercury sources from existing information.

- a. Region 5 of the U.S. EPA has produced guidance on the development and conduct of surveys of mercury use. The guidance for medical facilities is available at the web site www.epa.gov/grtlakes/seahome/mercurv/src/qualify.htm#menu
 - b. A more general mercury use survey instrument was developed by NEWMOA (Northeast Waste Management Officials) and is available at the web site www.newmoa.org/Newmoa/htdocs/publications/mercstudies/Questionnaire.pdf
 - c. Progressively more direct contact as needed such that users requiring controls are identified.
3. Establish a baseline with 10 to 12 days of influent and effluent monitoring using EPA method 1631 (10 to 12 days).
 4. Audit Wastewater Treatment Plant internal processes (Contaminants or incidental components of chemicals containing Hg used for treatment and/or analysis may contribute pollutants to the system.)

Step 4 Legal Authority-

Use existing legal authority where possible. For example - State rules for Dental Amalgam recycling, sewer use law requirements or sewer use law mercury limits.

Where necessary, modify the local sewer use law to provide additional legal authority. Use the procedures described in Section I. of this Appendix.

Step 5 (Phase 2b) - Locate and Quantify Sources

(Actions to be taken by PMP developer to gather and document necessary information)

Step 6 (Phase 3) - Act to Minimize the Pollutant(s)

A. Implement controls

- i. Audit/inspect users to enable you to understand their processes and to work collaboratively with those who are the process experts.
2. Mail notice to dentist offices of requirements to recycle amalgam in accordance with state rules [state rules in development]. Assume that mailings are reviewed by the Advisory Group to assure maximum cooperation from each target audience.
3. Mail notice to hospitals requiring implementation of best management practices including replacement of mercury containing devices.
4. Mail notice to laboratories requiring laboratory best management practices in accordance with industry standards.
5. Mail notice to auto recyclers requiring the removal of mercury switches prior to shredding or crushing. [Check with NYSDEC]
6. Identify mercury management contractor. Offer household hazardous waste pick-up where mercury will be routed to mercury management contractor.

B. Measure/Evaluate

1. Inspect at least ten percent of the facilities identified for compliance with requirements.
2. Monitor influent Mercury at least quarterly using method 1631. Monitor selected facilities identified using method 1631.
3. Measure effluent Mercury as required by the SPDES permit.

C. Reporting

1. Prepare an annual report including summary information about facilities identified, notified, inspected and monitored.
2. Show influent monitoring trends including historical monitoring data.
3. Summarize public education/notification efforts.

APPENDIX A

Pollutant Minimization Program Glossary of Terms

Abbreviations and Acronyms

BCC	Bioaccumulative Chemicals of Concern – In the context of the GLI, BCC refers to any of 22 designated toxic chemicals, concentrations of which increase along the food chain and which tend to persist in organisms and the environment. The 22 chemicals are: Lindane Hexachlorocyclohexane (BHC) alpha-Hexachlorocyclohexane beta-Hexachlorocyclohexane delta-Hexachlorocyclohexane Hexachlorobutadiene Photomirex 1,2,4,5-Tetrachlorobenzene Toxaphene Pentachlorobenzene 1,2,3,4-Tetrachlorobenzene	Mirex Hexachlorobenzene Chlordane DDD DDT DDE Octachlorostyrene PCBs 2,3,7,8-TCDD Mercury Dieldrin
BMP	Best Management Practice - A documented process or technique that has a proven record of success in providing significant improvement in pollution control.	
CFR	Code of Federal Regulations - The compilation of regulations established by the agencies of the United States government to implement federal laws.	
DEC	Department of Environmental Conservation - In the context of <i>this</i> manual, this applies to the New York State Department of Environmental Conservation.	
DOW	Division of Water -In the context of this manual, this applies to DEC's Division of Water.	
ECL	Environmental Conservation Law -The set of laws enacted by New York State for protection of the environment of the State.	
GLI	Great Lakes Initiative -The Final Water Quality Guidance for the Great Lakes System established in 1995 by the Great Lakes States and EPA to restore and sustain the health of the Great Lakes.	
Hg	Mercury -A metallic element identified as one of the BCCs.	
NEIWPC	New England Interstate Water Pollution Control Commission - interstate agency established to serve and assist its member states --Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont - by	

encouraging cooperation among the states, educating the public about key water quality issues, supporting research projects, training environmental professionals, and providing overall leadership in water management and protection. NEIWPCC's initial emphasis was on surface water protection, but that role has grown over the years to include such matters as wetlands restoration, nonpoint source pollution water allocation, and underground storage tanks.

- NEWMOA** **Northeast Waste Management Officials** - a nonprofit, nonpartisan interstate association that has a membership composed of the hazardous waste, solid waste, waste site cleanup and pollution prevention program directors for the environmental agencies in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.
- NYCRR** **New York Codes, Rules and Regulations** - Compilations of regulations established by New York State agencies to implement State laws.
- O&M** **Operation and Maintenance** - All activities and costs necessary for the proper functioning of a wastewater treatment system.
- PBT** **Persistent, Bioaccumulative, Toxic** - The descriptor of 12 chemicals designated as priority contaminants by EPA from among the 22 designated BCC's.
- PCB** **Polychlorinated Biphenyl** - Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance.
- PMP** **Pollutant Minimization Program** - An organized set of activities focused on achieving the maximum reduction of the target pollutant in the facility's discharge through means other than treatment at the facility.
- POTW** **Publicly Owned Treatment Works** - A system used in the treatment of domestic sewage or industrial wastes of a liquid nature which is owned by the State, a county, a municipality or a sewer district.
- PQL** **Practical Quantitation Limit** - The lowest concentration that can routinely be reliably achieved within limits of precision and accuracy.
- SPDES** **State Pollutant Discharge Elimination System** - The comprehensive New York State regulatory program designed to protect the quality of the waters of the State. A key element of the SPDES program is the SPDES permit, which establishes limits and conditions upon discharges to the waters of the State. The program was created and is authorized by Article 17 of the Environmental Conservation Law (ECL) and is implemented under regulations contained in *6NYCRR PART 750*
- TOGS** **Technical and Operating Guidance Series** - NYS DEC Division of Water's guidance for its staff in carrying out its programs.

WQBEL **Water Quality Based Effluent Limit** - A limit placed in a discharge permit calculated to avoid violation of the water quality standards in a receiving water.

Other terms not defined above

Headworks Analysis - An analysis of plant influent, sludge and, if necessary, additional waste streams to identify and quantify pollutants of concern and the plant's capacity to treat or remove them.

Mass Balance - Application of the law of conservation of mass to a treatment facility. The mass of any pollutant entering the facility must equal the mass leaving the facility to the air or in sludge, other waste stream(s) and effluent

Plan of Study - A plan that documents existing conditions and available information and defines the means by which conditions will be modified and certain specified further information will be obtained and which will set the stage for carrying out a given project.

APPENDIX B

NYS DEC PMP Contacts

- **NYSDEC Regional Directory:**
http://www.dec.state.ny.us/website/about/abt_rull3.html
- **NYSDEC, Bureau of Water Permits:**
<http://www.dec.state.ny.us/website/dow/bwp.htm>

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APPENDIX C

Laboratories Currently Providing Contract Analytical Services Using EPA Method 1631 for Mercury

This list is based on information as of January 17, 2001. It does not represent a quote for analytical services. The laboratories are identified for informational purposes only. This may not be an exhaustive list, and it does not constitute or imply an endorsement.

Alberta Research Council
Analytical Chemistry Highway
16A, 75 Street P.O. Bag 4000
Vegreville, Alberta T9C 1T4 Canada
Phone: 780-632-8211
Contact Xin Banj Feng
Email: bond@arc.ab.ca

The Academy of Natural Sciences
Estuarine Research Center
10545 Mackall Rd.
St. Leonard, MD 20685
Phone: 410-586-9700
Fax: 410-586-9705

Battelle/Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
Contact: Brenda Lasorsa
Phone: 360-681-3650
email: brenda.lasorsa@pnl.gov

Brooks Rand Ltd. 3
950 Sixth Ave. NW
Seattle WA 98107
Contact Rebecca Wood
Phone: 206-632-6206
email: rebecca@brooksrand.com
Web page: www.brooksrand.com

Cebam Analytical Inc
3927 Aurora Avenue N.
Seattle WA 98103
Contact Steve Nazosf
Phone: 206-632-9097

Chesapeake Biological Laboratory I Williams
Sr., P.O. Box 38
Solomons MD 20688
Contact Robert Mason
Phone: 410-326-7387
Email: mason@cbl.umces.edu
Web page: www.cbl.umces.edu/mason-n.html

Flett Research Ltd.
440 DeSalaberry Ave.
Winnipeg, Manitoba R2L 0Y7
Canada
Phone: 204-667-2505
Contact: Bob Flett
email: flett@cc.umanitoba.ca

Frontier
Geosciences 414
Pontius Ave North
Seattle WA 98109
Contacts: Nicholas Bloom, Eric Vondergeest
Phone: 206-622-6960
Web page: www.frontiergeosciences.com

Ginosko Laboratory Inc
17875 Cherokee St.
Harpster OH 43323-9302
Contact: Bill Pfeiffur
Phone: 740-496-4571

Jones & Henry Labs, Inc.
2567 Tracy Road
Northwood, OH 43619
Contact: Dave Collins
Phone: 419-666-0411

KAR Laboratories, Inc.
4425 Manchester Road
Kalamazoo, MI 49001
Contact: Mike Jaeger
Phone: 616-381-9698
Email: jaeger@karlabs.com

Northern Lake Service
400 North Lake Avenue
Crandon, WI 54520
Contact: Mal Gross
Phone: 715-478-2777
Email: mcgnls@newnorth.net

APPENDIX D

Hospital Associations

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)

One Renaissance Boulevard
Oakbrook Terrace, IL 60181 Phone: (630) 792-5000
Fax: (630) 792-5005
Internet: <http://www.jcaho.org>

Greater New York Hospital Association (GNYHA)

555 West 57th Street, 15th Floor
New York, New York 10019
Phone: (212) 246-7100
Fax: (212) 262-6350
Internet: <http://www.gnyha.org>

New York State Nurses Association (NYSNA)

11 Cornell Road
Latham, New York 12110-1499
Phone: (518) 782-9400
Fax: (518) 782-9530
E-mail: infor@nysna.org
Internet: <http://www.nysna.org>

North Metropolitan Hospital Association

400 Stony Brook Court
Newburgh, NY 12250-5162
Phone: (914) 562-7520
Fax: (914) 562-0187
Internet: <http://www.normet.org>

American Hospital Association (AHA)

Chicago Headquarters
One North Franklin
Chicago, IL 60606
Phone: (312) 422-3000
Fax: (312) 422-4796
Internet: <http://www.aha.org>

Healthcare Association of New York State (HANYS)

74 North Pearl Street
Albany, New York 12207
Phone: (518) 431-7600
Fax: (518) 431-7915
Internet: <http://www.hanys.org>

Western New York Healthcare Association

1876 Niagara Falls Blvd.
Tonawanda, NY 14150
Phone: (716) 695-0843
Fax: (716) 695-0073
E-mail: wnyha@wnyha.com
Internet: <http://www.wynaha.com>

Lowell Center for Sustainable Production Sustainable Hospitals Project

Kitson Hall, Room 2000
One University Avenue
Lowell, MA 01854
Phone: (978) 934-3259
E-mail: lcsp@uml.edu
Internet: <http://www.uml.edu/centers/LCSP/hospitals/>

Iroquois Healthcare Organization

Clifton Park Office
17 Halfmoon Executive Park Drive
Clifton Park, NY 12065
Phone: (518) 383-5060
Fax: (518) 383-2616
Syracuse Office
5740 Commons Park
East Syracuse, NY 13057-9400
Phone: (315) 445-1851
Fax: (315) 445-2293
Internet: <http://www.iroquois.org>

Health Care Without Harm

National contact: Health Care Without Harm
c/o Center for Health, Environment and Justice
P.O. Box 6808
Falls Church, VA 22040
Phone: (703) 237-2249
Fax: (703) 237-8389
E-mail: <http://www.noharm.org>

NYS Nurses Association

11 Cornell Road
Latham, NY 12110
Phone: (518) 782-9400
Fax: (518) 782-9530
E-mail: info@nysna.org
Internet: <http://www.nysna.org>

Physicians for Social Responsibility/NYC

475 Riverside Drive #551
New York, NY 10115
Phone: (212) 890-2980
Fax: (212) 890-2243
E-mail: psmyc@igc.apc.org
Internet: <http://www.psr.org.index.html>

Medical Society of the State of New York (MSSNY)

MSSNY Office

420 Lakeville Road, P.O. Box 5404

Lake Success, NY 11042-5404

Phone: (516)488-6100

Fax: (516)488-1267

E-mail: mssny@mssny.org

Albany Office

1 Commerce Plaza

99 Washington Avenue, Suite 2103

Albany, NY 12210

Phone: (518)465-8085

Fax: (518)465-0976

E-mail: mssnyalb@ix.netcoro.com

Internet: <http://www.mssny.org>

Health Care Without Harm

New York State contact:

Citizens' Environmental Coalition

33 Central Avenue

Albany, NY 12210

Phone: (518)462-5527

Fax: (518)465-8349

E-mail: cehcwh@juno.com

New York Committee on Occupational Safety & Health (NYCOSH)

275 7th Avenue

New York, NY 10001

Phone: (212)627-3900

E-mail: nycosh@nycosh.org

F-Internet: <http://www.nycosh.org>

APPENDIX E

Mercury Pollution Prevention Links

The following information was compiled by US EPA's Region 5 Toxic Reduction Team and is used with permission. It is also available on the Team's web site at <http://www.epa.gov/toxteam/potwp2.htm>

Mercury Pollution Prevention at POTWs - A Resource List

I. Mercury Source Reduction

a. POTW's/Local Government/State

- "Blueprint for Mercury Elimination: Mercury Reduction Project Guidance for Wastewater Treatment Plants," Western Lake Superior Sanitary District, March, 1997. 38 pages.
- "Wisconsin Mercury Sourcebook: A Guide to Help our Community Identify & Reduce Releases of Elemental Mercury," Wisconsin Department of Natural Resources, May, 1997. 627 pages.
- MWRA/MASCO Hospira! Mercury Work Group Project and Reports. 1995
- "A Collection Program for Raw Mercury Supplies From Michigan Dentist," Prepared for the Detroit Water and Sewerage Department Task Force for Mercury Minimization from Dental Facilities, September, 1996 41 pages.
- Holland, Michigan, Mercury Reduction Plan f MR P}
- "Water Pollution Prevention Program: Dental Related Metals Inventory," City and County of San Francisco Department of Public Works, Bureau of Environmental Regulation and Management. January 1993.
- City of Palo Alto Regional Water Quality Control Plant Medical Project.
- "Mercury Pollution Prevention in Michigan: Summary of Current Efforts and Recommendations for Future Activities - A Report by the Michigan Mercury Pollution Prevention Task Force," April 1996. 86 pages.

b. Other Dental Information

- "Guide for Dentists: How to Prevent Pollution from Your Dental Practice." IDEM, 1995.

c. Other Medical Information

- USEPA Region 5, Medical Waste Pollution Prevention Fact Sheets.
- "Prescription for Mercury Reduction: Pollution Prevention Guide for Hospitals," USEPA Region 5.
- "Hospital Waste Reduction Checklist." Wisconsin Solid and Hazardous Waste Education Center. 1996, 14 pages.
- Southeast Michigan Medical Mercury Outreach to medical waste incinerators and their customers on how to reduce mercury in hospital and medical waste.
- Southeast Michigan Outreach to hospitals to reduce mercury in products and waste streams.
- Minnesota Medical Mercury Project: Developed a Steering Committee to facilitate mercury reduction in Minnesota medical facilities. Produced training video.

- Wisconsin Medical Mercury Project: Provide assessments at hospitals and medical facilities. Services also include outreach information and technical assistance.
- Monroe County, NY. Department of Health Mercury Reduction at Hospitals and Clinics

II. POTW Pollution Prevention - General

- "Reducing Industrial Toxic Wastes and Discharge: The Role of POTWs." The Local Government Commission, Sacramento, CA, December, 1988, 9 pages.
- "Guide to Pollution Prevention: Municipal Pretreatment Programs." U.S. Environmental Protection Agency, Office of Research and Development, EPA/625/R-93/006, October, 1993, 81 pages.
- "Pollution Prevention at POTWs Case Studies." U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, 742-F-94, Winter, 1994, 20 pages.
- "Preventing Pollution in our Cities and Counties: A Compendium of Case Studies." The National Association of County and City Health Officials, National Association of Counties, The National Pollution Prevention Roundtable, Municipal Waste Management Association, and The United States Conference of Mayors, Fall, 1995, 77 pages.
- "Pollution Prevention Training Resource Guide for POTWs," Ohio EPA, 1994.
- "Pollution Prevention Training Resource Guide," Prepared for Ohio Environmental Protection Agency by WRITAR, 1994.
- "The POTW Operator's Guide to Pollution Prevention: A Resource for Finding P2 Information for POTWs and Their Customers in Southeast Michigan," Southeast Michigan Council of Governments and the Area-wide Water Quality Board, April 1996.
- "Illinois Pollution Prevention Case Studies - Industrial Users," Illinois Waste Management and Research Center, 1997.
- Greater Chicago Pollution Prevention Alliance Strategy, January, 1997.
- Milwaukee Pollution Prevention Partnership
- Report on the Blackstone Project, A Joint Pilot Project of the Massachusetts Department of Environmental Protection and the Massachusetts Department of Environmental Management.
- "Pollution Prevention Assistance for Publicly Owned Treatment Works," October, 1996 – Final project report by the Institute of Advanced Manufacturing Sciences, Cincinnati, Ohio, to OEPA.
- Erie County Office of Pollution Prevention, Erie County Department of Environment and Planning, Buffalo, New York.

APPENDIX F

References

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www.epa.state.oh.us/dsw
- Draft Mercury Pollutant Minimization Program Guidance; U.S.EPA Region 5, NPDES Programs Branch; July 2004;
www.epa.gov/region5/water/npdestek/MercuryPMPJuly04Guidance.pdf
- Wisconsin Mercury Sourcebook; Wisconsin Department of Natural Resources; May 1997
www.epa.gov/glnpo/bnsdocs/hgsbook/index.html
- Blueprint for Mercury Elimination; Western Lake Superior Sanitary District; March 1997
www.wlssd.duluth.mn.us/publications/Blueprint%20for%20mercury/Revised%20Blueprint%20for%20Mercury.pdf
- Guides to Pollution Prevention, Municipal Pretreatment Programs; U.S.EPA, Office of Research and Development; EPA/625/R-93/006; October 1993
- Mercury Pollution Prevention for Publicly Owned Treatment Works; Maine State Department of Environmental Protection; December 1999
- Why Should You Care About Preventing Waste? U.S.EPA, Office of Pollution Prevention and Toxics (7409); EPA742-E-01-001 July 2001
www.epa.gov/p2
- Partners for the Environment, Boosting Your Bottom Line; U.S.EPA, Office of Policy, Economics and Innovation; EPA100-R-00-001; January 2000
<http://www.epa.gov/innovation/pubs.htm> (follow the link designated for Partners for the Environment)

Chapter 6 References

1. Litten, S., "Toxic Chemicals in New York Harbor," *New York State Department of Environmental Conservation*, <http://www.dec.state.ny.us/website/dow/bwam/CARP/>
Access Date: 1-14-2004.

2. de Cerreno, A. L. C., Panero, M., and Boehm, S., "Pollution Prevention and Management Strategies for Mercury in the New York/New Jersey Harbor," New York Academy of Sciences, 2002.
3. Boehm, S. and Panero, M., "Pollution Prevention and Management Strategies for Cadmium in the New York/New Jersey Harbor," New York Academy of Sciences, 2003.
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Access Date: 1-14-2004.
7. United State Environmental Protection Agency, O. o. W., "Method 1669: Sampling Ambient Water for trace Metals at EPA Water Quality Criteria Levels," EPA 821-R-95-034, 1995.
8. McCrea, R. C., Madsen, N. K., Reid, R. L., Lawson, G. S., Sardella, G. D., and Archer, M. L. 2004 "Water sampling techniques for ultra-low mercury and trace metal concentrations that do not require m-field clean room facilities," Environment Canada, Canada Centre for Inland Waters, Burlington, ON, L7R 4A6
9. Scudato, R. J. and DelPrete, A., "Lake Ontario sediment - mirex relationships," *Journal of Great Lakes Research*, Vol. 8, No.4, 1982, pp. 695-699.
10. Litten, S., Mead, B., and Hassett, J., "Application of passive samplers (PISCES) to locating a source of PCBs on the Black River, New York," *Environmental Toxicology and Chemistry*, Vol. 12, 1993, pp. 639-647.

Note: The CD version of this Manual contains the following Appendices

CD-A. M.A.P. (Mercury Awareness Program) Brochure, produced by the Onondaga County Department of Drainage and Sanitation (now the Onondaga County Department of Water Environment Protection)

CD-B. Environmental Best Management Practices for Dental Offices, produced by the Onondaga County Department of Water Environment Protection

CD-C. Environmental and Safety Advances for Health Care Facilities, produced by the Onondaga County Department of Drainage and Sanitation (now the Onondaga County Department of Water Environment Protection) and Bristol Myers Squibb Company

CD-D. Reducing Mercury Use in Health Care: Promoting a Healthier Environment - A How to Manual; Monroe County Department of Health in cooperation with Strong Memorial Hospital and the Monroe County Department of Environmental Services Rochester, New York; funded by U.S Environmental Protection Agency