

# ADEQ

**A R K A N S A S**  
**Department of Environmental Quality**

Mercury Minimization Plan (MMP) Guidelines

NPDES Individual Discharge Permit



## Background and Overview

The following guidance has been developed to address situations where a Mercury Minimization Plan (MMP) has been required through the National Pollutant Discharge Elimination System (NPDES) permit in Arkansas. Because existing Total Maximum Daily Loads (TMDLs) developed to address waterbodies impaired by mercury in Arkansas assumed all discharges from Publicly Owned Treatment Works (POTWs) do discharge some Mercury, this guidance document focuses on minimization from the POTWs perspective. However, this document is also intended to provide guidance for other facility types required to implement a MMP through their NPDES permit.

Traditional approaches to pollution control have emphasized treating for pollutants through end-of-pipe effluent limitations. Through a MMP, ADEQ anticipates that Mercury pollution prevention and waste minimization rather than end-of-pipe controls will result in the most efficient reduction of Mercury discharges to surface waters of Arkansas. Pollution prevention and waste minimization are more reasonably accomplished and cost productive than the implementation of controls and technologies to meet Mercury effluent limitations.

Until recently, EPA's approved method for the analysis of Mercury was not sensitive enough to measure Mercury at trace levels. Consequently, there is little reliable data available on Mercury loadings discharged from NPDES point sources. In 1998 EPA adopted a new analytical procedure that detects Mercury at trace levels, allowing more exact data to be collected and utilized in determining compliance with applicable water quality standards. The MMP employs EPA approved analytical methods (*EPA Methods 1631, 245.7*) through effluent sampling and system wide monitoring programs to locate and identify potential sources of Mercury in the treatment system. Once identified, the MMP integrates cost-effective reduction controls, either treatment or prevention based, to reduce or eliminate Mercury from the source.

While it is expected that specific permit language (see Appendix A, Sample NPDES Permit Language) may vary, there are two key elements for a MMP.

- The Mercury Minimization Plan (MMP) shall lay out guidelines for:
  - o Identification of potential sources of Mercury that contribute to discharge concentrations (includes a review of existing data);
  - o Reasonable, cost effective activities to reduce or eliminate Mercury loadings from identified sources;
  - o Tracking Mercury source reduction and Mercury source monitoring;
  - o Quarterly monitoring of POTWs influent and effluent;
  - o Resources and staffing;
- The Status Report which shall serve both as a compliance monitoring tool for the ADEQ, and as a revising process for the discharger to make necessary revisions to the MMP where problems are discovered and where new areas may develop that need investigation.

The Mercury Minimization Plan (MMP)

The Mercury Minimization Plan (MMP) must consist of the following sections.

- I. Identification of Potential Sources of Mercury
- II. Monitoring Plan
- III. Control Measures – Development and Implementation
- IV. Resources and Staffing
- V. Reporting Requirements

The MMP shall be developed and provided to the ADEQ within 1 year of the effective date of the NPDES permit requiring the MMP. The following detailed sections are to serve as guidelines for development of each section. Conditions at each facility should be utilized to develop a plan best suited for that facility.

**I. Identification of Potential Sources of Mercury – the facility should develop specific plans to identify and eliminate potential sources of Mercury to the discharge.**

The NPDES permitted facility required to develop a MMP needs to examine all potential sources of Mercury to the discharge. Sources of Mercury include, but are not limited to, processing, raw materials, treatment chemicals, industrial users, commercial users, domestic users, stormwater, inflow and infiltration (I&I), groundwater, atmospheric deposition, source water and other wastestreams that contribute to the discharge. Three basic methods can be utilized to identify potential sources:

A. Data gathering and review of existing information.

1. Review existing information on industrial users. An Industrial User is any user who introduces pollutants into a treatment system from a non-domestic source including commercial users.
  - a. For any categorical industrial users contributing to the treatment system, review EPA standards in 40 CFR Parts 405-471 to determine if Mercury is a pollutant of concern for that industrial category. EPA Development Documents and Industrial Sector Notebooks on specific industrial categories are useful.  
  
[40 CFR Parts 405-471](#)  
[EPA Development Documents and Industrial Sector Notebooks](#)
  - b. For those non-categorical users, determine if processes, materials or products stored or handled at the site have the potential to discharge Mercury into the treatment system.
2. Gather new or additional information from all industrial users.
  - a. Appendix B contains Mercury surveys for medical facilities, schools, dental offices and other general industrial users.

- b. Have industrial users provide the Material Safety Data Sheets (MSDS) or Certificate of Analysis (COA) for all chemicals/materials stored or handled on site.
  3. Domestic/residential sources can be potential sources of pollutants; however, traditional controls are not appropriate. Pollution prevention for residential users would be better achieved through educational campaigns.
  4. Chemicals, processes and materials stored or handled at the facility should be examined for the potential to contain Mercury. Review the MSDS for processes or chemicals to provide gross-level information on Mercury. Requesting a COA from the manufacturer of any chemicals handled or stored at the facility should specify the Mercury content in parts per billion (ppb) or parts per million (ppm).
  5. Results of Mercury concentrations in precipitation are available online at <http://nadp.sws.uiuc.edu/>. Review average Mercury concentrations in precipitation to determine Mercury levels entering the system through stormwater flows.
    - a. Identify what steps the treatment system is taking to reduce I&I problems in the collection system.
  6. Review collection system cleaning practices. Large amounts of Mercury reside in sediments that are introduced to the treatment system during collection system flushing.
- B. Monitoring for Mercury at various points within the facility/treatment system.

A system wide monitoring strategy is dependent upon the objective. Establishing levels associated with normal domestic and industrial sources are done to provide a baseline to measure progress and identify any hot spots that may be present in the system.

1. Monitoring of the treatment plant influent should be conducted. Because concentrations of Mercury entering the treatment plant are expected to be significantly higher than effluent concentrations, influent sampling should be conducted using EPA Method 245.1. If the results of the influent sampling yield results higher than the minimum quantification level (MQL), steps should be taken to conduct sampling of the collection system at various locations to isolate the potential source. A copy of the ADEQ Priority Pollutant Scan form can be found at the following link, on page two of the PPS form the mercury MQL is listed.

[http://www2.adeg.state.ar.us/water/pdfs/pps\\_form.pdf](http://www2.adeg.state.ar.us/water/pdfs/pps_form.pdf)

2. Monitoring throughout the treatment system as a result of elevated influent concentrations should be conducted working backwards from the headworks. Sampling for Mercury at lift stations can allow for easy and quick identification of the vicinity of a potential source of Mercury throughout the system. Identifying a general vicinity can allow for quick review of contributing industries in that area for possible independent sampling. Where practicable, sampling should be conducted within a given area

simultaneously. Because concentrations of Mercury in the treatment system are expected to be significantly high, system wide sampling should be conducted using EPA Method 245.1.

3. In some cases, mass-balance calculations may be more useful in monitoring progress than chemical analysis. Alternative monitoring mechanisms other than chemical analysis may be acceptable.
  4. Direct monitoring of industrial users discharging into the treatment system can serve both as a tool to identify a source of Mercury contribution and to eliminate any sources that may be considered targets.
- C. Certification Statement that there are no known or suspected operations that would reasonably be expected of discharging mercury to the facility's Wastewater Treatment Plant.
1. Facilities must complete the requirements of Part II.A or Part II.B, Monitoring requirements, of the MMP.
  2. Facilities must complete a certification statement as provided in Appendix D.
  3. Certification Statements must be completed with each renewal application for the NPDES permit.

## II. **Monitoring – Monitoring for Mercury.**

- A. Certification Statement for Major Dischargers, design flow of equal to or greater than 1.0 MGD, Monitoring Requirements.

Effluent monitoring shall not be less than quarterly for major NPDES facility's using the most sensitive EPA approved test methods and clean sampling techniques. Results of these tests shall be maintained on site in a report and submitted with the NPDES permit renewal application.

- B. Certification Statement for Minor Dischargers, design flow of less than 1.0 MGD, Monitoring Requirements.

Minor NPDES facility's sampling requirements will be determined on a case by case basis but shall not be less than annual effluent monitoring. Results of these tests shall be maintained on site in a report and submitted with the NPDES permit renewal application.

- C. Mercury Minimization Plan Monitoring Requirements: Monitoring should be conducted of the facility's effluent, influent, biosolids and throughout the treatment system to establish base levels and goals for Mercury reduction.

1. Effluent monitoring shall not be less than quarterly for major NPDES facilities using the most sensitive EPA approved test methods and clean sampling techniques. Minor NPDES facility sampling requirements will be determined on a case by case basis but shall not be

less than annual effluent monitoring. Results of these tests shall be maintained on site in a report and submitted with the NPDES permit renewal application.

2. If sampling of the sludge is conducted during the year, this information shall be maintained on site in a report and submitted with the NPDES permit renewal application.
3. Sampling of the treatment system influent and throughout the treatment system should be performed to establish baselines and goals for reduction. See Part I.B above for influent and treatment system sampling protocol.

**III. Control Measures – Development and implementation of cost-effective control measures for those identified sources.**

The plan should illustrate the treatment system's approach for development of cost-effective control strategies for those sources identified as contributors of Mercury to the treatment system. Activities selected by the treatment system for control measures should be based on the potential of those activities to reduce Mercury loadings into the system and ultimately its effluent. For each control measure, goals should be established and communicated to the source. Performance measures should be established to determine attainment of set goals.

1. The term *source* is loosely defined so that all inputs of Mercury into the system, not just pinpointed users of the system, are considered for control measures. Sources can include raw materials, chemicals used, atmospheric deposition, stormwater inputs, and sewer cleaning practices, along with domestic and industrial users. A control can be anything that reduces the amount of Mercury contributed to the system.
2. Source significance should be considered. An effort to quantify load potential from each identified source should be made. This quantification should assist in prioritizing sources for Mercury reduction and elimination efforts.
3. Economic considerations may be given regarding the reduction of Mercury from an identified source.
4. Treatability considerations may apply to specific sources. A complete description of any such consideration should be documented.
5. Control measures should be tracked to determine the measure of performance and goal achievement for each type of source. Tracking may indicate the need to change course as necessary for any given source.
6. Examples of Mercury Control Measures

Source	Control Measure Activity	Performance Measure	Goal
Medical Facilities (hospitals, clinics, nursing homes, veterinarians)	<a href="#">Deliver AHA BMP literature</a> <sup>1</sup> Conduct workshops Onsite visits <a href="#">Require participation in H2E</a> <sup>1</sup>	Date Contacted Content Given Participation Progress	Mercury Free Spill Management
Dental Clinics	Deliver <a href="#">ADA BMP literature</a> <sup>2</sup> Meet with dentists Onsite visits Conduct workshops Require Mercury recycling/capture	Date Contacted Content Given Participation Progress Quantity Recycled	Mercury Capture/Recycling
Schools	Deliver <a href="#">BMP literature</a> <a href="#">Conduct teacher</a> <sup>3</sup> workshops Onsite visits Hg Inventory	Date Contacted Content Given Participation Progress Quantity Recycled	Mercury Free Spill Management
General Industrial Users	Deliver Chemical Literature Deliver Equipment Literature Application of BMPs Onsite visits Conduct workshops	Date Contacted Content Given Progress	Phase out Mercury containing devices and chemicals Spill Management
Facility/Treatment System	Evaluate chemical usage Evaluate equipment usage Evaluate septic haulers Evaluate sewer cleaning practices Evaluate industrial users	Progress	Phase out Mercury containing devices and chemicals
Plumbers	Evaluate pressure Devices Evaluate equipment usage Deliver Chemical Literature Deliver Equipment Literature Application of BMPs	Date Contacted Content Given	Phase out Mercury containing devices and chemicals
General Public – Residential Areas	Promote Mercury clean sweeps Displays at local events Public Service Announcements Outreach to Schools Local website Mercury content Local recycling day Local household hazardous recycling day	Date Contacted Content Given PSA Dates Website Hits Participants	Reduced use of Mercury containing products Spill Management Recycling of Mercury containing products

1. <https://practicegreenhealth.org/topics/chemicals/mercury/elimination-strategies>

2. [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&cad=rja&uact=8&ved=0CCQOFjAB&url=http%3A%2F%2Fwww.ada.org%2F~%2Fmedia%2FADA%2FMember%2520Center%2FFiles%2Ftopics\\_amalgamwaste\\_brochure.ashx&ei=MrBvVLSMFIHwggTKh4CwAg&usq=AFOjCNFcuuNij9ONC9XuKVro8tG6WK8U7A](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&cad=rja&uact=8&ved=0CCQOFjAB&url=http%3A%2F%2Fwww.ada.org%2F~%2Fmedia%2FADA%2FMember%2520Center%2FFiles%2Ftopics_amalgamwaste_brochure.ashx&ei=MrBvVLSMFIHwggTKh4CwAg&usq=AFOjCNFcuuNij9ONC9XuKVro8tG6WK8U7A)

3. <http://www.Mercuryinschools.uwex.edu/curriculum/index.htm>

**IV. Resources and Staffing – the plan should summarize resources and staff that will commit time and funding to development and implementation of the plan.**

1. Indicate the source and amount of funding that will be available to carry out the plan.
2. Indicate the number and position of employees that will devote time to planning and implementation.
3. Where other entities will devote time and funding to planning or implementation, those resources should be included as well.

**V. Reporting Requirements – Mercury Minimization Plan Status Report**

The plan status report is an important element of a MMP. The original MMP is to be submitted within 1 year of the effective date of the NPDES permit for review. A plan status report as detailed in Appendix C must be submitted with every NPDES permit renewal application. The report should include the following at a minimum and be submitted on the form in Appendix C:

- A. A list of potential Mercury sources;
- B. A summary of actions taken to reduce or eliminate Mercury discharges to progress toward meeting water quality standards; and
- C. Mercury source reduction implementation, source monitoring results, influent and effluent, and results for the previous year; and proposed revisions to the plan based on findings from the previous year.

ADEQ Approval of the Mercury Minimization Plan

ADEQ will review the MMP to ensure that implementation of the plan moves the treatment system toward the goal of minimizing Mercury concentration in its effluent. Consideration will be given to those activities that address sources outside of the treatment facilities jurisdictional boundaries. Implementation is maintained as a condition of the NPDES permit. However, ADEQ encourages treatment facilities to begin implementation activities such as monitoring and outreach prior to approval and supports those treatment facilities that choose to implement a MMP without the requirement regulated through their NPDES permit.

The treatment system is responsible for implementation of the plan, its Mercury reduction strategies, and defined monitoring. The treatment system is encouraged to review available information and adopt approaches that others have already found to be effective.

References:

Pollutant Minimization Program Guidance, Ohio Environmental Protection Agency, Division of Surface Water, Revision 0, August 13, 1998.

Holly, Michigan Pollutant Minimization Program, March 12, 2003.

Blueprint for Mercury Elimination, Western Lake Superior Sanitary District, Great Lakes Protection Fund and the Great Lakes Pollution Prevention Centre. Revised January 2000.

Mercury Pollutant Minimization Program Guidance, USEPA Region 5, NPDES Programs Branch, November 2004.

Best Management Practices for Amalgam Waste, American Dental Association. September 2005.

Mercury in Your School and Community: A National Issue, Mercury in Schools Education Team, sponsored by the USEPA and the University of Wisconsin – Extension. March 2002.

Louisiana Department of Environmental Quality-“Mercury Minimization Program Guidance Document for Permits Issued Under the Louisiana Pollutant Discharge Elimination System” (February 2007, LDEQ).

## **Appendix A**

### **Sample Permit Language**

The following permit language is a template that contains the basic requirement of the MMP Plan and can be customized to fit specific circumstances. It is intended to be used for both sanitary and non-sanitary permits that have identified Mercury in their effluent. The MMP Plan can be used as an alternative to a Waste Load Allocation (WLA) listed in the TMDL when treatment is not feasible. This language shall be required in Part II of the permit.

#### **Part II – Condition**

##### **Mercury Minimization Plan (MMP)**

The permittee must develop and implement a Mercury Minimization Plan (MMP) within one (1) year from the effective date of this permit. The MMP must identify potential sources of mercury and the measures to reduce or eliminate mercury loading. The MMP must be drafted and submitted to the Department for review within (1) year from the effective date of this permit. The MMP must include the following at a minimum:

1. A plan which includes the permittee's commitments for:
  - a) Identification of potential sources of mercury that contribute to discharge concentrations (includes a review of existing data);
  - b) Reasonable, cost-effective activities to reduce or eliminate mercury loadings from identified sources;
  - c) Tracking mercury source reduction implementation and mercury source monitoring;
  - d) Quarterly monitoring of POTW influent and effluent; and
  - e) Resources and staffing.
2. Implementation of cost-effective control measures for direct and indirect contributors.
3. An updated status report must be submitted to the Department with each renewal application that includes:
  - a) A list of potential mercury sources;
  - b) A summary of actions taken to reduce or eliminate mercury discharges and progress toward meeting water quality standards;
  - c) Mercury source reduction implementation, source monitoring results, and influent and effluent monitoring results for the previous year; and
  - d) Any proposed revisions to the plan based on findings from the previous year.

**Appendix B**  
**Mercury Surveys**

## Medical Facility Mercury Survey

What Type of Medical Facility are you (hospital, clinic): \_\_\_\_\_

What is the size of your facility (# of beds, # of patients/day): \_\_\_\_\_

Please provide the following Mercury contact information for your medical facility:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Does your facility participate in the Hospitals for a Healthy Environment (H2E) Program

- Yes       No       N/A – not a hospital

Please indicate if the following Mercury sources are located or used in your facility:

- |   |  |
|---|--|
| <input type="checkbox"/> Fever Thermometers             | <input type="checkbox"/> Gastrointestinal diagnostic equipment |
| <input type="checkbox"/> Sphygmomanometers              | <input type="checkbox"/> Feeding Tubes                         |
| <input type="checkbox"/> Commercial manometer           | <input type="checkbox"/> Thermostats                           |
| <input type="checkbox"/> Switches (relay, silent, tilt) | <input type="checkbox"/> Barometers                            |

Chemicals

- |  |   |
|--|---|
| <input type="checkbox"/> Zenker's solution | <input type="checkbox"/> Histological Fixatives |
|--|---|

Staining Solutions and Preservatives

- |  |   |
|--|---|
| <input type="checkbox"/> Mercury Chloride      | <input type="checkbox"/> Mercury (II) Oxide   |
| <input type="checkbox"/> Mercury (II) Chloride | <input type="checkbox"/> Mercury (II) Sulfate |
| <input type="checkbox"/> Mercury Nitrate       | <input type="checkbox"/> Mercury Iodide       |
| <input type="checkbox"/> Other                 |   |

Lamps

- |  |   |
|--|---|
| <input type="checkbox"/> Fluorescent   | <input type="checkbox"/> Metal Halide         |
| <input type="checkbox"/> Ultraviolet   | <input type="checkbox"/> High Pressure Sodium |
| <input type="checkbox"/> Mercury Vapor | <input type="checkbox"/> LCD Projectors       |

Batteries

- |   |   |
|---|---|
| <input type="checkbox"/> Mercuric Oxide | <input type="checkbox"/> Button Batteries |
|---|---|

Please list any other possible sources of Mercury or any other materials that could be a concern for Mercury pollution.

\_\_\_\_\_

\_\_\_\_\_

Have you considered or adopted Mercury free alternatives for any of the products listed above? Please explain.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Medical Facility Mercury Survey (continued)**

Please complete the following section on practices at your facility:

Is staff training provided on the health and environmental concerns of Mercury?  Yes  No

Is staff training provided on Mercury spill prevention or management?  Yes  No

Is there a Mercury spill clean-up kit on site?  Yes  No

Have there been any Mercury spills within the last ten years?  Yes  No

Does your facility have a policy on purchasing Mercury containing products?  Yes  No

If yes, please attach a copy of the policy.

Do you currently require disclosure by vendors of Mercury concentrations in solutions?  Yes  No

What is the current procedure for disposal of medical waste?  Autoclave  Incineration  Other

Have your sewer drain traps/catch basins been cleaned to remove Mercury?  Yes  No

If yes, was Mercury discovered?  Yes  No

Are any Mercury products in your facility currently recycled?  Yes  No

If there are other facility practices that you think should be a concern for Mercury pollution, please list them here:

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## Dental Office Mercury Survey

Dental Office Name: \_\_\_\_\_

Please provide the following Mercury contact information for your dental office:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Do you use amalgam?

Yes

No

Please indicate if the following equipment or materials are used in your office:

raw Mercury

pre-capsulated amalgam capsules

water-injected vacuum pump

dry turbine vacuum pump

recycler on vacuum pump

For materials collected on cuspidor, evacuation unit, vacuum pump and saliva ejector filters that are not recovered, please indicate the method of disposal.

wash down the sink

recycled

other: \_\_\_\_\_

For scrap (non-contact) amalgam that is not recovered, please indicate the method of disposal.

wash down the sink

recycled

other: \_\_\_\_\_

How do you dispose of pulled teeth containing amalgam fillings?

recycled. Provide the name of your recycler: \_\_\_\_\_

washed down the sink

put in infectious waste (red) bag

hazardous waste hauler. Provide the name: \_\_\_\_\_

other: \_\_\_\_\_

**Dental Office Mercury Survey (continued)**

Are chair-side traps, or some type of pre-filter used?  Yes  No

If yes:

How often are your traps/filters cleaned? \_\_\_\_\_

- recycled. Provide the name of your recycler: \_\_\_\_\_
- washed down the sink
- put in infectious waste (red) bag
- hazardous waste hauler. Provide the name: \_\_\_\_\_
- other: \_\_\_\_\_

Of the amount of new amalgam placed, estimate the following percentages based on the amount of amalgam mixed. Please include amalgam recovered from traps and filters.

\_\_\_\_\_% of amalgam mix that is actually placed in teeth

\_\_\_\_\_% of amalgam mix that is recycled

\_\_\_\_\_% of amalgam mix that is lost to the sewer

\_\_\_\_\_% of amalgam mix that is disposed of as infectious waste

Of the total old amalgams removed including those in pulled teeth, estimate the following percentages based on total amount of amalgam removed. Please include the amalgam recovered from traps and filters.

\_\_\_\_\_% of amalgam removed that is recycled

\_\_\_\_\_% of amalgam removed that is lost to the sewer

\_\_\_\_\_% of amalgam removed that is disposed of as infectious waste

What is your preferred method for learning about waste management? (check three)

- printed information (brochures, pamphlets, manuals, professional newsletters)
- on-site consultation with a waste specialist
- informational hotline
- speakers at dental society meetings
- trade fairs
- other \_\_\_\_\_

### Dental Office Mercury Survey (continued)

If not currently recycling, what factors below would help you to change the way you presently dispose of waste?

- consistency of information
- concern about governmental enforcement
- concern about liability
- concern about public image
- concern for the environment
- concise disposal guidelines
- professional association endorsement
- no cost increase
- concern for employee safety and health
- concern for public safety and health
- pick up services available for wastes
- drop off services available for wastes
- ease of disposal

If not currently recycling, what factors keep your dental office from doing so?

- lack of information
- no regulatory requirement to do so
- too difficult
- too expensive
- difficulty in finding recyclers
- not aware that I should
- no or very little use of amalgam

## General Industry Mercury Survey

Facility/Company Name: \_\_\_\_\_

Please provide the following Mercury contact information for your facility:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Please indicate if the following Mercury sources are located or used in your business. Place a check in the box and circle the specific source listed. If you have identified a source of Mercury that is not listed, please add it to the list.

- barometers
- batteries, list the types:  
\_\_\_\_\_  
\_\_\_\_\_
- DC watt hour meters, flow meters, vibration meters
- displacement/plunger relay  
power supply switching, 1 to 4 poles, NO, NC, many voltage and current ratings, generally for high-current, high-voltage applications such as lighting, resistance heating, commercial welders
- flame sensors/safety valves  
some infrared heaters, some furnaces, stainless steel bulb, capillary tube, bellows/control device,  
Used for unsupervised burners in certain gas-fired devices with standing pilot or electronic ignition pilot
- lamps; fluorescent, high-pressure sodium, metal halide, ultraviolet
- switches; relay switches, pressure control (mounted on bourdon tube or diaphragm), tilt switches,
- silent light switches (single pole and three way) temperature control (mounted on bimetal coil or attached to bulb device), fire alarm box switch, sump pump floats
- reed relays; used for low voltage, high precision analytical equipment
- thermometers
- thermostats; ovens, room temperature control, refrigerators
- vacuum gauges; needle or bourdon gauges, manometers
- other possible Mercury sources, please list here any other materials that you think should be a concern for Mercury pollution.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Mercury Survey for Schools

School Name: \_\_\_\_\_

Please provide the following Mercury contact information for your school:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Please indicate if the following Mercury sources are located or used at your school.

Science, Chemistry, Physics, Biology Rooms/Labs:

<input checked="" type="checkbox"/> Item	How much or many?	Items use?
<input type="checkbox"/> elemental Mercury	_____	_____
<input type="checkbox"/> Mercury thermometers	_____	_____
<input type="checkbox"/> Mercury barometers	_____	_____
<input type="checkbox"/> Mercury vacuum gauges	_____	_____
<input type="checkbox"/> Mercury spectral tubes	_____	_____
<input type="checkbox"/> Mercury molecular motion device	_____	_____
<input type="checkbox"/> Mercury sling psychrometer	_____	_____
<input type="checkbox"/> Mercury oxide	_____	_____
<input type="checkbox"/> Mercury (II) chloride	_____	_____
<input type="checkbox"/> Mercury (II) sulfate	_____	_____
<input type="checkbox"/> Mercury nitrate	_____	_____
<input type="checkbox"/> Mercury iodine	_____	_____
<input type="checkbox"/> Zenkers solution	_____	_____
<input type="checkbox"/> other Mercury containing materials	_____	_____

Facilities:

<input checked="" type="checkbox"/> Item	How much or many?	Items use?
<input type="checkbox"/> fluorescent lamps	_____	_____
<input type="checkbox"/> Mercury thermostats	_____	_____
<input type="checkbox"/> Mercury vapor lamps, metal halide lamps	_____	_____
<input type="checkbox"/> Mercury gauges	_____	_____
<input type="checkbox"/> silent light switches	_____	_____
<input type="checkbox"/> Mercury float control switches	_____	_____
<input type="checkbox"/> flow meters with Mercury switches	_____	_____
<input type="checkbox"/> other equipment with Mercury switches	_____	_____
<input type="checkbox"/> older fungicides and pesticides (prior to 1991)	_____	_____

**Mercury Survey for Schools (continued)**

Medical:

<input checked="" type="checkbox"/> Item	How much or many?	Items use?
<input type="checkbox"/> Mercury fever thermometers	_____	_____
<input type="checkbox"/> sphygmomanometers with silver liquid (blood pressure)	_____	_____

Home Economics and Art:

<input checked="" type="checkbox"/> Item	How much or many?	Items use?
<input type="checkbox"/> Mercury cooking thermometer	_____	_____
<input type="checkbox"/> true vermilion paint	_____	_____
<input type="checkbox"/> cadmium vermilion red	_____	_____

Other:

<input checked="" type="checkbox"/> Item	How much or many?	Items use?
Mercury oxide/Mercury zinc		
<input type="checkbox"/> batteries (old alkaline prior to 1996)	_____	_____

**Appendix C**  
**Mercury Minimization Plan Status Report**

**Arkansas Department of Environmental Quality  
Mercury Minimization Plan Status Report**

This document is submitted to fulfill the requirements as set forth in the NPDES permit requiring the development of a Mercury Minimization Plan. The Report serves both as a compliance monitoring tool for the ADEQ, and as a revising process for the discharger to make necessary revisions to the MMP where problems were discovered and where new areas need investigation.

Date: \_\_\_\_\_

Permit Number: AR

Additional Permits covered by this Report: \_\_\_\_\_

Company Name: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Contact Phone: (     ) \_\_\_\_\_

1. Was the Mercury Minimization Plan as submitted to ADEQ followed completely during the previous permit cycle?

Yes       No

If no, attach supporting documentation that clearly describes any and all deviations from the plan. Include a list of all actions or conditions that lead to the variation as well as any interaction with ADEQ relation to the variation.

2. List any *confirmed* sources of Mercury to the treatment system including an average annual loading to the treatment system (may be estimated) and method by which the source was identified.

3. List any *potential* sources of Mercury to the treatment system including an average annual loading to the treatment system (may be estimated).

4. Attach all analytical results from all monitoring performed during the last year for Mercury, including detection/quantification level, method used and location of sample (ex: influent, effluent, sludge, Main Street Lift Station, XYZ Cleaners, etc..)

5. Attach a list of all actions taken to reduce or eliminate sources of Mercury from the treatment system. Actions may include treatment, remediation, investigation, operation, management activities, public outreach, distribution of materials, implementation of BMP's, contact with industrial users, inspection of industrial users, etc. If no actions were taken to reduce or eliminate sources of Mercury to the treatment system, please explain why.

6. Attach a list of all actions planned to further reduce or eliminate sources of Mercury.

7. Provide additional comments or information on the treatment systems progress using the Mercury Minimization Plan to proceed toward achievement of the goal to reduce effluent concentrations of Mercury.

**Appendix D**  
**Mercury Certification Form for Municipalities**

# Mercury Certification Form for Municipalities

## I. PERMITTEE/OPERATOR INFORMATION

Permit Number:	AFIN (if known):
Permittee (Legal Name):	Permittee Telephone Number:
Permittee Mailing Address:	Permittee Fax Number:
Permittee City:	Permittee E-mail Address:
Permittee State:	Zip:

## II. MERCURY EXCLUSION CERTIFICATION

By signing and submitting this Mercury Exclusion Certification form, the permittee in Section I is certifying that there are no known or suspected operations that would reasonably be expected to contain mercury in their discharge that is accepted by the Permittees wastewater treatment plant.

Please read each question and check either "Yes" or "No" in the appropriate box. **If you answer "Yes" to any of the questions (a) through (e), you are not eligible for the Mercury Exclusion Certification in the permit and the effluent must be sampled using EPA Method 1631; which has a concentration detection level of 0.0002 µg/l of mercury.**

	Yes	No
a. Do you accept waste that contains mercury from Medical Facilities such as Hospital, Clinics, Nursing Homes, and Veterinarians?	<input type="checkbox"/>	<input type="checkbox"/>
b. Do you accept waste that contains mercury from Dental Clinics?	<input type="checkbox"/>	<input type="checkbox"/>
c. Do you accept waste that contains mercury from schools that have laboratories?	<input type="checkbox"/>	<input type="checkbox"/>
d. Do you accept waste that contains mercury from industrial users?	<input type="checkbox"/>	<input type="checkbox"/>
e. Do you accept waste that contains mercury from other sources that may not be mentioned above?	<input type="checkbox"/>	<input type="checkbox"/>

## III. CERTIFICATION STATEMENT

"As the responsible official of this wastewater treatment plant and collection system, I hereby certify that none of the above types of entities discharge wastewater to the sewer collection system which serves the wastewater treatment plant permitted under the NPDES permit number listed above. Therefore, there are no known or suspected operations that would reasonably be expected to discharge mercury to the collection system serving this wastewater treatment plant at levels that could cause elevated levels of mercury to be discharged from the wastewater treatment plant. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I understand that I am obligated to submit a Mercury Exclusion Certification form once **every five years** to the NPDES permitting authority with the renewal application.

Typed or Printed Name:	Title:
Signature:	Date: