March 8, 2007

**MEMORANDUM**

SUBJECT: Listing Waters Impaired by Atmospheric Mercury Under Clean Water Act Section 303(d): Voluntary Subcategory 5m for States with Comprehensive Mercury Reduction Programs

FROM: Craig Hooks, Director /s/
Office of Wetlands, Oceans, and Watersheds

TO: Regions 1-X Water Division Directors

I am pleased to provide information regarding a voluntary approach for listing waters impaired by mercury predominantly from atmospheric sources pursuant to Clean Water Act Section 303(d), also known as "subcategory 5m." The approach uses Clean Water Act tools to encourage comprehensive state and regional mercury control programs. The voluntary 5m approach was developed in a cooperative effort among EPA Headquarters offices, EPA Regional offices, and interested State and other stakeholders. As many EPA offices have programs to address mercury sources, EPA's Office of Water worked to affirm support for the approach from other program offices, including the Office of Air and Radiation, the Office of Prevention, Pesticides, and Toxic Substances, and the Office of Solid Waste and Emergency Response. A draft of the approach was provided for comment to States and other stakeholder groups in November 2006, and comments have been addressed.

EPA is recommending the voluntary approach for States that have in place a comprehensive mercury reduction program with elements recommended by EPA. These States may separate their waters impaired by mercury predominantly from atmospheric sources in a subcategory of their impaired waters list ("5m") and defer the development of TMDLs for those waters. A State using the 5m subcategory may also continue to defer the development of mercury TMDLs where the State is carrying out its mercury reduction program and demonstrates continuing progress in reducing in-State mercury sources. The attached document further describes the components of the 5m subcategory. We encourage States to pay particular attention to the recommended elements of a comprehensive mercury reduction program, whether or not a State chooses to use the 5m subcategory.

The 5m subcategory acknowledges the complexity in developing TMDLs for waters impaired by mercury mainly from atmospheric sources. It is also intended to recognize and encourage States through the Section 303(d) listing process to take early action to implement mercury reduction programs, and to achieve early environmental results. By maintaining these

waters within category 5 (impaired waters needing a TMDL), this approach provides a public accounting of the true status of mercury impairments. At the same time, the 5m approach provides a way for States to demonstrate progress in reducing their mercury sources.

I would like to note that the voluntary 5m approach does not preclude States from continuing to develop TMDLs for mercury-impaired waters. We will be providing further information on approaches to developing mercury TMDLs in the coming months, and we invite your staff to be involved in that process.

Thanks to all of the people who helped in the development of this approach and provided comments, including from EPA, State, industry, and environmental groups. If you have further questions, please do not hesitate to contact me, or have your staff contact either Ruth Chemerys at 202-566-1216, or John Goodin at 202-566-1373.

Attachment

cc:

Regional Section 303(d) Coordinators
Regional and Headquarters Mercury Contacts
Marcia Wilhite, Illinois Environmental Protection Agency
Linda Eichmiller, Association of State and Interstate Water Pollution Control Administrators

**Listing Waters Impaired by Atmospheric Mercury Under Clean Water Act Section 303(d): Voluntary Subcategory 5m for States with Comprehensive Mercury Reduction Programs**

## Summary

EPA is providing information to States regarding a voluntary approach for listing waters impaired by mercury predominantly from atmospheric sources. This information is a supplement to the October 12, 2006, memorandum entitled "Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions." Under this voluntary approach, where a State has in place a comprehensive mercury reduction program with elements recommended by EPA, the State may put its waters impaired by atmospheric mercury within a subcategory ("5m") of their Clean Water Act Section 303(d) list and defer the development of mercury Total Maximum Daily Loads (TMDLs). [1]

The voluntary 5m subcategory acknowledges the complexity involved in developing TMDLs for waters impaired due to mercury from atmospheric mercury deposition. The 5m subcategory is not intended to delay action to address mercury impairments, but rather recognizes that a State is already taking other actions in advance of TMDLs to address its mercury sources. The 5m approach is designed to encourage early implementation of comprehensive mercury reduction programs; to recognize States for moving ahead to address their mercury sources; and to achieve environmental results sooner.

## 1. Background

EPA, the States, and other stakeholders have been working to determine how best to address waters impaired by mercury, particularly where the predominant mercury source is atmospheric deposition. To date, over 8,500 waterbodies in 43 States and Puerto Rico are listed on State Section 303(d) lists as impaired due to mercury. Developing TMDLs for mercury-impaired waters poses many technical and programmatic challenges. State water programs have tools for addressing mercury in water point source discharges under the Clean Water Act, but they will likely need to work closely with their air, waste, and toxics programs to address other sources of mercury.

Air deposition of mercury in the U.S. results from both domestic anthropogenic sources and global sources, with the global sources including natural, anthropogenic, and re-emitted mercury. EPA's modeling has estimated that, on average, over three-quarters (83 percent) of the mercury deposited in the U.S. originates from international sources (excluding Canada); the remaining 17 percent comes from U.S. and Canadian sources.[2] EPA's modeling also indicates

[1] This document is not a rule and is not legally enforceable. As indicated by the use of non-mandatory language such as "may", "should", and "we recommend," it provides recommendations and does not impose any legally binding requirements. This policy provides recommended procedures and approaches for States addressing the issue of listing waters impaired by mercury predominantly from atmospheric sources, as defined later in this document. This policy does not replace existing established laws or regulations governing listing of impaired waters or development of TMDLs under Section 303(d).

[2] EPA, 2005a. Technical Support Document, Revision of December 2000 Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units and the Removal of Coal- and Oil-Fired Electric Utility Steam Generating Units from the §112(c) List: Reconsideration, Oct. 21, 2005. Accessible at http://www.epa.gov/ttn/atw/utility/tsd_oar-2002-0056-6303.pdf.

that a substantial variation in mercury deposition occurs across the U.S. Domestic sources generally influence mercury deposition much more in the eastern U.S. Global sources generally are a more significant contributor to mercury deposition in the west, where relatively few domestic sources exist.[3] The scientific community's understanding of mercury atmospheric chemistry is evolving, and there remain uncertainties regarding the simulation of mercury in atmospheric models. In general, the proximity of atmospheric mercury deposition to its original source is a function of the species of mercury emitted and the local, prevailing meteorology.[4] The mix of long-distance and local sources makes it difficult in some waterbodies to achieve water quality standards for mercury, as States are generally not able to directly address sources outside their boundaries.

Some States are continuing to develop TMDLs for waters impaired by mercury, and there are currently-approved mercury TMDLs for over 300 waterbodies in 20 States and the District of Columbia. In addition, a number of States are taking early action to address mercury sources within their control through strong comprehensive mercury reduction programs.

## 2. Overview of Voluntary Subcategory 5m for Waters Impaired by Atmospheric Mercury

The voluntary 5m subcategory is recommended for States that have a comprehensive mercury reduction program with the elements suggested by EPA below. EPA recommends that these States consider categorizing waters that are impaired by mercury predominantly from atmospheric sources into a new subcategory of their 303(d) lists called 5m. If a State follows these recommendations and has a comprehensive mercury reduction program in place, EPA believes that it would be appropriate for the State to defer development of TMDLs for these waters (see below for further explanation of waters impaired by atmospheric mercury). Specifically, EPA believes that it would be appropriate for a State to set TMDL schedules for 5m waterbodies that extend beyond the eight to thirteen year timeframe generally suggested by EPA for TMDL development (see "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," Bob Perciasepe, August 8, 1997, p.3). If a State continues to carry out a comprehensive mercury reduction program and demonstrates further progress in reducing mercury releases from in-state mercury sources (e.g., for the purposes of 5m, EPA considers in-State sources to include those from which mercury emissions or discharge originates within the jurisdiction of the State, as well as mercury-containing products manufactured, used, or discarded within the State), the State may continue to defer mercury TMDL development.

EPA recommends that, under the 5m approach, a State has put "in place" the suggested elements of a comprehensive mercury program before placing waters in subcategory 5m. Having a comprehensive program "in place" means that specific legislation, regulations, or other programs that implement the recommended elements have been formally adopted by the State, as opposed to being in the planning or development stage. EPA does not expect that all of the activities or controls needed to carry out a specific program or regulation will have been fully implemented, or that the reductions expected from a program or regulation will have been fully achieved, before using subcategory 5m. However, a State should also demonstrate that it has begun to make some initial progress in reducing in-state mercury sources before putting waters in subcategory 5m. The State's description of its mercury program, and how the program meets the

---

[3] EPA, 2006. EPA's Roadmap for Mercury. Available at http://www.epa.gov/mercury/roadmap.htm.
[4] EPA, 2005b. Technical Support Document for the Final Clean Air Mercury Rule – Air Quality Modeling. March 2005. Accessible at http://www.epa.gov/ttn/atw/utility/aqm_oar-2002-0056-6130.pdf

recommended elements, should be included with its Section 303(d) lists. The mercury program description should also be made available during public review of the draft list. Further details on documentation of State mercury programs and reporting progress are provided below.

The specific recommended elements of a State mercury reduction program are described in more detail in Section 10, and summarized in checklist form in Attachment B. EPA recommends that a State's comprehensive mercury program include a suite of programs that collectively have the ultimate goal of making progress toward achieving water quality standards. In summary, the recommended elements fall into the following categories: 1) identification of air sources of mercury, including identification of waterbodies in the State impaired by mercury predominantly from atmospheric deposition, potential emissions sources contributing to deposition in the State, and adoption of appropriate State-level programs to address in-state sources; 2) identification of other potential multi-media sources of mercury, such as mercury in products and wastes, and adoption of appropriate State-level programs (note that mercury-containing products may be a source of mercury to the air and other media during manufacturing, use, or disposal); 3) adoption of statewide mercury reduction goals and targets, including percent reduction and dates of achievement, for air and other sources of mercury, as well as reduction targets for specific categories of mercury sources where possible; 4) multi-media mercury monitoring, including water quality, air deposition, and air emissions monitoring; 5) public documentation of the State's mercury reduction program in conjunction with the State's Section 303(d)list or Integrated Report, and public reporting of progress in carrying out the State's programs and reducing in-State mercury sources; and 6) coordination across States, where possible, such as multi-State mercury reduction programs. EPA recommends that States have in place a program that addresses each of these six basic categories and the specific recommended elements before placing waters in subcategory 5m.

EPA anticipates that there are States that already have implemented or have in place comprehensive mercury programs with many of the recommended elements. For other States, it may take additional time to fully develop and commence comprehensive mercury reduction programs. EPA recommends that a State consult early with their Regional office if they are considering the 5m approach to determine whether the 5m approach may be appropriate. Whether or not a State chooses to put waterbodies in subcategory 5m, EPA encourages all States to consider adopting the recommended elements of a comprehensive mercury reduction program as described in Section 10.

EPA will not take action to approve or disapprove a State's mercury reduction program itself. Rather, EPA expects to take into account the State's program in considering whether EPA believes it is appropriate for a State to put waters in subcategory 5m. If a State places waterbodies in the 5m subcategory without having the recommended elements of a mercury reduction program as described in Section 10, EPA expects to recommend that the State place those waters within the general category 5, rather than in subcategory 5m. For a State that is still in the process of putting in place the elements of a mercury reduction program, or has some of the recommended elements, EPA would likely recommend that the State continue to retain their mercury-impaired waters within the general category 5 of the Section 303(d) list (see below for further discussion of Category 5 waters).

Although States may defer development of mercury TMDLs under a 5m subcategory, doing so does not imply that the mercury-impaired waters are a lower priority environmental problem, or that action to reduce mercury sources is being delayed. Instead, the 5m subcategory

is designed to indicate that a State has actions already underway to reduce mercury sources and loadings to water. In addition, TMDLs are being scheduled later to allow time for mercury reduction efforts to result in environmental improvements.

Nothing in the approach is meant to imply that EPA believes it is inappropriate or unnecessary for a State to put its mercury TMDLs sooner in its schedules for developing TMDLs. Nor would the use of the 5m option remove the obligation to develop TMDLs for mercury-impaired waters at a later date if mercury reduction programs do not result in attainment of water quality standards. EPA believes that the TMDL development process can be a valuable tool for a State to better identify and quantify the sources of mercury to a waterbody. The TMDL development process also quantifies the reductions needed to meet water quality standards.

EPA believes that it may be appropriate in some instances to proceed with the development of mercury TMDLs. Such instances include waterbodies where there are significant sources other than air deposition (e.g., water point source discharges, mining or legacy sources), where the sources of mercury loadings are not well known, or where there is a complex mix of sources; in these instances, using the 5m subcategory may not be preferable. States that place waterbodies in subcategory 5m also may continue to develop mercury TMDLs sooner in their schedules for a particular waterbody or waterbodies. EPA will continue to work with States in the coming months to provide additional information on approaches to developing TMDLs.

### 3. Relationship of 5m Subcategory to Current Integrated Reporting Guidance and Practice

As described in EPA's "Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections Section 303(d), 305(b), and 314 of the Clean Water Act" [2006 Integrated Report Guidance (IRG)], category 5 is for those waters for which available data indicates at least one designated use is not being achieved or is threatened by a pollutant entering a segment, and thus a TMDL is needed for that segment; this category also constitutes a State's Section 303(d) list. A State currently has the option of putting its mercury-impaired waters requiring TMDLs in the general category 5, or it may choose to create its own State-defined subcategories within category 5. A State also has the discretion to put mercury TMDLs later in its schedules, and a number of States have already chosen to do so. The voluntary 5m subcategory would not replace a State's prerogative to keep its mercury-impaired waters within the general category 5 or a State-defined subcategory. In the 5m option, EPA believes that it would be appropriate for a State with a comprehensive mercury reduction program to defer the development of mercury TMDLs beyond the currently recommended eight-to-thirteen year timeframe for TMDL development. EPA also believes that, in the 5m option, it would be appropriate for a State to continue deferring mercury TMDLs where the State is carrying out its comprehensive mercury reduction program and reducing the in-state mercury sources.

The 5m approach recognizes efforts by a State to do as much as possible to reduce mercury sources within the State's jurisdiction, while also recognizing that some of the mercury deposition may be from sources outside the State's control. An important aspect of the 5m option is the *comprehensive* nature of the recommended mercury reduction program, i.e., EPA recommends that States not only adopt and carry out programs to address their mercury sources, but also identify mercury reduction goals and targets, conduct multi-media mercury monitoring, and report publicly on their progress in carrying out their mercury reduction program and reducing in-state mercury sources.

The voluntary 5m subcategory is also different from category 4b. In the 2006 Integrated Report Guidance, EPA indicates that segments are not required to be included on the Section 303(d) list if "[o]ther pollution control requirements (e.g., best management practices) required by local, State or Federal authority" are stringent enough to implement applicable water quality standards (see 40 CFR 130.7(b)(1)) within a reasonable period of time. [5] For category 4b, States should provide in their submission the rationale which supports their conclusion that there are "other pollution control requirements" sufficiently stringent to achieve applicable water quality standards within a reasonable period of time. In contrast to EPA's guidance on category 4b, EPA does not expect that States would necessarily demonstrate that their mercury reduction program will achieve water quality standards in order to place mercury-impaired waters in subcategory 5m. Accordingly, EPA believes that maintaining such waters in a subcategory of category 5 provides a true public accounting of the status of such mercury impairments.

If a State can demonstrate that, through the implementation of its mercury reduction program, certain waterbodies are expected to meet applicable water quality standards within a reasonable timeframe as described in EPA's guidance on category 4b, and where the elements of a State's mercury reduction program are also consistent with EPA's guidance on category 4b, those waterbodies may be suitable candidates for placing in category 4b. Preparing the recommended information on a State's mercury reduction program and the progress in reducing the State's mercury sources as described below could also provide some of the documentation needed for placing waters in category 4b.

## 4. Scope: Waterbodies Appropriate for 5m Subcategory

Because the 5m subcategory is focused primarily on waterbodies impaired by mercury from air deposition, EPA recommends that the 5m subcategory generally include waters where the proportion of mercury from air deposition to waterbody relative to total mercury from all sources is high. [6] The specific scope of waterbodies proposed for subcategory 5m should be determined by each State, in consultation with the EPA regional office, and take into account the impact of air sources as compared to other sources on ability to meet water quality standards. EPA believes that, as the relative contribution to a waterbody from sources other than air deposition increases, it may be more appropriate for a State to first use the TMDL development process to characterize and address those sources sooner, rather than deferring TMDL development. Situations where it may be appropriate to develop TMDLs sooner include those waterbodies where there are significant local contributions point source dischargers, legacy mercury deposits in sediments from past mining activity, and/or geologic deposits, or situations where there is large uncertainty regarding which sources are contributing mercury and/or how much mercury each source contributes. There may be waterbodies which are impaired primarily by atmospheric deposition

[5] In the "Information Concerning 2008 Clean Water Act Sections Section 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions," available at http://www.epa.gov/owow/tmdl/2008_ir_memorandum.html, EPA reiterates the Agency's expectations regarding the use of Category 4b and provides additional clarification regarding the use of 4b and a recommended structure for 4b demonstrations.

[6] A contribution for States to consider would be approximately 90-95% loadings or higher from air deposition on a waterbody basis; however, the specific percent may vary by State. The suggested percent is consistent with EPA's screening tool, "Mercury Maps: A Quantitative Spatial Link between Air Deposition and Fish Tissue," Peer Reviewed Final Report, in which waterbodies where sources other than air deposition contributed greater than 5% of the load to waterbodies were screened from the analysis. A later application of Mercury Maps using the same screening value is described in "Regulatory Impact Analysis of the Clean Air Mercury Rule, Final Report," EPA-452/R-05-003, pages 3-5 to 3-8, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Strategies and Standards Division, Research Triangle Park, NC., http://www.epa.gov/ttn/atw/utility/ria_final.pdf.

and which also receive some mercury contributions from sources other than air deposition. If a State already has programs in place to reduce mercury from the non-air sources to these waterbodies (e.g., appropriate NPDES permit conditions and pollutant minimization plans), it may be appropriate to include such waterbodies in subcategory 5m.[7]

We recommend that a State briefly describe how it determined that the waterbodies proposed for 5m are impaired by mercury primarily from atmospheric deposition. EPA expects that States may make such a determination for a group or groups of waterbodies within the State, and that the contribution from air deposition would be an estimate. EPA does not expect that such efforts would necessarily involve new air deposition or water quality modeling, or that the estimate be precise; rather, States could use readily available data or tools to conduct a screening-level analysis for other significant non-air sources of mercury, using a mass-balance approach. EPA suggests that States examine existing information to determine whether there may be potentially significant mercury sources other than air deposition, such as direct discharges from water point sources, high levels in sediments, or releases from current or past mining activity. States may also use existing air deposition modeling results available from EPA or other available modeling results, to roughly estimate the relative contribution from air sources.[8] If such screening analysis shows that there are no significant sources of mercury other than air deposition, these waterbodies would likely be appropriate candidates for inclusion in subcategory 5m.

The EPA publication "Frequently Asked Questions About Atmospheric Deposition: A Handbook for Watershed Managers"(September 2001) describes a process as well as tools for determining whether air deposition is the predominant contributor of mercury to waterbodies (see http://www.epa.gov/owow/oceans/airdep/air7.html). Examples of tools that might be used for a screening analysis include Mercury Maps, described in http://www.epa.gov/waterscience/maps/ and in http://www.epa.gov/ttn/atw/utility/ria_final.pdf starting at page 3-5, or the Permit Compliance System (PCS) database at http://www.epa.gov/enviro/html/pcs/index.html, and the study of domestic mercury sources by the National Association of Clean Water Agencies, formerly known as the Association of Metropolitan Sewerage Agencies. The Mercury Maps documents describe a screening tool to identify those waters in which air deposition may be the predominant source (i.e., where air deposition is estimated to contribute 95% or more of the mercury loading).

In areas where most of the deposition is from sources outside the State, the 5m option may still be appropriate, for example, where a State has a strong, comprehensive program in place to achieve reductions from in-State sources. It would be helpful, but not necessary, for States to have an estimate of contributions from in-State as compared to out-of-State sources. Having such an estimate would provide the context in which to identify the appropriate reduction targets for in-State sources.

EPA also encourages States to implement programs that address mercury emissions sources or source categories that may not be significant sources of deposition within their State, but which contribute significant deposition to adjacent, downwind States. As described further in

[7] EPA's draft Methylmercury Criterion Implementation Guidance provides further information on recommended approaches for determining whether a point source discharger is a potentially significant contributor of mercury to a waterbody, as well as procedures for determining appropriate NPDES permit conditions. EPA expects to issue the final guidance in 2007. The draft guidance is available at http://www.epa.gov/waterscience/criteria/methylmercury/index.html.

[8] Deposition modeling results used to support the Clean Air Mercury Rule are one potential source that States may use for such screening-level analyses and are available in EPA's rulemaking docket (Docket#OAR-2002-0056). As updates become available in the future, the Agency will make these available to Regional office modeling contacts.

Section 10, EPA encourages States to develop and implement multi-State mercury reduction programs and goals, such as the multi-State efforts in the New England and Great Lakes States.

### 5. Timeframe for TMDL Development under Subcategory 5m

As described previously, use of the 5m option does not remove the obligation to develop TMDLs at a later date if mercury reduction programs do not result in attainment of water quality standards. EPA's recommendations on the timeframe for developing TMDLs are described further in Section 2.

EPA acknowledges that there may be situations in which a State has addressed the mercury sources originating within that State to the extent feasible, but that there may be waterbodies within the State that remain impaired by mercury. This situation is most likely to occur in waterbodies where much of the mercury is from global and background sources. EPA expects to make further recommendations regarding the appropriate timeframe for developing TMDLs if and when a State reaches this point. EPA expects to make this recommendation based on a review of a State's biennial report on progress as discussed below in Section 6. EPA expects to provide States with technical assistance in developing TMDLs to address these waterbodies. In addition, in 2007, the Agency expects to develop additional information for States on potential approaches to developing mercury TMDLs, including regional-scale as well as waterbody-specific approaches.

In some States, EPA or the State must develop TMDLs according to schedules identified in a consent decree, settlement agreement, or Memorandum of Agreement. In these situations, deferring TMDL development under the 5m approach may or may not be possible or appropriate, depending on case-specific circumstances. To the extent a consent decree, settlement agreement, or Memorandum of Agreement establishes a schedule for completion of TMDLs, we recommend that State personnel consult with their EPA Regional office if they are considering pursuing the 5m subcategory approach. Whether or not a State is able to defer schedules for TMDL development, EPA encourages the State to adopt the recommended elements of a comprehensive mercury reduction program.

### 6. Documentation and Reporting Progress

EPA recommends that a State include supporting documentation for listing waters under subcategory 5m together with its Section 303(d) list/Integrated Report submitted to EPA. The documentation should be included during public review of the draft Section 303(d) list or Integrated Report, so that the public has an opportunity to view the States' mercury reduction program and the State's proposed basis for the 5m subcategory. For the initial listing of waters in subcategory 5m, EPA recommends that a State provide a detailed description of its mercury reduction program, including how the program incorporates the recommended elements in Section 10. A checklist or summary of the recommended elements is provided in Attachment B for States to use as a guide in preparing documentation for 5m. The State's documentation should also include a demonstration that the State has begun to make some initial progress in reducing in-state mercury sources.

EPA does not expect a State would necessarily develop unique documentation for purposes of using subcategory 5m, if there is existing documentation that adequately describes the State's mercury reduction program and the recommended elements. A State may provide such existing documentation to EPA, along with a supplement to address any of the recommended

elements not already described in the existing documentation.[9] Where a State uses existing documentation, EPA recommends that a State include a summary indicating how that existing documentation addresses the recommended elements.

For a State to continue placing mercury-impaired waters in subcategory 5m on subsequent Section 303(d) lists, EPA believes that a State should demonstrate on a biennial basis that it is continuing to carry out its mercury reduction program and reducing in-State sources of mercury. The State should provide documentation on its progress in conjunction with the State's submission of its draft and final Section 303(d) list/Integrated Report. EPA expects to consider the State's progress during its review of the Section 303(d) list in order to determine whether EPA believes that it would be appropriate for the State to maintain waters in subcategory 5m and continue to defer mercury TMDL development. EPA recommends that a State include a summary of any available data showing reductions in total mercury emissions, reductions in mercury in non-air mercury sources (e.g., products), and improvements in water quality. The Agency expects to assess progress in the context of a State's interim and long-term mercury reduction goals and targets, which are recommended as part of a mercury reduction program (see Section 10).

The Agency recognizes that quantifiable improvements, such as measurable reductions in mercury air emissions and atmospheric deposition and changes in fish tissue methylmercury concentrations, may not be achieved within a two-year listing cycle. In addition, there may be Federal or State regulations with reduction targets that are implemented over a period of time, i.e., States are not required to achieve until a later date. Thus EPA also expects to assess progress programmatically, i.e., whether a State demonstrates that it has adopted and is carrying out programs designed to achieve the State's mercury reduction targets and is achieving the appropriate programmatic milestones. In addition, a State may be able to achieve reductions in some sources before making progress in reducing other sources; EPA expect to recommend that a State continue to use 5m if the State is making progress in collectively reducing its mercury sources. If a State is not continuing to carry out its mercury reduction program and is not making progress toward its mercury reduction goals and targets within a reasonable timeframe consistent with the State's program, EPA expects to recommend that the State place the relevant waters in the general category 5, rather than in subcategory 5m.

## 7. Strategic Planning Targets and Mercury Impairments

As identified in the 2006-2011 EPA Strategic Plan, reporting on mercury targets will allow the Regions and States to show progress in restoring waters, while also recognizing that in many instances it may take much longer to restore mercury-impaired waters than many other types of impairments. However, reductions in mercury fish tissue levels have been observed in some locations (e.g., the Florida Everglades, Massachusetts) in shorter time frames than had been anticipated.[10]

---

[9] Examples of existing documentation that include many of the types and level of information for 5m submissions include progress reports prepared for the Conference of New England Governors –Eastern Canadian Premiers. See 2005 Status Report to New England Governors and Eastern Canadian Premiers on the Regional Mercury Action Plan. Available at http://www.cap-cpma.ca/images/pdf/eng/2005 Mercury Report.pdf. Also see progress reports for the Great Lakes Binational Toxics Strategy describe the status of efforts to addressing sources of mercury and other toxics (see EPA, Canada. 2005. Great Lakes Binational Toxics Strategy. 2005 Progress Report. Available at http://www.epa.gov/glnpo/bns/.

[10] Atkeson T., Axelrad D., Pollman C., Keeler G. 2003. Integrating atmospheric mercury deposition and aquatic cycling in the Florida Everglades: an approach for conducting a total maximum daily load analyses for an atmospherically derived pollutant. Tallahassee, FL, Florida Department of Environmental Protection, available at http://www.floridadep.org/labs/mercury/index.htm;

The measure of progress toward "Full Restoration," or attainment of water quality standards for all pollutants and impairments (Measure "L") takes into account the generally longer timeframe needed to address mercury impairments. For waterbodies where mercury is among multiple pollutants causing impairment, States should report to EPA the number of waterbodies where all pollutants except mercury attain standards. States should also report separately the number of waterbodies still needing restoration for mercury.

In addition, EPA expects that States may be able to "count" 5m waterbodies as meeting the definition of "Restoration Planning Complete." This measure would count waterbodies for which all EPA-approved TMDLs and Category 4b plans (TMDL alternatives that recognize other required controls will lead to water quality standards attainment within a reasonable period of time) are established. The measure [Program Activity Measure (PAM) WQ-33] would also count waterbodies for which the State has a Category 5m comprehensive mercury reduction program in place that meets elements recommended by EPA (EPA recognizes that Category 5m does not necessarily imply that water quality standards will be attained). Further information on definitions, reporting methodologies, and contacts for FY 07 can be found at http://www.epa.gov/water/waterplan/pamsfy07/def_wq07.html.

EPA expects to specifically recognize States that choose to use the 5m subcategory consistent with the recommendations of this guidance for purpose of calculating the expected pace of TMDL development (WQ-8). To account for waterbodies in subcategory 5m, States may remove waterbodies in subcategory 5m from their TMDL pace universe and yearly targets. [Measure WQ-13b in FY07 (WQ-8b in FY 08) tracks the number of TMDLs developed by states (and approved by EPA) on a schedule consistent with national policy (i.e., generally within the 13 years of listing of the water as impaired). Further detail on this measure can be found at http://www.epa.gov/water/waterplan/pamsfy07/index.html.]

EPA is continuing to examine other potential approaches for reporting on and recognizing State mercury reduction efforts under the 5m approach. Approaches may include tracking the total amount of mercury loading reductions achieved in States using the 5m approach. Another approach may be some form of public recognition for States that have in place the recommended elements of a comprehensive mercury reduction program.

## 8. Relationship of 5m Subcategory to the Development of NPDES Permits

Under the 5m subcategory approach, States must continue to implement NPDES permit requirements relating to discharges of mercury from point sources. These permits must contain (1) technology-based effluent limitations, which represent the degree of control that can be achieved by point sources using various levels of pollution control technology; and (2) more stringent limitations, commonly known as water quality-based effluent limitations (WQBELs), when necessary to ensure that the receiving waters achieve applicable water quality standards. See CWA 301(b)(1). The procedure for determining the need for WQBELs is called a "reasonable potential" determination. Under EPA's regulations at 40 CFR 122.44(d)(1)(i), effluent limitations must control all pollutants that the permitting authority determines "are or may

---

and Massachusetts Department of Environmental Protection. 2006. Massachusetts Fish Tissue Monitoring: Long-term Monitoring Results 1999-2004, available at http://www.mass.gov/dep/toxics/stypes/hgres.htm.

be discharged at a level [that] will cause, have the reasonable potential to cause, or contribute to an excursion above any [applicable] water quality standard." Thus, if a point source discharger of mercury has the reasonable potential to cause or contribute to an excursion above the applicable water quality criterion for mercury, the discharger's NPDES permit must contain a WQBEL for that pollutant. States with waterbodies covered by the Water Quality Guidance for the Great Lakes System (Guidance) must also continue to implement any additional applicable permitting requirements specific to the Guidance. [Note: this "Guidance" is a legally enforceable rule.] We recommend that a State describe its procedure for determining reasonable potential for water point source discharges of mercury as an element of its comprehensive mercury reduction program.

As TMDLs may be deferred for waterbodies in subcategory 5m, NPDES permits may need to be developed in the absence of TMDLs. This is the case in numerous waterbodies whether or not mercury is a cause of impairment. As described previously, using the 5m subcategory does not preclude a State from developing TMDLs for an individual waterbody or waterbodies sooner. In addition, EPA's draft guidance on implementation of the Agency's recommended methylmercury fish tissue criterion includes guidance on implementing the criterion in permits in waterbodies where a TMDL has not been developed. The draft methylmercury water quality criterion implementation guidance is available at http://www.epa.gov/waterscience/criteria/methylmercury/.

## 9. EPA Actions to Address Mercury

While the focus of 5m is on State efforts to reduce mercury from in-State sources, EPA acknowledges the importance of complementing individual State and multi-State efforts with Federal and international actions to reduce mercury. As described in the Agency's *Roadmap for Mercury*, EPA's long-term goal is to reduce risks associated with mercury. EPA takes action at the national level to identify exposed populations, minimize exposures through outreach efforts, and appropriately reduce anthropogenic mercury releases. As part of its strategy, EPA will continue to assess mercury sources of concern and will be increasing its efforts to: focus on uses that would lead to risk, where cost-effective substitutes exist; promote reducing mercury in processes and products where benefits of such reductions would justify costs, even where cost-effective substitutes do not exist; and work to identify and encourage development of alternatives to essential uses of mercury that lead to risk. EPA is also working with its federal partners to address risks associated with management and disposal of excess supplies of commodity-grade mercury in the U.S. In addition, EPA is supporting the efforts of other countries to take action to address risks associated with global mercury pollution by developing and implementing partnerships with international organizations, non-governmental organizations, and the private sector.

EPA's *Roadmap* identifies six key action areas, with the overarching goal of reducing health risks associated with mercury exposure. EPA will continue its efforts to reduce risk in these six areas: 1) addressing mercury releases to the environment; 2) addressing mercury uses in products and processes; 3) managing commodity-grade mercury supplies; 4) communicating risks to the public; 5) addressing international mercury sources; and 6) conducting mercury research and monitoring. The specific planned actions described in the *Roadmap* will be implemented over a number of years. Just as EPA recommends that the States report progress in reducing their mercury sources under the 5m subcategory, EPA will also assess and report progress periodically and make needed changes based on new information, successful efforts, and emerging needs.

## 10. Recommended Elements of a State Mercury Reduction Program for Consideration in Using Subcategory 5m

EPA recommends that, before placing waters in subcategory 5m, the State have in place a comprehensive mercury reduction program.[11] EPA recommends that a comprehensive mercury reduction program include a suite of programs and activities that *collectively* are intended to make progress toward meeting State water quality standards, with the ultimate goal of achieving water quality standards.

An important aspect of the recommended mercury reduction program is that it is *comprehensive*, i.e., EPA recommends not only that States have in place programs to reduce their mercury sources, but also to identify quantifiable reduction goals and targets, conduct multi-media monitoring, report publicly on progress in reducing mercury sources, and where possible, to coordinate with neighboring States. Specifically, EPA recommends the following components:

### a. Air sources of mercury:

- Identification of the waterbodies in the State which are impaired by mercury predominantly from atmospheric deposition and which would be appropriate for placing in subcategory 5m. EPA also recommends that States describe how those waters were identified. As described previously, EPA suggests that States consider including waters where the contribution is high (EPA recommends basing this estimate on a screening-level analysis). The scope of waters which EPA believes are most appropriate for subcategory 5m, and approaches for determining waters impaired by mercury predominantly from atmospheric deposition, are described further in Section 4.

- For the waterbodies or groups of waterbodies identified for inclusion in the 5m subcategory, identification of the potential air emissions sources or source categories contributing to local and regional atmospheric mercury deposition, including those sources within the State that may cause significant deposition to adjacent, downwind States. States may use existing emissions information, modeling results, or other available data and information in order to identify their highest sources of mercury emissions and deposition. EPA notes that there may be some uncertainty and data gaps regarding emissions for some sources and source categories. EPA recommends that State water, air, waste and other programs coordinate to identify known or potential air sources of mercury within the State. States also may use information available from EPA, such as emissions inventory data and deposition modeling results. Examples of sources of mercury releases are found in Attachment A, as well as on EPA's mercury webpage http://www.epa.gov/mercury/ and in *EPA's Roadmap for Mercury* at http://www.epa.gov/mercury/roadmap.htm.

- Estimation of the *range* of percent reductions in air deposition needed to meet State water quality standards, including fish tissue criterion where adopted by a State, in

[11] EPA's decision on a State's Section 303(d) list with waters proposed for subcategory 5m will not include an approval or disapproval of a State's mercury reduction program. However, EPA expects to consider a State's mercury reduction program when evaluating whether the State has appropriately included waters in subcategory 5m. Based on that evaluation, EPA may recommend that a State not use subcategory 5m.

the waterbodies proposed for 5m.[12] The purpose of the estimate is to provide a sense of the magnitude of the problem and a context in which to set adequate reduction goals. It may be appropriate for the estimate to be for a group of waterbodies or watershed within the State, as opposed to a waterbody-by-waterbody basis. In addition, EPA does not expect the estimate to be based on complex modeling. Such an estimate could be based on current steady-state assumptions, such as the 1:1 linear relationship between reductions in air loadings and reductions in methylmercury concentrations in fish tissue, as provided in EPA's Mercury Maps screening tool (http://www.epa.gov/waterscience/maps/ and in http://www.epa.gov/ttn/atw/utility/ria_final.pdf starting at page 3-5).
In most approved TMDLs where air deposition is the predominant mercury source, the steady-state, linear relationship between air loadings and reductions in methylmercury concentrations in fish was used to estimate the mercury load reductions needed to meet water quality standards. Examples include mercury TMDLs for Georgia, such as the Ochlockonee Watershed, (http://www.epa.gov/Region4/water/tmdl/georgia/ochlockonee/final_tmdls/OchlockoneeHgFinalTMDL.pdf) and the TMDLs for Mercury in Fish Tissue for the Coastal Bays and Gulf Waters of Louisiana http://www.epa.gov/waters/tmdldocs/6hgLATMDLsReport_05Jun28.pdf .

- For the highest in-State mercury air sources or source categories over which the State has control, adoption of the most appropriate mercury emissions reduction measures at the State level. States should continue to carry out existing delegated and/or EPA-approved Federal air program requirements. EPA encourages States, where appropriate, to address sources not already covered by Federal standards. EPA recommends that State programs take into account the circumstances contributing to local and regional mercury deposition and water quality impairments, such as a unique mix of sources and levels of emissions within a State. The role of States in developing and implementing comprehensive mercury reduction programs under 5m is analogous to their role in developing State Implementation Plans for air programs. Under the State Implementation Plan process, States identify the regulations or programs necessary to carry out their responsibilities under the Clean Air Act and take into account State-specific circumstances.[13] States may consider factors such as technical and

[12] In 2001, EPA announced the availability of its recommended Clean Water Act section 304(a) water quality criterion for methylmercury. The water quality criterion is expressed as the concentration (0.3 mg methlymercury/kg fish tissue wet weight) of methylmercury in fish tissue and is the first time EPA has issued a water quality criterion as a fish tissue value, rather than a water column value. The criterion recommendation is guidance to States for use in establishing or updating their water quality standards. EPA has also issued draft guidance regarding the implementation of the criterion. Note that for some States, the applicable water quality criterion is established under the Water Quality Guidance for the Great Lakes System. A few States also have wildlife criterion for mercury. In addition, the water quality criterion is not necessarily the same as the basis for fish consumption advisories, which may be lower (more stringent) than the water quality criterion. The methylmercury fish tissue criterion and implementation guidance describe the relationship of the new fish tissue criterion to the Great Lakes Initiative and fish consumption advisories. The criterion and draft implementation guidance are available at http://www.epa.gov/waterscience/criteria/methylmercury/index.html.

[13] Note that State Implementation Plans (SIPs) are required by the Clean Air Act, while use of the 5m subcategory and implementation of comprehensive mercury reduction programs are voluntary. EPA would not approve or disapprove State mercury reduction programs as part of our review of State Section 303(d) lists, as described previously. In previous guidance on Section 303(d) lists, EPA encouraged States to consider the extent to which existing air pollution control authorities in SIPs adopted pursuant to the CAA and local ordinances could be used or enhanced to further reduce emissions of the air pollutant and abate the associated water quality problem (see: National Clarifying Guidance for 1998 State and Territory Section 303(d) Listing Decisions," Robert H. Wayland, August 17, 1997, at http://www.epa.gov/owow/tmdl/lisgid.html).

economic feasibility, and a variety of local factors such as population exposure, enforceability, and economic impact.

- Evaluation of the cumulative emissions from sources or source categories other than the highest-emitting categories. If the cumulative emissions from other sources are a significant proportion of the total emissions within the State, or collectively may contribute directly to local or regional water quality impairments in the State, the State is encouraged to adopt controls as appropriate to address these sources. EPA does not expect that programs to address all of the remaining cumulative emissions be in place in order for a State to begin using the 5m listing approach; however, EPA recommends that such programs be put in place within a reasonable timeframe in order to continue using the 5m subcategory in future Section 303(d) lists.

**b. Other potential multi-media mercury sources (e.g., mercury-containing products):**

- An inventory of other potential multi-media mercury sources in the State, including mercury use in process and products, water dischargers, mercury in waste, and legacy sources (see Attachment A for examples). Some of these mercury-containing products may also serve as sources of mercury to air, as well as to land and water, during manufacturing, use, and disposal. Further information on potential mercury sources and releases, including products containing mercury, can be found on EPA's mercury webpage at http://www.epa.gov/mercury/index.htm and in "EPA's Roadmap for Mercury" at http://www.epa.gov/mercury/roadmap.htm.

- Adoption of programs to reduce mercury in products and wastes, such as through development and/or promotion of mercury-free alternatives, limiting releases through waste collection efforts, working with industry and local governments, and public outreach and communication. Examples of programs that a number of States have adopted include collection and recycling programs for automobile switches, thermostats, thermometers, fluorescent lights, and batteries. States have adopted programs to reduce mercury in schools and discharges from hospitals and dental offices. Some States have also adopted bans or phase-out programs for certain mercury-containing products. As with air sources, States should take into account the State-specific mix of multi-media sources, as well as any National efforts (e.g., the National Vehicle Switch Removal Program). One resource for identifying example State programs is the 2005 Mercury Compendium developed by the Quicksilver Caucus at http://www.ecos.org/section/2005_mercury_compendium.

- Continuation of programs to meet NPDES permit requirements and address mercury in water point source discharges. For potential mercury discharges to water, States may consider implementing cost-effective Pollutant Minimization Plans for waste water treatment plants and industrial discharges. The relationship of 5m waterbodies to the development of NPDES permits is discussed Section 8.

**c. Goals and targets:**

- Identification of overall (Statewide) mercury reduction targets, including percent reduction and date of achievements, as well as programmatic milestones. The targets should include interim and long-term goals and, if possible, include targets for each of the top sources or source categories within the State. In setting emissions reduction goals for air sources, States should take into account air emissions data, modeling, or other data and information on the highest source categories in each State, and, as necessary, any individual sources that may be impacting local waterbodies. In developing goals and targets, States should take into account air emissions reductions from national programs, as well as reductions from State or local programs.

- For other multi-media mercury source categories, identification of interim and long-term targets. These targets should incorporate any regulatory or voluntary programs at the Federal level, as well as State-specific programs. Depending on the category, these targets may be programmatic (e.g., percentage of a particular sector participating in a certain regulatory or voluntary State program).

**d. Multi-media monitoring:**

- Implementation of a multi-media monitoring program to track progress in reducing emissions or loadings from mercury source categories, as well as progress toward meeting State water quality standards and reducing mercury levels in fish. Recommended components of a mercury monitoring program include the following:
  - o Air emissions monitoring (preferably speciated);
  - o Air deposition monitoring;
  - o Water quality monitoring, including fish tissue sampling.

  EPA recommends that, before placing waters in the 5m subcategory, a State have in place at least some of the elements of a multi-media monitoring program, e.g., water quality and fish tissue monitoring, and either air emissions or deposition monitoring. Certain Federal air regulations (e.g., the Clean Air Mercury Rule) include emissions monitoring provisions. EPA recommends that, over time, a State develop and implement a more comprehensive monitoring program in order to adequately measure progress in reducing the State's mercury sources. EPA also encourages States to develop more comprehensive and accurate mercury emissions inventories, particularly for sources within their State that are currently not well-characterized.

  A State should identify which parameters will be monitored, frequency of monitoring, and how the data will be used to evaluate progress. States should also use standardized protocols (where available) for sample collection, analysis, and reporting to enable network-wide/inter-State data comparisons over time.

- Identification of an appropriate baseline against which to monitor progress. There is typically a lag time between atmospheric deposition and mercury accumulation in fish issue; thus, for air deposition monitoring, States should consider

determining what baseline may be best representative of current fish tissue mercury levels. EPA recognizes that it may take a number of years before steady-state conditions in aquatic ecosystems are reached in response to a reduction in mercury loadings; however, States should continue to report progress in reducing atmospheric mercury emissions and other mercury sources (e.g., mercury in wastewater, mercury in products, etc.), as well as reductions in concentrations of mercury in fish tissue.

- Support for long-term mercury monitoring networks, including emerging new monitoring efforts through the National Atmospheric Deposition Program (NADP) and Mercury Deposition Network (MDN) in cooperation with EPA, other Federal agencies, States, tribes, and scientific organizations. For example, a new coordinated NADP network is being established (see http://nadp.sws.uiuc.edu/mdn/mtn.asp). Data would be collected with standardized methods developed through USEPA research, quality-assured, and archived in the NADP on-line data base. The network would include locations that are regionally representative; rural, urban, and suburban; areas with high levels of mercury emissions and mercury deposition; and within sensitive ecosystems. EPA, together with a number of States, universities, and other Federal agencies, is supporting a limited number of stations, and encourages States to consider participating in such networks.

  EPA recognizes that many States face challenges in identifying adequate resources for monitoring. EPA does not expect that a State would necessarily participate in such deposition monitoring networks in order to initially place waters in the 5m subcategory. Such monitoring programs, however, will assist States in estimating changes in ambient concentrations and wet and dry deposition of mercury, particularly in areas where fish are affected by atmospheric deposition of mercury. EPA will continue to pursue opportunities for efficiencies and coordination of monitoring efforts across the Agency's program offices. In addition, the Agency encourages State air, water, and other programs to look for opportunities to coordinate monitoring efforts and leverage resources across State programs, as well as to pursue opportunities for partnering with other Federal agencies and universities.

  Regarding fish tissue monitoring program design, EPA's draft methylmercury criterion implementation includes recommendations regarding fish tissue sampling methods and monitoring design. EPA has also published guidance on sampling strategies for a fish contaminant monitoring programs in the *Guidance for Assessing Contaminant Data for Use in Fish Advisories*. Volume 1: Fish Sampling and Analysis. Third Edition. (EPA/823/B-007) (see http://www.epa.gov/ost/fishadvice/volume1/index.html)

  Regarding air deposition monitoring, the EPA publication "Frequently Asked Questions About Atmospheric Deposition" mentioned previously also provides some information on designing a monitoring program, including determining monitoring station location, number of stations, and frequency of sampling. It also includes estimated monitoring cost, and provides examples of monitoring programs that could be implemented with different resource levels (see http://www.epa.gov/owow/oceans/airdep/air7.html).

**e. Documentation and regular reporting of progress:**

- Submission of the initial proposal for listing waters under subcategory 5m in conjunction with submission of a State's draft and final Section 303(d) list or Integrated Report. A State's 5m proposal should include a description of the State's mercury reduction program, and specifically how the State's program addresses each of the recommended elements described elsewhere in this Section. A checklist or summary of the recommended elements is provided in Appendix B. States may use the checklist as a guide in preparing their documentation for 5m. The proposal should also describe initial progress in reducing the State's mercury sources. In conjunction with subsequent Section 303(d) lists or Integrated Reports, States should provide an update on the State's progress in carrying out its mercury reduction program and reducing in-State mercury sources in order to maintain waters in subcategory 5m. Additional information on documentation and reporting progress is discussed in Section 6.

**f. Coordination across States:**

- Development and implementation of multi-State mercury reduction programs, in which States collectively identify and commit to common reduction goals and targets for that region. Examples of such multi-State efforts include those in the New England and Great Lakes States. EPA does not expect that a multi-State effort would necessarily be in place for a State to initially begin using the 5m listing approach. However, through such multi-State efforts, States will be better able to collectively address transboundary impacts, as well as the impacts of mercury sources within a particular State. EPA Regional and Headquarters offices will assist States in collaborating on a Regional level as appropriate.

## Attachment A

### 1. Examples of Mercury Sources/Releases for Consideration in Developing and Implementing State Mercury Reduction Programs[14]

Coal-fired power plants
Industrial boilers
Electric arc furnaces
Steel recycling facilities
Sewage sludge incinerators
Mercury-cell chloralkali plants
Municipal solid waste incinerators
Medical waste incinerators
Metals mining, including gold mining
Cement kilns
Taconite processing plants
Wastewater treatment facilities
Industrial water discharges
Crematoria

### 2. Examples of Mercury in Processes and Products

Mercury-cell chloralkali plants
Electric lighting, e.g., fluorescent lights
Dental amalgam
Measuring devices
Switches and relays, including automobile switches
Medical wastes
Thermostats
Thermometers

### 3. Examples of Programs to Address Mercury in Process and Products

Inventory of mercury-containing products and processes
Public communication regarding mercury-containing products, such as labeling
Phase-out of mercury-containing products
Mercury collection programs
Mercury vehicle switch removal program
Mercury in schools program
Pollutant minimization plans for water dischargers

[14] Additional information on mercury sources and releases, as well as EPA programs and progress in addressing mercury, can be found on EPA's mercury webpage at http://www.epa.gov/mercury/ as well as in "EPA's Roadmap for Mercury" (July 2006) at http://www.epa.gov/mercury/roadmap.htm.

## Attachment B

### Summary Checklist of Recommended Elements of a Comprehensive State Mercury Reduction Program

General

- Overview of State's mercury reduction program
- Documentation of progress to date in reducing mercury releases and sources

Air Sources

- Identification of waterbodies impaired by mercury predominantly from air deposition and proposed for 5m, and a description of the screening approach or methodology used to identify the waterbodies
- Identification of greatest sources of mercury air emissions and deposition in the State
- Estimate of the range of percent reductions in air deposition needed to meet water quality standards in the waterbodies, including fish tissue targets
- Adoption of appropriate mercury reduction measures for each of the highest in-State sources of mercury emissions and deposition
- Evaluation of remaining, cumulative emissions from in-State sources, and implementation of reduction measures as appropriate

Other Potential Multi-Media Mercury Sources

- Inventory of other mercury sources, such as mercury in products and processes
- Adoption of regulatory and voluntary programs to address sources
- Description of public outreach and communication activities

Goals and Targets

- Overall Statewide mercury reduction targets by percent reduction and date of achievement, as well as programmatic milestones
    - Interim and long-term targets
    - Where possible, reduction targets by source or source category

Multi-media Monitoring

- Implementation of a multi-media monitoring program, including air emissions monitoring, air deposition monitoring, water quality monitoring, and fish tissue monitoring
- Identification of parameters to be monitored and frequency of monitoring
- Identification of baseline for measuring progress
- Participation in national monitoring network(s)

Public Reporting

- Description of State's mercury program with Integrated Report/Section 303(d) list submission
- Update on progress with each subsequent Integrated Report/Section 303(d) list submissions

Multi-State Coordination

- Multi-State efforts to identify and commit to regional reduction goals and targets