

**Clean Water Act Section 319(g) Management Conference**  
**June 22-23, 2010**  
**Meeting Summary<sup>1</sup>**

**Overview**

A Clean Water Act Section 319(g) Management Conference took place on June 22-23 in Philadelphia, Pennsylvania. The Management Conference was convened by EPA in response to a Clean Water Act Section 319(g) petition from the Northeast states. Under Section 319(g), a state may petition EPA to convene an interstate management conference if the state is not meeting water quality standards in whole or in part as a result of nonpoint source pollution from another state. In their petition, the states indicated that reductions from outside the Northeast states are needed to meet the Northeast Regional Mercury Total Maximum Daily Load (TMDL) goals, and named eleven upwind states as contributing to the deposition in the Northeast. The conference brought together air and water program representatives from each of the seven Northeast states, the eleven named states, and EPA Headquarters and Regions, as well as several Commissioners from the Northeast states.

The conference included presentations on the Northeast states' Regional Mercury TMDL and 319(g) petition, EPA's mercury deposition modeling and basis for convening the conference, and EPA's schedule of upcoming air regulations to address mercury emissions. Each of the participating states had an opportunity to highlight their successes and lessons learned in their mercury programs. The summary of actions in each state highlighted the significant action already underway to reduce mercury emissions. Most of the conference was spent on the states identifying key areas for further action at the state and national levels.

State participants generally felt that the conference was worthwhile and informative, and appreciated learning about one another's mercury reduction efforts. There was agreement among the state participants that the mercury issue is a national one, not just an upwind/downwind states issue. Several challenges were noted, including whether the 98 percent mercury emissions reduction target set by the Northeast States' petition is achievable. States noted that the emissions data used in the petition needs to be updated to reflect the progress states have made in reducing mercury emissions. One outcome of the conference was an agreement among the participants that the dialogue be continued among the participating states in order to advance efforts at both the state and national levels to reduce mercury emissions. Participating states expressed the need for a national mercury reduction strategy that ensures a coordinated approach across all media and programs, including consideration of Clean Water Act (CWA) goals.

The state participants plan to develop a principles document that the participating states would review and potentially agree to, following consultation with the environmental Commissioners in each state. The goal is to develop a document that could be submitted to EPA and that would outline the states' recommended follow up from the conference. The New England Interstate Water Pollution Control Commission (NEIWPCC), who submitted the 319(g) petition on behalf of the Northeast states, volunteered to take the lead for drafting the principles document and coordinating with the conference participants.

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<sup>1</sup> This document summarizes the discussions at the June 22-23 Section 319(g) Management Conference. The summary contains recommendations by state participants for state and EPA actions; however, this document does not constitute EPA or states' agreement to undertake the recommended actions.

**Tuesday, June 22**

### **Opening Remarks and Presentations**

Opening remarks were given by Benita Best-Wong, Director, Assessment and Watershed Protection Division; Mike Shapiro, Deputy Assistant Administrator, Office of Water; and Rob Brenner, Director, Office of Policy Analysis and Review, Office of Air and Radiation. There was a brief roll call for each of the participants to introduce themselves and their affiliation. The meeting was facilitated by Bob Greenfield, of Greenfield Management Strategies, under contract to EPA.

The Conference agenda included three presentations:

- *Northeast Regional Mercury TMDL and Section 319(g) Petition* – Beth Card and Susannah King, NEIWPC. The presenters described the Northeast Regional mercury TMDL, which provided the basis for the petition and identifies the reductions needed from within and outside the Northeast region to meet the TMDL fish tissue endpoints. The presenters also discussed the petition and the Northeast states' expectations for EPA and the other states, including the need for a national mercury reduction plan.
- *EPA Determination and Modeling Results* - Dwight Atkinson, US EPA, Office of Water. The presentation included a description of the modeling used to support EPA's decision (or "determination") to convene the conference, and the relative contributions from sources outside the Northeast and global sources. A map indicated that the majority of states (shown in red) have mercury impaired waters on their 303 (d) lists (referred to as the "red map").
- *Update on EPA's Efforts to Address Mercury Emissions* – Ellen Kurlansky, US EPA Office of Air and Radiation. The presentation described the relative contributions from various sources to US mercury emissions, the process for developing Maximum Achievable Control Technology (MACT) standards, and the schedule of upcoming MACT standards for mercury sources. The presentation also described the development of a national cross-Agency mercury monitoring network and EPA's role in international negotiations.

### **Mercury Reduction Programs in the Northeast States**

- Mark Smith (Massachusetts Department of Environmental Protection) gave an overview of mercury reduction programs in the Northeast states. Highlights include the following:
  - The New England Governors-Eastern Canadian Premiers Mercury Action Plan was adopted in 1998, with quantitative goals for mercury reduction, as well as goals for pollution prevention and emissions reductions. In the Northeast, states require that municipal waste combustors and municipal waste incinerators have more stringent mercury limits than the federal limits put in place by EPA, resulting in 85% and 95% emissions reductions, respectively. All the Northeast States have requirements for the installation of dental amalgam separators. Modeling shows a decrease in mercury deposition hot spots since the action plan was initiated. In Massachusetts, monitoring shows reductions in mercury in biota following emissions reductions.

- Each of the Northeast states provided additional highlights regarding their state's efforts to reduce mercury (see attached).

### **Mercury Reduction Programs in the Eleven States Named in the Petition**

- Alexis Cain (EPA Region 5) gave an overview of the Great Lakes Mercury Reduction Strategies.
  - Development of the strategies was a voluntary effort led by federal agencies and other organizations. Two strategies were developed. The first was a mercury-in-products phase-down strategy, completed in 2008 with participation of all Great Lakes states. The second is a mercury emissions reduction strategy
  - Currently, the mercury emissions reduction strategy is awaiting approval by 8 governors' offices, and final word on approval is expected in July or August. A review of literature about mercury sources was conducted. Increasingly, mercury is coming from outside of the Great Lakes basin (global sources), but sources within the Great Lakes are still important.
  - The strategy contains 34 recommended actions for states. Included are recommendations for specific regulations for power plants, industrial boilers, cement production, as well as cross-cutting recommendations, such as establishing lesser quantity cut-off limits for mercury sources under the Clean Air Act. Using permit conditions that require proper management of scrap for such sources as metal shredders, states should require proper management of auto scrap. Also recommended is the adoption of the Northeast/New Jersey emissions limits for incineration sources.
- Each of the eleven states named in the 319(g) petition gave a brief overview of key mercury reduction efforts in their state (see attached). Many of the states have programs in place to address mercury in products as well as mercury emissions, including a few states with state-specific regulations to address mercury emissions from coal-fired power plants.

### **Discussion Groups:**

Following the state presentations, participants broke into small discussion groups to further share experiences at the state level, as well as to identify issues and challenges that participants felt warranted further discussion on the second day of the Conference.

A number of themes emerged from the discussion groups on Day 1:

- Mercury as a National issue: Mercury deposition is not just an upwind/downwind or petitioning/contributing state issue but rather a national issue, as demonstrated by the “red map” showing that most states have waters impaired by mercury on their Clean Water Act Section 303(d) lists.
- Federal-State Actions/Partnership: States indicated that there is a need for strong federal leadership to address certain categories of sources that are more appropriately regulated at the national level. States need to take the lead to address certain categories that may be more appropriate to address at the state level. States can assist EPA by provide the best information on successful efforts at the state level to be considered as EPA develops regulations.
- Emissions Data: States named in the petition noted that the emissions data used in the Northeast Regional Mercury TMDL and 319(g) petition are out-of-date and do not reflect the progress many states have made in reducing their mercury sources.
- Air-Water Alignment: There is a disconnect between the technology-based approach in setting MACT standards, and the “cap” approach in mercury TMDLs, which specify the total maximum daily load for a waterbody needed to meet water quality standards. Water quality impacts should be considered in developing MACT standards and determining to what extent such standards will achieve water quality endpoints.
- Global/International: Global sources are an important contribution to the mercury problem. Participants noted that it may be difficult to achieve the 98% reduction described in the Northeast Regional mercury TMDL, given global sources. At the same time, states and EPA need to continue working toward reducing sources that contribute to the Northeast and other states, which in turn will give the U.S. more credibility in international negotiations.
- State-to-State Communication: States need to share information with one another regarding their successes in addressing mercury sources.
- Product Stewardship: There is a need to communicate with the public on mercury in products, including labeling, compact fluorescent lamp (CFL) disposal, etc.
- Interstate transport: To address the mercury problem, it is important to consider the sources most important from an interstate transport perspective. Air pollutants such as sulfur dioxide, nitrogen oxides, and mercury cross state lines and thus can impact the ability of downwind states to meet clean air standards and water quality standards. Accordingly, a strong federal transport rule is needed to reduce interstate transport of emissions.

- National cross-media mercury strategy: There is a need to take a multi-media approach to addressing mercury at the national level, so that regulating mercury in one media doesn't create a problem in another media.

## **June 23**

Based on the themes identified on the previous day, state participants discussed how to collapse the themes into a smaller number of categories for further discussion in break-out groups. The following four categories were identified:

1. Technology
2. Global/international considerations, and overall mercury strategic plan
3. Product stewardship
4. Communications

### **Technology**

State participants identified sources thought to be more appropriate for development of controls at the federal level, as well as categories more appropriately addressed at the state level. The group recommended the top categories for federal action. These include electric generating units (EGUs), boilers, cement kilns, electric arc furnaces, and incinerators. Addressing these sources would cover about 90% of the national mercury emissions, and three of the categories are also priorities for addressing ozone and fine particles. The top three comprise 75% of the national mercury emissions.

The technology group noted that States and EPA need to work together in partnership. The states can assist EPA, including providing technical success stories for EPA to consider in developing rules. States should also comment on proposed rules, including comments from water programs on mercury reductions needed to meet CWA and TMDL goals. States should consider addressing other sources or situations more appropriately addressed at the state level, including single-source situations, energy efficiency considerations, and products. It was noted that some states have prohibitions on implementing regulations that are more stringent than those at the federal level.

Other recommendations include: striving for good technology limits; using all Clean Air Act (CAA) and CWA tools available, e.g., CAA Sections 110 and 112; CWA/TMDL considerations, and using the existing flexibility in how the MACT "floor" is established.

Next steps include recommending to EPA that, in developing air regulations, the Agency should consider the Northeast TMDL and other mercury TMDLs, as well as fish consumption advisories. The group also recommended development of a statement of principles and/or white paper, which would be reviewed by each of the 18 states and potentially agreed to by the commissioners from all 18 states.

## **Product Stewardship**

The group felt that, in general, EPA should provide leadership and develop national rules on mercury-containing products; however, in some cases, it may be easier for states to address certain products.

*EPA role:* State participants felt that EPA can assist the states by conducting outreach to consumers on mercury-containing products, including explaining why and how such products can be a problem, and providing information on proper handling and disposal. EPA can also provide information and resources for states that don't yet have a mercury products program. The group recommended that EPA use the significant new use provisions and develop product bans for mercury-containing products under the authority of the Toxic Substances Control Act (TSCA). In developing regulations, EPA should work with states that have existing rules in place to avoid conflict and build on lessons learned.

*States:* Some states have found it relatively easy to address mercury-containing products in a comprehensive manner and achieve significant reductions, while others have found it more difficult and focused on only a few products. To avoid re-inventing the wheel, States without product programs should examine what other states have already done and evaluate how some states were able to achieve aggressive programs. Similarly, there has been varying success among states regarding auto switch collection programs. The group recommended examining the national auto switch program, as well as why some states have or have not been successful. The Northeast Waste Management Officials' Association (NEWMOA) has developed model product legislation, which a national organization such as the Environmental Council of States (ECOS) should review and potentially endorse.

*Dental amalgam:* The state participants supported the northeast states' recommendations for national dental amalgam separators requirements.

## **Global/International/Strategic Planning**

The group discussed the need for a national mercury reduction strategy and the potential elements of a strategy, including the need for such a strategy to consider CWA goals.

*MACT and other considerations:* A national strategy should consider what gap might exist between the reductions expected to be achieved under MACT standard (s) and CWA endpoints (e.g., in TMDLs). The group recommended that EPA use all tools available, including CAA Section 112 and the process for determining how the MACT floor is set, and ensuring that water quality is considered in developing air rules. In addition, even if individual facilities are meeting the relevant MACT standard, total emissions from all sources collectively may still be too high to achieve CWA goals. Thus, a national strategy also needs to consider approaches for reducing overall emissions as well as other factors, including energy efficiency, renewable energy, and fuel switching. It is important that

industry knows what to expect regarding all upcoming regulatory efforts, including those related to energy policy and climate change.

*Global sources:* Participants noted there is a need to determine what reductions in global sources are needed beyond MACT standards. It was also noted that it may be difficult to achieve the 98% reduction needed to meet the Northeast Mercury TMDL goal, particularly given the global contribution. The 98% figure includes all sources both inside and outside the Region and global sources, but excludes natural sources. Nonetheless, the US should continue to provide leadership in international negotiations, and the US will have more credibility if we make progress in reducing domestic sources.

*Next steps:* Follow up actions include coordinating with the Quicksilver Caucus<sup>2</sup>. State participants also recommended that an analysis of legal authorities to address mercury sources be conducted. A single point of contact is needed within EPA to coordinate a true multi-media national strategy.

## **Communications**

*Communication from states to EPA:* The group recommended that EPA assist States in updating the emissions data used in the Northeast States' TMDL and 319(g) petition. States are also interested in having EPA compare current emissions data to current mercury levels in fish tissue to determine the extent of progress in reducing mercury sources. States would like EPA to keep them involved in rulemaking efforts, as well as for EPA to consider TMDLs in development of air regulations.

*State-to-state:* In the short-term, the group recommended coordinating with various national associations such as ECOS and the Quicksilver Caucus regarding the 319(g) conference, as well as expanding the dialogue beyond the 18 states at the conference. State participants will discuss the 319(g) conference outcomes at the ECOS September meeting, and each state participant will coordinate with their respective senior management and Commissioners.

In the long term, the states present at the conference plan to continue coordinating with one another and maintaining the dialogue. The states would like to develop a clearinghouse of information on mercury-related activities in the states. The Northeast states are willing to take the lead, but would like assistance from EPA and other states. Other potential follow up activities include having a small working group and semi-annual conference call to share success stories and challenges.

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<sup>2</sup> The Quicksilver Caucus was formed in May 2001 by a coalition of State environmental association leaders to collaboratively develop holistic approaches for reducing mercury in the environment. Caucus members include the Environmental Council of the States (ECOS), the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), the National Association of Clean Air Agencies (NACAA), the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA), the Association of State Drinking Water Administrators (ASDWA) and the National Pollution Prevention Roundtable (NPPR). (see [http://www.ecos.org/section/committees/cross\\_media/quick\\_silver](http://www.ecos.org/section/committees/cross_media/quick_silver)).

*States to public:* In the short-term, the states would like to consider issuing a press release to highlight the precedent-setting nature of the conference and the positive discussions. It is important to demonstrate that the states are working together and mercury is a national priority. State participants also noted that, in the long term, states should exchange information regarding their communication with the public on mercury issues so that there is a consistent message.

### **General Discussion and Next Steps**

Many state participants noted that they were pleased with the 319(g) management conference. The management conference brought the states together, identified areas of agreement, and developed specific issues for further collaboration among the states. Although the conference was convened on the basis of mercury impairments in the Northeast states, participants agreed that mercury deposition is a shared problem. Participants felt that this is a unique group of states that should continue to coordinate with one another as well as with other national groups. Some caveats were noted: for example, several states noted that they are likely to continue to depend on coal for much of their electricity. Some states have new Commissioners who need to be briefed on mercury issues.

NEIWPC will take the lead in drafting a conference principles document that will be sent to all state participants for review. Each state participant will consult with their Commissioner before concurring with any document. The goal is to develop a final document that all 18 participating states can agree to at the Commissioner-level and that would then be sent to EPA. NEIWPC is also considering drafting a press release regarding the conference. NEIWPC asked for volunteers to help with drafting the documents. EPA will distribute a participant contact list and develop a draft meeting summary for participant review, with the end product available to the public.



**Attachment: Individual State Presentations on Mercury Program Highlights<sup>3</sup>**

**Northeast States**

- *Vermont (VT)*
  - VT is a small contributor within the northeast region (3.3 kg of mercury per year) but continues to address mercury sources with limited resources
  - Heating oil and crematoria are the two biggest sources in the state.
  - Products: VT was the first state to require labeling of mercury containing products. The state has a program for collecting mercury-containing thermostats, as well as collection points for CFLs and fluorescent lamps in hardware stores. Since 2001, 40,000 CFLs have been collected.
  - The state has taken an aggressive approach to reducing mercury in products: 7 tons of mercury-containing products have been collected in 10 years; 98% of dental offices have mercury amalgam separators.
  - As discussed at the Coming Together for Clean Water meeting<sup>4</sup>, there is a need to do something big, bold, and different. The effort can be small but still bold, and EPA is a fundamental part of the solution. The importance of mercury reduction is easy to communicate to the general population, as there is a simple and powerful metric: can we eat the fish we catch.
  
- *Rhode Island (RI)*
  - RI enacted comprehensive legislation in 2001 on mercury-containing products. The process was overseen by a 14-member commission, and there was involvement of many stakeholder groups.
  - The law has been revised a few times: in 2005, to include auto switches, and in 2007, mercury dental amalgam. A large wastewater treatment facility had a best management practices (BMP) program in place and a statewide program was then modeled on that program. This started as a voluntary program and then became a requirement.
  - The state has conducted education in schools regarding mercury.
  - A bill was passed requiring thermostat collection and recycling, and the state had buy-in from manufacturers throughout the process.
  - RI is seeing significant results as a part of these efforts.
  - The state's website has more detail on the mercury-related laws and regulations.

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<sup>3</sup> Note: These points reflect highlights provided orally by each state at the 319(g) Management Conference and do not represent a complete description of mercury-related programs and activities in each state.

<sup>4</sup> On April 15, 2010, EPA Administrator Lisa Jackson hosted the Coming Together for Clean Water Conference in Washington, DC. The forum engaged senior EPA leaders and approximately 120 clean-water thought leaders from all sectors and the country, with the goal of injecting additional perspective and momentum in EPA's clean water agenda. (see <http://blog.epa.gov/waterforum/>).

- *Massachusetts (MA)*
  - MA implemented across the board program reductions, including large sources, coal fired power plants and dental products. MA has found that the state's mercury reduction efforts have not caused any business closures. Other efforts are similar to those in Rhode Island.
  - Fish monitoring illustrates and quantifies the reductions that MA has achieved. In 10 years, in deposition hot spots, a 30% reduction observed in mercury concentrations was observed in two fish species, while a 15% reduction was observed in in two other fish species.
  
- *Connecticut (CT)*
  - CT has made good progress in achieving mercury reductions.
  - The state has implemented strong controls on coal fire power plants and municipal incinerators.
  - CT also has done a lot to get mercury out of products through pollution prevention activities and a number of product bans.
  - Dental sector: The state promotes best management practices and following the American Dental Association guidelines. Waste disposal is regulated, and there is special training for dental school educators.
  - Sewage sludge incinerators (SSIs): Pursuant to an enforcement action, the state required evaluation of technologies to reduce mercury, e.g., carbon filters. Subsequently, orders were issued requiring all 6 SSIs in the state to study and implement appropriate, case-specific mercury reduction technologies.
  - Fish consumption: CT has a more stringent fish tissue advisory level for mercury than other states, and there is a state-wide mercury advisory for freshwater fish. The good news is that, in a recent survey of large mouth bass from 2004-2005 the concentration of mercury in tissue fell 25% (mean concentration).
  
- *New York (NY)*
  - NY is working with both the New England Governors-Eastern Canadian Premiers and the Great Lakes states.
  - Products: State has product requirements, bans, and hazardous package requirements.
  - Limits on municipal waste combustion units: NY established an 85% reduction target, and the state has seen a 96% reduction from this sector.
  - Requirements regarding mercury from electric generating units (EGUs): NY has specific regulations that each source needs to meet in phases, first by 2010 and then by 2015. Each source must put on controls.
  - One cement plant is a big contributor. The state has a consent decree with the facility requiring the plant to be rebuilt or retrofit. As an interim remedy until the mercury MACT standards are issued by EPA, the New York State Department of Environmental Conservation is using its permitting authority to limit mercury emissions to approximately 40 percent of maximum levels that have been reported in

the past. The state is also considering removing the solid waste beneficial use determination for scrubber ash to be used in cement kilns because it contains high levels of mercury.

- Water monitoring: NY started monitoring fish for mercury in 1969, and has collected over 30,000 samples in 300 lakes in the state. In forests, preserve parks have highest mercury levels of mercury. State also developed an acid TMDL for lakes. NY has seen a 16% reduction in fish tissues even in these severely effected areas (over last 20 years).
- NY has a mercury workgroup which coordinates all the mercury efforts across the state.
  
- *New Hampshire (NH)*
  - Warm water fish are an even greater concern than other fish because they take up more mercury. New England uses small mouth bass as indicator species.
  - NH has done many of the same things that the other New England states have done. The state developed a mercury reduction strategy with 40 action items. The process involved peer review and stakeholder input, and allowed NH to move forward over the past 12 years. The state's mercury task force provided guidance throughout the process. The focus has been on addressing largest point sources and mercury in products while pursuing long-term strategies.
  - The state has one mercury deposition hotspot. A scrubber is currently under construction for the state's largest coal-fired power plant.
  - NH has participated in the collaborative effort with the Northeast states and Eastern Canadian Provinces. This has helped achieved things that the state could not have done alone.
  - Technology should allow us to achieve mercury reductions of 90% or more. The state's hope is that this technology and policies will be widely adopted and lead to permanent reduction of mercury in fish.
  
- *Maine (ME)*
  - ME takes water quality protection very seriously. Fish and local wildlife populations are in jeopardy, including otter and mink. All exceed tissue levels of mercury that are acceptable. State is taking an ecosystem-wide approach.
  - Maine has adopted mercury reduction strategies for products, including product bans and working with waste disposal companies to keep mercury products out of landfills. Other programs include thermostat collection, CFL bulb recycling for residences, and mercury button cell battery regulations. ME believes that addressing mercury-containing products can be done relatively easily, even with limited staff and budgets.
  - Regarding toxics, there is a need at the national level to use significant new use rule to include fever thermometers and thermostats, as well as to replace mercury containing thermostats with electronic thermostats.

- As this is the first time that 319(g) has been used, it is precedential and an opportunity to set in motion an effort that will allow all states in the future to say that fish and water are safe.

### **Eleven States Named in Petition**

- *Pennsylvania (PA)*
  - PA has worked to achieve reductions in mercury emissions from various source categories, including municipal waste combustors, medical waste incinerators, Portland cement plants, and electric generating units, among others. There has been a 47% reduction in emissions since 2002.
  - In 2007, the state promulgated a state-specific rule that would have required strong reductions in mercury emissions from EGUs. The Commonwealth Court invalidated the rule in 2009.
  - Mercury products regulations and programs include: a mercury-free thermostat law banning installation of mercury thermostats and requiring recycling; voluntary CFL recycling; and a voluntary program regarding dental amalgam separators.
  - The state has received a grant to evaluate emissions control technologies for small electric generating units.
- *New Jersey (NJ)*
  - The state has achieved almost an 85% reduction in mercury emissions.
  - Waste incinerators: NJ found that traditional controls didn't reduce mercury. Within a year after putting on other controls, there was a dramatic reduction.
  - The state has a water pre-treatment program which has been successful in removing a lot of mercury from sludge.
  - Iron and steel: NJ is the only state in country to have emission limits on our scrap smelters. There are only two of these units in the state.
  - For mercury containing products, NJ doesn't have comprehensive legislation but rather focused on selected products – auto switches and dental amalgam separators (the latter were required to be installed by October 2009).
- *Ohio (OH)*
  - OH is a large industrial state. 86% of electricity in the state comes from coal-fired burners. 60% of those units have scrubbers on them. Another 2400mw of controls are expected to be in place over the next couple years.
  - The state has many mercury reduction activities: 2002 - steel plant with electric arc furnaces implemented mercury emissions controls; chloralkali plant reductions; required mercury controls for a coke plant. Reductions from 2000-2008 are around 40%.
  - Products: OH has a voluntary dental amalgam separator program. The state's mercury vehicle switch program has been incorporated into the national system.

- OH has mercury advisories in all of the major waterbodies. 70% of air-deposited mercury is from EGUs, and there are hot spots all along the river valley. Thus Ohio will be one of the main beneficiaries of the federal EGU rules.
  
- *West Virginia (WV)*
  - Over 2/3 of the generating capacity in the state has been scrubbed by Flue Gas Desulfurization (FGD) and Selective Catalytic Reduction/Selective Non-Catalytic Reduction (SCR/SCNR), yielding a co-benefit of about 90% mercury reduction.
  - WV has one of the remaining chloralkali plants in the US. Mercury emissions have been reduced by half, based on a 2002/2003 baseline. In addition, a cement plant is undergoing reconstruction, and mercury releases are expected to sizably decrease.
  - Mercury releases from industrial dischargers and wastewater treatment facilities are controlled via implementation of water quality standards and NPDES permits.
  - WV has implemented voluntary collection of elemental mercury and mercury-containing products. For fluorescent bulbs, the state implements the federal universal waste rule for lamps and state permitting requirements. Salvage yard operations are encouraged to voluntarily recycle automotive switches.
  
- *Maryland (MD)*
  - In 2006, MD's Healthy Air Act was passed. The Act includes provisions for a multi-pollutant approach for power plants, and addresses fine particles, the Chesapeake Bay, global warming, ozone, SO<sub>2</sub>, NO<sub>x</sub>, and mercury emissions. It includes SO<sub>2</sub> and NO<sub>x</sub> caps. For mercury, the goals are 80% reduction by 2010, and 90% by 2013.
  - Sources were given a 2.5 year timeframe to install Selective Catalytic Reduction (SCR) and Flue Gas Desulfurization (FGD). Sources originally felt that this timeframe wasn't sufficient, but all have now met that timeframe. Sources are achieving 90% - 95% reduction.
  - In 2009 Maryland was chair of the Ozone Transport Commission. This involved trying to coordinate a collaborative process with thirty states on achieving ozone and fine particle standards, and shows that states can work together. In 1 ½ years, the group developed recommendations to EPA that were signed by 17 states. Recommendations included SO<sub>x</sub> and NO<sub>x</sub> limits on power plants, including state-by-state caps for NO<sub>x</sub> and SO<sub>2</sub>, and that all large units be controlled by SCR and scrubbers. Huge mercury benefits would also be expected.
  - MD is also working on getting mercury out of waste streams and has implemented programs to address mercury-containing products, including thermostats and thermometers. MD has a mandatory mercury switch removal program and mandatory recycling programs for batteries. The CFL/FL law requires local jurisdictions to develop mercury collection and recycling for CFLs and fluorescent lamps by October 1, 2011.

- MD has used the state's permitting authority to require additional mercury controls on specific facilities. For example, for a large waste-to-energy plant, the state negotiated a suite of mercury conditions in that permit. The facility agreed to an emission limitation of 17 micrograms, and a stack test may show that their rates are actually lower than 17. The facility will conduct stack tests on quarterly basis, as well as conduct stream bank restoration.
  
- *Michigan (MI)*
  - MI has had many successes through both voluntary and regulatory efforts. Voluntary efforts including phasing out the use of mercury-containing products in the health care industry, bulk mercury elimination in dental offices, manometer use elimination on dairy farms and the identification of mercury switch use in the automobile sector. Regulatory efforts include implementation of federal standards for municipal waste incinerators and state rules for medical waste incinerators. Michigan has a rule requiring coal fired electric generating units to achieve 90% mercury emissions reduction by 2015. Michigan now has a law that requires all dental offices to install amalgam waste separators on each wastewater drain by December 2013. Michigan also reduces mercury emissions through the issuance of air permits to sources including: electric arc furnaces, metal shredders, sewage sludge incinerators, fluorescent light recyclers, medical waste autoclaves, etc.
  - Products: Michigan has legislation regarding eliminating the sale of mercury-containing thermometers, thermostats, sphygmomanometers, esophageal dilators and for the elimination of mercury use in schools. The state is working on increasing the number of collection sites for mercury thermostats through a state grant.
  - The state received a grant from EPA to implement portions of the DNRE statewide mercury strategy, and the state will be developing a statewide mercury TMDL.
  - Even with the significant mercury reductions that have occurred in the state, Michigan still has problems with meeting the mercury water quality standards and the fish tissue criteria in Michigan.
  
- *Virginia (VA)*
  - VA conducted a study of mercury deposition. The state found results similar to the northeast states regarding domestic vs. global contributions. In Virginia, 26% of the deposition is domestic.
  - Products: VA has an automotive switch removal program, as well as a voluntary program for the collection and recycling of mercury-containing thermostats.
  - New sources: VA issued its first ever case-by-case basis MACT permit to Dominion Power for construction of a new coal-fired power plant. The facility will have a number of controls include activated carbon, and this would rank as one of the best emission rates for this type of facility.

- VA has been making progress in reducing mercury sources. There has been a 35-40% reduction in mercury emissions in Virginia since 2002 as a result of various controls, including NO<sub>x</sub> and SO<sub>2</sub> controls.
- *Kentucky (KY)*
  - KY has more miles of natural streams than any other continental state, and mercury has been on the state's radar screen for long time. KY has 30 years of sampling, and all streams have fish consumption advisories.
  - Households/products: State has conducted household collection of mercury, with 3,750 pounds of mercury collected, and 27,000 auto switches collected.
  - Air quality: There is a robust monitoring network in Kentucky. States has found that as SO<sub>2</sub> increases, mercury also increases. 95% of energy in the state is from coal, and thus utilities have a strong influence. 3,000 lbs of mercury is emitted from utilities in Kentucky. It is expected that FGD and SCR will bring that down, and there are only a couple big units without FGD on them. Controls should be implemented by 2014. Kentucky has a requirement that state can be no more stringent than federal controls, and thus is awaiting the federal rule.
- *North Carolina (NC)*
  - NC has been both a "named" and "naming" state through the years. The "red map" of states with mercury impairments nationwide shows mercury is a significant problem for everyone.
  - NC has the Clean Smoke Stacks Act. NC's top 4 sources are electric generating units. NC has seen a 61% reduction in mercury from those top sources; as well as a 49% reduction for the top ten and a 45% reduction for all North Carolina sources between 1999 and 2008. Further, NC expects an overall 80% reduction by 2017. NC expects that 10-14 of smallest electric generating units will be shut down between 2014 and 2017. Stack parameters are changing as they put on scrubbers: shorter stacks means deposition will be closer to source. NC has had an air toxics program since late 80s. Portland Cement Plant wants to build in Wilmington, North Carolina, on northeastern Cape River (designated impaired water for mercury). NC encourages EPA to be aggressive and quickly pass some regulations that states need in order to see reductions.
  - NC's Water program is working on preventing mercury from going into the water column. The state limited mercury discharges from 130 facilities in North Carolina for mercury. Facilities must use Method 1631.
  - The state has some voluntary programs and some mandatory programs for dental amalgams, and there has been success with the voluntary effort.
  - NC is also working on linking air quality and water quality/fish tissue, and the state is developing a state-wide mercury TMDL. A TMDL sets "caps" for mercury from sources including both air and water sources. The challenge is that meeting water

quality standards may mean having stricter controls than just the best technology available.

- *Indiana (IN)*
  - IN is an active participant in the Great Lakes mercury reduction strategy.
  - The state is working with US Geological Survey (USGS) to integrate mercury science in Indiana's program
  - Education, outreach, and recycling programs cut across media. The state has been successful in recovering mercury.
  - Switch removal program is an example of a successful effort. Indiana initiated the program early. The state incorporated a recovery fee to provide an incentive. Electric arc furnaces (EAFs) are the second largest source category of mercury emissions in the state. Emissions from EAFs have decreased by 2/3 since 2002 as a direct benefit of the switch removal program. Now EAFs are the 3<sup>rd</sup> largest category of mercury emissions in the state, rather than the second highest. The state has a large number of EAFs, so this is significant.
  - IN has over 10 years of historical data on mercury deposition. Wet deposition concentrations have decreased by about 10%. Combined with total mercury over same time frame have decreased by 50%. However, there hasn't been a direct correlation between mercury emission reductions and fish tissue levels.
  - Major lesson learned: Indiana initiated its own mercury rule for electric generating units (CFPP) prior to the Clean Air Mercury Rule (CAMR). A workgroup spent 3 ½ years developing a rule, with a focus on feasibility (not cost or benefit). However, CAMR came out during the process. In IN, there are 80 units, and most rely on Indiana coal. Thus a rule would have had large impacts for IN in terms of job growth, electricity costs, etc., and the lack of uniformity between Indiana and other states would have impacted the state in terms of competition for business.
  
- *Illinois (IL)*
  - Mercury pollution control for coal-fired power plants: IL has 21 large power plants which are the largest sources of NOX, SO2, and mercury in the state.
  - Currently there are 55 coal-fired boilers in Illinois with 48 boilers currently controlling mercury emissions. Under IL's mercury rule for coal-fired power plants, 5 boilers were required to install early controls by 2008, and the remainder by July 1, 2009, except that certain smaller units were exempt. By 2012, under the multi-pollutant standard, previously exempt small boilers must also install controls sufficient to achieve 90% control. By 2015, all but smallest sources must meet 90% control.
  - Mercury control testing as of the last quarter of 2009 shows average mercury control efficiencies of about 70%. 13 units are currently meeting a 90% reduction.



- o IL has had 3 boilers shut down, and two more are scheduled for shut down in 2010. While this reduces mercury emissions, shut downs are bad for jobs and state economies.
- o Multi-pollutant standards: Facilities may choose to voluntarily comply. Large NO<sub>x</sub> and SO<sub>x</sub> reductions are required, as well as additional mercury reductions due to co-benefits of NO<sub>x</sub> and SO<sub>x</sub> controls. It is estimated that around \$5-8 billion dollars worth of control devices will be installed. Depending on the type of facility and other factors, there can be a variety of different controls and control programs.