Mercury Rules Briefing Book – August 2003

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Table of Contents

1. Statement by Secretary Hassett – August 2003
2. Mercury Rules Overview – August 2003
3. Overview of Major Provisions in the Mercury Rules
4. Utility Mercury Emission Reduction Schedule
5. May 21, 2003, Memo to the Natural Resources Board Requesting Adoption of the Mercury Rules
6. Department Response to Significant Comments on the Mercury Rules Proposed in June 2001
7. Members of the Mercury Citizen Advisory Committee and Mercury Technical Advisory Group
8. Technology and Cost Evaluation for the Mercury Rules Adopted by the Natural Resources Board in June 2003
9. Statements Provided by Organizations Concerning the Mercury Rules Proposed for Adoption at the June 2003 Natural Resources Board Meeting
10. Overview of Mercury Contamination in the Environment
11. September 18, 2000, Citizen Petition for Adoption of Administrative Rules to Govern Mercury Emissions
12. Summary of Mercury Emission Reduction Activities in Other States
13. Summary of Current Wisconsin Mercury Monitoring and Research Activities

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Statement by Secretary Hassett – August 2003

Testimony on Proposed Rules Reducing Mercury Emissions in Wisconsin
Joint Senate Environment and Assembly Natural Resources Committees
By Secretary Scott Hassett
August 13, 2003

- Thank you for the opportunity to be here today to strongly encourage the Senate and Assembly committees to approve these rules reducing mercury emissions in Wisconsin.

- The Department has appreciated the strong interest in this issue in the Legislature, as well as the excellent work that was done by our Technical Advisory Committee as we developed the proposal in front of you today.

- What you are doing here today is a big deal.

- **It's a big deal** for the health of Wisconsin's citizens – 8% of US women of childbearing age have elevated blood levels of mercury. Our state's health experts believe that number is higher for Wisconsin because our population eats more fish more often.

- **It's a big deal** to the Wisconsin residents/visitors/sportsmen and women who can't catch and eat fish from any of the state's 15,000 lakes or 32,000 stream miles without being under a fish health advisory. That's a shame for someone like me who loves fishing, but it really impacts the future of fishing in Wisconsin.

- **It's a big deal** to the sportfishing industry – an industry that generates $2.3 billion in economic activity in Wisconsin, supports more than 26,000 jobs, and generates more than $90 million in sales, fuel and income tax revenues to pay for important services such as education, roads and health care.

- **It's a big deal** because a little bit of mercury does a lot of harm. A Wisconsin Lake the size of Lake Mendota receives a pound of mercury from the air each year. This rule will ultimately remove 2000 pounds of mercury from our air. Compare this to the current discharge limit of 1 pound of mercury per year for the Milwaukee Metropolitan Sewage District or the one thousandth pound of mercury in a fever thermometer.

- Mercury emissions from Wisconsin power plants are the largest, unregulated man-made source of mercury contamination in our environment -- emitting 2500 pounds of mercury annually.

The History of the Rule

- The Mercury Rules have a history of support through the past two administrations. The proposal originated with a citizen petition in 2000 that was approved by the Natural Resources Board. Representative Dean Kaufert and former Representative Joe Handrick were both a part of the petition effort.

- The Natural Resources Board sent the rule out for public hearings in 2001, where 60 letters from businesses and utilities with detailed comments were received and more than 2000 letters from citizens supporting the rules were sent in.

- The Department has modified the rules in ways to address concerns about the impact of the rules on the four affected utility companies:

(*Note: the 4 regulated utilities under the rule are: Alliant Energy; WE Energies; Wisconsin Public Service Corporation; and Dairyland Power Cooperative)*

1. Instead of the 30, 50, 90% reductions included in the original proposal, the new rule allows for 40 and 80% reductions in 7 and 12 years.
2. The new rule allows mercury reduction measurements to be considered in the fuel source (unburned coal) and not on smokestack emissions.
3. The rule no longer requires an offset of mercury before a new source can be added.
4. A new provision was added to allow an electric reliability waiver under certain circumstances, such as a fuel supply disruption or high electrical demand, to provide short-term relief from reduction requirements.
5. The new rule contains a requirement to periodically examine requirements and make necessary changes.

- At their June 2003 meeting, board members adopted these rules, requiring the four largest electric utilities in Wisconsin to reduce mercury emissions to the environment.

- These rules will require these utilities to reduce mercury emissions at the 42 coal-fired boilers they operate by 40 percent by 2010, and by 80 percent by 2015.

Why is the rule important to Wisconsin?

HEALTH

- Today, all of our waters carry a fish consumption advisory because of mercury contamination
- Mercury contamination threatens the health of our most vulnerable citizens – our children
- Children whose mothers eat large amounts of mercury-contaminated fish during their pregnancy are especially at risk of suffering neurological and learning problems. These children are likely to struggle to keep up in school and require remedial classes or special education.

ENVIRONMENT

- Studies of Little Rock Lake in Northern Wisconsin demonstrate with reductions in mercury, the resource will recover.
- During the period from 1994 to 2000 mercury levels in yellow perch in Little Rock Lake have declined an average of 5% per year as the local atmospheric deposition of mercury has decreased an average of 10% per year during the same period. The removal of mercury from household paints and batteries in the early 1990's and placing limits on other sources of mercury air emissions is the likely reason for this improvement.
- We believe the removal of the 2000 pounds of mercury from Wisconsin's air will have real, measurable impacts on Wisconsin's water resources

TOURISM

- The state's 11 billion dollar tourism industry depends on a healthy fishery.
- Mercury poisoning has a significant impact on the state's 3rd largest industry – it matters to a resort owner when families cannot eat the fish they catch on vacation.

The federal effort on mercury

- EPA has determined that mercury emissions from power plants need to be regulated, but federal action to achieve reductions has become very political.
- It is unlikely that the Clear Skies Legislation will pass the Congress
- There is no effective national effort to reduce mercury emissions.
- The states are in the lead on mercury reduction.
- Connecticut and Massachusetts also are moving forward now with laws or regulations to reduce mercury emissions.
- Looking back – our state law on acid rain led the nation by four years and provided the template for the acid rain provisions of the Clean Air Act Amendments.
- Acid rain in Wisconsin is no longer an environmental issue for us. It is now time for us to address mercury contamination and establish a leadership role.
- It would not surprise me if it takes several years for mercury regulation of whatever kind to get sorted out at the federal level. So we have the perfect opportunity to provide them with a good template to follow.
- Michigan is very interested in mercury reduction and is looking to our work here as a guide.
- These rules position Wisconsin well for the national debate and provides leadership on a Great Lakes States regional mercury control strategy.

These reductions are a crucial step down what will be a long road, but one that its citizens have called for. DNR began its effort to write rules to reduce mercury emissions because the agency was petitioned to do so by a coalition of 26 groups representing fishing groups, tourism interests, environmental groups, lake associations, representatives of the medical community and state legislators from both houses and both political parties. There is the public will, and the technology, to reduce mercury emissions now. We urge you to move these rules forward.

Thank you.

Mercury Rules Overview – August 2003

Mercury Rules Overview
August 2003

The Problem with Mercury

Mercury is an environmental pollutant and a potential hazard to human health and wildlife. The Department is concerned about mercury because the pollutant has unique properties that allow it to persist in the environment and bioaccumulate in terrestrial and aquatic system food chains. Because mercury is a potent neurotoxin, bioaccumulation of mercury poses a human health risk for people who consume mercury-contaminated fish. Children and developing fetuses are most at risk from the effects of mercury exposure. USEPA has determined that children born to women with blood concentrations above 5.8 parts per billion are at some increased risk of adverse health effects. About 8 percent of women of childbearing age had at least 5.8 parts per billion of mercury in their blood in 1999 – 2000. Mercury also affects fish-eating birds and mammals.

Mercury in the environment is the result of both natural and anthropogenic (man-made) activities. Since the 1970's, the Department has been monitoring mercury in the environment including the sampling of fish tissue for mercury. The Department has found mercury levels in fish in excess of the 0.05 part per million in fish tissue standard in all 1200 water bodies that have been sampled. These high levels of mercury pose potential health risks to people and wildlife that consume fish. As a result, health advisories have been established restricting the human consumption of fish from nearly all water bodies in the state.

In addition to the health risks caused by elevated levels of mercury in the environment, the Department is also concerned with the important economic consequences associated with a potential reduction of recreation and tourism activities. Each year the Department sells approximately 1.5 million fishing licenses (1 million are residents) generating approximately $1.1 billion in expenditures to the state. Adding to license sales is the significant revenue provided by sales of food, lodging, gasoline, and sporting equipment related to fishing as an activity with a total yearly economic impact of approximately $2.1 billion statewide. The sport fishing industry accounts for approximately 30,500 jobs in the state each year. Based on data from the American Sportfishing Association, Wisconsin ranked 6th among states in 2001 in overall economic output (more than $2.3 billion) from fishing.

Significant progress has been made in reducing the direct discharge of mercury to the waters by industrial and municipal sources. Most of the mercury now entering the waters of Wisconsin is the result of atmospheric deposition. One of the largest sources of mercury emissions in the state is fossil fuel-fired boilers used to generate electricity since coal and oil contain significant amounts of naturally occurring mercury that is released to the air when these materials are combusted. Currently, there are no federal rules regulating mercury air emissions from electric utility power plants.

History of Rules Development

Citizen Petition to the WDNR

On May 18, 2000, a petition was submitted by Wisconsin's Environmental Decade and others to the Department of Natural Resources and Natural Resources Board to adopt administrative rules under s. 285.11(9), Wis. Stats., requiring reductions in mercury emissions from the largest known sources of emissions. The petition was signed by several members of the legislature in addition to representatives of environmental organizations, conservation groups, and sporting clubs. It requested the adoption of rules to control mercury deposition to Wisconsin's lakes and rivers because of the current large number of fish consumption advisories. The main provision of the petition included a 90% reduction of mercury air

emissions by the year 2015. Subsequently, on September 15, 2000, the Department received an amended petition that changed the main provision from 90% reduction in mercury air emissions by the year 2015 to the same 90% reduction level by the year 2010. It also added to the number of petitioners.

December 2000 NRB Resolution to Propose Rules

At the Natural Resources Board meeting conducted on December 6, 2000, staff presented a resolution to the Board requesting and receiving authority to draft rules to regulate atmospheric emissions of mercury. The Board instructed the Department to return in March 2001 (subsequently postponed until June 2001) with proposed rules that protect public health and the environment, but are cost-effective, reasonable, and do not interfere with the ability of electric utilities to supply the state's energy needs.

June 2001 - Rules Authorized for Hearing

Proposed rules to reduce mercury emissions were presented to the Natural Resources Board at their June 2001 meeting in Kenosha at which time the Board authorized public hearings for the rules. An Environmental Assessment of the proposed rule was released for public review and comment during June 2001. During the last week of September and first week of October 2001, the Department conducted five public hearings throughout the state.

September 2002 - Citizen Advisory Committee Report

In conjunction with the Natural Resources Board's action, the Secretary of the Department requested the Bureau of Air Management to form a Citizen Advisory Committee and a Technical Advisory Group to advise the Secretary on revisions to the proposed rules. The Citizen Advisory Committee's report was completed on September 23, 2002. The proposed rules have been revised based on public comments and the recommendations of the Citizens Advisory Committee and Technical Advisory Group.

June 2003 - NRB Approves Adoption of Revised Rules

On June 25, 2003, the Natural Resources Board unanimously adopted revised mercury rules.

Summary of Provisions in the Adopted Rules

Department staff revised the rules based on public comments received as part of the public comment and public hearing process. Although changes have been made, the focus of the rules adopted by the Natural Resources Board has not changed. The rules are designed to achieve mercury emission reductions from the 42 coal-fired boilers operated by the states' four major utilities Alliant Energy (Wisconsin Power & Light), WE Energies (Wisconsin Electric Power Company), Wisconsin Public Service Corporation and Dairyland Power Cooperative.

The Department has carefully constructed a mercury emission reduction approach that addresses many of the views provided in public comment. Below is a summary of the key provisions in the adopted rules.

Utility Mercury Reduction Requirements – Major electric utilities would be required to achieve the following reductions in mercury emissions from baseline emissions by the following dates:

1. By January 1, 2010 – 40% reduction.
2. By January 1, 2015 – 80 % reduction.

Mercury Baseline – By October 1, 2005, major electric utilities would be required to submit a report to the Department with the following information:

1. Average coal usage for the years 2002, 2003, and 2004.
2. Sample test results of the fuel mercury content from coal in 2004.
3. Results of emissions testing with the mercury capture efficiency of currently installed air pollution control equipment.

The results of coal usage and coal mercury content would be used to determine a mercury baseline for each major electric utility and will be the point from which mercury reductions will be required.

Mercury Emissions Cap – The emissions testing with current mercury control efficiency will be used along with the established mercury baseline to establish a mercury emissions cap for each major electric utility. Beginning January 1, 2008, major electric utilities would not be allowed to exceed their mercury emissions cap.

Compliance Plan - By October 1, 2007 and October 1, 2011, utilities would be required to submit a compliance plan to the Department with a proposal detailing how the utility intends to comply with the baseline emission reduction requirements in the rule.

Compliance Options – Major electric utilities would be allowed to achieve compliance using a combination of control technology, fuel switching, efficiency in boiler operation, boiler shutdown, or emissions trading between major electric utilities to meet an annual requirement.

Multi-pollutant Option – Major electric utilities would be allowed to pursue a multi-pollutant reduction approach for mercury and other air pollutants.

Variances – In consultation with the Public Service Commission, the Department would be allowed to grant variances to major electric utilities based on a demonstration that the technology or economic costs are not feasible.

Electric Reliability Waiver – A waiver from an annual mercury emission limitation may be approved if the cause of excess emissions is related to an issue of electric reliability. The Public Service Commission would be consulted and a 30-day public comment period with a hearing opportunity would be offered.

Periodic Evaluation Reports – The Department would be required to prepare a rule assessment report to the Natural Resources Board by January 1, 2006, taking into consideration electric reliability, scientific and technology developments, multi-pollutant reduction approaches, and federal regulatory activity. The report would include an evaluation of the feasibility of achieving the seven and twelve year reduction requirements and recommendations for corrective actions and rule revisions. This report would be updated for the Natural Resources Board twice, by January 1, 2009, and January 1, 2013. In addition to these evaluation reports, a reconciliation report to the Natural Resources Board is required within six months of promulgation of federal regulations or enactment of a federal law that requires mercury reductions from sources affected by this rule.

New Mercury Emitting Sources – New sources with allowable mercury emissions of 10 pounds or more per year will be required to apply BACT (Best Available Control Technology).

Reporting of Mercury Emissions – All sources (commercial, industrial and smaller electric utilities) with emissions of 10 pounds or more of mercury per year would be required to meet emission measurement and reporting requirements.

How Critical Stakeholder Concerns Were Addressed

Setting the Mercury Baseline

The procedure has been simplified and has been changed to the methodology favored by the major electric utilities. That methodology considers the mercury content of fuel and recent coal use as the basis for setting a starting point for achieving mercury emission reductions. This method puts all major utilities on a uniform footing with good quality control on mercury testing. Utilities are not penalized for already having made improvements since the baseline is from uncontrolled mercury emissions. This is a significant change from the initial proposal.

Electric Reliability

The following concepts were incorporated into the adopted rules specifically to address concerns expressed about the effect of the rules on electric reliability.

Planning and Design Period – The rules do not require mercury emission reductions until seven years after promulgation (2010). This provides time for refinement of mercury control technologies, planning and design for controls, and the installation of equipment.

Staged Installation Schedule – The schedule we are proposing does not require all units to be controlled at the same time. We recognize that equipment installation must be staged to avoid disruption in service. Thus the proposal has an initial reduction at year seven (2010) and a final reduction at year twelve (2015).

Compliance Flexibility – Each of the four major utilities is allowed to average their mercury emission reduction requirement across their entire system allowing flexibility in the deciding how the mercury reductions will be achieved. In addition, the four major utilities can enter into agreements with each other to exchange excess mercury reductions to meet annual requirements.

Multi-pollutant Approach – The rules allow relief from the initial reduction requirement of 40% in 2010 if a major utility is interested in pursuing a multi-pollutant approach.

Fuel Mix – Utilities are not forced to switch to natural gas to meet mercury reduction requirements. The reductions can be met by installation of controls on existing coal-fired units. Fuel switching is an option not a mandated action.

Electric Reliability Waiver – It is recognized that unanticipated events beyond the control of a utility may result in mercury emissions above required limitations. The rules include a provision that would allow a waiver under these circumstances. The Public Service Commission would be consulted as part of any waiver request.

Variance – In addition to the waiver there is provision for a variance that could specify a different schedule or reduction level or both based on a showing of technological or economic infeasibility. The Public Service commission would also be consulted as part of the variance review.

Periodic Evaluation of Requirements – At three specific times a report to the Natural Resources Board is required that would allow for revision to mercury reduction requirements based on control technology development and other factors.

Trading

The trading provisions in the proposed rules have been substantially changed. The opportunity to create certified emission reduction credits through a *pollution reduction project* or *mercury-containing products reduction projects* has been removed. In the initial proposal certified emission reductions could have been used by a major utility to meet a portion of their mercury reduction requirements or these credits could have been used to provide emission offsets when issuing permits to a new source. Under the changes that have been made major utilities will still be allowed to average their mercury emissions across their entire system to demonstrate compliance. Also, major utilities could enter into agreements with each other to use excess reductions to meet the proposed mercury reduction requirements. Therefore, the proposed rules will still have trading provisions to provide compliance flexibility and help lower compliance costs.

In consideration of public comments received additional analysis was performed to determine the viability of the trading provisions proposed. The rules proposed for public hearing incorporated two different trading program approaches:

- *Cap and Trade* – Defined set of participating sources that can freely trade among themselves as a compliance alternative to meet a cap covering all participants.

- *Open Market Trading* – Voluntary opportunity for all types of sources to provide emission credits.

The rules proposed for adoption retain the cap and trade program approach for the major utilities however, the open market trading provisions have been removed. In our additional analysis we considered criteria that the USEPA employs to evaluate trading programs. That criteria includes measures for trading program equity and integrity:

- Integrity – Are the reduction credits surplus, quantifiable, enforceable and permanent?

- Equity – A measure of whether the emission reductions offered for trade have the same environmental benefit as reductions required from the source.

Considering these criteria we found that emission reductions obtained from a *mercury-containing products reduction project* cannot be determined with any degree of certainty and therefore are not quantifiable and do not meet the integrity test. In addition, stack emission reductions and potential reductions from a mercury product collection program do not have the same environmental benefit, therefore there may not be equity between these reductions. Therefore the products reduction projects provisions have been removed from the proposal.

An additional equity issue relates to the difference in the precision and accuracy of measurements for a combustion source, like a coal-fired boiler, compared to measuring mercury emissions from a process source, like a chlor-alkali production plant. In the case of the coal-fired boiler mercury emissions can be determined through direct measurement in the stack. Mercury emissions from a chlor-alkali are indirectly determined by a material balance method that is less precise and accurate than a stack emission determination. Therefore in most cases we could not determine if mercury emission reductions from process sources are equivalent to reductions in mercury emissions from a combustion source. This lack of integrity and equity in the open market trading program initially proposed in the rules has caused us to strike these provisions.

We have also discovered that the amount of emission credits we expected to be created from industrial combustion sources is much less than anticipated. The removal of the requirement to have new or expanding sources obtain sufficient reduction credits to offset new mercury emissions is supported by this analysis.

Industry Role

In the rules taken to public hearing, major industrial sources (those with annual mercury emissions greater than 10 pounds) were required to establish an emission baseline, have an annual emissions cap, and could opt to voluntarily reduce mercury emissions to create reduction credits. These provisions have been eliminated in the rules. However, the rules still set uniform procedures for determining annual emissions from major stationary sources. A positive development from the dialogue on the industry role in mercury emission reduction was an interest in an energy efficiency improvement program for industrial sources instead of an emission cap. Preliminary discussions have occurred with industry representatives on the elements of a voluntary program to reduce mercury emissions that would include an energy efficiency component.

Other Issues

Interaction with Federal Regulation or Law

At this time there are no federal requirements to reduce mercury emissions on existing coal-fired boilers operated by major electric utilities. There is, however, a pending federal MACT (Maximum Achievable Control Technology) regulation under Section 112, Hazardous Air Pollutants, of the Clean Air Act, with a court-ordered deadline of December 15, 2004, to promulgate that MACT standard. Also, in the U.S. Congress, several bills have been introduced in the current session, including the President's "Clear Skies" proposal, that require electric utilities to pursue a multi-pollutant reduction approach for the principal air pollutants that are emitted by fossil fuel combustion.

These legislative proposals include mercury as one of the principal pollutants. If a MACT standard is eventually adopted that regulates mercury or if the "Clear Skies" bill is enacted with mercury requirements, the proposed rules contain provisions that will allow the federal and state requirements to be reconciled. The Department is concerned that these pending federal actions will fail to provide for adequate and timely mercury emission reductions.

- *MACT* – This is a federal regulation that would establish mercury control technology requirements for electric utilities under a court-ordered schedule that USEPA will have difficulty meeting. Court challenges are highly probable which will significantly delay implementation. This is a very contentious rule making. At a minimum this standard will be delayed beyond its court ordered dates for regulation adoption (2004) and compliance (2007) if not eliminated altogether by multi-pollutant legislation such as Clear Skies. This rule making is also not likely to have significant reductions for the sub-bituminous coal that are predominately used by Wisconsin utilities this is because there simply isn't adequate time to install control equipment at the many power plants we have in the state.

- *Clear Skies* – Administrative proposal aimed at consolidating electric utility pollution control responsibilities. Schedule for mercury reductions goes out to 2018 with minimal reductions until that time. Clear Skies is one of several multi-pollutant proposals being introduced as federal legislation. These proposals reflect the desire of electric utilities to change existing law so that a revised regulatory approach to meet air quality responsibilities can be put in place. The goal of this approach is to establishes clear reduction requirements for significant air pollutants (although there is debate over what is significant) from fossil fuel combustion at power plants that would replace the existing

pollutant specific approach in federal law and regulation. Electric utilities believe they can plan more effectively to meet requirements at lower costs because reduction requirements can be considered as a whole, not piecemeal. In exchange for a long-term reduction commitment, many current requirements in the Clean Air Act that apply to utilities would be eliminated.

Costs to Meet Requirements

The first phase of control, a 40% mercury emission reduction, has an annual combined cost for the four major utilities estimated to be in the range of $28 - 33 million. The added consumer cost is estimated to be between 0.06 - 0.07 cents per kilowatt-hour. For an average household consuming 770 kilowatt-hour per month, this results in an additional cost of $6 - 7 per year. The second phase of control, a mercury emission reduction of 80%, results in an annual cost to the major electric utilities in the range of $87 - 104 million. The added consumer cost of 0.19 - 0.23 cents per kilowatt-hour or for the average household, $18 - 21 per year. The tables below summarize the control technology costs and associated household costs.

Estimated Annualized Control Cost for Mercury Control Technology ($M/year)

Cost Range	Installation Years of Program											Outgoing Years	
	3	4	5	6	7	8	9	10	11	12		20	25
Estimated	-	-	-	-	28	30	56	71	81	87		87	< 87
High	-	-	-	-	33	35	66	84	96	104		104	< 104

Estimated Residential Cost ($/year-household)

Cost Range	Installation Years of Program											Outgoing Years	
	3	4	5	6	7	8	9	10	11	12		20	25
Estimated	-	-	-	-	6	6	11	14	16	18		18	< 18
High	-	-	-	-	7	7	13	17	19	21		21	< 21

- Costs reflect the most promising technology for mercury control that will be available for the proposed schedule. It is likely that other technologies will emerge and we fully expect the program costs will be less than these predicted costs.
- This technology involves the use of activated carbon injection and installation of a dedicated fabric filter for mercury control with a few exceptions for certain small units.
- Costs are based on a method developed by the Electric Power Research Institute.
- Costs presented include equipment purchase, installation, operation and maintenance. They factor in lost revenue and disposal cost associated with the minimal amount of fly ash that becomes unusable. The surrogate technology minimizes fly ash impact.
- A range in costs is provided. The high cost assumes every installation is difficult – worst case.
- Installation of control technology will occur from 2010 (year 7) to 2015 (year 12) and costs ramp-up during that time. The annual costs continue from 2015 (year 12) to 2023 (year 20). Costs will likely begin to decline after year 20 as expected of life of the equipment is reached. No prediction of costs is made after year 25.

Overview of Major Provisions in the Mercury Rules

Major Provisions of the Revised Mercury Rules
August 2003

KEY CHANGES

- Reduction requirements
- Schedule
- Baseline emission determination
- Trading provisions
- Compliance determination
- Short-term reliability concerns
- Control of new mercury emissions

OVERVIEW OF PROVISIONS

NR 446.027 Procedures for Determining Annual Mercury Emissions

- Effective January 1, 2005
- Establishes procedures for significant non-major utility sources to determine their annual mercury emissions

NR 446.03 Baseline Mercury Emissions for Major Utilities

- By October 1, 2005 - major utilities submit report for combustion units in operation in 2002, 2003 and 2004
- Default baseline is arithmetic average of these three years
- Alternative years can be requested
- By January 1, 2007 - written notifications from WDNR establishing baseline emissions

NR 446.04 Procedures for Determining Baseline Mercury Emissions for Major Utilities

- In calendar year 2004 collect representative solid fossil samples and analyze them for mercury content
- Separate procedure established for non-solid fossil fuel
- Apply mercury fuel content determination to consumption records for 2002-2004

NR 446.05 Mercury Emission Limits for New or Modified Sources

- Effective one month after promulgation
- BACT for new or modified sources with allowable mercury emissions of 10 pounds or more
- Does not apply to new or modified sources affected by Section 112 of the CAA

NR 446.06 Mercury Emission Limits for Maior Utilities

- January 1, 2008 - emission cap becomes effective; cap is based on emission testing of combustion units performed before October 1, 2005
- January 1, 2010 - 40% from baseline emissions
- January 1, 2015 - 80% from baseline emissions

NR 446.07 Multi-pollutant Reduction Alternative

- Request by October 1, 2007
- Provides relief from 2010 reduction requirement if utility is pursuing a multi-pollutant reduction approach
- Proposal must specify pollutants and reduction levels for the period 2010 - 2015
- Public notice with public hearing opportunity

NR 446.08 Compliance and Reporting Requirements for Major Utilities

- Compliance plans required for each reduction requirement October 1, 2007, and October 1, 2011, respectively
- System-wide compliance and trades between major utilities are allowed to achieve annual compliance
- Compliance certification required every March 1st beginning in 2009 using the procedures in NR 446.09
- In case of exceedance of an annual requirement true-up in the following year is allowed

NR 446.09 Annual Mercury Emissions Determination and Reporting

- Specifies method for determining annual mercury emissions that includes fuel use, fuel mercury content and performance test results
- Identifies acceptable testing and sampling methods
- Establishes periodic emission testing schedule

NR 446.10 Variance for Major Utilities

- Must be requested by the date compliance plans are due for each reduction requirement: October 1, 2007, or October 1, 2011, respectively
- Alternative schedule and alternative reduction level may be requested
- Granted based on showing of economic or technological infeasibility
- Consultation with PSC
- Public notice and public hearing opportunity

NR 446.11 Electrical Supply Reliability Waiver

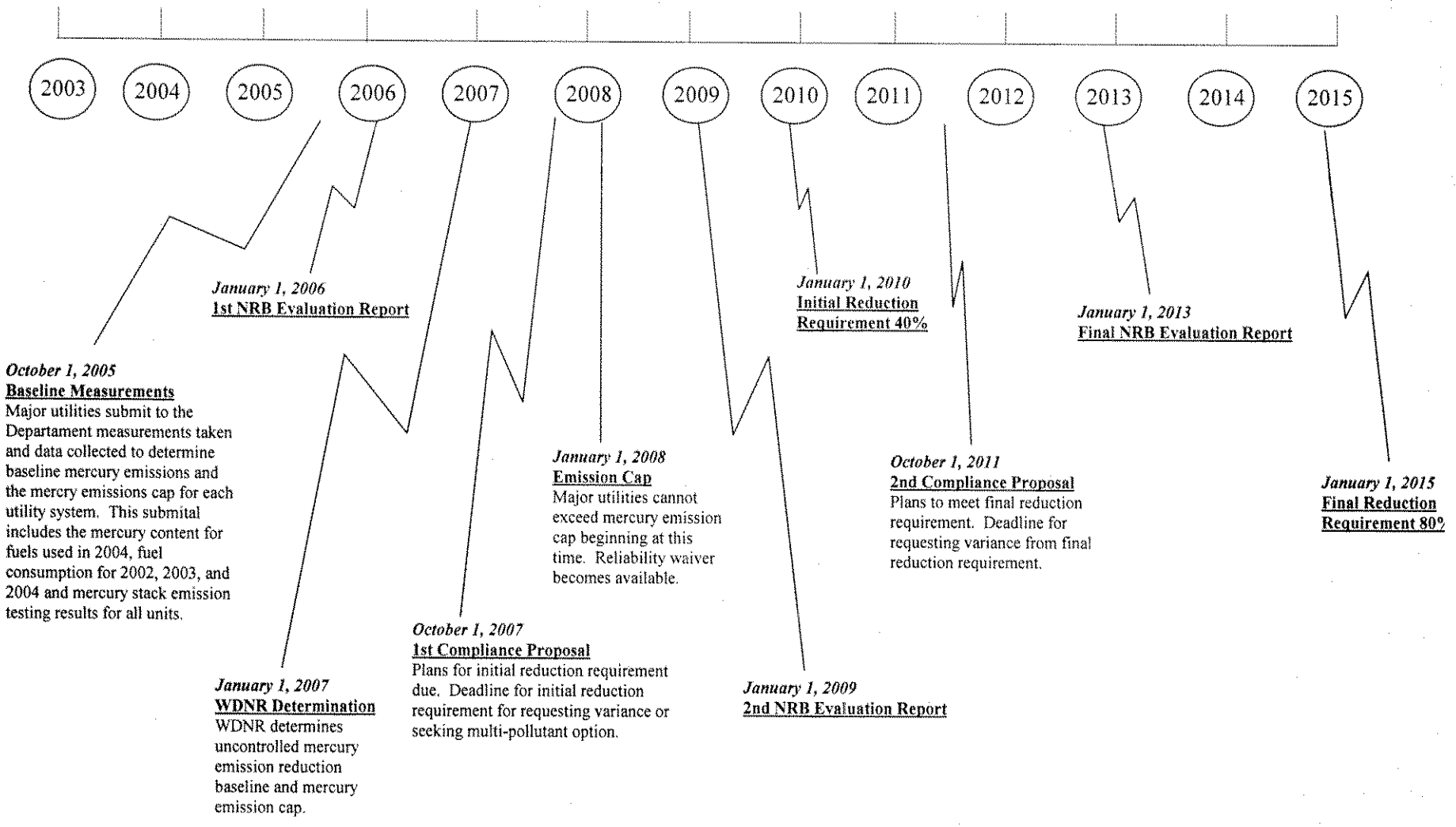
- Provides ability to obtain waiver from meeting an annual requirement based on electrical supply emergency, fuel supply disruption or other unavoidable event
- Written request within 60 days of annual reporting deadline, March 1st
- Consultation with PSC
- Public notice and public hearing opportunity

NR 446.12 Periodic Evaluation and Reconciliation Reports

- Reports to the NRB required by January 1, 2006, January 1, 2009, and January 1, 2013, that examine scientific and technological developments associated with mercury control
- In addition, a report to the NRB is required within 6 months of federal law or regulation that contains mercury reduction requirements
- Recommendations for rule revisions or other actions

Utility Mercury Emission Reduction Schedule

Utility Mercury Emission Reduction Schedule



May 21, 2003, Memo to the Natural Resources Board Requesting Adoption of Mercury Rules

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: May 21, 2003 FILE REF: 4561

TO: Natural Resources Board

FROM: Scott Hassett – AD/5

SUBJECT: Recommendation for Adoption of Mercury Emission Reduction Rules

Introduction

These rules are designed to reduce the atmospheric deposition of mercury by restricting emissions from major electric utilities. Mercury moves through the environment and can contaminate the food chain, posing a serious threat to ecosystem health. Mercury from natural and human sources is released to the atmosphere, where it is transported and may be deposited in terrestrial and aquatic ecosystems. Bacterial action in lakes and waterways converts mercury to a more toxic form, methylmercury, which bioaccumulates in fish. Bioaccumulation is the build-up of a substance in an organism from the surrounding air or water, or through the consumption of contaminated food.

Elevated methylmercury levels may lead to a decline in wildlife populations and may affect human health from the consumption of sufficient quantities of contaminated fish. Coal-fired boilers in the state do not have limitations on their mercury emissions at this time even though they are our largest source of mercury emissions. This initiative is being taken to reduce mercury emissions from the existing coal-fired boilers operated by the four major electric utilities in Wisconsin.

The proposed rules that went to public hearing in September and October 2001 elicited strong and differing views on several important provisions. The most significant concerned the appropriate schedule and amount of mercury emission reductions that should be required from facilities operated by the four major electric utilities in the state. It is important to acknowledge that Wisconsin's major electric utilities have consented to regulations that would require a 40% reduction in their mercury emissions.

Electric utility representatives stated that the mercury emission reduction requirements proposed would not maintain and protect the reliability of electricity. In their assessment, they felt the only way to achieve 90% reduction in mercury emissions was to rely on natural gas to generate electricity and phase-out all coal-fired units. They expressed concern that limiting fuel diversity through a heavy reliance on natural gas would lead to an increase in electric reliability uncertainty and electrical costs for consumers that would be too high. Other stakeholders felt that significant mercury emission reductions needed to occur much sooner than the schedule provided in the proposed rules and that the emission trading provisions greatly diminished the responsibility of major utilities to achieve reductions in mercury emissions.

The Department has carefully constructed a mercury emission reduction approach in the attached rules that addresses many of the views provided in public comment. The revised rules are based on these comments and a reevaluation of control technology and costs. The rules also include an option for a multi-pollutant reduction alternative, an approach preferred by some of the major utilities as it allows long range planning to meet air pollution control requirements for other air contaminants, including mercury.

In addition, trading provisions have been revised significantly based on findings that a viable open market system cannot be sustained.

The Department believes it is in the state's interest to establish regulations that define the amount of mercury emission reductions that are technically achievable on a schedule appropriate for the state's major utilities. At this time there are no federal requirements to reduce mercury emissions on existing coal-fired boilers operated by major electric utilities. There is, however, a pending federal MACT (Maximum Achievable Control Technology) regulation under Section 112, Hazardous Air Pollutants, of the Clean Air Act, with a court-ordered deadline of December 15, 2004, to promulgate that MACT standard. Also, in the U.S. Congress, several bills have been introduced in the current session, including the President's "Clear Skies" proposal, that require electric utilities to pursue a multi-pollutant reduction approach for the principal air pollutants that are emitted by fossil fuel combustion.

These legislative proposals include mercury as one of the principal pollutants. In any event, if a MACT standard is eventually adopted that regulates mercury or if the "Clear Skies" bill is enacted with mercury requirements, the proposed rules contain provisions that will allow the federal and state requirements to be reconciled. The Department is concerned that these pending federal actions will fail to provide for adequate and timely mercury emission reductions.

Acting alone, Wisconsin cannot eliminate mercury-related fish consumption advisories in our waterways. Wisconsin's environment seems to be responding favorably to mercury emission reductions that have been achieved through actions already taken in other sectors.

The revised rules establish an appropriate response to the serious mercury contamination in our environment and the related public health consequences that will continue if further mercury emission reductions do not occur. The revised rules provide credibility to Wisconsin's position that the federal government through legislation, or regulation or both avenues must require significant reduction in mercury emissions.

Why is the rule being proposed?

What event or action triggered the proposal?

In December 2000, the Board adopted a resolution that granted a citizen petition seeking rules to reduce mercury emissions to the air. The Board directed staff to develop proposed rules that protect public health and the environment, and are also cost-effective, reasonable, and do not interfere with the ability of electric utilities to supply the state's energy needs. Under the authority of s. 285.11(9), Wis. Stats., proposed administrative rules have been developed to reduce mercury emissions.

What are the issues addressed by the rule?

The Department asserts that emissions of mercury from coal-fired boilers used to generate electricity and from other major mercury sources significantly contribute to mercury entering water bodies and ultimately fish and wildlife. Furthermore, atmospheric mercury deposition has contaminated nearly all of the state's water bodies to some level resulting in a statewide fish consumption advisory that was adopted at the February 2001 Natural Resources Board meeting. The resolution adopted by the Board in December 2000 requires the proposed administrative rules to include the following:

1. The percentage reductions in mercury emissions and a phased schedule for achieving the reductions.
2. A methodology for determining baseline emissions levels.
3. An emissions trading and banking system.
4. A provision to allow for alternative compliance options, such as relying on projects that achieve voluntary mercury emission reductions from sources not covered by the rules.
5. A provision that would allow the Department to grant variances, such as deadline extensions and alternative emission limits, if it determines that compliance with reduction requirements is not technologically feasible, would jeopardize electric reliability or would cause unreasonable hardship as long as the variance would not result in undue harm to human health or the environment.
6. A provision that the Department submit a report to the Board by the end of 2007 that:
   a. Evaluates the mercury reduction requirement in light of electric reliability, scientific and technological developments, and federal regulatory activity, and recommends adjustments to the reduction requirements, if appropriate.
   b. Assesses the impacts of emissions trading on localized water quality and recommends corrective actions if needed.

Summary of Changes to the Rules

Department staff revised the rules based on public comments received as part of the public comment and public hearing process. Although changes have been made, the focus of the revised rules has not changed. The revised rules are designed to achieve mercury emission reductions from facilities operated by the states' four major utilities in a manner that meets the principles established in the Board's December 2000 resolution.

Below is an overview of the changes that have been made. For a more detailed discussion on these changes see *Attachment A – Summary of Comments on the Proposed Rules*.

Major Utility Mercury Reductions

The proposed rules have been changed to require major electric utilities in the state to reduce their baseline mercury emissions in two-steps. An initial reduction of 40% is required beginning January 1, 2010. A final reduction of 80% from baseline emissions begins January 1, 2015. An analysis that supports the mercury emission reduction schedule and reduction levels in the revised rules can be found in *Attachment B – An Assessment of Major Utility Mercury Air Emission Control and Costs*.

Multi-pollutant Alternative

A multi-pollutant reduction option is also included in the proposal. Under this option, owners and operators of major utilities may obtain relief from the initial reduction requirement of 40% upon Department approval of a multi-pollutant reduction proposal.

Baseline Emission Determination

The baseline determination approach has changed substantially. In the rules proposed for hearing, the foundation for setting the baseline was a measurement of emissions leaving the stack after existing air pollution control equipment had achieved some reductions in mercury emissions. In place of this approach, the rules have been revised to establish a baseline that reflects the mercury emissions released

when coal is burned without considering mercury reductions achieved by any existing air pollution control equipment.

This change addresses a significant objection made by the major utilities that the proposed rules did not recognize or account for the actions they have already taken to reduce their mercury emissions. Based on the air pollution control equipment the major utilities are operating today, 15% to 20% of the mercury from coal combustion is being captured. Thus to meet the initial mercury reduction of 40%, the four major utilities, on average, need to achieve an additional 20 to 25% mercury reduction by January 1, 2010. To meet the final reduction requirement of 80% by January 1, 2015, baseline emissions need to be reduced an additional 60 to 65%.

Compliance Alternatives for Major Utilities

Compliance with requirements in the proposed rule can be achieved through the application of the surrogate control technology outlined in *Attachment B – An Assessment of Major Utility Mercury Air Emission Control and Costs*. Under the changes that have been made, major utilities will still be allowed to average their mercury emissions across their entire system to demonstrate compliance. Also, major utilities could enter into agreements with each other to use excess reductions to meet the proposed mercury reduction requirements. Therefore, the proposed rules will still have trading provisions to provide compliance flexibility and to help lower compliance costs.

Certified Emission Reductions

The trading provisions in the proposed rules have been substantially changed based on further analysis of the viability of these provisions. The opportunity to create certified emission reduction credits through a *pollution reduction project* or *mercury-containing products reduction projects* have been removed. See *Attachment A – Summary of Comments on the Proposed Rules* for more details on this analysis. In the initial proposal, certified emission reductions could be used by a major utility to meet a portion of their mercury reduction requirements or these credits could be used to provide emission offsets in the permitting of a new source.

Electric Reliability Waiver

The variance provisions in the proposed rules have been revised to distinguish between an inability to meet reduction requirements based on short-term electric reliability problems from those significant barriers that would prevent a major utility from implementing a plan to meet the phased reduction requirements in the rules. To address short-term reliability concerns a specific section has been added that provides opportunity for a major utility to request a waiver from meeting a annual mercury reduction requirement due to an operational event beyond the control of a major utility. This waiver is proposed to address the concern that the proposed variance provisions were not a good mechanism for addressing short-term electric reliability problems. The Public Service Commission would be consulted on each waiver request.

Industry Role

In the rules taken to public hearing, major stationary sources (those with annual mercury emissions greater than 10 pounds) were required to establish an emission baseline, have an annual emissions cap, and could opt to voluntarily reduce mercury emissions to create reduction credits to use or trade to others

to meet requirements. These provisions have been eliminated in the revised rules. However, the rules still set uniform procedures for determining annual emissions from major stationary sources. A positive development from the dialogue on the industry role in mercury emission reduction was an interest in an energy efficiency improvement program for industrial and commercial combustion sources instead of an emission cap. Preliminary discussions have occurred with industry representatives on the elements of a voluntary program to reduce mercury emissions that would include an energy efficiency component.

Managing Growth in Mercury Emissions

The requirement in the rules that went to public hearing that new and modified sources obtain mercury emission offsets has been replaced by a requirement for new or modified sources to have their mercury emissions controlled by best available control technology. Projects that could emit 10 or more pounds of mercury would be affected. New projects subject to a federal mercury requirement under Section 112 of the Clean Air Act, it would be exempt from this requirement.

Periodic Rule Evaluations

A provision has been added that will require staff to provide the Board a reconciliation report within six months of the promulgation of a federal MACT regulation or upon enactment of a federal law that would require mercury reductions from electric utility boilers in the state. The requirement for a reconciliation report is in addition to periodic reports to the Board that would comprehensively evaluate new developments in science and technology related to mercury reduction and control. The frequency of periodic evaluations to the Board has been reduced in the revised rules. A report is now required by January 1, 2009, and an updated report is due by January 1, 2013. An evaluation report is scheduled to occur in advance of each mercury reduction requirement to provide an update on mercury science and technology as well as to recommend any needed revisions to the rules.

Chronology of Key Events in the Proposed Rule

Date	**Event**
October 1, 2005	*Major utilities submit a report of their baseline emissions using procedures specified in the rule. Stack emission test data for all coal-fired boilers is also due.*
January 1, 2007	*Department notification that establishes baseline mercury emissions and the mercury emissions cap for each major utility.*
October 1, 2007	*Compliance plan due for the initial reduction requirement of 40% and deadline for application for a multi-pollutant alternative or variance from the January 1, 2010, reduction requirement.*
January 1, 2008	*Mercury emissions cap becomes effective.*
January 1, 2009	*1st evaluation report provided to the Board.*
January 1, 2010	*40% mercury emission reduction requirement becomes effective.*
October 1, 2011	*Compliance plan due for final reduction requirement. Deadline for application for a variance from the January 1, 2015, reduction requirement.*
January 1, 2013	*2nd evaluation report provided to the Board.*
January 1, 2015	*80% mercury emission reduction requirement becomes effective.*

Summary of Control Technology and Costs

Attachment B – An Assessment of Major Utility Mercury Air Emission Control and Costs provides the detailed analysis of direct economic impact and cost to affected groups for the major electric utilities to install and operate a surrogate control technology to meet the proposed mercury reduction requirements in the revised rules. The surrogate technology selected is a combination of activated carbon injection and a fabric filter system. Next, the estimated cost of installing activated carbon injection and a fabric filter system was used to determine the potential increase in electricity rates for customers. A combination of activated carbon and a fabric filter system, as the surrogate control technology, is not the only available option for major electric utilities to meet mercury reduction requirements. However, based on USEPA (United States Environmental Protection Agency), NETL (National Energy Technology Lab), and EPRI (Electric Power Research Institute) reports, carbon injection with a fabric filter system represents the most practical and available technology for achieving significant mercury reductions.

The cost of applying the surrogate technology included the cost of equipment purchase and installation, purchase of activated carbon, annual operation and maintenance, and fly ash disposal and lost revenue for ash that cannot be reused. For larger generation units (greater than 200 mega-watts) the control approach is activated carbon injection and a fabric filter system installed downstream of the existing pollution control equipment. This provides higher mercury reductions and greatly reduces the potential contamination of fly ash generated by these units. In general, fly ash has high reuse value (e.g. cement additive). For small generating units (less than 200 mega-watts), activated carbon injection only in front of the existing particulate control equipment was applied. This method is significantly less expensive.

The first phase of control, a 40% mercury emission reduction, has an annual combined cost for the four major utilities estimated to be in the range of $28 - 33 million. The added consumer cost is estimated to be between 0.06 - 0.07 cents per kilowatt-hour. For an average household consuming 770 kilowatt-hour per month, this results in an additional cost of $6 - 7 per year. The second phase of control, a mercury emission reduction of 80%, results in an annual cost to the major electric utilities in the range of $87 - 104 million. The added consumer cost of 0.19 - 0.23 cents per kilowatt-hour or for the average household, $18 - 21 per year.

How would enactment of these rules affect existing policy?

Existing air management regulations set emission standards for mercury to protect the public from unacceptable mercury exposure due to the direct inhalation of mercury. They do not address the bioaccumulative properties of mercury. Mercury levels in the ambient air do not pose a direct threat to public health in Wisconsin. Rather, the public health risk arises from the mercury that is emitted to the atmosphere and deposited to water bodies where it bioaccumulates in fish that are subsequently eaten. Existing state mercury emission standards do not protect public health from the bioaccumulation of mercury in fish.

In 1971, Chapter 272 was enacted by the Wisconsin Legislature in response to high mercury levels found in fish in the Wisconsin River. The legislation addressed mercury discharges directly to the water; mercury use and disposal, recordkeeping requirements; and requires the Department to adopt minimum standards for the emission of mercury compounds or metallic mercury into the air (now in s. 285.11(9), Wis. Stats.). In response to the legislation, the Department established emission standards for mercury. At that time, the contribution of atmospheric deposition to elevated mercury levels in fish was not well understood. The Department also adopted the federal NESHAPS (National Emission Standards for

Hazardous Air Pollutants) for mercury emissions from chlor-alkali facilities and sludge incineration and drying plants. These regulations are included in chapter NR 446, Wis. Adm. Code.

In 1988, the Department promulgated chapter NR 445, Wis. Adm. Code, which regulates the emissions of hazardous air contaminants. Mercury is one of the pollutants regulated under chapter NR 445. However, emissions from fossil fuel combustion, including mercury emissions, are exempt from chapter NR 445. A recent re-analysis of the appropriateness of this exemption concluded that emissions from coal combustion were significantly below levels which could pose an inhalation risk to the public, and that the exemption from chapter NR 445 requirements continued to be appropriate.

Hearing Synopsis

After the Board authorized hearings on proposed revisions to chapter NR 446, Wis. Adm. Code, five public hearings were held during September and October 2001. Public comments received at public hearings and during the comment period were extensive. At the five public hearings over 100 individuals gave statements. In addition, during the comment period over 60 detailed written comments were received from businesses, electric utilities, associations and organizations. More than 2000 cards, letters and emails from Wisconsin citizens supporting the rules were also received. The following chart provides details on these public hearings.

Date	**Location**	**Attendance**	**Appearances**
September 26, 2001	*Eau Claire*	*11*	*6 – In support* *2 – In opposition* *3 – As interest may appear*
September 27, 2001	*Rhinelander*	*22*	*10 – In support* *11 – In opposition* *1 – As interest may appear*
October 1, 2001	*Milwaukee*	*26*	*11 – In support* *4 – In opposition* *11 – As interest may appear*
October 2, 2001	*Appleton*	*18*	*5 – In support* *7 – In opposition* *6 – As interest may appear*
October 3, 2001	*Madison*	*45*	*21 – In support* *8 – In opposition* *16 – As interest may appear*

Summary of Public Comments

Attachment A – Summary of Comments on the Proposed Rules, provides a summary of significant comments received at public hearings and in written comments during the comment period. This comment summary is organized into three sections:

- Significant Comments and Issues Evaluated by the Mercury Citizen Advisory Committee
- Comments on Alternatives Offered for Public Comment
- Other Legislative Council Clearinghouse Comments

Public Contacts after Public Hearings

At the June 2001 Natural Resources Board meeting when public hearings were authorized on proposed rules, Secretary Bazzell requested that the Bureau of Air Management establish a Mercury Citizen Advisory Committee to review public comments and make recommendations for addressing significant areas of concern and controversy. In addition to the Committee, a Mercury Technical Advisory Group was established at the Secretary's request to evaluate technical merits of the proposed rules. The committee that was established included stakeholders representing environmental, industrial, utility, and tribal interests.

Secretary Bazzell requested that the Committee accomplish the following:

- Review public comments and identify key issues for further evaluation.
- Consider the advice provided by the Technical Advisory Group and direct their efforts.
- Develop option analyses of key issues.
- Consider the Governor's energy policy and related state legislative proposals, such as mercury product bans, in the evaluation of key issues.

The committee's final report was provided to the Secretary and members of the Natural Resources Board in September 2002.

Environmental Analysis

An environmental assessment was prepared for the proposed rule to meet the Department's responsibilities under s 1.11 Wis. Stats. and Chapter NR 150, Wis. Adm. Code. Public comment was solicited on a draft assessment during the comment period for the proposed rules. The draft assessment was revised in consideration of comments received. The attached final analysis concludes that this proposed regulation is not a major action and therefore an environmental impact statement is not required prior to final action by the Department to adopt this rule.

Reporting and Recordkeeping Requirements

The reporting and recordkeeping requirements in the revised rules are directed at annual reporting of mercury emissions to the Department. Major stationary sources, defined as sources with mercury emissions of 10 pounds per year or greater, and major utilities have set procedures in the revised rules to perform annual measurements to determine their mercury emissions. The workload for Department staff associated with the proposed reporting and recordkeeping requirements will not be significant.

Final Regulatory Flexibility Analysis

Small business will not be directly affected by the proposed rules. The requirements in the proposed rule are anticipated to only apply to large businesses (i.e. greater than 25 employees or gross annual sales greater than $2,500,000).

Department Response to Significant Comments on the Mercury Rules Proposed in June 2001

Response to Significant Comments on the Mercury Rules Proposed in June 2001

In June 2001, the Natural Resources Board authorized public hearings on proposed rules to reduce mercury emissions. Five public hearings were held during September and October 2001. Public comments received at public hearings and during the comment period were extensive. At the five public hearings over 100 individuals gave statements. In addition, during the comment period over 60 detailed written comments were received from businesses, electric utilities, associations and organizations. Wisconsin citizens supporting rules submitted more than 2000 cards, letters and emails. Included in this document is a summary of significant comments and the department staff response.

A. Determining Baseline Mercury Emissions

ISSUE: How should a mercury emission baseline be established for utility units or other mercury emitting sources that may be affected by requirements to cap and reduce mercury emissions?

The methodology in the proposed rules for establishing utility baseline emissions relies on historical fuel use for 1998, 1999, and 2000. This methodology may not be the most equitable or reliable approach for affected sources. Key concerns were the availability and precision of data on past fuel usage, and lack of accounting for any coal, physical process, or pollution control changes since 1998 that resulted in mercury emission reductions. Committee members acknowledged that obtaining accurate historical information might be difficult and encouraged that the baseline determination approach be reconsidered.

SELECT COMMENTS:

"The proposed methodology for determining a historic emission baseline is problematic. It does not account for any coal or pollution control changes since 1998, as well as a number of other inaccuracies. Alternatively, a baseline that is determined using total annual mercury in fuel into the boiler would avoid the retroactive application of emission factors and provide accurate data on a going-forward basis. The mercury content in the coal, coal usage, and the removal efficiency of the pollution control equipment would be based on the latest coal data and stack test results to establish the current year baseline. Requirements for sampling methods, analytical techniques and procedures, and stack reference test methods would be defined, up front, in rulemaking." – WE Energies

RESPONSE: The methodology for determining baseline mercury emissions has been substantially revised. Significantly, mercury emissions determined from fuel mercury content instead of stack emissions is now the starting point for the reduction requirements facing major utilities. Also, data to establish baseline mercury emissions will be from more recent years than initially proposed. Measurements from the year after the rules are promulgated will determine fuel mercury content. Fuel use will be the average of fuel consumption of three years, 2002, 2003 and 2004. This approach minimizes reliance on historical information and sets a uniform starting point for mercury reductions eliminating any penalty for mercury emission reductions already being achieved.

Only major utilities are required to set baseline emissions. Other significant mercury sources, those with mercury emissions that are 10 pounds annually or greater, do not need to determine baseline emissions. However, the rules will still set uniform procedures for determining annual emissions from significant mercury sources.

B. Federal Mercury Initiatives

ISSUE: What is the relationship between a Wisconsin regulation and pending federal regulations that will require mercury emission reductions from electric utility boilers and industrial boilers?

In general utility stakeholders are opposed to state mercury regulations that establish mercury reduction requirements greater than the 40% commitment they have made. These stakeholders favor taking initial action but do not favor a state regulation that may result in greater reductions sooner than a federal law or federal regulation would require. There is also concern that differences between state and federal requirements may occur that cannot be reconciled. This is further rationale for state mercury rules that should only require a limited initial mercury reduction.

Industry stakeholders believe that any state action is inappropriate and Wisconsin should wait for federal action.

SELECT COMMENTS:

"A national approach to mercury control, while still not addressing global mercury concerns, would be much more likely to result in meaningful environmental improvements than a Wisconsin-only rule." – Wisconsin Paper Council

"Wisconsin Electric has characterized the proposed state rules as a bridge between the current state of controls for utility boilers (no federal or state-mandated controls) and pending federal rules applicable to coal –fired generating units. State-only rules are an assurance that some directionally-correct action is being taken by Wisconsin, even if there turns out to be unforeseen delays at the federal level" – WE Energies

"Wisconsin must send a strong message to other states and the federal government about addressing the largest source of mercury pollution that we have control over and by acting first we can positively influence federal mercury regulations, the result being a "Wisconsin-friendly" regulation." – Wisconsin's Environmental Decade

RESPONSE: We believe it is in the state's interest to establish regulations that define the amount of mercury emission reductions that are technically achievable on a schedule appropriate for the state's major utilities. At this time, federal requirements for reduction of mercury emissions do not apply to existing coal-fired electric utility boilers. It is true that there is a pending federal MACT (Maximum Achievable Control Technology) regulation in the Clean Air Act under Section 112, Hazardous Air Pollutants. Also, in the U.S. Congress, several bills have been introduced in the current session, including the President's "Clear Skies" proposal. These bills require electric utilities to pursue a multi-pollutant reduction approach for the principal air pollutants emitted by fossil fuel combustion. Mercury is included as one of the principal pollutants in these legislative proposals. All legislative proposals under consideration would void many existing Clean Air Act requirements including the Section 112 regulations for electric utilities. We are concerned that these pending federal actions will not provide for adequate mercury emission reductions regionally and nationally. In addition, the schedules for achieving reductions under consideration in both actions are not appropriate for Wisconsin's electric utility system. Below is a summary of the concerns we have about each of these pending actions.

Utility MACT Regulation – This is a federal regulation required in the Clean Air Act that would establish mercury control technology requirements for coal and oil fired electric utility boilers under a court-ordered schedule. The USEPA will have difficulty meeting this schedule because it is a very contentious rulemaking. At a minimum this standard will be delayed beyond the current court-ordered dates for regulation adoption (2004) and compliance (2007). This requirement is also in jeopardy of being eliminated altogether by recently introduced multi-pollutant legislation like the President's Clear Skies proposal. Once a regulation is proposed court challenges from numerous interested parties are likely which would cause further implementation delays. We believe that state required installation of mercury

control equipment for the states' electric utility industry should be given a schedule longer than the three years allowed in this requirement to achieve significant mercury reductions and avoid any reliability complications.

Clear Skies – Clear Skies is one of several multi-pollutant proposals being introduced as federal legislation. The goal of Clear Skies is to establish reduction requirements for significant air pollutants from fossil fuel combustion at power plants that would replace the existing pollutant-specific approach in federal law and regulation. There is debate over what pollutants are significant. This is a proposal aimed at consolidating electric utility pollution control responsibilities that does includes a schedule for mercury reductions that are not significant until 2018 and gives opportunity to extend these reductions for years beyond 2018 with allowance trading. Electric utilities believe they can plan more effectively to meet requirements at lower costs because reduction requirements can be considered as a whole, not piecemeal. In exchange for a long-term reduction commitment, many current requirements in the Clean Air Act that apply to utilities would be eliminated. This federal action is also very contentious with three different legislative proposals being debated. Each has a different reduction level and schedule for mercury.

Our Wisconsin electric utilities should be commended for their commitment to reduce mercury emissions from their coal-fired boilers and acceptance of state regulation. However, we believe state mercury regulations must go beyond an initial first step to be constructive on a national level by defining the extent that mercury emissions can be reduced by our major utilities and outlining a rational schedule for those reductions.

C. Periodic Rule Evaluations

ISSUE: What should the frequency and content of the rule evaluation reports to the Natural Resources Board be?

The proposed rules require a report to the Board at least every 18 months that evaluates the feasibility of achieving reduction requirements considering future scientific and technology developments. These reports may also contain recommendations for rule revisions or other actions. Comments were received that this evaluation lacked a specific report to the Board when a federal action is taken like the promulgation of a regulation or enactment of a law that affects sources covered by state mercury rules. This specific report would be in addition to the periodic reports to the Natural Resources Board.

SELECT COMMENTS:

"DNR's proposal to evaluate the impact of federal MACT standards on state requirements and make necessary adjustments does not adequately address the need to reconcile state rules with federal standards. A more definitive approach is to move forward with implementing a reasonable first rule phase, then condition the second phase of the rule on the outcome of the federal MACT standard. This would include an abeyance of the second phase of the state rule if it were inconsistent or more stringent than the federal program." – WE Energies

RESPONSE: A provision has been added that will require staff to provide the Board a reconciliation report within six months of the promulgation of a federal MACT regulation or upon enactment of a federal law that would require mercury reductions from electric utility boilers in the state. The requirement for a reconciliation report is in addition to periodic reports to the Board that would comprehensively evaluate science and technology related to mercury reduction and control.

D. Effect on Electric Reliability

ISSUE: Are the variance procedures adequate to safeguard electric reliability?

There is concern that the variance provisions in the proposed rules are not appropriate for addressing short-term situations that may require a major utility to operate out of compliance with a mercury limitation in order to meet demand because of a circumstance beyond their control.

SELECT COMMENTS:

"Although the variance provision in the proposed rules provides some relief for extraordinary circumstances, the provisions in the section gives little comfort to a source in the event that the equipment fails to perform as DNR has projected." – Wisconsin Public Service Corporation

"The rule provides a variance from the reduction requirements for utilities, but it does not include a variance provision for sources subject to the mass cap requirement. A variance should be allowed for mass cap facilities." – Wisconsin Paper Council

"Another concern involves situations where the achieved emissions reductions cannot be maintained due to system failures. For example, if a large natural gas-fired unit or a coal-fired unit with mercury controls fails, the system-wide mercury emissions may exceed an emission limit, and a resulting unit shutdown could jeopardize meeting electric demand. The proposed rule contains language that allows the DNR to waive the standards upon a specific showing by a plant operator. However, this language does not provide adequate assurance of protection from an unanticipated or an after-the-fact determination of an exceedance of mercury emissions standards due to equipment failures." – Alliant Energy

RESPONSE: The variance provisions in the proposed rules have been revised to distinguish inability to meet reduction requirements based on short-term electric reliability needs from significant barriers that would prevent a major utility from implementing a plan to meet reduction requirements in the rules. To address concerns regarding short-term electric reliability, a specific section has been added that provides opportunities for major utilities to request a waiver from meeting an annual mercury reduction requirement due to an operational event beyond the control of a major utility. This waiver is proposed because the proposed variance provisions were not a good mechanism for addressing short-term electric reliability problems. The Public Service Commission would be consulted on each waiver request.

The rules proposed for adoption include an extended schedule for achievement of mercury reductions to provide major utilities the necessary time to plan, design and install mercury control technology during scheduled maintenance periods. The schedule length was selected specifically to avoid any threat to electric reliability. However, it is also recognized that an existing facility may encounter difficulty in installing equipment or making other changes to meet a new emission limitation. Therefore, the proposed rules still provide an opportunity for a variance that could establish an alternative schedule or reduction level or both for those situations where technological infeasibility or economic hardship prevent a major utility from implementing a plan to meet the proposed reduction requirements.

The requirement for major sources to cap their mercury emissions has been removed from these rules. Therefore, there is not a need at this time to consider a variance provision beyond the one proposed for the major utilities.

E. Emission Caps

ISSUE: Should major industrial sources have requirements in the proposed rules that place a cap on their annual mercury emissions?

Emission caps for all facilities emitting over 10 pounds annually were included in the proposed rules as a necessary foundation for a viable trading program. The 10 pound facility threshold is significant because it includes 25 facilities that were responsible for greater than 90% of the mercury emissions reported to the department in 2001. In addition to supporting a trading program, emission caps and offset provisions for new sources were included in the proposed rules to ensure that mercury emissions in Wisconsin would not increase.

There is strong opposition from industry stakeholders to the emission cap requirement in the proposed rules because of the concern that it would in effect limit production capability. Some stakeholders are doubtful that industrial sources can provide sufficient emission reduction credits to support the emissions offset requirement for new sources. Therefore, they believe there is limited value in requiring a cap on mercury emissions from industrial sources. Other stakeholders support establishing an emission cap on significant industrial sources to ensure that this sector does not increase their mercury emissions.

SELECT COMMENTS:

"A cap on mercury emissions from coal-fired boilers would effectively be a cap on all emissions – a cap on economic growth." – Wisconsin Paper Council

"WMC objects to both the emission cap and emission offset requirements proposed for major stationary sources. The emission cap, likely to effect coal-fired industrial boilers, will in effect be a cap on productive capacity and it is also likely that emission offsets will not be available for companies to expand or locate in the state. WMC also believes that the 10-pound threshold is arbitrary, provides little environmental benefit and should be applied on a unit basis not a facility-wide basis." – Wisconsin Manufacturers and Commerce

"Wisconsin Energy does not believe that setting a cap on industrial sources will create a sufficient market to support the proposed offset provisions for new or expanded utility sources. Industrial sources that make operational or physical changes to reduce mercury emissions in order to voluntarily create offsets expose their facilitates to the risk of additional state and federal permitting review, and potential additional control requirements." – WE Energies

RESPONSE: We are eliminating the emission cap requirement for major stationary sources. Major utilities will still have an annual emission cap that would go into effect on January 1, 2008.

In the proposed rules major stationary sources, those with annual mercury emissions greater than 10 pounds, did not have specific reduction requirements. However, these facilities were required to establish an emission baseline, have an annual emissions cap, and could opt to voluntarily reduce mercury emissions to create reduction credits to use or trade to others to meet requirements in the rules. When the rules were being drafted the requirements for this set of facilities was in part based on mercury emissions information in the department's emission inventory. The inventory included emissions for industrial and small utility coal-fired boilers, waste incinerators, several salvage processes a coal-fired kiln, a wastewater treatment plant and a chlor-alkali plant.

Subsequently, additional analyses performed by many non-major utility facilities affected by these proposed regulations resulted in significant changes in that inventory. Using improved techniques, mercury emissions from industrial and non-major utility coal-fired boilers changed from an expected 500 pounds to 100 pounds per year. Therefore, we have changed our expectation that there is a sufficient emissions base available to support a viable trading program. In addition to a reduction in the inventory,

we received public comment from several of these facilities that they were not in a position now or in the foreseeable future to create mercury emission reduction credits.

A positive development from the dialogue in the advisory committee on this issue was an interest in an energy efficiency improvement program for industrial and commercial combustion sources instead of an emission cap. Preliminary discussions have occurred with industry representatives on the elements of a voluntary program to reduce mercury emissions that would include an energy efficiency component.

Although the rules proposed for adoption do not require an emission cap for facilities, other than the major utilities, we do believe it is necessary to include uniform procedures for determining mercury emissions for all significant sources in these rules. In the event of significant increases in emissions from sources not subject to a cap, the Department will work with stakeholders to determine if additional requirements are needed.

F. Addressing Growth in Mercury Emissions

ISSUE: How should growth in mercury emissions be addressed in the proposed rules?

The proposed rules required that new or modified sources with mercury emissions of 10 pounds or more provide emission offsets at a ratio of 1.5 to 1.0 as a requirement to obtain a permit to construct.

The most significant concern expressed was the fear that there would not be enough emission reduction credits available to meet this requirement. Those opposed to new source emission offsets emphasized that under the federal hazardous air pollutant program new or modified commercial, industrial, and electric utility boilers must apply mercury control technology as a requirement to obtain a construction permit.

Others supported the proposed emission offset approach for new sources and suggested that it be applied upon rule promulgation instead of four years after the rule effective date.

SELECT COMMENTS:

"The very real potential exists that there simply will not be enough offsets available to permit these new sources." – Wisconsin Public Service Corporation

"In order to avoid the potential for new sources to set artificially high baseline levels while avoiding emission offset requirements, it is recommended that the rule require all new sources commencing construction or modification at any time after the effective date of the rule to obtain emission offsets." - Forest County Potawatomi Community

"Wisconsin Electric's existing units by themselves are incapable of producing sufficient offsets for any proposed new advanced coal units given the 90% control requirement applicable to both new and existing units. In addition, industrial sources are likely to be very reluctant to make operational or physical changes to reduce mercury emissions in order to voluntarily create offsets." – WE Energies

"The DNR rule bans construction of new coal-fired electrical plants unless the utility somehow finds offsets from other sources equal to 150 percent of the new plant's projected emissions. However, offsets will not be available for purchase because they will be needed to achieve the aggressive reduction mandates. This leaves nothing for new plants." – Wisconsin Manufacturers and Commerce

RESPONSE: The requirement to obtain emission offsets has been replaced by a requirement for new or modified sources to have their mercury emissions controlled by best available control technology.

Projects that would result in new emissions of mercury, 10 pounds or greater, would be affected. If a new project is subject to a federal mercury requirement under Section 112 of the Clean Air Act it would be exempt from this requirement.

The lack of availability of mercury emission reduction credits is clearly a concern. Although at times in the future significant mercury emission reductions may be available to support an emission offset program, Wisconsin does not have a sufficient emissions inventory base to ensure a consistent pool of emission credits is available. A technology-based approach ensures that any new proposal involving mercury emissions will be effectively controlled, without the risk of establishing a requirement that cannot be sustained.

G. Mercury Reduction Requirements

ISSUE: What should the schedule and stringency of mercury emission reductions be for Wisconsin's four major electric utilities.

The rules proposed for public hearing required reduction of mercury emissions from an established baseline in three steps over a fifteen-year period. The reductions are at five-year intervals and don't commence until five years after promulgation. The first reduction in five years requires a 30% reduction, the second reduction in ten years requires a 50% reduction and the final reduction at fifteen years is 90%.

No agreement was reached among committee members on a schedule and amount of mercury emission reductions for major utilities in the proposed rules. Some committee members were firm in their support for a two-step reduction schedule of 10% in five years and 40% in ten years with a multi-pollutant reduction alternative. Other committee members were adamant about the proposed rules achieving a 90% mercury emission reduction from the major utilities as soon as possible. Yet another group of committee members supported a voluntary program and no regulatory requirements.

SELECT COMMENTS:

"Utilities have very long lead times for developing compliance plans and getting financial and regulatory approval for spending money on emission controls. Any installation of these controls also needs to be scheduled to coincide with planned maintenance outages." – Wisconsin Utilities Association

"The 90% reductions called for by the rule are impossible to comply with without shutting down coal plants, which will threaten reliability and dramatically increase utility bills". – Wisconsin Utilities Association

"The department must maintain an aggressive approach to reductions. It is reasonable to put the ultimate goal at 90% reduction by 2010, with interim goals and review along the way." – Sierra Club Midwest

"The 30% utility system reduction requirement would preclude optimized reductions in other emissions, specifically SO2. It would also require landfilling ash rather than beneficially re-using it." – WE Energies

"The rule at NR 446.06 requires reductions that are too stringent in too short of a timeframe given the current status of known technically feasible and cost-effective mercury control technologies. The merits of these reductions are highly questionable and fail to recognize coordination with Federal regulations for mercury control." – Alliant Energy

RESPONSE: The proposed rules have been changed to require major utilities to reduce their baseline mercury emissions in two-steps. An initial reduction of 40% is required beginning January 1, 2010. A final reduction of 80% from baseline emissions begins January 1, 2015. A multi-pollutant reduction option is also included in the revised rules. Under this option, owners and operators of major utilities may obtain relief from the initial reduction requirement of 40% upon acceptance of a multi-pollutant reduction proposal.

The baseline determination approach has changed significantly. In the rules proposed for hearing, the foundation for setting the baseline was a measurement of emissions at the exit of the stack after existing air pollution control equipment had achieved some reductions in mercury emissions. In place of this approach, the rules have been revised to establish a baseline dependent upon the mercury emissions released when coal is burned without considering mercury reductions achieved by any existing air pollution control equipment. This change addresses a significant objection made by the major utilities that the proposed rules did not recognize or account for the actions they have already taken to reduce their mercury emissions. Based on the air pollution control equipment the major utilities have operating today, 15% to 20% of the mercury from coal combustion is being captured. Thus to meet the initial mercury reduction of 40%, the four major utilities, on average, need to achieve an additional 20 to 25% mercury reduction by January 1, 2010. To meet the final reduction requirement of 80% by January 1, 2015, baseline emissions need to be reduced an additional 60 to 65%.

Because of this change in the methodology of baseline determination a direct comparison between the reduction levels in the rules proposed for hearing and the revised rules cannot be made. However, the end result is similar with mercury emissions from the existing coal-fired utility boilers being significantly reduced from present levels by 2015.

Extensive additional analysis was performed to evaluate the issues raised in comments on the mercury reduction levels and schedule. As a result, the amount of mercury reductions and schedule for achieving those reductions has been revised. The issue that was of most concern to electric utility stakeholders was their belief that the proposed 90% reduction from mercury air emissions would require a significant replacement of most existing coal-fired boilers with natural gas fired boilers. From an electric reliability perspective this wholesale move to natural gas was identified in comments to be very costly and risky. The proposal does not force utilities to switch to natural gas to meet mercury reduction requirements. The reductions proposed can be met by installation of controls on existing coal-fired units. Fuel switching is an option, not a mandated action.

The revised rules establish a final 80% reduction by January 1, 2015, based on a technical analysis that demonstrates that the application of the most promising mercury control technology for Wisconsin's major utilities can achieve an overall 88% reduction from a baseline based on mercury content in the coal. This level of mercury emission reductions is feasible without requiring an extensive fuel switch to natural gas. The schedule for achieving mercury reductions anticipates and minimizes threats to electric reliability. The following is a list and brief description of provisions in the proposed regulation that have been added or modified to support the revised mercury reduction levels and reduction schedule in the rules proposed for adoption.

- *Staged Installation Schedule* – There are thirteen large units, greater than 200 MW, operated by the four major utilities affected by the proposal. The schedule we are proposing does not require all these units to have control equipment installed at one time. We recognize that equipment installation must be staged to avoid disruption in electrical service. Thus the proposal has an initial reduction of 40% required by January 1, 2010, and a final reduction of 80% required by January 15, 2015.

- *Planning and Design Period* – The proposed rules do not require mercury emission reductions to commence until nearly seven years after promulgation. This time is deemed necessary for the refinement of mercury control technology and to provide major utilities with ample time to perform the planning and design necessary to meet requirements. This period also accommodates coordination of control equipment installation within and between major utilities.

- *Compliance Flexibility* – Each of the four major utilities is allowed to average their mercury emission reduction requirement across their entire system allowing flexibility to decide how the mercury reductions will be achieved. In addition, the four major utilities can enter into agreements with each other to exchange excess mercury reductions to achieve annual compliance with reduction requirements.

- *Multi-pollutant Approach* – The proposal allows relief from the initial reduction requirement if a major utility is interested in pursuing a multi-pollutant approach.

- *Electric Reliability Waiver* – It is recognized that unanticipated events beyond the control of a utility may result in mercury emissions above the proposed limitations. The rules now include a provision that would allow a waiver under certain circumstances. The Public Service Commission would be consulted as part of any waiver request.

- *Variance* – In addition to the waiver there is provision for a variance that could specify a different schedule or reduction level or both based on a showing of technological or economic infeasibility. A separate variance opportunity is available for both the initial and final reduction requirements. The Public Service commission would also be consulted as part of the variance review.

- *Periodic Evaluation of Requirements* – At two specific times a report to the Natural Resources Board is required that would allow for revision to mercury reduction requirements based on control technology development and other factors.

H. Trading

ISSUE: Should compliance with the proposed mercury rules include provision for emission reduction credits created from mercury product collection projects or pollution reduction projects?

The committee was not in agreement that trading of emission credits should be an option in the proposed rules. Some committee members were very reluctant to accept emission credit trading, with restrictions, other committee members believe that the compliance flexibility provided by a trading option is a necessary component of the proposed rules particularly because mercury controls are in the early stages of development. The emission credit provision is also viewed as a way to encourage mercury emission reductions from non-utility sources.

SELECT COMMENTS:

"Trading needs to be severely restricted or not allowed. A trading program allows a facility to reduce their pollution on paper but not from their smokestacks. Toxic hotspots, where more mercury pollution can occur, threaten the health of local residents and the environment. The department must establish that compliance alternatives involving trade can only be done between emission units at the same facility." – Sierra Club Midwest

"The Department has proposed that a major utility may only use certified emission reduction credits from a mercury-containing products reduction project to provide no more than 25% of the reductions required under proposed s. NR 446.06. Additionally, the Department has proposed that a major utility may only use certified emission reduction credits from a pollution reduction project performed by another person to provide no more than 25% of the reductions required under proposed s. NR 446.06. We strongly object to the Department's proposal to place these limits on these forms of emission reduction compliance alternatives. A pound of mercury reduced from any air emission source, or pound of mercury from any product which is collected and properly disposed of, should be valued on an equivalent basis for the purpose of satisfying any reduction requirement in mercury air emissions from a major utility. The Department must revise its rule proposal accordingly." – Dairyland Power Cooperative

We have serious concerns about the viability of such a program. In particular, a viable trading program requires a sufficient number of buyers and sellers. It is highly unlikely that this will occur in Wisconsin. Most likely, there will be one large seller of mercury emission credits and perhaps a few additional sellers of small amounts of credits. The potential number of buyers is unclear, but will be limited in two ways. First, section 112 does not allow the use of trading to comply with federal MACT standards. Second, we expect that most (possibly all) companies subject to reduction requirements will take the steps necessary to meet the requirements without the use of purchased credits (for reasons of economic security and compliance with MACT). Any credits generated by over-compliance will likely be retained as a compliance cushion and to accommodate future growth. Overall, there would probably be few sellers and few buyers. – Wisconsin Paper Council

Supports alternative compliance mechanisms including trading and other market-based mechanisms (including credits for early reduction) that allow affected sources to achieve reductions cost-effectively. Averaging and trading provisions are critical components of a phased reduction program because of the impossibility of achieving a uniform level of control at all plants. – WE Energies

RESPONSE: The trading provisions in the proposed rules have been substantially changed. The opportunity to create certified emission reduction credits through a *pollution reduction project* or *mercury-containing products reduction projects* has been removed. In the initial proposal certified emission reductions could have been used by a major utility to meet a portion of their mercury reduction requirements or these credits could have been used to provide emission offsets when issuing permits to a new source. Under the changes that have been made major utilities will still be allowed to average their mercury emissions across their entire system to demonstrate compliance. Also, major utilities could enter into agreements with each other to use excess reductions to meet the proposed mercury reduction requirements. Therefore, the proposed rules will still have trading provisions to provide compliance flexibility and help lower compliance costs.

In consideration of public comments received additional analysis was performed to determine the viability of the trading provisions proposed. The rules proposed for public hearing incorporated two different trading program approaches:

- *Cap and Trade* – Defined set of participating sources that can freely trade among themselves as a compliance alternative to meet a cap covering all participants.

- *Open Market Trading* – Voluntary opportunity for all types of sources to provide emission credits.

The rules proposed for adoption retain the cap and trade program approach for the major utilities however, the open market trading provisions have been removed. In our additional analysis we considered criteria that the United States Environmental Protection Agency employs to evaluate trading programs. That criteria includes measures for trading program equity and integrity: