

Regulatory Analysis Form

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(1) Agency

Environmental Protection

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INDEPENDENT REGULATORY
REVIEW COMMISSION

(2) I.D. Number (Governor's Office Use)

7-405

IRRC Number:

2547

(3) Short Title

Mercury Emission Reduction Requirements for Electric Generating Units

(4) PA Code Cite

25 Pa. Code Chapter 123

(5) Agency Contacts & Telephone Numbers

Primary Contact: Marge Hughes, 783-8727

Secondary Contact: Patrick McDonnell, 783-8727

(6) Type of Rulemaking (Check One)

- Proposed Rulemaking
 Final Order Adopting Regulation
 Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

- No
 Yes: By the Attorney General
 Yes: By the Governor

(8) Briefly explain the regulation in clear and nontechnical language.

The proposed rulemaking establishes mercury emission control requirements, emission standards and emission limitations, and related administrative requirements for coal-fired electric generating units (EGUs). Definitions of terms are included in the proposal.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

This action is being taken under the authority of section 5(a)(1) of the Air Pollution Control Act (35 P.S. §4005(a)(1)), which grants to the Board the authority to adopt regulations for the prevention, control, reduction, and abatement of air pollution.

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

On March 15, 2005, EPA finalized its "Clean Air Mercury Rule" ("CAMR"). By November 2006, States must submit a plan to EPA that meets the requirements of the CAMR. If a State fails to submit a State plan, as required in the final rule, EPA will prescribe a Federal plan for that State, under Section 111(d)(2)(A) of the CAA. EPA would propose the model rule as that Federal plan. However, EPA has indicated in the preamble to the final rule that states are free to develop a more stringent mercury control program than the one set forth in the final rule. This proposed regulation, if finalized, will be submitted to EPA as the State Plan to fulfill Pennsylvania's requirements under CAMR

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(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

This regulation will reduce emissions of mercury in the Commonwealth. Mercury is a dangerous reproductive and neurological toxicant. It can affect the brain, spinal cord, kidneys and liver.

Mercury exposure in humans is primarily the result of consumption of fish and seafood. Accumulation of mercury in aquatic ecosystems has resulted in 45 states, including Pennsylvania, issuing fish consumption advisories. Pennsylvania has fish consumption advisories for mercury in 80 waterways across the Commonwealth, which includes the Delaware, Ohio, Potomac, and Susquehanna River Basins and the Lake Erie Basin.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

Mercury is a highly toxic pollutant – one specifically targeted by Congress when it amended Section 112 of the federal Clean Air Act (“CAA”) in 1990. 42 U.S.C. §7412. Mercury is a dangerous reproductive and neurological toxicant. It can affect the brain, spinal cord, kidneys and liver. Exposure to high levels of mercury can affect the ability to feel, see and taste and has the potential to limit mobility. Women of childbearing age and pregnant women are of special concern in terms of methylmercury exposure. Methylmercury exposure prior to pregnancy can actually place the developing fetus at risk because methylmercury persists in body tissue and is only slowly excreted from the body. Low-dose prenatal methylmercury exposure has been associated with poor performance on neurobehavioral tests in children, including those tests that measure attention, visual spatial ability, verbal memory, language ability, fine motor skills, and intelligence. It is estimated that approximately eight percent of women of childbearing age in the U.S. have mercury levels exceeding the level considered safe by the EPA for protecting the fetus. In the United States, this translates into approximately 600,000 babies born each year at risk of developmental harm due to mercury exposure in the womb. Adults can be affected by high mercury exposures as well, with effects on the nervous system and impaired vision and hearing.

The Northeast States for Coordinated Air Use Management (“NESCAUM”) sponsored a report analyzing the cost savings and public health benefits of controlling mercury emissions from power plants. NESCAUM, Economic Valuation of Human Health Benefits of Controlling Mercury Emissions from U.S. Coal-fired Power Plants, (Feb. 2005) (“Harvard Study” or “Study”). The Study was prepared by the Harvard Center for Risk Analysis, funded by the EPA, co-authored by an EPA scientist, peer-reviewed by two other EPA scientists. The Harvard Study reveals that EPA miscalculated the “nature of the risk involved” by underestimating the public health benefits of reducing mercury. Specifically, the Harvard Study indicates that the public benefit of reducing power plant mercury emissions to 15 tons per year ranges from \$119 million annually (if only persistent IQ deficits from fetal exposures to methylmercury are counted) to as much as \$5.2 billion annually (if IQ deficits, cardiovascular effects, and premature mortality are all counted).

The May 2005 edition of Environmental Health Perspectives indicates that EPA underestimated the health benefits to be gained from reducing mercury. In one study, scientists from the Mount Sinai School of Medicine examined national blood mercury prevalence data from the Centers for Disease Control and Prevention and found that between 316,588 and 637,233 children each year have cord blood mercury levels greater than 5.8 micrograms per liter - the level associated with loss of IQ. See

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Leonardo Trasande, et al., Public Health and Economic Consequences of Methylmercury Toxicity to the Developing Brain, 113 ENVIRONMENTAL HEALTH PERSPECTIVES, No. 5 (May 2005). They estimated that the resulting loss of intelligence and diminished economic activity amounted to \$8.7 billion annually, with \$1.3 billion each year being directly attributable to mercury emissions from power plants. The scientists further caution that these costs will recur each year with each new birth cohort as long as mercury emissions are not controlled.

Impacts related to mercury deposition were studied at the Bruce Mansfield coal-fired power plant in Shippingport, Pennsylvania. Sullivan, T.M., *et al.*, *Assessing the Mercury Health Risks Associated with Coal-Fired Power Plants: Impacts of Local Depositions*, Brookhaven National Laboratory, Upton, NY. This plant is characterized by high total mercury emissions. From the deposition modeling the average increase in deposition as compared to a background deposition rate of 20 ug/m²/yr over a 2,500 km² around the plant was 15 percent at Bruce Mansfield. Over an area that is 50 – 100 km², immediately adjacent to the plant, deposition doubled at the Bruce Mansfield plant. The report concluded that if the plant emissions double local deposition, the fish concentration would be similarly doubled. As a result, the U.S. mean fish mercury content is 0.21 ppm and near the Bruce Mansfield plant the mean fish mercury content is 0.41 ppm.

The 2003 results of the EPA Office of Water study *Draft Mercury REMSAD Deposition Modeling Results* reinforce Pennsylvania's concern. This Regulatory Modeling System for Aerosols and Deposition modeling shows that, at mercury hot spots, local emission sources within a state can be the dominant source of deposition. At hot spots, local sources within a state commonly account for 50 percent to 80 percent of the mercury deposition. In-state sources contribute more than 50 percent of the pollution to sites in the top eight worst hot spot states, which are Michigan, Maryland, Florida, Illinois, South Carolina, North Carolina, Pennsylvania, and Texas, respectively.

In addition to these studies, on April 27, 2005, preliminary results from the Steubenville Mercury Deposition Source Apportionment Study were released. This study found that nearly 70 percent of the mercury in rain collected at an Ohio River Valley monitoring site originated from nearby coal-burning industrial plants. It is anticipated that this peer-reviewed study will be published in the scientific literature within the next couple of months.

Moreover, the proposal is designed to maximize the co-benefit of mercury emission reduction achieved through the installation of pollutions controls, which are required for the compliance with CAIR program. Owners and operators of EGUs are not disadvantaged under this timeframe, and there should not be any reliability concerns for delivery of power over the electric grid. In addition, the Board encourages the use of bituminous coal through its Phase 1 and Phase 2 presumptive control strategies. Therefore, fuel switching is not necessary to comply with the proposal.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

The proposed regulations will result in improved air quality for the citizens of the Commonwealth by reducing mercury emissions. Reduced mercury emissions will result in reduced deposition of mercury to aquatic ecosystems. This will result in reduced mercury exposure for the citizens of Pennsylvania and downwind areas by reducing mercury levels in fish and seafood they consume. In addition, if fish consumption advisories are lifted, sport fishing and tourism in Pennsylvania will benefit.

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(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

The proposed rulemaking will affect the owners and operators of the 36 coal-fired power plants with 78 electric generating units (EGUs) in Pennsylvania. These units accounted for approximately 77 percent of the more than 5 tons of mercury emitted into the air from all contamination sources in the Commonwealth. The operators of the units will be required to meet mercury emission limitations and emission standards and to comply with administrative requirements including emissions testing, monitoring and reporting.

(15) List the persons, groups or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)

The proposed rulemaking will affect the owners and operators of the 36 coal-fired power plants with 78 electric generating units (EGUs) in Pennsylvania.

(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable.

On August 9, 2004, Citizens for Pennsylvania's Future and nine other organizations filed a petition for rulemaking with the Environmental Quality Board (EQB). Since the original filing of the petition, an additional 39 organizations declared their intent to be co-petitioners. On August 16, 2005 the EQB accepted the Department's recommendation to move forward with a Pennsylvania-specific mercury rule with an expanded public involvement process. The Department established a Mercury Rule Workgroup as part of the expanded public involvement process for a Pennsylvania-specific mercury rule. The first Workgroup meeting, on October 14, 2005, included presentations regarding workgroup objectives, an overview of mercury, its fate and transport, and other states' regulations. The second meeting of the Workgroup, on October 28, 2005, focused on the health impacts of mercury. At the third meeting of the workgroup, on November 18, 2005, speakers discussed the health impacts of mercury and methods of controlling mercury emissions from coal-fired power plants. The last workgroup meeting was held on November 30, 2005 and focused on additional health impacts related to mercury; and, at that meeting, workgroup members, and others, discussed their organizations' proposals for the control of mercury. The proposed rulemaking was discussed with the Air Quality Technical Advisory Committee at meetings on March 13 and March 30, 2006.

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.

It is anticipated that the majority of EGUs in the Commonwealth will be able to comply with both phases of the proposed rule using existing WFGD and SCR technology, which will be necessary in order to comply with CAIR. While some EGUs may need to install mercury specific control technology, the Department believes that there are a number of currently available control technologies that coal-fired power plants can use to reduce their emissions of mercury to the atmosphere, which will result in a minor cost increase on a cents per kW-hr. basis.

The regulations will, to some extent impact all EGUs in Pennsylvania. There will be compliance costs related to the construction and operation of air pollution control devices to control mercury, NO_x, and SO_x. For Phase 1 the total annualized cost (capital and operating) of mercury-specific control technology that EGUs must install beyond CAIR to comply with the Pennsylvania-

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specific mercury rule would be \$15.4 million per year. The total cost of purchasing mercury allowances (at \$953 per ounce, according to a U.S. Department of Energy estimate) if EGUs did not do anything beyond CAIR in order to comply with CAMR would be \$15.7 million per year. As a result, the total cost of complying with the Pennsylvania-specific mercury rule for Phase 1 would be no more than the cost of complying with CAMR.

For Phase 2, the total annualized cost (capital and operating) of mercury-specific control technology that EGUs must install beyond CAIR to comply with the Pennsylvania-specific mercury rule would be \$16.7 million per year. The total cost of purchasing mercury allowances (at \$2,619 per ounce, according to a U.S. Department of Energy estimate) if EGUs did not do anything beyond CAIR in order to comply with CAMR would be \$14.5 million per year. The difference between \$16.7 million and \$14.5 million is \$2.2 million, which would be the total cost of complying with the In addition, the Board encourages the use of bituminous coal through its Phase 1 and Phase 2 presumptive control strategies. The Department's analysis assumes the continued use of the existing coal feedstocks. Because we anticipate the majority of the mercury reductions in Pennsylvania to be achieved through the installation of CAIR controls for NO_x and SO_x, there will not exist the same incentive to utilize fuel switching to lower mercury content coal as there is under CAMR. A control strategy combining fuel switching and the purchase of mercury allowances is a viable option that many companies are expected to use to meet the CAMR requirements. The Department's rule disallows this approach. Based on the data submitted in response to the Department's data request, fuel switching is not necessary to comply with its proposed emission standards and, to the contrary, the proposed rule provides strong disincentives to switch fuels. Therefore, fuel switching is not necessary to comply with the proposal, and the continued use of the existing coal feedstocks should not be affected.

Pennsylvania-specific mercury rule for Phase 2. This would be an increase of \$0.000016 per kW-hr.

(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.

Local governments should not be affected by this regulation.

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting or consulting procedures which may be required.

To the extent that state government purchases electricity from an affected generating unit the costs will be commensurate with those the private sector will experience.

Nominal costs will be experienced by the Commonwealth to assist in providing training, outreach and assistance to the regulated community. No new staff resources are anticipated to be necessary.

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(20) In the table below, provide an estimate of the fiscal savings and cost associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY (05/06) Year	FY +1 (06/07) Year	FY +2 (07/08) Year	FY +3 (08/09) Year	FY +4 (09/10) Year	FY +5 (10/11) Year
SAVINGS:	\$	\$	\$	\$	\$	\$
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Savings	0.00	0.00	0.00	0.00	0.00	0.00
COSTS:						
Regulated Community	0.00	0.00	0.00	0.00	3.75 million	7.5 million
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Costs	0.00	0.00	0.00	0.00	3.75 million	7.5 million
REVENUE LOSSES:						
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Revenue Losses	0.00	0.00	0.00	0.00	0.00	0.00

(20a) Explain how the cost estimates listed above were derived.

It is anticipated that the majority of EGUs in the Commonwealth will be able to comply with both phases of the proposed rule using existing WFGD and SCR technology, which will be necessary in order to comply with CAIR. While some EGUs may need to install mercury specific control technology, the Department believes that there are a number of currently available control technologies that coal-fired power plants can use to reduce their emissions of mercury to the atmosphere, which will result in a minor cost increase on a cents per kW-hr. basis.

The regulations will, to some extent impact all EGUs in Pennsylvania. There will be compliance costs related to the construction and operation of air pollution control devices to control mercury, NO_x, and SO_x. For Phase 1 the total annualized cost (capital and operating) of mercury-specific control technology that EGUs must install beyond CAIR to comply with the Pennsylvania-specific mercury rule would be \$15.4 million per year. The total cost of purchasing mercury allowances (at \$953 per ounce, according to a U.S. Department of Energy estimate) if EGUs did not do anything beyond CAIR in order to comply with CAMR would be \$15.7 million per year. As a result, the total cost of complying with the Pennsylvania-specific mercury rule for Phase 1 would be no more than the cost of complying with CAMR.

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(20b) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3 (02/03)	FY-2 (03/04)	FY-1 (04/05)	Current FY (05/06)
Clean Air Fund – Major Emission Facilities	21,118,000	26,960,000	24,533,000	25,901,000

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

These emission reductions are necessary to reduce the exposure of Pennsylvanians to mercury. The emission reductions that will result from the regulation will result in reduced exposure of Pennsylvania's citizens to levels of mercury that may adversely affect public health.

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

Non-regulatory options are not available.

Under the EPA "Clean Air Mercury Rule" ("CAMR"), states are required to submit a plan to EPA by November 2006 that meets the requirements of the CAMR. If a State fails to submit a State plan, as required in the final rule, EPA will prescribe a Federal plan for that State, under Section 111(d)(2)(A) of the CAA. This proposed regulation, if finalized, will be submitted to EPA as the State Plan to fulfill Pennsylvania's requirements under CAMR.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

There are no other regulatory schemes available that will achieve the level of emission reductions necessary.

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(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulation.

The final CAMR establishes Pennsylvania's 2010-2017 mercury emissions budget as 1.78 tons and the 2018 budget as 0.702 tons. The proposed rule has two phases - January 1, 2010-December 31, 2014, and January 1, 2015 for existing units. As a result, mercury reductions will be achieved in a faster time than under CAMR. After Phase 1 of the program, the Department anticipates that the Pennsylvania rule will achieve 29% greater reductions than CAMR. After Phase 2, the Department anticipates that the Pennsylvania rule will achieve 36% greater reductions than CAMR. The Department strongly opposes a "cap-and-trade" approach under CAMR for the regulation of mercury emissions from the utility sector for a number of reasons. First, the Department believes that EPA does not have the legal authority to promulgate a "cap-and-trade" program for a hazardous air pollutant like mercury. Second, the Department believes this approach will significantly delay the control of mercury emissions from the utility sector and will create "hot spots" of mercury exposure that could be very detrimental to humans and wildlife. Third, the Department believes that CAMR unfairly requires greater reductions from coal-fired units that burn bituminous coal from states like Pennsylvania, which would encourage fuel switching to western sub-bituminous coal and cause significant economic dislocation for the Pennsylvania coal industry.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

Facilities in Pennsylvania will need to comply with the requirements of the Clean Air Interstate Rule which is a cap-and-trade approach for sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emissions. (70 Fed. Reg. 72268, November 22, 2005). Significant mercury emission reductions can be obtained as a "co-benefit" of controlling SO₂ and NO_x emissions through wet flue gas desulfurization and selective catalytic reduction techniques. Thus, the coordinated regulation of Hg, SO₂, and NO_x emissions allows mercury reductions to be achieved in a cost-effective manner.

There are a number of States that have also enacted or adopted mercury standards more stringent than CAMR. Final mercury regulatory action has been taken by the Wisconsin, Connecticut, New Jersey, and Massachusetts. Regulatory action to reduce mercury emissions from coal-fired power plants may be taken by the States of Illinois, Maryland, Indiana, Virginia, North Carolina, and Michigan. Legislative action to reduce mercury emissions may be taken by Ohio, New Hampshire, Minnesota, Illinois, New York, Montana, and Maryland.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

No.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

Three public hearings are recommended during a thirty-day public comment period.

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(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

Emission monitoring, recordkeeping and reporting requirements are contained in the proposed rulemaking. These requirements are similar to those already in place for other air contaminant emissions from the affected facilities.

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

Reductions in mercury will assist in improving the health of women and children. Women of childbearing age and pregnant women are of special concern in terms of methylmercury exposure. Methylmercury exposure prior to pregnancy can actually place the developing fetus at risk because methylmercury persists in body tissue and is only slowly excreted from the body. Low-dose prenatal methylmercury exposure has been associated with poor performance on neurobehavioral tests in children, including those tests that measure attention, visual spatial ability, verbal memory, language ability, fine motor skills, and intelligence. It is estimated that approximately eight percent of women of childbearing age in the U.S. have mercury levels exceeding the level considered safe by the EPA for protecting the fetus.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

The regulation will be effective on the date of publication as final rulemaking in the *Pennsylvania Bulletin*

No special permits or licenses are required.

(31) Provide the schedule for continual review of the regulation.

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

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Copy below is hereby approved as to form and legality.
Attorney General

[Signature]
By:

(Deputy Attorney General)

JUN 16 2006

DATE OF APPROVAL

Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and
correct copy of a document issued, prescribed or
promulgated by:

DEPARTMENT OF ENVIRONMENTAL
PROTECTION
ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-405

DATE OF ADOPTION May 17, 2006

[Signature]
BY

TITLE KATHLEEN A MCGINTY
CHAIRPERSON

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

Copy below is hereby approved as to form and legality
Executive or Independent Agencies

BY *[Signature]*
DAVID J. DEVERIES

MAY 18 2006

DATE OF APPROVAL

EXECUTIVE

(Deputy General Counsel)

(~~Chief Counsel - Independent Agency~~)

(Strike inapplicable title)

Check if applicable. No Attorney General Approval
or objection within 30 days after submission.

NOTICE OF PROPOSED RULEMAKING

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

Mercury Emission Reduction Requirements for Electric Generating Units

Notice of Proposed Rulemaking
Department of Environmental Protection
Environmental Quality Board
25 Pa. Code Chapter 123

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code Chapter 123 (relating to standards for contaminants) as set forth in Annex A.

This notice is given under Board order at its meeting of May 17, 2006.

A. Effective Date

These amendments will be effective upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information, contact John Slade, Chief, Division of Permits, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P.O. Box 8468, Harrisburg, PA 17105-8468, telephone: 717-783-9476 or Robert “Bo” Reiley, Assistant Counsel, Bureau of Regulatory Counsel, 9th floor, Rachel Carson State Office Building, P.O. Box 8464, Harrisburg, PA 17105-8464, telephone: 717-787-7060.

Information regarding submitting comments on this proposal appears in Section J of this preamble. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This proposal is available electronically through the DEP Web site (<http://www.depweb.state.pa.us>).

C. Statutory Authority

This action is being taken under the authority of section 5(a)(1) of the Air Pollution Control Act (35 P.S. §4005(a)(1)), which grants to the Board the authority to adopt regulations for the prevention, control, reduction, and abatement of air pollution.

D. Background and Summary

1. Introduction

Mercury is a highly toxic pollutant – one specifically targeted by Congress when it amended Section 112 of the federal Clean Air Act (“CAA”) in 1990. 42 U.S.C. §7412. The environmental impacts of mercury are significant, widespread and adverse.

Mercury is a dangerous reproductive and neurological toxicant. It can affect the brain, spinal cord, kidneys and liver. High exposure levels to mercury can affect the ability to feel, see and taste and has the potential to limit mobility. A study by the National Academy of Sciences ("NAS") concluded that human exposure to methylmercury from eating contaminated fish and seafood is associated with adverse neurological and developmental health effects. Women of childbearing age and pregnant women are of special concern in terms of methylmercury exposure. Methylmercury exposure prior to pregnancy can actually place the developing fetus at risk because methylmercury persists in body tissue and is only slowly excreted from the body. Furthermore, according to the NAS, chronic low-dose prenatal methylmercury exposure has been associated with poor performance on neurobehavioral tests in children, including those tests that measure attention, visual spatial ability, verbal memory, language ability, fine motor skills, and intelligence. Adults can be affected by high mercury exposures as well, with effects on the nervous system and impaired vision and hearing.

A recent study released by the Centers for Disease Control and Prevention found that approximately 8 percent of women of childbearing age in the U.S. had mercury levels exceeding the level considered safe by the EPA for protecting the fetus. In the U.S., this translates into approximately 600,000 babies born each year at risk of developmental harm due to mercury exposure in the womb.

Accumulation of mercury in aquatic ecosystems has resulted in 45 states, including Pennsylvania, issuing fish consumption advisories. Pennsylvania has fish consumption advisories for mercury in 80 waterways across the Commonwealth, which includes the Delaware, Ohio, Potomac, and Susquehanna River Basins and the Lake Erie Basin.

Mercury cycles throughout the environment as a consequence of both natural and human activities. The annual global cycling of mercury in the earth's atmosphere amounts to about 5,000 tons. It is estimated that 4,000 tons are the consequence of anthropogenic activities. The U.S. is responsible for 3 percent of the global anthropogenic emissions. Coal-fired power generation in the U.S. contributes approximately 40 percent of this amount.

Pennsylvania has 36 coal-fired power plants with 78 electric generating units (EGUs) that represent 20,000 megawatts of capacity. These units accounted for approximately 77 percent of the more than 5 tons of mercury emitted into the air from all contamination sources in the Commonwealth, ranking Pennsylvania second only to Texas in terms of total mercury emissions, and third behind Texas and Ohio, respectively, for EGU-specific mercury emissions in 2003.

The mercury in the flue gas of EGUs can be characterized as being in two forms: oxidized or elemental. The ability of an air pollution control system to capture the mercury is dependent, in part, on the species of the mercury in the flue gas. When the coal is burned in an electric utility boiler, the resulting high combustion temperatures

vaporize the Hg in the coal to form gaseous elemental mercury (Hg^0). Subsequent cooling of the combustion gases and interaction of the gaseous Hg^0 with other combustion products results in a portion of the Hg being converted to gaseous oxidized forms of mercury (Hg^{+2}) and particle bound mercury (Hg_p). The lifetime of elemental mercury (Hg^0) in the atmosphere is estimated to be up to a year, while oxidized forms have a lifetime of only a few days because of particulate settling and solubility. Hg^0 can be transported over transcontinental distances, whereas oxidized gaseous and particulate forms are deposited near their source. Methylmercury is formed by biological processes after Hg precipitates from air to water.

Coal-fired power plants that burn subbituminous coal emit elemental mercury, which is very difficult to capture with conventional air pollution control devices like wet flue gas desulfurization (“WFGD”) for sulfur dioxide (SO_2) control and selective catalytic reduction (“SCR”) for nitrogen oxides (NO_x) control. Moreover, coal-fired power plants that burn sub-bituminous coal emit Hg^0 , which can be transported over transcontinental distances. Coal-fired power plants that burn bituminous coal emit oxidized forms of mercury, which are easier to capture using WFGD and SCR. Coal-fired power plants that burn bituminous coal emit oxidized forms of mercury, which are deposited near their source. For example, EGUs that burn 100 percent subbituminous coal and control emissions with a WFGD and SCR can expect to capture approximately 16 percent of mercury emissions. In contrast, EGUs that burn 100 percent bituminous coal and control emissions with a WFGD and SCR can expect to capture approximately 90 percent of mercury emissions. In Pennsylvania, 85 percent of coal the burned by coal-fired power plants is bituminous, with the remainder waste coal. This proposed rule, in part, is designed to take advantage of the co-benefit reductions that will occur under the Clean Air Interstate Rule (“CAIR”), designed to reduce SO_2 and NO_x emissions from EGUs. 70 Fed. Reg. 72268, (November 22, 2005).

2. Legal Requirements Related to the Control of Hazardous Air Pollutants under the federal Clean Air Act and the Pennsylvania Air Pollution Control Act.

Under the 1990 Amendments to the CAA Congress altered the principle focus of the hazardous air pollutants (“HAPs”) program under Section 112, 42 U.S.C. §7412, from a health-based to a technology-based regulatory program. As part of this new regulatory focus, under Section 112(b), Congress listed 189 HAPs. Under Section 112(c), EPA was then required to establish a list of all categories and subcategories of major and area sources of air pollution for those pollutants listed under subsection (b). For each listed category of sources, EPA is required, under Section 112(d), to promulgate standards requiring the installation of maximum achievable control technology (“MACT”), in light of economic, energy, and environmental considerations.

EPA is required to base the standard on the best technology currently available for the source category in question. These standards must be at least as stringent as the level achieved in practice by the best controlled source in the source category for new sources,

or for the best performing group of sources for existing source MACT standards. For existing source MACT standards, EPA defines the “MACT floor” (the minimum stringency level for existing source MACT) in terms of the central tendency (arithmetic mean or median) of the best 12 percent of sources in the source category (where there are 30 or more sources in the category) or the best performing 5 sources (where there are fewer than 30 sources in the category).

As part of this MACT process, EPA has already finalized mercury emission limits for municipal waste combustors and medical waste incinerators, which resulted in a 90 percent reduction in mercury emissions within 5 years. However, Congress set forth additional regulatory steps before mercury emissions from EGUs could be controlled.

Under Section 112(n)(1)(A) of the CAA, 42 U.S.C. §7412(n)(1)(A), Congress directed EPA to perform a study of the hazards to public health reasonably anticipated to occur as a result of emissions of HAPs by EGUs. Under this same subparagraph, EPA is further directed to regulate these units, if the agency finds such regulation is appropriate and necessary after considering the results of the study.

In addition to this section of the CAA, Section 112(n)(1)(B), 42 U.S.C. §7412(n)(1)(B), further directs EPA to conduct a study of mercury emissions from EGUs, municipal waste combustion units, and other sources to consider the rate and mass of such emissions, the health and environmental effects of such emissions, control technologies, and the costs of such technologies.

In December of 1997, EPA fulfilled the statutory directive of Section 112(n)(1)(B) when it issued its “Mercury Study Report to Congress,” EPA-452/R-97-003. This 1,800 page, eight-volume report discusses the national inventory of anthropogenic mercury emissions in the U.S., the fate and transport of mercury in the environment, an assessment of exposure to mercury in the U.S., health effects of mercury and mercury compounds, an ecological assessment for anthropogenic mercury emissions in the U.S., characterization of human health and wildlife risks from mercury in the U.S., and an evaluation of mercury control technologies and costs.

On February 28, 1998, EPA fulfilled its statutory obligation, under Section 112(n)(1)(A) of the CAA, when it released its “Study of Hazardous Air Pollutant Emissions from Electric Steam Generating Units – Final Report to Congress.” Most, if not all, of the conclusions related to mercury are consistent with those found in the 1997 study. While this report identifies EGUs as the largest remaining unregulated source of mercury air emissions, it did not contain a determination as to whether or not regulatory controls were appropriate and necessary, and deferred any regulatory determination until a later date. Because of this regulatory delay, the Natural Resources Defense Fund sued EPA, and the parties entered into a settlement agreement to require EPA to take final agency action to regulate such mercury emissions by March 15, 2005.

On December 20, 2000, EPA concluded, based upon the findings of its 1998 report and on information subsequently obtained, that in accordance with Section

112(n)(1)(A) of the CAA, the regulation of mercury emissions from electric utilities was “appropriate and necessary.” 65 Fed. Reg. 79825. This conclusion was based on the following: EGUs are the largest anthropogenic source of mercury in the U.S.; mercury is highly toxic, persistent, and bioaccumulates in the food chain; mercury emissions are transported through the atmosphere and eventually deposit onto land or water bodies; the deposition can occur locally near the source or at long distances; fish consumption dominates the pathway for human and wildlife exposure to mercury; neurotoxicity is the health effect of greatest concern with methylmercury exposure; the developing fetus is considered most sensitive to the effects from methylmercury; extrapolating from high-dose exposure incidents, the EPA derived a Reference Dose (RfD) for methylmercury of 0.1 ug/kg/day based on developmental neurological effects observed in children born to mothers exposed to methylmercury during their pregnancy; EPA estimates that about 7 percent of women of childbearing age are exposed to methylmercury at levels exceeding the RfD and about 1 percent of women have methylmercury exposures 3 to 4 times that level; exposure to methylmercury can have serious toxicological effects on wildlife as well as on humans; there are a number of alternative control strategies that are effective in controlling some of the HAPs emitted from electric utility steam generating units; and recent data indicate that mercury can be effectively removed by using oxidizing agents or sorbents injected into the gas stream, and data also indicate the possibility for multipollutant control with other pollutants, like NO_x, SO₂, and PM, greatly reducing mercury control costs.

As a result of these findings, the agency added these units to the list of source categories to be regulated under Section 112(c). EPA was then required to establish emission standards for this source category under Section 112(d) of the CAA.

On March 29, 2005, EPA published a final rule entitled “Revision of December 2000 Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units and the Removal of Coal- and Oil-Fired Electric Utility Steam Generating Units From the Section 112(c) List.” 70 Fed. Reg. 15993. The agency now believes that it is neither appropriate nor necessary to regulate mercury from these units for the following reasons: the December 2000 finding was overbroad to the extent it hinged on environmental effects; the December 2000 finding lacked foundation because EPA did not fully consider the mercury reductions that would result from the installation of selective catalytic reduction to comply with new source performance standards for NO_x and the “NO_x SIP Call”; and new information reveals that the level of mercury emissions remaining after the imposition of the requirements of CAIR to further control SO₂ and NO_x through flue gas desulfurization and SCR technology does not cause hazards to public health.

As a result of this conclusion, EPA removed coal- and oil-fired utility units from the Section 112(c) list. This final action means that EPA does not have to promulgate MACT standards for the control of mercury emissions from utility units. This action also cleared the way for EPA to regulate these emissions under a Section 111 cap-and-trade approach.

On March 15, 2005, EPA finalized its “Clean Air Mercury Rule” (“CAMR”). The final rulemaking published on May 18, 2005, established standards of performance for mercury for new and existing coal-fired EGUs, as defined in Section 111 of the CAA. 70 Fed. Reg. 28606. New EGUs are subject to different standards of performance based on five subcategories - subbituminous, bituminous, lignite, waste coal, or integrated gasification combined cycle. This rule establishes a “cap-and-trade” program by which mercury emissions from new and existing coal-fired EGUs are capped at specified, nation-wide levels. The Phase 1 cap of 38 tons per year (tpy) becomes effective in 2010, and the Phase 2 cap of 15 tpy becomes effective in 2018. Facility owners and operators must demonstrate compliance with the standard by holding one “allowance” for each ounce of mercury emitted in any given year. Allowances will be readily transferable among all regulated facilities under the Section 111 trading scheme.

EPA believes that an added benefit of the cap-and-trade approach is that it dovetails well with the SO₂ and NO_x emission caps under CAIR. Significant mercury emission reductions can be obtained as a “co-benefit” of controlling SO₂ and NO_x emissions. Thus, the coordinated regulation of Hg, SO₂, and NO_x emissions allows mercury reductions to be achieved in a cost-effective manner.

Section 111(c) and (d) of the CAA requires each state to develop and submit to the U.S. EPA Administrator a procedure for implementing and enforcing the new source performance standards for new sources and emission guidelines for existing sources. Specifically, EPA authorizes States, under the CAMR, to adopt the mercury cap-and-trade program whether by incorporating by reference the CAMR cap-and-trade rule that will be codified in 40 CFR Part 60, Subpart HHHH, or by codifying the provisions of the CAMR cap-and-trade rule, in order to participate in the EPA-administered mercury cap-and-trade program. The final CAMR establishes Pennsylvania’s 2010-2017 mercury emissions budget as 1.78 tons and the 2018 budget as 0.702 tons.

Each State participating in the EPA-administered cap-and-trade programs must develop a method for allocating an amount of allowances authorizing the emissions tonnage of the State’s CAMR budget. Each State has the flexibility to allocate its allowances however they choose, so long as certain timing requirements are met. States may elect to participate in the EPA-managed cap-and-trade program for coal-fired utility units. However, state participation in this program is voluntary. For States that elect not to participate in the EPA-administered mercury cap-and-trade program, a methodology must be established by the States to meet the CAMR mercury emission budgets by reducing mercury emissions.

By November 17, 2006, States must submit a plan to EPA that meets the requirements of the CAMR. If a State fails to submit a State plan, as required in the final rule, EPA will prescribe a Federal plan for that State, under Section 111(d)(2)(A) of the CAA. EPA would propose the model rule under CAMR as that Federal plan. However, EPA has indicated in the preamble to the final rule that States are free to develop a more stringent mercury control program than the one set forth in the final rule. This proposed

regulation, if finalized, will be submitted to EPA as the State Plan to fulfill Pennsylvania's requirements under CAMR.

The Pennsylvania Air Pollution Control Act ("APCA") also contains specific provisions applicable to the regulation of HAPs regulated under Section 112 of the CAA. Section 6.6 (a) of the APCA provides that "the regulations establishing performance or emission standards promulgated under section 112 of the [CAA] are incorporated by reference into the Department's permitting program." 35 P.S. § 4006.6(a). Section 6.6(a) further provides that the "Environmental Quality Board may not establish a more stringent performance or emission standard for hazardous air pollutant emissions from existing sources, except as provided in subsection (d) [regarding health risk-based emission standards]." This "no more stringent than" provision applies to performance standards (maximum achievable control technology) or requirements adopted pursuant to Section 112 of the CAA.

As previously noted, on March 29, 2005, EPA revised its December 2000 "appropriate and necessary" regulatory finding for the regulation of mercury emissions from coal- and oil-fired EGUs as HAPs and de-listed EGUs, which were included on a list of source categories under Section 112(c) of the CAA. 70 Fed. Reg. 15994. Section 6.6(a) of the APCA provides that the Board may establish emission standards for source categories which are not included on the list of source categories established under Section 112(c) of the CAA. Because of EPA's March 29, 2005, "delisting" action, the limitations in Section 6.6 (a) are not applicable to performance standards and other measures that would be adopted to implement the Section 111 standards for new and existing sources.

CAMR established standards of performance for new sources and emission guidelines ("EG") for existing sources under Section § 111(b) of the Clean Air Act and Section 111(d), respectively. 70 Fed. Reg. 28606. Because these standards were established under Section 111 of the CAA, rather than Section 112, the "no more stringent than" provision under Section 6.6(a) of the APCA is inapplicable. In addition, the Department must develop a State Plan in accordance with Section 111(d) to implement and enforce the EG requirements. Although the provisions under CAMR are incorporated by reference in 25 Pa. Code Chapter 122, the Department may adopt more stringent requirements for inclusion in the State Plan that must be adopted for existing sources and submitted to EPA for review and approval. In addition, EPA specifically states in the preamble of CAMR that states are allowed to adopt more stringent requirements related to mercury emissions in their State Plan.

In response to EPA's March 29, 2005, revision and CAMR, petitions for review challenging these final agency actions were filed with the U.S. Court of Appeals for the D.C. Circuit. In addition to Pennsylvania, State challengers include California, Connecticut, Delaware, Illinois, Maine, Massachusetts, New Hampshire, New Mexico, New Jersey, New York, Rhode Island, Vermont, and Wisconsin.

On May 31, 2005, Pennsylvania together with the States of California, Connecticut,

Delaware, Illinois, Maine, Massachusetts, New Hampshire, New Jersey, New Mexico, New York, Minnesota, Rhode Island, Vermont, and Wisconsin filed a petition for reconsideration under Section 307(d)(7)(B) of the CAA, 42 U.S.C. §7607(d)(7)(B), related to EPA's March 29, 2005, final action revising its December 2000 regulatory finding. Issues related to this petition included, but were not limited to, whether EPA's action is contrary to the CAA and supported by the record, and whether the procedural requirements under the Administrative Procedures Act and CAA were followed.

On July 18, 2005, Pennsylvania together with these same States filed a petition for reconsideration under Section 307(d)(7)(B) of the CAA related to CAMR. Issues related to this petition included, but were not limited to, the setting of new source performance standards ("NSPS") standards based on subcategories of coal, the cost-benefit analysis, air quality modeling, and provisions concerning the 2010 cap on mercury emissions.

On October 28, 2005, EPA granted reconsideration on both petitions and reopened the public comment period related to certain issues under both final actions. 70 Fed. Reg. 62200, and 70 Fed. Reg. 62213.

On December 19, 2005, Pennsylvania and the other States filed comments on these reconsideration actions. Issues related to these reconsideration notices included, but were not limited to, EPA's legal interpretations, EPA's methodology and conclusions concerning reasonably anticipated hazards to public health resulting from EGU mercury emissions, modeling of mercury deposition, costs, NSPS standards, and statistical analysis used for the NSPS standards.

In addition to these State concerns, federal reports also noted deficiencies in EPA's CAMR. On February 3, 2005, the EPA Office of Inspector General ("OIG") published an Evaluation Report: *Additional Analyses of Mercury Emissions Needed before EPA Finalizes Rules for Coal-Fired Electric Utilities*. OIG found that EPA's cap-and-trade proposal failed to adequately address the potential for hot-spots of mercury pollution. The OIG also found evidence that, instead of basing its proposed MACT standard on an unbiased determination under Section 112(d) of what mercury emission rates the top performing units were achieving, EPA staff followed orders from EPA senior management and simply set the MACT standard at a rate that would result in national emissions of 34 tons annually. Finally, OIG found that EPA's rule development process did not comply with certain Agency and Executive Order requirements, including not fully analyzing the costs/benefits of regulatory alternatives and not fully assessing the rule's impact on children's health. The OIG recommended that EPA conduct additional analyses of mercury emissions data, strengthen its cap-and-trade proposal, assess the costs/benefits of regulatory alternatives to its proposal, and fully explore potential impacts to children's health.

In February 2005, the United States Government Accountability Office ("GAO") issued a report to Congressional requesters entitled *Clean Air Act: Observations on EPA's Cost-Benefit Analysis of Its Mercury Control Options*. GAO concluded that EPA's economic analysis of its proposed mercury control options had four major shortcomings:

it failed to document some of its analysis; it failed to follow Office of Management and Budget guidance; it did not estimate the value of health benefits that would result from decreased mercury emissions; and it failed to analyze some of the key uncertainties underlying its cost/benefit estimates. GAO concluded that, as a result of these shortcomings, EPA's cost/benefit estimates are not comparable and are of limited use for assessing the economic trade-offs of the different options for controlling mercury.

3. Petition for Rulemaking Process

On August 9, 2004, Citizens for Pennsylvania's Future, PennEnvironment, Pennsylvania Federation of Sportsmen's Clubs, Pennsylvania NOW, Pennsylvania State Building and Construction Trades Council, Pennsylvania Trout, Planned Parenthood Pennsylvania Advocates, Sierra Club Pennsylvania Chapter, Women's Law Project, and WomenVote PA ("Petitioners") filed a petition for rulemaking, under 25 Pa. Code Chapter 23, requesting that the Board adopt regulations to reduce mercury emissions from electric utilities located in the Commonwealth of Pennsylvania. Since the original filing of the petition, an additional 39 organizations declared their intent to be co-petitioners. The petitioners seek to protect human health and the environment through the regulation of mercury emissions from coal-fired power plants in the Commonwealth. They requested that the Department exercise its statutory authority under the APCA and develop a regulatory program to reduce the mercury emissions from electric utilities for consideration by the Board.

The Petitioners submitted suggested regulatory language adapted from a January 5, 2004, New Jersey Department of Environmental Protection ("NJDEP") proposal to reduce mercury emissions from coal-fired boilers. These regulations, promulgated as a final rulemaking on December 6, 2004, provide that on and after December 15, 2007, each owner or operator of a coal-fired boiler of any size shall operate the coal-fired boiler in accordance with either an emission standard not to exceed 3.00 mg-Hg/MW-hr based on an annual weighted average of all valid stack emission tests performed for four consecutive quarters, weighted by megawatt hours produced each quarter; or a reduction efficiency for control of mercury emissions of the air pollution control apparatus for control of mercury of any coal-fired boiler shall be at least 90 percent based on the annual weighted average of all valid stack emissions tests performed for four consecutive quarters, weighted by megawatt hours produced each quarter.

On October 19, 2004, the Board reviewed the Petitioners' petition and found it to be complete and appropriate for consideration and approved its acceptance for further study.

At the January 18, 2005, Board meeting, the Department requested a 120-day extension to develop its report on the petition for rulemaking in order to determine if that petition proposes appropriate standards in view of EPA's final rule, which was to be finalized on March 15, 2005. The Board granted that request.

On May 18, 2005, the Department finalized its response to the Petitioners' petition for rulemaking and set forth its rationale as to why neither the NJDEP regulation nor EPA's CAMR was in the best interest of Pennsylvania. The New Jersey regulatory language has one emission standard for both new and existing sources. The Department believes there should be separate emission standards for new and existing coal-fired boilers. Moreover, the State of New Jersey has a limited number of coal-fired utility units, which are not representative of the significantly varied boiler types in Pennsylvania.

The Department also does not believe that EPA's Section 111 approach to mercury control for the electric generating sector is best for Pennsylvania. The Department strongly opposes a "cap-and-trade" approach under CAMR for the regulation of mercury emissions from the utility sector for a number of reasons. First, the Department believes that EPA does not have the legal authority to regulate a hazardous air pollutant, like mercury, under the less stringent provisions of Section 111 of the CAA, as opposed to the more stringent provisions under Section 112 of the CAA. Second, the Department believes this approach will significantly delay the control of mercury emissions from the utility sector and will create "hot spots" of mercury exposure that could be very detrimental to humans and wildlife. Third, the Department believes that CAMR, since it is not a fuel-neutral regulation, requires greater reductions from coal-fired units that burn bituminous coal from States like Pennsylvania. Consequently, the Department recommended that a comprehensive approach to mercury control should be considered and recommended the development of a fuel-neutral regulatory approach to mercury emissions control.

On August 16, 2005, the Board accepted the Department's recommendation to move forward with a Pennsylvania-specific mercury rule with an expanded public involvement process. The list of stakeholders to be included in the public involvement process was expanded to include, but was not limited to, the Pennsylvania Chamber of Business and Industry, Pennsylvania Chemical Industry Council, Associated Petroleum Industries of Pennsylvania, Pennsylvania Manufacturers Association, Industrial Energy Users of Pennsylvania, Electric Power Generation Association, Pennsylvania Coal Association, United Mine Workers of America, Air Quality Technical Advisory Committee, Citizens Advisory Council, the petitioners and other representatives of the potentially regulated community.

The Department established a Mercury Rule Workgroup as part of the expanded public involvement process for a Pennsylvania-specific mercury rule. The first workgroup meeting was held on October 14, 2005. During the first meeting, presentations included workgroup objectives, an overview of mercury, its fate and transport, and other state regulations. The second meeting of the workgroup was held on October 28. The second meeting focused on the health impacts of mercury. The third meeting of the workgroup was held on November 18. Speakers at this meeting discussed the health impacts of mercury and methods of controlling mercury emissions from coal-fired power plants. The last workgroup meeting was held on November 30, 2005. This

last meeting focused on additional health impacts related to mercury, and workgroup members and others discussed their organizations' proposals for the control of mercury.

4. Overview of the Pennsylvania Proposal

On February 22, 2006, the Department presented concepts of its proposal at a joint meeting of the Citizens Advisory Council/Air Quality Technical Advisory Committee/Mercury Workgroup. The Pennsylvania-specific proposed rule has a number of elements. First, it does not provide for a cap-and-trade approach for mercury, which is a potent neurotoxin. Second, the rule achieves greater reductions than EPA's CAMR in a shorter period of time. Lastly, the rule has several administrative provisions to assist companies to come into compliance with the rule.

The rule has two phases: January 1, 2010 - December 31, 2014, for Phase 1, and January 1, 2015, and each subsequent year thereafter for Phase 2 for existing units. (All new units are subject to the more stringent Phase 2 standards upon construction.) Under both phases, in addition to meeting an annual mercury emissions limitation, all existing pulverized coal-fired units ("PCF") and circulating fluidized bed ("CFB") units must meet a certain output-based emission standard or removal efficiency standard. The provisions for all existing units are fuel-neutral since all units are required to comply with the same emission standard or removal efficiency standard regardless of the type of coal combusted. The provisions for all new coal-fired PCF, CFB, and integrated gasification combined cycle units are fuel-neutral since all units are required to comply with the same emission standard or removal efficiency standard regardless of the type of coal combusted. The provisions for new CFBs burning 100% waste coal would be subject to the EPA NSPS for those units, which is fuel-neutral since it does not distinguish among types of waste coal. The provisions for new CFBs burning all other coals will be subject to a single emission standard or removal efficiency standard. The provisions for new CFBs burning a blend of coal and waste coal would comply with a prorated emission standard, which is fuel-neutral since it does not distinguish among the blends of waste coal and coal. Both phases allow units to comply on a unit-by-unit basis or by facility-wide emissions averaging. In addition, under Phase 1, any existing EGU combusting 100 percent bituminous that is controlled by the air pollution control technologies of an electrostatic precipitator and WFGD will be considered to be in compliance with the first phase emission standard requirement without any additional compliance demonstration. This last compliance feature allows the owners and operators of existing EGUs to take advantage of any co-benefit mercury reductions from the WFGD. Moreover, this compliance feature is based on a strict technical analysis, which shows this coal-type and air pollution control device combination can meet the required control efficiency standard. Currently the Department does not have an adequate data set to offer this compliance presumption to EGUs that may combust a different coal-type or coal blend. However, the proposal explicitly provides the Department with the authority to provide a compliance presumption for other technology configurations, which can include other coal-types and coal blends, with the emission standard requirements of § 123.205(c)(1) without additional compliance demonstrations where the Department determines there is

sufficient data. WFGD installation will be necessary for these units in order to comply with EPA's CAIR mandate to control SO₂ emissions. While this technology has been developed to reduce SO₂ emissions, it also realizes significant collateral reductions in mercury. Moreover, the Phase 1 timeframes under the Pennsylvania rule coincide with the timeframes under CAIR. As a result, the owners and operators of EGUs are not disadvantaged under this timeframe, and there should not be any reliability concerns for delivery of power over the electric grid.

Under Phase 2, any existing EGU combusting 100 percent bituminous coal, which is controlled by the air pollution control device technologies of SCR, electrostatic precipitator, and WFGD, will be considered to be in compliance with the second phase emission standard requirement without any additional compliance demonstration. Again this compliance feature does not disadvantage Pennsylvania coal and allows the owners and operators of existing EGUs to take advantage of any co-benefit mercury reductions from the WFGD and SCR. Also, this compliance feature is based on a strict technical analysis, which shows this coal-type and air pollution control device combination can meet the required control efficiency standard. As previously noted, currently the Department does not have an adequate data set to offer this compliance presumption to EGUs that may combust a different coal-type or coal blend. But the proposal explicitly provides the Department with the authority to provide a compliance presumption for other technology configurations, which can include coal-types or coal blends, with the emission standard requirements of § 123.205(c)(2) without additional compliance demonstrations where the Department determines there is sufficient data. In addition to WFGD installation, it will be necessary for these units to install SCRs in order to comply with EPA's CAIR mandate to control NO_x emissions. While SCR technology has been developed to reduce NO_x emissions, it also realizes significant collateral reductions in mercury. Therefore, this compliance feature will allow electric generating companies to take advantage of any co-benefit mercury reductions from the WFGD and SCR, while at the same time achieving the SO₂ and NO_x reductions required under EPA's CAIR requirements. As under Phase 1, owners and operators of EGUs are not disadvantaged under this timeframe, and there should not be any reliability concerns for delivery of power over the electric grid.

In addition, the rule has an administrative provision, under both phases of the rule, where the Department may grant an alternative emission standard or schedule, or both, if the owner or operator demonstrates to the Department's satisfaction that the mercury reduction requirements are economically or technologically infeasible. The owner or operator of a unit seeking the Department's approval of an alternative emission standard or schedule, or both, shall submit an application to the Department for approval.

The rule also has an annual emission limit provision, which provides regulatory assurance that Pennsylvania meets the EPA CAMR mercury State budget, provides for new source growth, and has a supplemental allowance pool, which reserves allowances for future use. This annual emission limitation provision has a non-tradable mercury allowance program. Under this program, the Department will allocate non-tradable allowances. Each affected unit shall hold a sufficient amount of allowances to be in compliance with annual limitation. As an additional administrative provision, owners

and operators of noncompliant units may petition the Department for additional allowances to assist that unit to come into compliance. This provision is designed, in part, to assist owners and operators who have employed optimum control technology for reducing mercury emission, but are still not in compliance. The Department has established an order of preference for the distribution of additional allowances based on the following rationale. Stand-by units are given first preference because while these units were allocated allowances under CAMR, it is proposed under this rule not to allocate allowances to these units unless and until they are reactivated. CFBs are second in the order of preference because while these units were allocated more allowances under Phase 1 of CAMR than under Phase 2 of CAMR, it is proposed to allocate the CAMR Phase 2 allowances under Phase 1 of this proposed rule. Units identified under all other preferences are listed in descending order for the optimum control technology that reduces mercury emissions at units that burn 100 percent bituminous coal. Currently the Department does not have an adequate data set to identify the optimum control technology for units burning a coal blend or a type of coal other than bituminous to establish a proposed order of preference. However, each petition would be reviewed on a case-by-case basis and all of the information contained in the petition would be examined to determine if an owner or operator has employed optimum control technology to reduce mercury emissions if additional allowances are distributed. Moreover, if sufficient data becomes available to grant a compliance presumption to EGUs burning other than bituminous under Section 123.206, that same data will be used in granting supplemental allowances to ensure compliance

After Phase 1 of the program, the Department anticipates that the Pennsylvania rule will achieve 29 percent greater reductions than CAMR. After Phase 2, the Department anticipates that the Pennsylvania rule will achieve 36 percent greater reductions than CAMR. In addition, the Department's analysis shows that the vast majority of EGUs in the Commonwealth will be able to comply with both phases of the rule using existing WFGD and SCR technology. While some EGUs may need to install mercury-specific control technology, the Department believes that there are a number of currently available control technologies that coal-fired power plants can use to reduce their emissions of mercury to the atmosphere. Therefore, compliance with a Pennsylvania-specific mercury rule should be achievable for all affected EGUs, and there should not be any reliability concerns for delivery of power over the electric grid.

The Department worked with the Air Quality Technical Advisory Board ("AQTAC") in the development of these regulations. At its March 30, 2006 meeting AQTAC recommended that the Board consider the proposed amendments at its May 17, 2006 meeting. However, AQTAC would like to see public comment taken on the following issues: (1) the advantages and disadvantages related to the supplement pool under §123.208; (2) the advantages and disadvantages related to the new source set-aside provisions under § 123.207; (3) whether the pre-cleaning of coal should be taken into consideration as part of the percent reduction in meeting the minimum mercury control percentage under §123.205; (4) whether Phases 1 and 2 should be compressed to encourage early compliance; (5) whether providing longer "start-up" and "break-in" test periods, cost-sharing by owner-operators and technology vendors, and providing extended permit life for new, improved and more reliable technology should be offered to

encourage newer and more reliable demonstrated technology on a voluntary basis; (6) whether daily sampling of coal combusted under §123.214 should be expanded to include sampling of coal “as received;” (7) how the Department could encourage over compliance and cost sharing between sources; and (8) whether the Department should consider the results of EPA’s “Steubenville Study” on regulatory requirements.

E. Summary of Regulatory Revisions

Section 123.201 (relating to purpose) is proposed to provide that Sections 123.202 – 123.215 establish mercury emission standards, annual emission limitations as part of a statewide mercury allowance program with annual non-tradable mercury allowances and other requirements for the purpose of reducing mercury emissions from coal-fired electric generating units or cogeneration units.

The proposed amendments add a new Section 123.202 for definitions of terms used in the substantive provisions of Sections 123.203 – 215. The new definitions include: “Btu -British thermal unit,” “Bituminous coal,” “CFB - circulating fluidized bed unit,” “CO₂,” “CS-ESP - cold side electrostatic precipitator,” “Coal refuse,” “Cogeneration unit,” “EGU - electric generating unit,” “Existing EGU,” “FF - fabric filter,” “Facility,” “GWh - gigawatthour,” “IGCC - integrated gasification combined cycle unit,” “MMBtu,” “MW - megawatt,” “MWe - megawatt electric,” “MWh - megawatt-hour,” “Nameplate Capacity,” “New EGU,” “O₂,” “Phase 1,” “Phase 2,” “PCF - pulverized coal-fired unit,” “Rolling 12-month basis,” “SCR- selective catalytic reduction,” “SO₂,” “Space velocity,” “Stand-by unit,” “WFGD - wet flue gas desulfurization unit,” and “W-h - watt-hour.”

Section 123.203 (relating to applicability) is proposed to provide that the requirements of §§ 123.201, 123.202, 123.204 – 123.215 and this section apply to owners and operators of an EGU located in this Commonwealth.

Section 123.204 (relating to exceptions) is proposed to provide that the owner or operator of an EGU that enters into an enforceable agreement with the Department for the shutdown and replacement of the unit with IGCC technology shall be exempted from compliance with the Phase 1 requirements of § 123.205 (relating to emission standards for coal-fired electric generating units) and § 123.207 (relating to annual emission limitations for coal-fired electric generating units). This exemption would only be available if there were sufficient allowances in the supplemental pool under § 123.208 (relating to annual emission limit supplement pool).

Section 123.205 (relating to emission standards for coal-fired electric generating units) is proposed to establish emission standards for coal-fired electric generating units. New pulverized coal-fired EGUs and IGCC EGUs are required to meet either a certain mercury emission standard or minimum mercury control percentage upon construction, and new circulating fluidized bed EGUs are required to meet a certain mercury emission standard upon construction. In addition, existing pulverized coal-fired EGUs and IGCC

EGUs are required to meet either an increasingly stringent mercury emission standard or minimum mercury control percentage from Phase 1 (effective from January 1, 2010 to December 31, 2014) to Phase 2 (effective beginning January 1, 2015). Existing circulating fluidized bed EGUs are required to meet a certain mercury emission standard or minimum mercury control percentage, which does not change from Phase 1 to Phase 2.

Section 123.206 (relating to compliance requirements for the emission standards for coal-fired electric generating units) is proposed to establish compliance requirements for the emission standards for coal-fired electric generating units. Compliance can be demonstrated on a unit-by-unit basis or by facility-wide emissions averaging. Moreover, the owner or operator of an existing EGU combusting 100 percent bituminous coal which is controlled by certain air pollution control device configurations is presumed to be in compliance with the emission standard requirements of § 123.205(c)(1) or (2) without any additional compliance demonstrations. The proposal also provides the Department with the authority to provide a compliance presumption for other technology configurations, which can include other coal-types and coal blends, with the emission standard requirements of §§ 123.205(c)(1) or (2) without additional compliance demonstrations where the Department determines there is sufficient data. The Department may approve in a plan approval or operating permit or both an alternative mercury emission standard or schedule, or both, if the owner or operator of an EGU subject to the emission standards of § 123.205 demonstrates in writing to the Department's satisfaction that the mercury reduction requirements are economically or technologically infeasible. Lastly, the Department has established certain calculation requirements to ensure that a facility does not exceed the applicable emission standard or control percentage requirement.

Section 123.207 (relating to annual emission limitations for coal-fired electric generating units) is proposed to establish an annual emission limitation for coal-fired electric generating units. In addition to the mercury emission standard requirements of § 123.205, the owner or operator of a new or existing affected EGU subject to § 123.203 shall comply with the annual emission limitations established through a statewide mercury non-tradable allowance program under this section. The total ounces of mercury emissions available for emission limitation set-asides as annual non-tradable mercury allowances in the statewide mercury allowance program are 56,960 ounces (3,560 pounds) of mercury emissions for Phase 1, effective from January 1, 2010, through December 31, 2014, and 22,464 ounces (1,404 pounds) of mercury emissions for Phase 2, effective beginning January 1, 2015, and each subsequent year. Of this overall total, 5 percent of the Phase 1 annual allowances will be set aside for new units, and 3 percent of the Phase 2 annual allowances will be set aside for new units for the calendar year beginning January 1, 2015, and subsequent years. However, annual allowances will not be set aside for the owner or operator of an existing affected EGU, which is already shut down, scheduled for shutdown, or is on standby as of the effective date of each set-aside phase.

The maximum number of annual non-tradable mercury allowances set aside for the owner or operator of each existing affected CFB or PCF shall be determined by multiplying the affected unit's baseline heat input fraction of the state's total baseline

annual heat input for all EGUs. The Department will publish in the *Pennsylvania Bulletin* the maximum number of annual allowances set aside for the owner or operator of each existing affected CFB and PCF. If the actual emissions of mercury reported to the Department are less than the maximum number of annual allowances set aside in the allowance program for the owner or operator of an EGU, the Department will place the unused portion of annual allowances in the annual emission limit supplement pool established under the requirements of § 123.208.

Section 123.208 is proposed to establish annual emission limitation supplement pool. Annual allowances that have either been created as part of the new EGU set-aside or are unused annual allowances as part of the annual emission limitation for coal-fired electric generating units will be set aside in the supplement pool for future use.

Section 123.209 (relating to petition process) is proposed to establish a petition process for the owner or operator of an EGU to request additional annual allowances from the annual emission limit supplement pool. Each calendar year beginning January 1, 2010, the Department may set aside, at its discretion, supplemental annual non-tradable mercury allowances from the annual emission limit supplement pool for the owners or operators of existing affected EGUs that successfully petition the Department in accordance with the requirements of this section. If the petition for supplemental annual non-tradable mercury allowances is approved by the Department, the supplemental annual non-tradable mercury allowances set aside for the owner or operator of the existing affected EGU will be added to the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of the EGU in accordance with the requirements of § 123.207 only for the calendar year of the request.

Section 123.210 (relating to general monitoring and reporting requirements) is proposed to create general monitoring and reporting requirements for the owner or operator of a new or existing EGU subject to the requirements of §§123.201 – 215. The owner or operator of a new EGU shall demonstrate compliance with the requirements of §§ 123.205 and 207 by installing and operating a continuous emissions monitoring system to measure, record and report the concentration of mercury in the exhaust gases from each stack. The owner or operator of an existing affected EGU shall comply with the monitoring, recordkeeping, and reporting requirements as provided in this section and in §§ 123.211 – 123.215, 139.101 (relating to general requirements), and the applicable provisions of the Continuous Source Monitoring Manual (DEP 274-0300-001). However, the owner or operator of an affected EGU that emits 464 ounces (29 lbs) or less of mercury per year must meet the general operating requirements in 40 CFR Part 75 for the continuous emission monitors and shall perform mercury emissions testing for the initial certification and ongoing quality-assurance as described in 40 CFR Part 75.

Section 123.211 (relating to initial certification and recertification procedures for emissions monitoring) is proposed to create initial certification and recertification procedures for emissions monitoring. By the applicable deadline specified in § 123.210, the owner or operator of an affected EGU shall comply with certain initial certification and recertification procedures for a continuous monitoring system or continuous emission

monitoring system and an excepted monitoring system (sorber trap monitoring system) as required under 40 CFR § 75.15 and 25 Pa. Code Chapter 139, Subchapter C.

Section 123.212 (relating to out-of-control periods for emissions monitors) is proposed to create out-of-control periods for emissions monitors if an emissions monitoring system fails to meet the quality-assurance and quality-control requirements or data validation requirements.

Section 123.213 (relating to monitoring of gross electrical output) is proposed to create monitoring requirements related to gross electrical output of an affected EGU.

Section 123.214 (relating to coal sampling and analysis for input mercury levels) is proposed to create sampling and coal analysis for input mercury levels of affected EGUs. The Department may revise the frequency of the sampling of the coal combusted in the EGU for the mercury content based on historical data provided by the owner or operator of the EGU.

Section 123.215 (relating to recordkeeping and reporting) is proposed to create recordkeeping and reporting requirements. Among other things, the owner or operator of an affected EGU shall comply with all recordkeeping and reporting requirements in this section and the applicable recordkeeping and reporting requirements of 40 CFR Part 75 and 25 Pa. Code Chapter 139, Subchapter C.

F. Benefits, Costs and Compliance

Benefits

Overall, the citizens of this Commonwealth will benefit from these recommended changes because they will result in improved air quality by reducing mercury emissions. In addition, it is anticipated that local mercury deposition will be reduced since coal-fired power plants that burn bituminous coal emit oxidized forms of mercury, which are deposited near their source. Moreover, the Board believes that there are a number of reliable cost/benefit studies, which indicate cost savings and public health benefits from controlling mercury emissions from EGUs.

Pennsylvania is concerned that CAMR's "cap and trade" approach will result in hot spots to which the Commonwealth is particularly susceptible given that all 36 of Pennsylvania's coal-fired utilities burn bituminous coal as their primary fuel source. Bituminous coals generally have high mercury, chlorine, and sulfur contents and low calcium content, resulting in a high percentage of organic mercury. This type of mercury has a residence time of a few days and is deposited near the source of the release. Therefore, it is not a suitable candidate for emission trading against emission reductions in other regions because it results in hot spots.

Impacts related to mercury deposition were studied at the Bruce Mansfield coal-fired power plant in Shippingport, Pennsylvania. Sullivan, T.M., *et al.*, *Assessing the Mercury Health Risks Associated with Coal-Fired Power Plants: Impacts of Local Depositions*, Brookhaven National Laboratory, Upton, NY. This plant is characterized by high total mercury emissions. From the deposition modeling, the average increase in deposition as compared to a background deposition rate of 20 ug/m²/yr over a 2,500 km² around the plant was 15 percent at Bruce Mansfield. Over an area that is 50 – 100 km², immediately adjacent to the plant, deposition doubled at the Bruce Mansfield plant. The report concluded that if the plant emissions double local deposition, the fish concentration would be similarly doubled. As a result, the U.S. mean fish mercury content is 0.21 ppm and near the Bruce Mansfield plant the mean fish mercury content is 0.41 ppm.

The 2003 results of the EPA Office of Water study *Draft Mercury REMSAD Deposition Modeling Results* reinforce Pennsylvania's concern. This Regulatory Modeling System for Aerosols and Deposition modeling shows that, at mercury hot spots, local emission sources within a state can be the dominant source of deposition. At hot spots, local sources within a state commonly account for 50 percent to 80 percent of the mercury deposition. In-state sources contribute more than 50 percent of the pollution to sites in the top eight worst hot spot states, which are Michigan, Maryland, Florida, Illinois, South Carolina, North Carolina, Pennsylvania, and Texas, respectively.

In addition to these studies, on April 27, 2005, preliminary results from the EPA Steubenville Mercury Deposition Source Apportionment Study were released. This study found that nearly 70 percent of the mercury in rain collected at an Ohio River Valley monitoring site originated from nearby coal-burning industrial plants. It is anticipated that this peer-reviewed study will be published in the scientific literature within the next couple of months.

The Northeast States for Coordinated Air Use Management (“NESCAUM”) sponsored a report analyzing the cost savings and public health benefits of controlling mercury emissions from power plants. NESCAUM, *Economic Valuation of Human Health Benefits of Controlling Mercury Emissions from U.S. Coal-fired Power Plants*, (Feb. 2005) (“Harvard Study” or “Study”). The Study was prepared by the Harvard Center for Risk Analysis, funded by the EPA, co-authored by an EPA scientist, peer-reviewed by two other EPA scientists. The Harvard Study reveals that EPA miscalculated the “nature of the risk involved” by underestimating the public health benefits of reducing mercury. Specifically, the Harvard Study indicates that the public benefit of reducing power plant mercury emissions to 15 tons per year ranges from \$119 million annually (if only persistent IQ deficits from fetal exposures to methylmercury are counted) to as much as \$5.2 billion annually (if IQ deficits, cardiovascular effects, and premature mortality are all counted).

The May 2005 edition of *Environmental Health Perspectives* indicates that EPA underestimated the health benefits to be gained from reducing mercury. In one study, scientists from the Mount Sinai School of Medicine examined national blood mercury

prevalence data from the Centers for Disease Control and Prevention and found that between 316,588 and 637,233 children each year have cord blood mercury levels greater than 5.8 micrograms per liter - the level associated with loss of IQ. See Leonardo Trasande, et al., *Public Health and Economic Consequences of Methylmercury Toxicity to the Developing Brain*, 113 ENVIRONMENTAL HEALTH PERSPECTIVES, No. 5 (May 2005). They estimated that the resulting loss of intelligence and diminished economic activity amounted to \$8.7 billion annually, with \$1.3 billion each year being directly attributable to mercury emissions from power plants. The scientists further caution that these costs will recur each year with each new birth cohort as long as mercury emissions are not controlled.

On April 28, 2005, an unpublished report that was funded and completed by EPA's Office of Wetlands, Oceans, and Watersheds became available to the public. See Douglas Rae & Laura Graham, *Benefits of Reducing Mercury in Saltwater Ecosystems*. This study found that a 30-100% reduction of mercury emissions would translate into a \$600 million to \$2 billion cost savings. The cost savings were largely attributable to reduced health risks, including cardiovascular risks.

As a result of these and other studies, the Board believes that there are substantial benefits related to the proposal. Moreover, the proposal is designed to maximize the co-benefit of mercury emission reduction achieved through the installation of pollution controls, which are required for compliance with the CAIR program. Owners and operators of EGUs are not disadvantaged under this timeframe, and there should not be any reliability concerns for delivery of power over the electric grid.

The Department's analysis assumes the continued use of the existing coal feedstocks. Because we anticipate the majority of the mercury reductions in Pennsylvania to be achieved through the installation of CAIR controls for NO_x and SO_x, there will not exist the same incentive to utilize fuel switching to lower mercury content coal as there is under CAMR. A control strategy combining fuel switching and the purchase of mercury allowances is a viable option that many companies are expected to use to meet the CAMR requirements. The Department's proposed rule disallows the purchase and trading of allowances. Based on the data submitted in response to the Department's data request, fuel switching is not necessary to comply with its proposed emission standards. Therefore, fuel switching is not necessary to comply with the proposal, and the continued use of the existing coal feedstocks should not be affected. However, owners and operators of affected EGUs are free to employ any compliance strategy necessary to comply with this proposed rulemaking.

Compliance Costs

It is anticipated that the majority of EGUs in the Commonwealth will be able to comply with both phases of the proposed rule using existing WFGD and SCR technology, which will be necessary in order to comply with CAIR. While some EGUs may need to install mercury specific control technology, the Department believes that there are a number of currently available control technologies that coal-fired power plants

can use to reduce their emissions of mercury to the atmosphere, which will result in a minor cost increase on a cents per kW-hr. basis.

The regulations will, to some extent impact all EGUs in Pennsylvania. There will be compliance costs related to the construction and operation of air pollution control devices to control mercury, NO_x, and SO_x. For Phase 1 the total annualized cost (capital and operating) of mercury- specific control technology that EGUs must install beyond CAIR to comply with the Pennsylvania-specific mercury rule would be \$15.4 million per year. The total cost of purchasing mercury allowances (at \$953 per ounce, according to a U.S. Department of Energy estimate) if EGUs did not do anything beyond CAIR in order to comply with CAMR would be \$15.7 million per year. As a result, the total cost of complying with the Pennsylvania-specific mercury rule for Phase 1 would be no more than the cost of complying with CAMR.

For Phase 2, the total annualized cost (capital and operating) of mercury-specific control technology that EGUs must install beyond CAIR to comply with the Pennsylvania-specific mercury rule would be \$16.7 million per year. The total cost of purchasing mercury allowances (at \$2,619 per ounce, according to a U.S. Department of Energy estimate) if EGUs did not do anything beyond CAIR in order to comply with CAMR would be \$14.5 million per year. The difference between \$16.7 million and \$14.5 million is \$2.2 million, which would be the total cost of complying with the Pennsylvania-specific mercury rule for Phase 2. This would be an increase of \$0.000016 per kW-hr.

Compliance Assistance

The Department plans to educate and assist the public and regulated community with understanding any newly revised requirements and how to comply with them. This will be accomplished through the Department's ongoing Regional Compliance Assistance Program.

Paperwork Requirements

The proposed regulatory revisions will not increase the paperwork that is already generated during the normal course of business.

G. Pollution Prevention

The Federal Pollution Prevention Act of 1990 established a national policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. DEP encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials, and the incorporation of energy efficiency

strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance. This proposed regulation will reduce mercury emissions from EGUs. Coal-fired power plants that burn sub-bituminous coal emit Hg⁰, which can be transported over transcontinental distances. Coal-fired power plants that burn bituminous coal emit oxidized forms of mercury, which are deposited near their source. In Pennsylvania, 85 percent of the coal burned by coal-fired power plants is bituminous, with the remainder as waste coal. Reducing mercury emissions will reduce mercury deposition and will therefore reduce mercury related water pollution.

H. Sunset Review

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

I. Regulatory Review

Under Section 5(a) of the Regulatory Review Act, 71 P.S. § 745.5(a), on (blank), the Department submitted a copy of these proposed amendments to the Independent Regulatory Review Commission (“IRRC”) and the Chairpersons of the House and Senate Environmental Resources and Energy Committees. In addition to submitting the proposed amendments, the Department has provided IRRC and the Committees with a copy of a detailed regulatory analysis form prepared by the Department. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed regulations within 30 days of the close of the public comment period. The comments, recommendations or objections shall specify the regulatory review criteria that have not been met. The Act specifies detailed procedures for review of these issues by the Department, the General Assembly and the Governor prior to final publication of the regulations.

J. Public Comments

Written Comments - Interested persons are invited to submit comments, suggestions, or objections regarding the proposed regulation to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301). Comments submitted by facsimile will not be accepted. Comments, suggestions or objections must be postmarked by **August 23, 2006**. Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be postmarked by August 23, 2006. The one-page summary will be provided to each member of the Board in the agenda packet distributed prior to the meeting at which the final regulation will be considered.

Electronic Comments - Comments may be submitted electronically to the Board by completing the online form at www.depweb.state.pa.us/RegComments or by email RegComments@state.pa.us and must be received by the Board by August 23, 2006. A subject heading of the proposal and a return name and address must be included in each transmission.

K. Public Hearings

The Environmental Quality Board will hold three public hearings for the purpose of accepting comments on this proposal. The hearings will be held as follows:

July 25, 2006 1:00 p.m.	Department of Environmental Protection Southwest Regional Office Waterfront A&B Conference Room 400 Waterfront Drive Pittsburgh, PA 15222.
August 1, 2006 1:00 p.m.	Department of Environmental Protection Southeast Regional Office Delaware Room 2 East Main Street Norristown, PA 19401
August 8, 2006 7:00 p.m.	Department of Environmental Protection Rachel Carson State Office Building, Room 105 400 Market Street Harrisburg, PA 17105

Persons wishing to present testimony at a hearing are requested to contact the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477, (717) 787-4526, at least one week in advance of the hearing to reserve a time to present testimony. Oral testimony is limited to ten minutes for each witness. Witnesses are requested to submit three written copies of their oral testimony to the hearing chairperson at the hearing. Organizations are limited to designating one witness to present testimony on their behalf at each hearing.

Persons in need of accommodations as provided for in the Americans With Disabilities Act of 1990 should contact the Environmental Quality Board at (717) 787-4526 or through the Pennsylvania AT&T Relay Service at 1-800-654-5984 (TDD) to discuss how the Department may accommodate their needs.

BY:
KATHLEEN A. McGINTY
Chairperson
Environmental Quality Board

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

ARTICLE I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

SUBPART C. PROTECTION OF NATURAL RESOURCES

ARTICLE III. AIR RESOURCES

CHAPTER 123. STANDARDS FOR CONTAMINANTS

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(Editor's Note: The following text is new and is printed in regular type to enhance readability.)

MERCURY EMISSIONS

§ 123.201. Purpose.

§ 123.202. Definitions.

§ 123.203. Applicability.

§ 123.204. Exceptions.

§ 123.205. Emission standards for coal-fired electric generating units.

§ 123.206. Compliance requirements for the emission standards for coal-fired electric generating units.

§ 123.207. Annual emission limitations for coal-fired electric generating units.

§ 123.208. Annual emission limit supplement pool.

§ 123.209. Petition process.

§ 123.210. General monitoring and reporting requirements.

§ 123.211. Initial certification and recertification procedures for emissions monitoring.

§ 123.212. Out-of-control periods for emissions monitors.

§ 123.213. Monitoring of gross electrical output.

§ 123.214. Coal sampling and analysis for input mercury levels.

§ 123.215. Recordkeeping and reporting.

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MERCURY EMISSIONS

§ 123.201. Purpose.

Sections 123.202 – 123.215 establish mercury emission standards, annual emission limitations as part of a statewide mercury allowance program with annual non-tradable mercury allowances and other requirements for the purpose of reducing mercury emissions from coal-fired electric generating units or cogeneration units.

§ 123.202. Definitions.

The following words and terms, when used in §§ 123.201 and 123.203 – 123.215, have the following meanings, unless the context clearly indicates otherwise:

Btu – British thermal unit – The amount of thermal energy necessary to raise the temperature of one pound of pure liquid water by one degree Fahrenheit at the temperature at which water has its greatest density (39°F).

Bituminous coal -- Coal that is classified as bituminous according to the ASTM International Standard D388-90, Standard Classification of Coals by Rank. For the purposes of this regulation bituminous coal shall also include anthracite coal according to the ASTM International Standard D388-77, Standard Classification of Coals by Rank.

CFB – Circulating Fluidized Bed unit - Combustion of fuel in a bed or series of beds (including bubbling bed units and circulating bed units) of limestone aggregate (or other sorbent materials) in which these materials are forced upward by the flow of combustion air and the gaseous products of combustion.

CO₂ – Carbon dioxide.

CS-ESP -- Cold side electrostatic precipitator -- A particulate control device installed downstream of a boiler air preheater that does the following:

- (i) Charges particles with an electric field and causes them to migrate from the gas to a collection surface.
- (ii) Treats flue gas after heat extraction from the gas has been completed.
- (iii) Operates within a temperature range of no greater than 400°F.

Coal refuse - Waste products of coal mining, physical coal cleaning, and coal preparation operations (e.g. culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

Cogeneration unit – A stationary, coal-fired boiler or stationary, coal-fired combustion turbine which:

(i) Has equipment used to produce electricity and useful thermal energy for industrial, commercial, heating or cooling purposes through the sequential use of energy.

(ii) Produces, for a topping-cycle cogeneration unit, during the 12-month period starting on the date the unit first produces electricity and during any calendar year after the 12-month period in which the unit first produces electricity:

(A) Useful thermal energy not less than 5% of total energy output.

(B) Useful power that when added to one-half of useful thermal energy produced:

(I) Is not less than 42.5% of total energy input, if useful thermal energy produced is 15% or more of total energy output.

(II) Is not less than 45% of total energy input, if useful thermal energy produced is less than 15% of total energy output.

(iii) Produces, for a bottoming-cycle cogeneration unit, during the 12-month period starting on the date the unit first produces electricity and during any calendar year after the 12-month period in which the unit first produces electricity, useful power not less than 45% of total energy input.

EGU -- Electric Generating Unit--

(i) Except as provided in paragraph (ii), a stationary coal-fired boiler or stationary, coal-fired combustion turbine that serves or has served at any time since the start-up of the unit's combustion chamber, a generator:

(A) With a nameplate capacity of more than 25 megawatts electric (MWe).

(B) That produces electricity for sale.

(ii) For a unit that qualifies as a cogeneration unit during the 12-month period starting on the date the unit first produces electricity and continues to qualify as a cogeneration unit, a unit that both:

(A) Serves a generator with a nameplate capacity of more than 25 MWe.

(B) Supplies, in a calendar year, more than one third of its potential electric output capacity or 219,000 MWh, whichever is greater, to a utility power distribution system for sale.

(iii) If a unit qualifies as a cogeneration unit during the 12-month period starting on the date the unit first produces electricity but subsequently no longer qualifies as a cogeneration unit, it shall become subject to subparagraph (i) of this definition starting on the day it first no longer qualifies as a cogeneration unit.

Existing EGU – An EGU which commenced construction, modification or reconstruction before January 30, 2004.

FF – Fabric filter – An add-on air pollution control system that removes particulate matter (PM) and emissions of nonvaporous metals by passing flue gas through filter bags.

Facility – All units located on one or more contiguous or adjacent properties and which are owned or operated by the same person under common control.

GWh – Gigawatt-hour – One billion watt-hours.

IGCC -- Integrated gasification combined cycle unit – A coal-fired electric utility steam generating unit that burns a synthetic gas derived from coal in a combined-cycle gas turbine. No coal is directly burned in the unit during operation.

MMBtu – One million British thermal units.

MW – Megawatt – A unit for measuring power equal to one million watts.

MWe – Megawatt electric – One million watts of electric capacity.

MWh – Megawatt-hour – One million watt-hours.

Nameplate Capacity -- The maximum electrical generating output (in MWe) that the generator is capable of producing on a steady-state basis during continuous operation (when not restricted by seasonal or other deratings):

(i) As specified by the manufacturer, starting from the initial installation of the generator.

(ii) As specified by the person conducting the physical change, starting from the completion of a subsequent physical change in the generator resulting in an increase in the maximum electrical generating output in MWe.

New EGU – An EGU which commenced construction, modification or reconstruction, as defined under 40 CFR Part 60, on or after January 30, 2004.

O₂ – Oxygen.

Phase 1 – The period from January 1, 2010, through December 31, 2014.

Phase 2 – The period beginning January 1, 2015, and each subsequent year thereafter.

PCF -- Pulverized coal-fired unit - A steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units.

Rolling 12-month basis – A determination made on a monthly basis from the relevant data for a particular calendar month and the preceding 11 calendar months (total of 12 months of data).

SCR - Selective catalytic reduction – A process where a gaseous or liquid reductant (most commonly ammonia or urea) is added to the flue gas stream in the presence of a catalyst. The reductant reacts with nitrogen oxides in the flue gas to form nitrogen.

SO₂ – Sulfur dioxide.

Space velocity – The exhaust gas volume per hour of the SCR corrected to standard temperature and pressure divided by the volume of the catalyst.

Standby unit – A unit that is out of operation but under a Department-approved maintenance plan as provided under § 127.11a (relating to reactivation of sources), which will enable the source to be reactivated in accordance with the terms of the permit issued to the source.

WFGD -- Wet flue gas desulfurization unit – A sulfur dioxide control system located downstream of the steam generating unit that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution including lime and limestone.

Watt-hour – A unit of energy equivalent to one watt of power expended for one hour of time.

§ 123.203. Applicability.

The requirements of §§ 123.201 – 123.215 apply to owners and operators of an EGU located in this Commonwealth.

§ 123.204. Exceptions.

Consistent with the provisions of § 123.207(b)(1), the owner or operator of an EGU that enters into an enforceable agreement with the Department not later than December 31, 2007, for the shutdown and replacement of the unit with IGCC technology no later than December 31, 2012, shall be exempted from compliance with the following Phase 1 requirements for the converted unit:

- (1) § 123.205 (relating to emission standards for coal-fired electric generating units).

(2) § 123.207 (relating to annual emission limitations for coal-fired electric generating units).

§ 123.205. Emission standards for coal-fired electric generating units.

(a) *New EGUs.* In addition to the mercury emission limitation requirements of § 123.207 (relating to annual emission limitations for coal-fired electric generating units), the owner or operator of a new EGU subject to § 123.203 (relating to applicability) shall comply at the commencement of operation on a rolling 12-month basis with one of the following standards:

(1) *PCF EGU.* The owner or operator of a PCF EGU shall comply with one of the following:

(i) A mercury emission standard of 0.011 pounds of mercury per gigawatt-hour.

(ii) A minimum 90% control of total mercury as measured from the mercury content in the coal as fired.

(2) *CFB EGU.* The owner or operator of a CFB EGU shall comply with the following applicable provisions:

(i) CFB EGUs burning 100% waste coal shall comply with the mercury emission standard for new units as established under 40 CFR Part 60, Subpart Da, which is adopted and incorporated by reference in § 122.3 (relating to adoption of standards) of this article.

(ii) CFB EGUs burning 100% bituminous coal shall comply with either:

(A) A mercury emission standard of 0.011 pounds of mercury per gigawatt-hour.

(B) A minimum 90% control of total mercury as measured from the mercury content in the coal as fired.

(iii) CFB EGUs burning multiple fuels shall comply with a prorated emission standard based on the percentage of heat input from the coal and the percentage of heat input from the waste coal.

(3) *IGCC EGU.* The owner or operator of an IGCC EGU shall comply with one of the following:

(i) A mercury emission standard of 0.0048 pounds of mercury per gigawatt-hour.

(ii) A minimum 95% control of total mercury as measured from the mercury content in the coal as processed.

(b) *Baseline for review.* The emission standards in § 123.205(a) (relating to emission standards for coal-fired electric generating units) will serve as a baseline for review and

approval of case-by-case best available technology determinations for a new EGU in accordance with the requirements of 25 Pa. Code Chapter 127 (relating to construction, modification, reactivation and operation of sources).

(c) *Existing EGUs.* In addition to the mercury emission limitation requirements of § 123.207, the owner or operator of an existing EGU subject to § 123.203 shall comply on a rolling 12-month basis with one of the following standards:

(1) *Phase 1.* Effective from January 1, 2010, through December 31, 2014.

(i) *PCF EGU.* The owner or operator of a PCF shall comply with one of the following:

(A) A mercury emission standard of 0.024 pounds of mercury per gigawatt-hour.

(B) A minimum 80% control of total mercury as measured from the mercury content in the coal as fired.

(ii) *CFB EGU.* The owner or operator of a CFB shall comply with one of the following:

(A) A mercury emission standard of 0.0058 pounds of mercury per gigawatt-hour.

(B) A minimum 95% control of total mercury as measured from the mercury content in the coal as fired.

(2) *Phase 2.* Effective beginning January 1, 2015, and each subsequent year.

(i) *PCF EGU.* The owner or operator of a PCF shall comply with one of the following:

(A) A mercury emission standard of 0.012 pounds of mercury per gigawatt-hour.

(B) A minimum 90% control of total mercury as measured from the mercury content in the coal as fired.

(ii) *CFB EGU.* The owner or operator of a CFB shall comply with one of the following:

(A) A mercury emission standard of 0.0058 pounds of mercury per gigawatt-hour.

(B) A minimum 95% control of total mercury as measured from the mercury content in the coal as fired.

§ 123.206. Compliance requirements for the emission standards for coal-fired electric generating units.

(a) The owner or operator of one or more EGUs subject to the emission standards of § 123.205 (relating to emission standards for coal-fired electric generating units) shall demonstrate compliance with the standards using one of the following methods:

(1) Compliance on a unit-by-unit basis.

(2) Facility-wide emissions averaging.

(b) The owner or operator of an existing EGU combusting 100% bituminous coal which is controlled by an air pollution control device configuration of:

(1) A CS-ESP or FF and a WFGD will be presumed to be in compliance with the emission standard requirements of § 123.205(c)(1) without any additional compliance demonstrations.

(2) SCR, CS-ESP or FF and WFGD will be presumed to be in compliance with the emission standard requirements of § 123.205(c)(2) without additional compliance demonstrations if the design space velocity of the SCR catalyst is no more than 3000 hr^{-1} .

(3) Other technologies where the Department determines that there is sufficient data to provide a compliance presumption with the emission standard requirements of § 123.205(c)(1) or (2) without additional compliance demonstrations. The Department will publish these determinations in the *Pennsylvania Bulletin*.

(c) The Department may approve in a plan approval or operating permit, or both, an alternative mercury emission standard or schedule, or both, if the owner or operator of an EGU subject to the emission standards of § 123.205 demonstrates in writing to the Department's satisfaction that the mercury reduction requirements are economically or technologically infeasible. The owner or operator shall:

(1) Submit a plan approval application or operating permit application requesting an alternative emission standard or schedule, or both, to the Department for approval no later than 120 days before the applicable compliance deadline.

(2) Include the following in the application:

(i) A brief description, including make, model and location of each EGU.

(ii) A list of all air pollution control technologies and measures that have been installed on each EGU and are operating to control emissions of air contaminants including mercury.

(iii) The dates of installation and commencement of operation for each of the technologies and measures required under subsection (c)(2)(ii).

(iv) An explanation of how the technology or measure was installed and if it is being operated according to the manufacturer's instructions for each of the technologies and measures required under subsection (c)(2)(ii).

(v) The results of each mercury stack test and other emissions measurements for the EGU following installation and commencement of operation of the air pollution control technologies and measures listed in accordance with subsection (c)(2)(ii).

(vi) A list of other air pollution control technologies or measures that the owner or operator proposes to install and operate on each EGU to control emissions of air contaminants including mercury.

(vii) A summary of how the owner or operator of the EGU intends to operate and maintain the unit during the term of the approved plan approval or operating permit, or both, including the associated air pollution control equipment and measures that are designed to maintain compliance with all other applicable plan approval or operating permit requirements and that are designed and operated to minimize the emissions of mercury to the extent practicable.

(viii) A proposed schedule that lists the increments of progress and the date for final compliance if an alternative compliance schedule is requested.

(ix) An emission reduction proposal and information on the technological feasibility of meeting the requirements of §§ 123.205, 123.207 – 123.215 and this section if an alternative emission standard is requested.

(x) Other information which the Department requests that is necessary for the approval of the application.

(d) For an EGU complying with the energy output-based mercury emission standards of § 123.205 (expressed in pounds of mercury per gigawatt-hour), the actual mercury emission rate of the EGU for each 12-month rolling period, monitored in accordance with §§ 123.210 – 123.215 and calculated as follows, shall not exceed the applicable emission standard:

$$ER = \frac{\sum_{i=1}^{12} E_i}{\sum_{i=1}^{12} O_i}$$

Where:

ER = Actual mercury emissions rate of the EGU for the particular 12-month rolling period, expressed in pounds per gigawatt-hour.

E_i = Actual mercury emissions of the EGU, in pounds, in an individual month in the 12-month rolling period, as determined in accordance with the monitoring provisions.

O_i = Gross electrical output of the EGU, in gigawatt-hours, in an individual month in the 12-month rolling period.

(e) For an EGU complying with the percent control requirements of § 123.205, the actual control efficiency for mercury emissions achieved by the EGU for each 12-month rolling period, monitored in accordance with §§ 123.210- 123.215 and calculated as follows, shall meet or exceed the applicable efficiency requirement:

$$CE = 100 * \{1 - (\sum_{i=1}^{12} E_i \div \sum_{i=1}^{12} I_i)\}$$

Where:

CE = Actual control efficiency for mercury emissions of the EGU for the particular 12-month rolling period, expressed as a percent.

E_i = Actual mercury emissions of the EGU, in pounds, in an individual month in the 12-month rolling period, as determined in accordance with the monitoring provisions of §§ 123.210 –123.215.

I_i = Amount of mercury in the fuel fired in the EGU, in pounds, in an individual month in the 12-month rolling period, as determined in accordance with § 123.214 (relating to coal sampling and analysis for input mercury levels).

§ 123.207. Annual emission limitations for coal-fired electric generating units.

(a) *Statewide mercury non-tradable allowance program.* In addition to the mercury emission standard requirements of § 123.205 (relating to emission standards for coal-fired electric generating units), the owner or operator of a new or existing affected EGU subject to § 123.203 (relating to applicability) shall comply with the annual emission limitations established through a statewide mercury non-tradable allowance program under this section.

(b) *Emission limitation set-asides.* The total ounces of mercury emissions available for emission limitation set-asides as annual non-tradable mercury allowances in the statewide mercury allowance program are:

(1) 56,960 ounces (3,560 pounds) of mercury emissions for Phase 1, effective from January 1, 2010, through December 31, 2014.

(2) 22,464 ounces (1,404 pounds) of mercury emissions for Phase 2, effective beginning January 1, 2015, and each subsequent year.

(c) *New affected EGUs.* For each calendar year beginning January 1, 2010, the Department will set aside a total number of annual non-tradable mercury allowances for the owners and operators of new affected EGUs in Pennsylvania that do not yet have a baseline heat input determined in accordance with the requirements of an approved plan approval application or operating permit.

(1) The total number of annual non-tradable mercury allowances set aside for the owners and operators of new affected EGUs will be equal to a percentage of the amount of ounces of mercury emissions in the statewide mercury allowance program established in subsection (a). The percentage of set-aside is:

(i) 5% of the Phase 1 annual non-tradable mercury allowances established in subsection (b)(1) for the years beginning January 1, 2010, through December 31, 2014.

(ii) 3% of the Phase 2 annual non-tradable mercury allowances established in subsection (b)(2) for the calendar year beginning January 1, 2015, and subsequent years.

(2) The annual non-tradable mercury allowances set aside for the owners and operators of new affected EGUs shall be placed in the annual emission limit supplement pool established under § 123.208 (relating to annual emission limit supplement pool).

(d) *Existing affected CFBs.* For each calendar year beginning January 1, 2010, the Department will set aside for the owners and operators of existing affected CFBs a total number of annual non-tradable mercury allowances from the total ounces of mercury emissions available for annual emission limit set-asides in Phase 2 of the statewide mercury allowance program established in subsection (b)(2).

(e) *Maximum allowances set aside for CFBs.* The maximum number of annual non-tradable mercury allowances set aside for the owner or operator of each existing affected CFB in accordance with the requirements of subsection (d) shall be determined by multiplying the affected CFB's baseline heat input fraction of the state's total baseline annual heat input for all EGUs by the Department's Phase 2 annual mercury allowance set-aside for existing EGUs, as follows:

(1) The baseline heat input in MMBtu for each existing affected mercury allowance program CFB will be the average of the three highest amounts of annual heat input using the heat input data for the CFB from the Department's acid rain database for the calendar years 2000 through 2004.

(2) The state's annual mercury emission allowance set-aside for existing EGUs for Phase 2 is 21,790 ounces.

(f) *Existing affected PCFs.* For each calendar year beginning January 1, 2010, the Department will set aside for the owners and operators of existing affected PCFs a total number of annual non-tradable mercury allowances from the total ounces of mercury emissions available for annual emission limit set-asides in Phase 1 and Phase 2 of the statewide mercury allowance program established in subsection (b)(1) and (b)(2).

(g) *Maximum allowances set aside for PCFs.* The maximum number of annual non-tradable mercury allowances set aside for the owner or operator of each existing affected PCF in accordance with the requirements of subsection (f) shall be determined by multiplying the existing affected PCF's baseline heat input fraction of the state's total baseline annual heat input for all EGUs by the Department's annual mercury allowance set-aside for existing affected EGUs in each phase, as follows:

(1) The baseline heat input in MMBtu for each existing affected mercury allowance program PCF will be the average of the three highest amounts of annual heat input using

the heat input data for the PCF from the Department's acid rain database for calendar years 2000 through 2004.

(2) The state's annual mercury emission allowance set-aside for existing EGUs is:

(i) 54,112 ounces for Phase 1.

(ii) 21,790 ounces for Phase 2.

(h) *Publication of maximum number of allowances set aside for Phase 1.* By July 1, 2009, the Department will publish in the *Pennsylvania Bulletin* the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of each existing affected CFB and PCF for Phase 1 of the statewide mercury allowance program. The non-tradable allowances shall only be used to demonstrate compliance with the annual emission limitation requirements.

(i) *Publication of maximum number of allowances set aside for Phase 2.* By July 1, 2014, the Department will publish in the *Pennsylvania Bulletin* the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of each existing affected CFB and PCF for Phase 2 of the statewide mercury allowance program. The non-tradable allowances shall only be used to demonstrate compliance with the annual emission limitation requirements.

(j) *Maximum number of allowances awarded.* By March 31 of the year following each reporting year, the Department will notify the owner or operator of each existing affected CFB and PCF, in writing, of the actual number of annual non-tradable mercury allowances awarded to the owner or operator of the EGU for the reporting year.

(1) The actual number of annual non-tradable mercury allowances awarded to the owner or operator of the EGU shall be based on the actual emissions reported to the Department in accordance with the requirements of §§ 123.210 – 123.215.

(2) If the actual emissions of mercury reported to the Department in accordance with the requirements of §§ 123.210 – 123.215 are less than the maximum number of annual non-tradable mercury allowances set aside in the statewide mercury allowance program for the owner or operator of an EGU in accordance with the requirements of either subsection (d) or (f), the Department will place the unused portion of annual non-tradable mercury allowances in the annual emission limit supplement pool established under the requirements of § 123.208 (relating to emission limit supplement pool).

(3) The unused portion of annual non-tradable mercury allowances set aside under subsection (d) or (f) shall not be added to the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of the existing affected EGU for subsequent years.

(4) The actual number of annual non-tradable mercury allowances awarded to the owner or operator of the EGU shall not exceed the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of the EGU in the

statewide mercury allowance program in accordance with the requirements of subsection (d) or (f) except as provided in § 123.209 (relating to petition process).

(5) Each ounce of mercury emitted in excess of the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of the affected EGU in accordance with the requirements of subsection (d) or (f) shall constitute a violation of the requirements of this section and the Act, except as provided under § 123.209.

(k) *Standby units.* Annual non-tradable mercury allowances will not be set aside for the owner or operator of an existing affected EGU that is already shut down, scheduled for shutdown, or is on standby as of the effective date of each set-aside phase under subsections (d) or (f). When a standby unit is ready for normal operation, the owner and operator may petition the Department for a number of annual non-tradable mercury allowances as provided under § 123.209.

(l) *Future emission limitations.* The Department may revise the percentage of set-aside used to determine the number of ounces of mercury set aside for future annual mercury emission limitations to accommodate the emissions from new EGUs so that the total number of ounces of mercury emissions in the statewide mercury allowance program is not exceeded.

(m) *Changes in calculation of baseline heat input.* The Department may revise the percentage of set-aside used to determine the number of ounces of mercury set aside for future annual mercury emission limitations to accommodate changes in the calculation of baseline heat input in accordance with the requirements of subsections (e) or (g) so that the total number of ounces of mercury emissions in the statewide mercury allowance program is not exceeded.

(n) *Maintained by Department.* The statewide mercury allowance program established under subsection (a) and the annual non-tradable mercury allowances set aside for emission limitations under the requirements of subsections (b) through (m) will be maintained by the Department.

(o) *Demonstration of compliance.* The owner or operator of one or more existing affected mercury allowance program EGUs subject to the requirements of this section shall demonstrate compliance with the applicable requirements using one of the following methods:

- (1) Compliance on a unit-by-unit basis.
- (2) Facility-wide emissions averaging.

§ 123.208. Annual emission limit supplement pool.

(a) Effective January 1, 2010, the Department will establish an annual emission limit supplement pool to monitor annual non-tradable mercury allowances that:

- (1) Have been created as part of the new affected EGU set-aside under § 123.207(c).

(2) Are unused annual non-tradable mercury allowances set aside as emission limit supplements under § 123.207(j)(2) (relating to annual emission limitations for coal-fired electric generating units).

(b) The emission limit supplement pool of annual non-tradable mercury allowances established under subsection (a) will be administered in accordance with the requirements of § 123.209 (relating to petition process) by the Department.

§ 123.209. Petition process.

(a) Each calendar year beginning January 1, 2010, the owner or operator of either an existing affected EGU that emits amounts of mercury in excess of the maximum number of annual non-tradable mercury allowances set aside in accordance with the requirements of § 123.207 (relating to annual emission limitations for coal-fired electric generating units) or a standby affected EGU that is ready for normal operation may petition the Department, in writing, for supplemental annual non-tradable mercury allowances to be set aside for the owner or operator from the annual emission limit supplement pool established under § 123.208(a) (relating to annual emission limit supplement pool).

(b) The owner or operator shall submit a separate petition for each calendar year for which the owner or operator requests supplemental annual non-tradable mercury allowances to be set aside from the annual emission limit supplement pool.

(c) The owner or operator with more than one affected EGU shall submit a separate petition for each EGU for which the owner or operator requests supplemental annual non-tradable mercury allowances to be set aside from the annual emission limit supplement pool.

(d) The owner or operator of the existing affected EGU shall submit the petition to the Department no later than January 31 of the year following the calendar year for which the supplemental annual non-tradable mercury allowances are requested to be set aside.

(e) The owner or operator of the standby affected EGU shall submit the petition to the Department no later than 120 days before the date of anticipated start-up of the EGU.

(f) The petition must include the following:

(1) A brief description, including make, model, and location of each affected EGU.

(2) A list of all air pollution control technologies and measures that have been installed on each affected EGU and are operating to control emissions of air contaminants, including mercury.

(3) For each of the technologies and measures listed in accordance with subsection (f)(2), the date of installation and original commencement of operation.

(4) For each of the technologies and measures listed in accordance with subsection (f)(2), an explanation of how the mercury control technology or measure as installed has been optimized for the maximum mercury emission reduction.

(5) The results of each mercury stack test and other emissions measurements for the affected EGU following installation and commencement of operation of the air pollution control technologies and measures listed in accordance with subsection (f)(2).

(6) A list of other air pollution control technologies or measures that the owner or operator proposes to install and operate on each affected EGU to control emissions of air contaminants, including mercury.

(7) A summary of how the owner or operator of the affected EGU intends to operate and maintain the EGU during the term of the approved plan approval or operating permit, or both, including the associated air pollution control equipment and measures that are designed to maintain compliance with all other applicable plan approval or operating permit requirements and that are designed and operated to minimize the emissions of mercury to the extent practicable.

(g) Each calendar year beginning January 1, 2010, the Department may set aside at its discretion, supplemental annual non-tradable mercury allowances from the annual emission limit supplement pool established under § 123.208(a), for the owners or operators of existing affected EGUs that successfully petition the Department in accordance with the requirements of this section, to be distributed in the following order of preference:

(1) Each owner or operator of a standby unit as defined under § 123.202 (relating to definitions).

(2) Each owner or operator of an existing affected EGU that is a CFB combusting 100% waste coal or bituminous coal along with any approved non-coal fuels.

(3) Each owner or operator of an existing affected EGU combusting 100% bituminous coal that is controlled by an air pollution control device configuration of SCR, CS-ESP or FF, WFGD and mercury-specific control technology.

(4) Each owner or operator of an existing affected EGU combusting 100% bituminous coal that is controlled by an air pollution control device configuration of SCR, CS-ESP or FF and WFGD.

(5) Each owner or operator of an existing affected EGU combusting 100% bituminous coal that is controlled by an air pollution control device configuration of WFGD and mercury-specific control technology.

(6) Each owner or operator of an existing affected EGU combusting 100% bituminous coal that is controlled by an air pollution control device configuration of CS-ESP or FF and WFGD.

(7) Each owner or operator of an existing affected EGU based on the air pollution control technologies and measures that have been installed and are operating to control emissions of air contaminants, including mercury.

(h) If the petition for supplemental annual non-tradable mercury allowances is approved by the Department, the supplemental annual non-tradable mercury allowances set aside for the owner or operator of the existing affected EGU will be added to the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of the EGU in accordance with the requirements of § 123.207 only for the calendar year of the request.

(i) The supplemental annual non-tradable mercury allowances set aside under subsection (h) shall not be added to the maximum number of annual non-tradable mercury allowances set aside for the owner or operator of the EGU for subsequent years.

§ 123.210. General monitoring and reporting requirements.

(a) The owner or operator of a new EGU subject to the requirements of §§ 123.201 – 123.215 shall demonstrate compliance with the requirements of § 123.205 (relating to emission standards for coal-fired electric generating units) and § 123.207 (relating to annual emission limitations for coal-fired electric generating units) by installing and operating a continuous emissions monitoring system to measure, record and report the concentration of mercury in the exhaust gases from each stack.

(b) Except as provided in subsection (c) of this section, the owner or operator of an existing affected EGU shall comply with the monitoring, recordkeeping, and reporting requirements as provided in this section, §§ 123.211 – 123.215, 139.101 (relating to general requirements) and the applicable provisions of the Continuous Source Monitoring Manual (DEP 274-0300-001). For purposes of complying with these requirements, the definitions in § 123.202 (relating to definitions) and in 40 CFR § 72.2.

(c) For an affected EGU that emits 464 ounces (29 lbs) or less of mercury per year, the owner or operator of the affected EGU:

(1) Shall meet the general operating requirements in 40 CFR § 75.10 for the continuous emission monitors described in paragraphs (a)(2) and (a)(4) of 40 CFR § 75.81.

(2) Shall perform mercury emissions testing for the initial certification and on going quality assurance as described in paragraphs (c) through (e) of 40 CFR § 75.81.

(3) May demonstrate compliance with the percent control requirements by averaging the coal mercury content and stack emission data collected during the rolling 12-month period.

(d) *Requirements for installation, certification and data accounting.* The owner or operator of each EGU shall:

(1) Install all monitoring systems required under this section, §§ 123.211 – 123.215 and the applicable provisions of 25 Pa. Code Chapter 139, Subchapter C, for monitoring mercury mass emissions (including all systems required to monitor mercury concentration, stack gas moisture content, stack gas flow rate and CO₂ or O₂ concentration, as applicable, in accordance with 40 CFR §§ 75.81 and 75.82).

(2) Successfully complete all certification tests required under § 123.211 (relating to initial certification and recertification procedures for emissions monitoring) and meet all other requirements of §§ 123.211 – 123.215 and this section that are applicable to the monitoring systems required under subsection (d)(1).

(e) The owner or operator shall comply with the monitoring system certification and other requirements of subsection (d)(1) and (d)(2) on or before the later of:

(1) March 1, 2009.

(2) Ninety (90) EGU operating days or 180 calendar days, whichever occurs first, after the date on which the EGU commences commercial operation.

(f) The owner or operator shall record, report and quality-assure the data from the monitoring systems required under subsection (d)(1) on and after the later of:

(1) March 1, 2009.

(2) Ninety (90) EGU operating days or 180 calendar days, whichever occurs first, after the date on which the EGU commences commercial operation.

(g) The owner or operator of an EGU that does not meet the applicable monitoring date set forth in subsections (e) and (f) for any monitoring system required under subsection (d)(1) shall, for each such monitoring system, determine, record and report maximum potential (or, as appropriate, minimum potential) values for:

(1) Mercury concentration.

(2) Stack gas flow rate.

(3) Stack gas moisture content.

(4) Other parameters required to determine mercury mass emissions in accordance with the requirements of 40 CFR § 75.80(g).

(h) The owner or operator of an EGU that does not meet the applicable monitoring date set forth in subsections (e) and (f) for a monitoring system required under subsection (d)(1) shall, for each monitoring system, determine, record and report substitute data using the applicable missing data procedures in 40 CFR § 75.80(f) instead of the maximum potential (or, as appropriate, minimum potential) values for a parameter if the owner or operator demonstrates that there is continuity between the data streams for that

parameter before and after the construction or installation of the monitoring systems required under subsection (d)(1).

(i) No owner or operator of an affected EGU shall use any alternative monitoring system, alternative reference method, or any other alternative to the requirements of this section and §§ 123.211 – 123.215 unless such alternative is approved in writing by the Department.

(j) No owner or operator of an affected EGU shall operate the EGU so as to discharge or allow to be discharged mercury emissions to the atmosphere without accounting for all such emissions in accordance with the applicable provisions of this section, §§ 123.211 – 123.215 and 25 Pa. Code Chapter 139, Subchapter C.

(k) No owner or operator of an affected EGU shall disrupt the continuous emission monitoring system or portion of it or other approved emission monitoring method to avoid monitoring and recording mercury mass emissions discharged into the atmosphere, except for periods of recertification or periods when calibration, quality assurance testing or maintenance is performed in accordance with the applicable provisions of this section, §§ 123.211 – 123.215 and 25 Pa. Code Chapter 139, Subchapter C.

(l) No owner or operator of an affected EGU shall retire or permanently discontinue use of the continuous emission monitoring system or component of it or other approved monitoring system required under this section and §§ 123.211 – 123.215, except under either of the following circumstances:

(1) The owner or operator is monitoring emissions from the affected EGU with another certified monitoring system that has been approved by the Department, in writing, for use at that EGU and that provides emission data for the same pollutant or parameter as the retired or discontinued monitoring system, in accordance with the applicable provisions of this section, §§ 123.211 – 123.215 and 25 Pa. Code Chapter 139, Subchapter C.

(2) The owner or operator submits notification of the date of certification testing of a replacement monitoring system for the retired or discontinued monitoring system in accordance with the requirements of § 123.211(a)(5)(i) and a complete certification application in accordance with the requirements of § 123.211(a)(5)(ii).

§ 123.211. Initial certification and recertification procedures for emissions monitoring.

(a) By the applicable deadline specified in §§ 123.210(e) (relating to general monitoring and reporting requirements) and 123.210(f), the owner or operator of an affected EGU shall comply with the following initial certification and recertification procedures for a continuous monitoring system (continuous emission monitoring system and an excepted monitoring system (sorbent trap monitoring system) as required under 40 CFR § 75.15 and 25 Pa. Code Chapter 139, Subchapter C):

(1) The owner or operator of the EGU shall ensure that each continuous monitoring system required by the applicable provisions of § 123.210 successfully completes all of the initial certification testing required under 40 CFR § 75.80(d) and 25 Pa. Code Chapter 139, Subchapter C.

(2) If the owner or operator of the EGU installs a monitoring system to meet the requirements of §§ 123.210 – 123.215 in a location where no monitoring system was previously installed, initial certification testing is required in accordance with the applicable provisions of 40 CFR § 75.80(d) and 25 Pa. Code Chapter 139, Subchapter C.

(3) If the owner or operator of the EGU makes a replacement, modification or change to a certified continuous emission monitoring system or excepted monitoring system (sorbent trap monitoring system) required by § 123.210 that may significantly affect the ability of the system to accurately measure or record mercury mass emissions or heat input rate or to meet the quality-assurance and quality-control requirements of 40 CFR § 75.81 or Appendix B to 40 CFR Part 75, the monitoring system for the EGU shall be recertified in accordance with the requirements of 40 CFR § 75.20(b) and 25 Pa. Code Chapter 139, Subchapter C.

(4) If the owner or operator of the EGU makes a replacement, modification or change to the flue gas handling system or the operation of the EGU that may significantly change the stack gas flow or concentration profile, the owner or operator shall recertify each continuous emission monitoring system and each excepted monitoring system (sorbent trap monitoring system) whose accuracy is potentially affected by the change in accordance with the requirements of 40 CFR § 75.20(b) and 25 Pa. Code Chapter 139, Subchapter C.

(5) This subsection applies to both the initial certification and recertification procedures of a continuous monitoring system required by § 123.210. For recertifications, replace the words “certification” and “initial certification” with the word “recertification,” replace the word “certified” with the word “recertified,” and follow the procedures required under 40 CFR § 75.20(b)(5) or 25 Pa. Code Chapter 139, Subchapter C as directed by the Department instead of the following procedures:

(i) The owner or operator shall submit to the Department written notice of the dates of certification testing.

(ii) The owner or operator shall submit to the Department a certification application for each monitoring system. A complete certification application shall include the information specified in 25 Pa. Code Chapter 139, Subchapter C.

(iii) If the Department issues a notice of disapproval of a certification application or a notice of disapproval of certification status, the owner or operator shall:

(A) Substitute, for each disapproved monitoring system, for each hour of EGU operation during the period of invalid data specified under 40 CFR § 75.20(a)(4)(iii) or § 75.21(e) and continuing until the applicable date and hour specified under 40 CFR § 75.20(a)(5)(i), either the following values or, if approved by the Department in writing,

an alternative emission value that is more representative of actual emissions that occurred during the period:

(I) For a disapproved mercury pollutant concentration monitor and disapproved flow monitor, respectively, the maximum potential concentration of mercury and the maximum potential flow rate, as defined in Sections 2.1.4.1 and 2.1.7.1 of Appendix A to 40 CFR Part 75.

(II) For a disapproved moisture monitoring system and disapproved diluent gas monitoring system, respectively, the minimum potential moisture percentage and either the maximum potential CO₂ concentration or the minimum potential O₂ concentration (as applicable), as defined in Sections 2.1.3.1, 2.1.3.2 and 2.1.5 of Appendix A to 40 CFR Part 75.

(III) For a disapproved excepted monitoring system (sorber trap monitoring system) under 40 CFR § 75.15 and disapproved flow monitor, respectively, the maximum potential concentration of mercury and maximum potential flow rate, as defined in Sections 2.1.4.1 and 2.1.7.1 of Appendix A to 40 CFR Part 75.

(B) Submit a notification of certification retest dates and a new certification application in accordance with subsection (a)(5)(i) and (ii).

(C) Repeat all certification tests or other requirements that were failed by the monitoring system, as indicated in the Department's notice of disapproval, within the time period specified by the Department in the notice of disapproval.

(b) The owner or operator shall submit a certification application to the Department within 45 calendar days after completing all initial certification or recertification tests required under this section.

§ 123.212. Out-of-control periods for emissions monitors.

(a) If an emissions monitoring system fails to meet the quality-assurance and quality-control requirements or data-validation requirements of 25 Pa. Code Chapter 139, Subchapter C, data for the demonstration of compliance with §123.207 shall be substituted using the applicable missing data procedures in the Continuous Source Monitoring Manual (DEP 274-0300-001).

(b) If both an audit of a monitoring system and a review of the initial certification or recertification application reveal that a monitoring system should not have been certified or recertified because it did not meet a particular performance specification or other requirement under § 123.210 (relating to general monitoring and reporting requirements) or the applicable provisions of 40 CFR Part 75, both at the time of the initial certification or recertification application submission and at the time of the audit, the Department will issue a notice of disapproval of the certification status of the monitoring system.

(1) For the purposes of this subsection, an audit shall be either a field audit or an audit of information submitted to the Department.

(2) By issuing the notice of disapproval, the Department revokes prospectively the certification status of the monitoring system. The data measured and recorded by the monitoring system shall not be considered valid quality-assured data from the date of issuance of the notification of the revoked certification status until the date and time that the owner or operator completes subsequently approved initial certification or recertification tests for the monitoring system.

(3) The owner or operator shall follow the applicable initial certification or recertification procedures in § 123.210 for each disapproved monitoring system.

§ 123.213. Monitoring of gross electrical output.

The owner or operator of an EGU complying with the requirements of either § 123.206(d) using electrical output (O_i) or § 123.206(e) using percent control efficiency shall monitor gross electrical output of the associated generator(s) and report in watt-hours per hour.

§ 123.214. Coal sampling and analysis for input mercury levels.

(a) Except as provided in § 123.210(c), the owner or operator of an EGU complying with §§ 123.201- 123.215 shall:

(1) Perform daily sampling of the coal combusted in the EGU for mercury content, in pounds per trillion Btu, as follows:

(i) Collect coal samples from the feeders or other representative location in accordance with the requirements of 40 CFR § 63.7521(c).

(ii) Composite coal samples in accordance with the requirements of 40 CFR § 63.7521(d).

(2) Analyze each of the composited coal samples for mercury content in accordance with the procedures of ASTM D 6414-01 or the current revision of this method, or other alternative as approved by the Department.

(b) The owner or operator of an EGU shall use the data collected from the sampling and analysis required under subsection (a) to determine the input mercury content of the coal combusted in the EGU in terms of pounds of mercury per trillion Btu.

(c) The Department may change the frequency of the sampling and analysis of the coal combusted in the EGU for the input mercury level based on historical data provided by the owner or operator of the EGU. The change in the frequency will be approved by the Department as a minor modification to the Title V operating permit.

§ 123.215. Recordkeeping and reporting.

(a) The owner or operator of an affected EGU shall comply with the recordkeeping and reporting requirements in this section and the applicable recordkeeping and reporting requirements of 40 CFR § 75.84 and 25 Pa. Code Chapter 139, Subchapter C.

(b) The owner or operator of an affected EGU complying with §§ 123.201- 123.215 through the requirements of § 123.206(d) (relating to compliance requirements for the emission standards for coal-fired electric generating units) by using electrical output to determine the allowable emissions of the EGU shall maintain the daily gross electrical output in gigawatt-hours in the file required under 40 CFR § 75.84(a).

(c) The owner or operator of an affected EGU complying with §§ 123.201 – 123.215 through the requirements of § 123.206(e) by using input mercury levels to determine the allowable emissions of the EGU shall maintain the daily mercury content of coal used in pounds of mercury per trillion Btu and the daily input mercury content in pounds in the file required under 40 CFR § 75.84(a).

(d) Except as provided in § 123.210(c), the owner or operator of an affected EGU shall maintain records of the following:

(1) Daily outlet mercury or output mercury data using the time period appropriate to the excepted methodology (sorbent trap monitoring system).

(2) If using an averaging methodology, all other information collected on a daily basis necessary to calculate the average.

(3) The owner or operator shall record for each 12-month compliance demonstration period the method through which each EGU demonstrated compliance.

(4) An owner or operator who uses the averaging option of § 123.206(a)(2) shall calculate and record the:

(i) Monthly actual mercury emissions within 30 days of the end of each month.

(ii) Twelve-month rolling actual emissions each month.

(5) The owner or operator shall maintain the following records on site:

(i) The results of quarterly assessments conducted under Section 2.2 of Appendix B of 40 CFR Part 75.

(ii) Daily/weekly system integrity checks under Section 2.6 of Appendix B of 40 CFR Part 75.

(iii) Quality assurance records as required by the Continuous Source Monitoring Manual (DEP 274--0300-001).

(6) The records required under subsection (d)(5) shall be made available to the Department upon request.

(e) The owner or operator shall submit quarterly reports to the Department in accordance with the requirements of the Continuous Source Monitoring Manual (DEP 274--0300-001).



Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
June 16, 2006

Policy Office

717-783-8727

Kim Kaufman, Executive Director
Independent Regulatory Review Commission
14th Floor, Harristown #2
333 Market Street
Harrisburg, PA 17120

Re: Proposed Rulemaking: Mercury Emission Reduction Requirements
for Electric Generating Units (#7-405)

Dear Mr. Kaufman:

Enclosed is a copy of a proposed regulation for review and comment by the Commission pursuant to Section 5(a) of the Regulatory Review Act. This proposal is scheduled for publication as a proposed rulemaking in the *Pennsylvania Bulletin* on June 24, 2006, with a 60-day public comment period and three Environmental Quality Board (EQB) public hearings. The EQB adopted this proposed regulation at its meeting of May 17, 2006.

These proposed amendments to 25 Pa. Code, Chapter 123 establish mercury emission standards, annual emission limitations as part of a statewide mercury allowance program with annual non-tradable mercury allowances and other requirements for the purpose of reducing mercury emissions from coal-fired electric generating units or cogeneration units.

In addition to the standard methods of receiving public comment by mail and as testimony at hearings, this proposal offers the public a new option with the use of an online form. It is designed so that once the online form is completed and sent electronically to the EQB, it will also be sent immediately to the Committees and the Commission. Because of the use of this technology advancement, the only comments that you will receive as hard-copy documents will be those that were submitted to EQB as hard-copy.

The Department will provide the Commission with any assistance required to facilitate a thorough review of this proposal. Section 5(g) of the Regulatory Review Act provides that the Commission may, within 30 days of the close of the public comment period, convey to the agency its



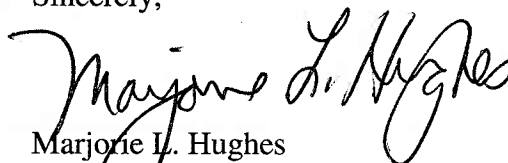
Kim Kaufman, Executive Director

- 2 -

June 16, 2006

comments, recommendations and objections to the proposed regulation and a copy of any staff reports deemed pertinent. For additional information, please contact Michele Tate or me at 783-8727.

Sincerely,

A handwritten signature in black ink, appearing to read "Marjorie L. Hughes". The signature is written in a cursive style with a large, looping initial "M".

Marjorie L. Hughes
Regulatory Coordinator
Policy Office

Enclosures

**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE
REGULATORY REVIEW ACT**

I.D. NUMBER: 7-405
SUBJECT: Mercury Emission Reduction Requirements for Electric Generating Units
AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
 - a. With Revisions
 - b. Without Revisions

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 INDEPENDENT REGULATORY
 REVIEW COMMISSION

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
6-16-06	<i>[Signature]</i>	Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
6-16-06	<i>[Signature]</i>	Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
6-16-06	<i>[Signature]</i>	Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
6-16-06	<i>[Signature]</i>	Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
6/16/06	<i>[Signature]</i>	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL (for Final Omitted only)
6/16/06	<i>[Signature]</i>	LEGISLATIVE REFERENCE BUREAU (for Proposed only)