

NOTICES OF PROPOSED RULEMAKING

Unless exempted by A.R.S. § 41-1005, each agency shall begin the rulemaking process by first submitting to the Secretary of State's Office a Notice of Rulemaking Docket Opening followed by a Notice of Proposed Rulemaking that contains the preamble and the full text of the rules. The Secretary of State's Office publishes each Notice in the next available issue of the *Register* according to the schedule of deadlines for *Register* publication. Under the Administrative Procedure Act (A.R.S. § 41-1001 et seq.), an agency must allow at least 30 days to elapse after the publication of the Notice of Proposed Rulemaking in the *Register* before beginning any proceedings for making, amending, or repealing any rule. (A.R.S. §§ 41-1013 and 41-1022)

NOTICE OF PROPOSED RULEMAKING

TITLE 2. ADMINISTRATION

CHAPTER 8. STATE RETIREMENT SYSTEM BOARD

[R06-282]

PREAMBLE

1. Sections Affected

Article 7
R2-8-701
R2-8-702
R2-8-703
R2-8-704
R2-8-705
R2-8-706
R2-8-707
R2-8-708
R2-8-709

Rulemaking Action

New Article
New Section
New Section

2. The statutory authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing statute: A.R.S. § 38-714(F)(5)

Implementing statute: A.R.S. §§ 38-735, 38-736, 38-737, 38-738

3. A list of all previous notices appearing in the *Register* addressing the proposed rule:

Notice of Rulemaking Docket Opening: 11 A.A.R. 3255, August 26, 2005

Notice of Rulemaking Docket Opening: 12 A.A.R. 836, March 17, 2006

4. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Nancy O. Johnson, Rules Coordinator

Address: Arizona State Retirement System
3300 N. Central, 14th Fl.
Phoenix, AZ 85012

Telephone: (602) 308-5172

Fax: (602) 264-6113

E-mail: nancyj@azasrs.gov

or

Name: Patrick M. Klein, Assistant Director, External Affairs
Arizona State Retirement System

Address: 3300 N. Central Ave., 14th Floor
Phoenix, AZ 85012

Telephone: (602) 240-2044

Notices of Proposed Rulemaking

Fax: (602) 240-5303
E-mail: patk@azasrs.gov

5. An explanation of the rule, including the agency's reasons for initiating the rule:

A.R.S. § 38-736 provides when member contributions are to begin. A.R.S. §§ 38-736 and 38-737 provide how employer and member contributions are paid. A.R.S. § 38-735 provides when interest is charged on contributions, and A.R.S. § 38-738 identifies what happens if less than the correct amount of employer or member contributions are made. This rulemaking specifies how the ASRS handles claims that required contributions were not withheld, including the procedure for:

1. Notifying ASRS that less than the correct amount of contributions may have been paid into ASRS by an employer,
2. Determining whether less than the correct amount of contributions has been paid into ASRS by an employer,
3. Determining the amount of contributions that shall be paid into the ASRS,
4. Disputing ASRS determinations involving contributions not withheld, and
5. Specifying how the contributions shall be paid into ASRS.

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

None

7. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

8. The preliminary summary of the economic, small business, and consumer impact:

Annual costs/revenues changes are designated as minimal when less than \$1,000, moderate when between \$1,000 and \$10,000, and substantial when \$10,000 or greater in additional costs or revenues.

The ASRS will bear moderate to substantial costs for promulgating and enforcing the rules. Costs for promulgating the rules include staff time to write, review, and direct the rules through the rulemaking process.

The cost to an ASRS employer and to a member will depend on the number of incidences where required contributions were not withheld, the salary of the member involved, the length of time involved, how long it's been since the contributions should have been withheld, and how long the employer and member take to pay the contribution amount. However, these costs are accrued based on statutory requirements. The rules benefit both the employers and the members because the rules provide a consistent process for identifying and paying for contributions that should have been previously withheld, but were not.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: Nancy O. Johnson, Rules Coordinator

Address: Arizona State Retirement System
3300 N. Central, 14th Fl.
Phoenix, AZ 85012

Telephone: (602) 308-5172

Fax: (602) 264-6113

E-mail: nancyj@azasrs.gov

or

Name: Patrick M. Klein, Assistant Director, External Affairs
Arizona State Retirement System

Address: 3300 N. Central Ave., 14th Floor
Phoenix, AZ 85012

Telephone: (602) 240-2044

Fax: (602) 240-5303

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10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

The ASRS has scheduled an oral proceeding on the proposed rulemaking:

Date: Wednesday, September 13, 2006
Location: 3300 N. Central Ave., Board Room, 10th Floor
Phoenix, AZ 85012
Time: 2:00 p.m.

The close of record is 5 p.m., Wednesday, September 13, 2006.

A person may also submit written comments on the proposed rules no later than 5 p.m., Wednesday, September 13, 2006, to the individuals listed in item #4.

11. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

Not applicable

12. Incorporations by reference and their location in the rules:

Not applicable

13. The full text of the rules follows:

TITLE 2. ADMINISTRATION

CHAPTER 8. STATE RETIREMENT SYSTEM BOARD

ARTICLE 7. CONTRIBUTIONS NOT WITHHELD

Section

<u>R2-8-701.</u>	<u>Definitions</u>
<u>R2-8-702.</u>	<u>General Information</u>
<u>R2-8-703.</u>	<u>ASRS Employer's Discovery of Error</u>
<u>R2-8-704.</u>	<u>Member's Discovery of Error</u>
<u>R2-8-705.</u>	<u>ASRS' Discovery of Error</u>
<u>R2-8-706.</u>	<u>Determination of Contributions Not Withheld</u>
<u>R2-8-707.</u>	<u>Submission of Payment</u>
<u>R2-8-708.</u>	<u>Dispute of Credited Service</u>
<u>R2-8-709.</u>	<u>Nonpayment of Contributions</u>

ARTICLE 7. CONTRIBUTIONS NOT WITHHELD

R2-8-701. Definitions

The following definitions apply to this Article unless otherwise specified:

1. "218 agreement" means a written agreement between the state, political subdivision, or political subdivision entity and the Social Security Administration, under the provisions of § 218 of the Social Security Act, to provide social security and Medicare or Medicare-only coverage to employees of the state, political subdivision, or political subdivision entity.
2. "Active member" has the same meaning as in A.R.S. § 38-711.
3. "ASRS" has the same meaning as in A.R.S. § 38-711.
4. "ASRS employer" means this state, a political subdivision, or a political subdivision entity that has:
 - a. Signed a 218 agreement.
 - b. Applied to become a member of ASRS, and
 - c. Been approved for membership by the Board.
5. "Authorized employer representative" means an individual who has legal power to bind the ASRS employer in its transactions with the ASRS.
6. "Board" has the same meaning as in A.R.S. § 38-711.
7. "Director" means the Director appointed by the Board as provided in A.R.S. § 38-715.
8. "Documentation" means a pay stub, completed W-2 form, completed Verification of Contributions Not Withheld form, employer letter or spreadsheet, completed State Personnel Action Form, Social Security Earnings Report,

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employment contract, payroll record, timesheet, or other ASRS employer-provided form that includes:

- a. Whether the employee was covered under the ASRS employer's 218 agreement.
 - b. The number of hours worked or length of time the member was employed by the ASRS employer, or
 - c. The compensation paid to the member by the ASRS employer.
9. "Eligible service" means employment with an ASRS employer:
- a. That is no more than 15 years prior to the date the ASRS receives written credible evidence that less than the correct amount of contributions were paid into the ASRS or the ASRS otherwise determines that less than the correct amount of contributions were made as specified in A.R.S. § 38-738(C); and
 - b. In which the member:
 - i. Until 6/30/92, worked a minimum of 20 hours per week for at least 5 months in a fiscal year for any one or more ASRS employers;
 - ii. From 7/1/92 to 7/1/99, worked a minimum of 20 hours per week for at least 20 weeks in a fiscal year for any one or more ASRS employers; or
 - iii. From 7/1/99 to the present, worked a minimum of 20 hours per week for at least 20 weeks in a service year for at least one ASRS employer.
10. "Fiscal year" means from July 1 of one year through June 30 of the next year.
11. "Member" has the same meaning as in A.R.S. § 38-711.
12. "Person" has the same meaning as in A.R.S. § 1-215.
13. "Political subdivision" has the same meaning as in A.R.S. § 38-711.
14. "Political subdivision entity" has the same meaning as in A.R.S. § 38-711.
15. "Service year" has the same meaning as in A.R.S. § 38-711.

R2-8-702. General Information

- A. Verified eligible service that occurred more than 15 years before the date ASRS receives the information identified in R2-8-703(A)(1) is considered public service credit as provided in A.R.S. § 38-738(D), and is not applied under this Article.**
- B. The ASRS employer shall pay the ASRS employer's portion of the contributions the ASRS determines is owed under R2-8-706 whether or not:**
 1. The member has withdrawn contributions as specified in R2-8-115; or
 2. The member pays the member's portion of the contributions.
- C. The person who initiates the claim that contributions were not withheld for eligible service has the burden to prove a contribution error was made.**
- D. ASRS shall not waive payment of contributions or interest owed under this Article.**
- E. If a member is not able to establish eligibility for service credit for which contributions were not withheld, but is able to establish a period of employment by an ASRS employer the member may request to purchase service credit for that period under A.R.S. § 38-743 and Article 5 of this Chapter.**

R2-8-703. ASRS Employer's Discovery of Error

If an ASRS employer determines that contributions have not been withheld for a member for a period of eligible service, the ASRS employer shall notify ASRS in writing, and shall provide ASRS with the member's full name, social security number, months, years and hours worked, the salary each fiscal year for the time periods worked, and the member's position title and status at the time contributions should have been withheld.

R2-8-704. Member's Discovery of Error

If a member believes that an ASRS employer has not withheld contributions for the member for a period of eligible service, the member shall:

1. Provide the ASRS employer with documentation of the member's claim and request that the ASRS employer provide a letter that includes the information in the Verification of Contributions Not Withheld form or complete a Verification of Contributions Not Withheld form that includes:
 - a. The member's full name;
 - b. Other names used by the member;
 - c. The member's social security number;
 - d. Whether the position was covered under the ASRS employer's 218 agreement;
 - e. The position title the member held at the time the contributions should have been withheld;
 - f. The eligibility of the member at the time the contributions should have been withheld;
 - g. The following statements of understanding and agreements to be initialed by the authorized employer representative filling out the form:
 - i. I understand it is my responsibility to verify the accuracy of the information I am providing on this form. I understand any individual who knowingly makes a false statement, or who falsifies or permits to be falsified any record of the retirement plan with an intent to defraud the plan, is guilty of a Class 6 felony pursuant to A.R.S. § 38-793; and

- ii. I understand that, based on the information provided on this form, the ASRS may determine that contributions are owed on behalf of the member listed on this form, and the ASRS employer may incur a substantial financial obligation:
 - h. The months worked, the hours per week worked, and the compensation earned by the member, by fiscal year;
 - i. The name of the ASRS employer;
 - j. The printed name and signature of the authorized employer representative;
 - k. The daytime telephone number of the authorized employer representative;
 - l. The title of the authorized employer representative; and
 - m. The date authorized employer representative signed the form;
- 2. Provide ASRS with the completed Verification of Contributions Not Withheld form; and
- 3. If the ASRS employer refuses to fill out the Verification of Contributions Not Withheld form, or if the member disputes the information the ASRS employer completes on the form, provide the ASRS with the documentation the member believes supports the allegation that contributions should have been withheld, that includes proof:
 - a. That the employee was covered under the ASRS employer's 218 agreement,
 - b. Of the number of hours worked,
 - c. Of the length of time the member was employed by the ASRS employer, and
 - d. Of the compensation paid to the member by the ASRS employer.

R2-8-705. ASRS' Discovery of Error

If the ASRS determines, as specified in A.R.S. § 38-738(B)(7), that contributions have not been withheld for a member for a period of eligible service, the ASRS shall notify the member and the ASRS employer in writing and shall request the following information:

- 1. The months, years and hours worked,
- 2. The salary each fiscal year for the time periods worked, and
- 3. The member's position title at the time contributions should have been withheld.

R2-8-706. Determination of Contributions Not Withheld

- A. Upon receipt of the information listed in R2-8-703, R2-8-704, or R2-8-705, the ASRS shall review the information to determine whether or not member contributions should have been withheld by the ASRS employer, the length of time those contributions should have been withheld, and the amount of contributions that should have been withheld.
- B. Except for A.R.S. §§ 38-748 and 38-766, the presence of a contract between a member and ASRS employer does not alter the contribution requirements of A.R.S. §§ 38-736 and 38-737.
- C. If there is any discrepancy between the documentation provided by the ASRS employer and the documentation provided by the member, a document used in the usual course of business prepared at the time at issue is controlling.
- D. ASRS shall provide to the ASRS employer and the member a written statement that includes:
 - 1. The dates of eligible service for which contributions were not withheld,
 - 2. The dollar amount of contributions that should have been made,
 - 3. The dollar amount of the contributions to be paid by the ASRS employer,
 - 4. The interest on the ASRS employer contributions and member contributions to be paid by the ASRS employer,
 - 5. The dollar amount of contributions to be paid by the member, and
 - 6. To the member, the various payment options that may apply, as specified in R2-8-512 through R2-8-519.

R2-8-707. Submission of Payment

- A. Within 90 calendar days after the ASRS notifies the ASRS employer in writing of the amount due, the ASRS employer shall pay all ASRS employer contributions, including accrued interest on both the ASRS employer and member contributions, from the date the contributions were due to the date the ASRS notifies the ASRS employer of the amount due. An ASRS employer who makes payment under A.R.S. § 38-738(B)(3) is not liable for additional interest that may accrue as a result of a member's failure to remit payment required by A.R.S. § 38-738(B)(1). If the ASRS does not receive full payment of the ASRS employer's amount due within 90 calendar days after the ASRS notifies the ASRS employer of the amount due, interest on the amount not paid, as provided in A.R.S. § 38-738(B)(3), will accrue from the 91st day until the ASRS employer pays the full amount.
- B. An ASRS employer may pay the amount the ASRS employer believes may be due at any time prior to ASRS's notification of the amount due in order to prevent the accrual of interest after the date of the payment. Any amount the ASRS employer pays that the ASRS determines is not owed shall be refunded to the ASRS employer.
- C. A member may purchase eligible service for which contributions were not withheld in accordance with the requirements of Article 5 of this Chapter for purchase of service credit. If the ASRS does not receive full payment of the ASRS employee's amount due within 90 calendar days after the ASRS notifies the member that the ASRS received the ASRS employer's full payment, interest on the amount not paid, as provided in A.R.S. § 38-738(B)(1), will accrue from the 91st day until the member pays the full amount.

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E-mail: ccomanita@azdor.gov

Please visit the ADOR web site to track the progress of these rules and other agency rulemaking matters at <http://www.azdor.gov/ResearchStats/Proposedrulesmainmenu.htm>.

5. An explanation of the rule, including the agency's reasons for initiating the rule:

A.R.S. § 42-3202 requires payment of Arizona luxury tax on "tobacco, cigarettes or cigars" subject to the tax, as evidenced by a stamp or any other official indicia. Moreover, Laws 2006, ch. 278, § 15 requires that the tax be paid "at the time of the sale, distribution or transfer" of the tobacco products. A.R.S. § 42-3208 provides the specific procedure under which distributors of tobacco products other than cigarettes (defined as "other tobacco products" in A.A.C. R15-3-301) are to report and remit luxury tax. The Department initiates this rulemaking to clarify that, for purposes of other tobacco products, luxury tax continues to be remitted to the Department by return, as provided in A.R.S. § 42-3208, and shall be considered paid at the time of sale, distribution, or transfer on products sold or offered for sale in Arizona if tax returns are remitted with the tax on the date required for timely payment.

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

None

7. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

8. The preliminary summary of the economic, small business, and consumer impact:

This rulemaking is necessary to provide clear and understandable guidance to taxpayers to enable compliance with Arizona luxury tax laws, and is expected to benefit tobacco product distributors.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: Christie Comanita, Manager
Address: Tax Policy and Research Division
Arizona Department of Revenue
1600 W. Monroe, Room 810
Phoenix, AZ 85007
Telephone: (602) 716-6791
Fax: (602) 716-7995
E-mail: ccomanita@azdor.gov

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

No oral proceeding is scheduled. Under A.R.S. § 41-1023(C), an oral proceeding will be scheduled if a written request is submitted to the person identified in item #4 within 30 days after publication of this notice.

11. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

None

12. Incorporations by reference and their location in the rules:

None

13. The full text of the rules follows:

TITLE 15. REVENUE

CHAPTER 3. DEPARTMENT OF REVENUE
LUXURY TAX SECTION

ARTICLE 3. TOBACCO

Section
R15-3-303. ~~Repeated~~ Luxury Tax on Other Tobacco Products

ARTICLE 3. TOBACCO

R15-3-303. ~~Repealed~~ Luxury Tax on Other Tobacco Products

The Department shall consider Arizona luxury tax paid at the time of the sale, distribution, or transfer of other tobacco products if distributors report and remit the tax on the products in the manner, method, and time prescribed by A.R.S. § 42-3208. Sworn returns prepared and remitted by distributors pursuant to A.R.S. § 42-3208 constitute official indicia that luxury tax has been paid on the other tobacco products.

NOTICE OF PROPOSED RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR POLLUTION CONTROL

[R06-281]

PREAMBLE

<u>1. Sections Affected</u>	<u>Rulemaking Action</u>
R18-2-701	Amend
R18-2-733	New Section
R18-2-734	New Section

2. The statutory authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing Statutes: A.R.S. §§ 49-104(A)(1) and (A)(10)

Implementing Statutes: A.R.S. §§ 49-422(B), 49-425

3. A list of all previous notices appearing in the Register addressing the proposed rule:

Notice of Rulemaking Docket Opening: 12 A.A.R. 1712, May 19, 2006

4. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Steve Burr
Address: Arizona Department of Environmental Quality
1110 W. Washington Ave.
Phoenix, AZ 85007
Telephone: (602) 771-4251 (This number may be reached in-state by dialing (800) 234-5677 and entering the seven-digit number.)
Fax: (602) 771-2366
E-mail: Burr.Steve@azdeq.gov

5. An explanation of the rule, including the agency's reasons for initiating the rule:

Summary. These proposed rules would impose both federal and state mercury emission standards on coal-fired power plants. The federal standards incorporated by the rules impose a cap and trade program designed to achieve a reduction in nationwide emissions of roughly 70 percent by 2018. Because the federal program allows sources to achieve compliance through the acquisition of mercury emission allowances, it does not assure that an individual coal-fired plant will reduce its mercury emissions. The state standards, in contrast, would require coal-fired plants in Arizona to achieve substantial reductions in mercury emissions by December 31, 2013.

Mercury and Its Health Effects. Mercury exists in the environment in three forms: elemental, inorganic and organic. Elemental mercury metal is a heavy, silvery white liquid at ambient temperatures and atmospheric pressures. Mercury metal vaporizes readily under ambient conditions. Inorganic mercury is found in two forms: mercurous (Hg⁺) and mercuric (Hg⁺⁺), which may exist as ions or in salts. The form of mercury that is of greatest concern is organic mercury, primarily methylmercury, which is found in water, soil sediments and biota (EPA 1997; Rang 2004).

Methylmercury is rapidly absorbed through the gastrointestinal tract and distributed throughout the body. If a sufficient amount accumulates in a person's body it can result in serious health effects: cardiovascular effects, immune system and reproductive problems, and other adverse health effects on the central nervous system, kidneys and liver, any of which can contribute to premature mortality. A major concern is the fact that mercury can easily cross the placenta from the mother to the unborn child, which can result in IQ deficits and other neurological abnormalities in

children as a result of fetal exposures. Infants, children, and pregnant women potentially are therefore at increased risk for mercury toxicity (EPA 1997; Hospitals for a Healthy Environment; Rang; Children's Environmental Health Network).

Mercury in the Environment. Inorganic mercury can be converted by bacteria or chemical processes into organic mercury, often methylmercury, which is a potent neurotoxin. Because organic mercury, unlike inorganic mercury, is not excreted as rapidly as it is taken in, it accumulates in organisms. As a result, as bacteria, algae and plants are consumed by detritivores and herbivores, which are eaten by small carnivores, which are in turn eaten by larger carnivores, the mercury content of the organisms in each step of the food chain increases. Highest concentrations are found in large predatory fish, such as bass, walleye, albacore tuna, swordfish and sharks.

ADEQ has found high concentrations of mercury in fish from lakes throughout the state and has issued fish consumption advisories for 10 lakes: Parker Canyon, Pena Blanca, and Arivaca lakes in southern Arizona; Alamo Lake, Upper and Lower Lake Mary, Soldier Lake, Soldier Annex, and Long Lake in the north-central part of the state; Lyman Lake in northeastern Arizona; and Coors Lake in the west-central part (ADEQ "Fact Sheet: Fish Consumption Advisories"). Additional mercury data are being collected and analyzed, which will likely lead to additional fish consumption advisories (ADEQ, "Mercury Strategy"). Note that, however, the presence of mercury in water and sediments of a water body does not, in and of itself, result in the mercury being available to be absorbed and ingested by aquatic organisms. The chemistry of the water body must also be conducive to the mercury becoming methylated. As a result, many other water bodies in the state exposed to the same sources do not, and may never have fish consumption advisories.

Human exposure to mercury from fish consumption is a function of both the concentration of mercury in and the amount of fish consumed. Average exposure of the population to mercury through consumption of fish is dominated by oceanic fish that contain moderate to low concentrations of methylmercury, including tuna, pollock, shrimp and cod. Subsistence and sport fishing are, nonetheless, important routes of exposure.

Sources of Mercury Contamination. Mercury contamination of aquatic ecosystems in Arizona arises from a wide variety of sources. Many of these lakes are in watersheds where current and historic mining has exposed mercury laden rock and mining waste to the elements and where pesticides containing mercury were used. The watersheds of others, however, are within the range in which ionic and particulate mercury emissions from coal-fired power plants would be deposited. Lyman Lake is within 20 miles of two power plants responsible for approximately 60% of the mercury emissions from the state's coal-fired power plant, and about 70 miles from another responsible for an additional 27% of the mercury emissions. Further, one of the plants closest to Lyman Lake has added one new unit and scheduled to add another, which will more than double the mercury emissions from that plant.

High concentrations of mercury have been discovered in fish removed from remote lakes throughout the world. These are lakes that received no direct pollutant discharge. The conclusion is that atmospheric deposition contaminated the water (Hanisch; EPA 1997; Rang; Power Scorecard; Srivastava et al.). The emission of mercury into the atmosphere and its subsequent deposition is therefore a significant contributor to mercury contamination of aquatic ecosystems.

Mercury is contained in coal as a trace element. Power plants burning coal, in the absence of pollution controls, release most of the mercury contained in the coal into the air in elemental, ionic and particulate forms. Ionic and particulate mercury deposit relatively near the emissions source. Elemental mercury (Hg^0), however, can remain airborne for one year or more, becoming part of global elemental mercury from all sources and geographic areas. These emissions can be transported over thousands of miles before being oxidized and deposited.

Global background mercury concentrations are another major contributor to deposition and subsequent contamination of aquatic ecosystems throughout the world. These emissions arise from both natural and anthropogenic sources. Significant natural sources include volatilization of elemental mercury from land and water bodies as well as wildland fires, especially forest fires. Between 1990 and 2000, worldwide anthropogenic mercury emissions nearly doubled, from 1,181 tons to 2,269 tons. Even though there have been significant reductions in mercury emissions from North America and Europe (the latter reducing mercury emissions by over 50%), emissions from the developing world, primarily Asia and Africa, have more than doubled (EPA 2006). While the deposition of global background mercury appears to be a growing problem, local emissions are an important part of this environmental problem. At this time, there is no reliable way to distinguish between mercury deposited from global background and that from local sources, let alone what impact each has on mercury contamination of Arizona's fisheries.

Between 1990 and 1999, U.S. mercury emissions from all industrial sources were reduced by 45%, primarily as a result of implementation of regulations to control mercury from municipal waste combustors and medical waste incinerators. Coal-fired utility boilers are the largest point source of unregulated mercury emissions in the U.S., accounting for 43% of the 1999 emissions (EPA 2006).

The Federal Clean Air Mercury Rule. Under Section 112(d) of the federal Clean Air Act, the federal Environmental Protection Agency (EPA) is required to adopt standards reflecting the maximum achievable control technology (MACT) for major sources of hazardous air pollutants (HAP) (42 U.S.C. § 7412(d)). Section 112(n)(1)(A), however, provides that EPA may only impose MACT standards on electric utility steam generating units if on the basis of a study mandated by the same Section, the agency "finds such regulation is appropriate and necessary." (42 U.S.C. §

7412(n)(1)(A)). On December 20, 2000, EPA found that regulation of coal-fired electric utility steam generating units was appropriate and necessary and concluded that mercury was “the HAP of greatest concern to public health from the industry.” EPA therefore added coal-fired electric steam generating units to the list of source categories for which MACT standards must be developed (65 FR 79826).

In early 2004, EPA proposed to withdraw its Section 112(n)(1)(A) finding, to remove electric utility steam generating units from the list of HAP source categories subject to MACT and to promulgate instead standards of performance under Section 111 of the Clean Air Act (69 FR 4652; 69 FR 12398). Section 111(b) requires EPA to adopt standards of performance for new sources of air pollutants. These “New Source Performance Standards” (NSPS) may govern both criteria pollutants subject to Section 110 of the Clean Air Act, and non-criteria pollutants. When an NSPS applies to emissions of non-criteria pollutants from a category of sources, Section 111(d) requires states to adopt standards of performance for emissions of that pollutant from existing sources in the same category. EPA must adopt procedures for state submission of those standards of performance that are similar to the procedures governing submission of state implementation plans under Section 110.

On May 18, 2005, EPA promulgated the Clean Air Mercury Rule (CAMR). CAMR finalized the agency’s proposal to regulate coal-fired electric steam generating units under Section 111 rather than 112 and required states to submit Section 111(d) standards of performance meeting the rule’s requirements by November 17, 2006 (70 FR 28606).

CAMR establishes a two-phase nationwide cap on mercury emissions and divides the cap into budgets for each of the states, including Arizona, with electric generating units. The first phase cap, which applies from 2010 to 2017, is set at 38 tons per year. It is not designed to require the installation of mercury-specific controls, but instead reflects the reductions that EPA projects will be achieved through the “co-benefits” of installing controls for sulfur dioxide and nitrogen oxides under the “Clean Air Interstate Rule” (CAIR). CAIR applies only in 25 eastern states and the District of Columbia and thus will require no reductions in Arizona. The second phase cap, which applies in and after 2018, is set at 15 tons per year and reflects a reduction in nationwide mercury emissions of 70 percent from a 1999 baseline. To satisfy Section 111(d), a state must adopt standards of performance assuring that total mercury emissions from coal-fired electric steam generating units in the state do not exceed the state’s budget. Arizona’s budget is 908 pounds for 2010-2017 and 358 pounds for 2018 and later.

In contrast to the extended compliance deadlines established by CAMR, MACT standards adopted by the same date under Section 112(d) would have required compliance by no later than March 2008.

CAMR includes a model cap and trade rule, 40 CFR Part 60, Subpart HHHH, that states may adopt or incorporate by reference to meet the Section 111(d) requirements. Under the model rule, the state allocates authorizations to emit an ounce of mercury, known as allowances, to electric generating units under its jurisdiction. These allowances are kept in an “account” for each electric generating plant. Each year beginning in 2010, EPA will deduct one allowance for each ounce of mercury emitted by a plant. Plants that do not have sufficient allowances to cover their emissions will be in violation.

Electric generating units are authorized to trade allowances with units across the country and to bank unused allowances for use in future years. Thus, an individual electric generating unit need not necessarily install mercury controls to satisfy CAMR. It can instead purchase allowances to make up the difference between its allocation from the state and its mercury emissions.

State Incorporation of CAMR Model Rule. The proposed rule would incorporate the CAMR cap-and-trade model rule by reference. Emissions projections indicate that even after installation of efficient mercury-specific controls on existing units, the CAMR budget for Arizona will not allow for growth in coal-fired generation in Arizona (ADEQ 2006). It therefore appears that growth can only be accommodated by allowing the acquisition of allowances from units in states with relatively large CAMR budgets.

In order to derive an environmental benefit from trading, the state incorporation rule imposes an additional requirement not found in CAMR. The rule requires electric generating plants to acquire two allowances for every one needed for compliance purposes and to retire the excess allowances by transferring them to a trading account held by ADEQ. For example, if a plant were allocated 100 allowances by the state and had emissions of 110 ounces, it would need to acquire 20 allowances $((110 - 100) \times 2)$ to cover the deficit. Of those, EPA would deduct 10 to comply with CAMR, and the other 10 would be transferred to ADEQ’s account. Note that if the plant acquired 30 allowances instead of just the 20 it needed to comply with the two-for-one requirement, it would still have to transfer only 10 to ADEQ. The remaining 10 (after the deduction by EPA) would be banked and could be used for compliance in future years.

State Standards for Mercury Emissions. The state standards would require coal-fired electric generating plants to reduce inlet mercury, measured as the concentration of mercury in the coal delivered to a plant, by 90 percent or to achieve an emission limit of 0.0083 pounds per gigawatt-hour of electricity generated, whichever is greater. The latter standard reflects 90 percent control efficiency for coal with a mercury content of 8.7 pounds per trillion British thermal units (Btu), which EPA determined to be the maximum annual average mercury content of subbituminous coal, which is the predominant coal rank burned in Arizona (EPA 2005).

Section by Section Explanation of Proposed Rules:

Article 7

- R18-2-701 This Section is amended to incorporate the defined terms used in new R18-2-733 and R18-2-734. The standards imposed in R18-2-734 apply to an “electric generating plant,” which is defined in this Section as all of the “electric generating units” at a single stationary source. An “electric generating unit” is a coal-fired boiler or combustion turbine serving an electric generator that has a nameplate capacity exceeding 25 megawatts and that produces electricity for sale. Certain cogeneration units, which produce both electricity and useful thermal energy, are exempt from the definition. Eleven of the remaining definitions, including “boiler,” “combustion turbine,” “nameplate capacity” and “cogeneration unit,” are sub-definitions of “electric generating unit.” This Section also includes definitions of “mercury”; of “inlet mercury,” which is the starting point for determining compliance with the 90 percent control efficiency requirement in R18-2-734; of “commercial operation,” which serves as the trigger for certain deadlines under the rule; of “existing electric generating plant,” which is used to distinguish units that are subject to the two-for-one allowance requirement imposed in R18-2-734; and of “inlet mercury.”
- R18-2-733(A) This Section incorporates 40 CFR Part 60, Subpart HHHH by reference. Subpart HHHH is EPA’s model rule for state implementation of CAMR’s budget cap and trade provisions. It includes definitions, a method for allocating mercury emission allowances among electric generating units and procedures for trading and banking allowances. Under 40 CFR 60.24(h)(6)(i), a state that adopts regulations substantively identical to Subpart HHHH is entitled to automatic approval of its plan under Section 111(d) of the Clean Air Act.
- R18-2-733(B) This Section imposes the requirement that any deficit between an electric generating plant’s emissions and allocated allowances be covered by allowances acquired through trading on a two-for-one basis. It accomplishes this by requiring emissions to remain below the total of allocated allowances plus one-half of allowances acquired through trading. This Section and the following related provisions take effect in 2012, one year before the state standards in R18-2-734 take effect, in order to provide an incentive for early compliance.
- R18-2-733(C)-(F) Under CAMR, EPA deducts allowances from an electric generating plant’s account equal to its annual mercury emissions in ounces. Remaining allowances are automatically banked and can be traded or used for future compliance. To assure that allowances acquired to comply with the two-for-one requirement in R18-2-733(B) are not banked and reused, these sections require sources to transfer that portion of the allowances not deducted by EPA to a “general” account that ADEQ will establish under 40 CFR 60.4151(b). Allowances held in this account will not be available for trading. This is the only available method for assuring that allowances in a state’s budget are retired.
- R18-2-734 This Section establishes state standards that apply to mercury emissions from coal-fired electric generating plants in addition to the requirements of CAMR.
- R18-2-734(B) This Section imposes a mercury emission limit of (1) 10 percent of inlet mercury, which is equivalent to a 90 percent control efficiency requirement, or (2) 0.0083 pound of mercury per gigawatt hour of electric output, whichever is greater. The standard applies on a rolling 12-month basis to total emissions from all electric generating units at an electric generating plant. Emissions from existing electric generating units will be subject to the standard beginning December 31, 2013, which will effectively require installation of controls by no later than January 1, 2013. Emissions from units that begin commercial operation after January 1, 2013, will become subject to the limit 12 calendar months after commercial operation starts.
- R18-2-734(C), (D) These sections establish the compliance monitoring, recordkeeping and reporting requirements for electric generating plants subject to the rule.
- R18-2-734(E) In order to assure in advance that electric generating plants are on the path to compliance, this Section requires plants to submit by January 1, 2009, applications for permit revisions describing their control strategies. After review and approval by ADEQ, the control strategies, along with the rule’s emission standards, will be incorporated into a plant’s permit.
- R18-2-734(F), (G) These subsections provide that if an electric generating plant is unable to comply the emission limit in subsection (B) despite following a control strategy approved by the Department under subsection (E), it may obtain a four-year extension to upgrade controls and come into compliance. During that four-year period the plant will be subject to an emission limit reflecting the efficiency of the existing controls.
- R18-2-734(H) The efficiency of control technology for mercury emissions is advancing rapidly. In order to assure that Arizona citizens enjoy the benefits of this advancement, this Section requires that

R18-2-734(I) electric generating plants submit to a review of the best available controls in 2025, eleven years after the state standards become effective (seven years if an extension is granted). The review need consider only control methods that can be used in conjunction with existing controls. The replacement of existing control equipment will not be required under this Section. Industry sources have indicated that advanced coal technologies, which are inherently less polluting, will be commercially viable by 2014. This Section therefore provides that after 2014, permits will not be granted for new units employing conventional coal combustion technologies, which are defined in terms of the net heat rate for specific coal ranks.

6. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on or not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

ADEQ, "Fact Sheet: Fish Consumption Advisories,"

<http://www.azdeq.gov/environ/water/assessment/download/fish0305.pdf>

ADEQ, "Mercury Strategy," <http://www.azdeq.gov/environ/water/assessment/ongoing.html#merc>

ADEQ, "Strawman Mercury Allocations" (July 19, 2006)

Allchin, Douglas, "The Poisoning of Minamata," <http://www1.umn.edu/ships/ethics/minamata.htm>

Children's Environmental Health Network, "Mercury Fact Sheet,"

<http://www.cehn.org/cehn/education/mercury.html>

ENSR International, "Multivariable Method to Estimate the Mercury Emissions of the Best-Performing Coal-Fired Utility Units Under the Most Adverse Circumstances Which Can Reasonably Be Expected to Recur" (May 1, 2006)

EPA, "Controlling Power Plant Emissions: Controlling Mercury with Existing Controls,"

http://www.epa.gov/mercury/control_emissions/tech_exist.htm

EPA, "EPA's Roadmap for Mercury," EPA-HQ-OPPT-2005-0013 (July 2006)

EPA, "Mercury Study Report to Congress Volume I: Executive Summary" (December 1997),

<http://epa.gov/ttn/oarpg/t3/reports/volume1.pdf>

EPA, Mercury Web Site, <http://www.epa.gov/mercury/>

EPA, "Performance and Cost of Mercury and Multipollutant Emission Control Technology Applications on Electric Utility Boilers," EPA-600/R-03-110 (October 2003)

EPA, "Statistical Analysis of Mercury Test Data to Determine BDT for Mercury Emissions" (March 15, 2005)

EPA, "Utility Air Toxics Report to Congress Fact Sheet" (February 24, 1998),

http://www.epa.gov/ttncaaa1/t3/fact_sheets/utifls.html

EPA, "Control of Mercury Emissions from Coal-Fired Electric Utility Boilers,"

<http://www.epa.gov/ttn/atw/utility/hgwhitepaperfinal.pdf>

Hanisch, Carola, "Where is Mercury Deposition Coming From?" *J. Environ. Sci. Technol.*, 32 (7), 176A-179A (April 1, 1998)

Hospitals for a Healthy Environment, "Making Medicine Mercury Free" (2005), www.h2e-online.org/docs/h2e2005MercuryReport.pdf

National Wildlife Federation, "Getting the Job Done: Affordable Mercury Control at Coal-Burning Power Plants" (October 2004), <http://www.cleanairnow.org/pdfs/nwfcstrpt1004.pdf>

Northeastern States for Coordinated Air Use Management (NESCAUM), Presentation at Western Regional Air Partnership Board Meeting, Palm Springs, CA (December 14-15, 2005)

Natural Resources Defense Council (NRDC), "Press Backgrounder: Bush Mercury Policy Threatens the Health of Women and Children" (February 27, 2004), <http://www.nrdc.org/media/pressreleases/040227.asp>

Power Scorecard, "Air Quality Issues of Electricity Production: Mercury and Other Toxic Air Emissions,"

http://www.powerscorecard.org/issue_detail.cfm?issue_id=4

Rang, Sarah, Environmental Economics International, Ontario Clean Air Alliance, "Mercury Rising: Mercury Emissions from Ontario Power Generation's Coal-fired Plants" (September 2004), <http://www.cleanair.web.ca/resource/mercury.pdf>

Srivastava, R.K.; James E. Staudt; Wojciech, Jozewicz, "Preliminary Estimates of Performance and Cost of Mercury Emission Control Technology Applications on Electric Utility Boilers: An Update," Presentation at the Combined Power Plant Air Pollutant Control Mega Symposium, Washington, D.C. (June 2004)

STAPPA/ALAPCO Positions, "Mercury and Other Toxic Air Pollutants,"

<http://www.4cleanair.org/TopicDetails.asp?parent=2#Mercury%20and%20Other%20Toxic%20Air%20Pollutants>

STAPPA/ALAPCO, "Regulating Mercury from Power Plants: A Model Rule for States and Localities," November 2005

Trasande, Leonardo; Landrigan, Philip J.; Schechter, Clyde "Public Health and Economic Consequences of Methyl Mercury Toxicity to the Developing Brain," *Environmental Health Perspectives*, vol. 113, #5 (May 2005), <http://www.ehponline.org/members/2005/7743/7743.html>

65 FR 79826, December 20, 2000

69 FR 4652, January 30, 2004

69 FR 12398, March 16, 2004

70 FR 15994, March 29, 2005

70 FR 28618, May 18, 2005

7. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

8. The preliminary summary of the economic, small business, and consumer impact:

Rule Identification. This proposed rulemaking pertains to Title 18, Chapter 2, Article 7.

The rulemaking incorporates EPA's CAMR by reference, requires sources that use trading to comply with CAMR to acquire mercury emission allowances on a two-for-one basis, imposes an additional state 90 percent control efficiency standard on mercury emissions, requires a reassessment of controls in 2025 and requires the use of advanced control combustion technologies beginning in 2014.

Regulated Entities Affected

The regulated entities directly impacted by this proposed rulemaking are coal-fired electrical utility units. Utility units include stationary, coal-fired boiler or coal-fired combustion turbines producing more than 25 MW of electricity for sale, except cogeneration units excluded from the definition. To qualify as an existing source, construction must have commenced before the effective date of this rulemaking.

Cost-Benefit Analysis

This section contains a brief summary of potential impacts to the following entities: ADEQ, political subdivisions of the state, regulated sources, consultants, pollution control vendors, general public, and consumers. Because of potential health and environmental benefits, the probable benefits are expected to outweigh the probable costs of this rulemaking.

Although this analysis cannot monetize health and environmental benefits as a result of reducing mercury emissions from the regulated entities, this EIS does include numerous qualitative examples of potential benefits that could accrue to human health, ecosystems, and the environment in general. From this perspective, it is evident that by controlling mercury emitted from regulated sources, which subsequently is deposited into water, ADEQ expects a variety of incremental benefits to accrue to society.

ADEQ and Other State Agencies

In addition to the resources used for activities associated with proposing this rulemaking, ADEQ estimates that the current number of FTEs assigned in the Permits and Compliance sections are adequate to implement and enforce the mercury rule. The cost of reviewing and approving significant permit revisions for the existing five regulated sources and any new sources will be covered by permit fees. Applications for permit revisions must be made of January 1, 2009. No direct impacts are expected on other state agencies.

Political Subdivisions of the State

ADEQ concludes that no political subdivisions of the state operate coal-fired electric power plants. Also, since ADEQ has jurisdiction over all coal-fired electric power plants in the state, no political subdivisions will be impacted by this rulemaking, except Pima County, which has been delegated authority for one coal-fired power plant.

Regulated Sources

Coal-fired electric power plants are the single largest source of mercury emissions in the U.S., accounting for 43 percent, or 48 tons, of anthropogenic air emissions. Mercury is present in coal used as the feedstock in the boilers. Mercury is vaporized and released as a gas as coal is combusted in utility boilers. Pollution controls reduce other pollutants but the control equipment until recently pollution controls were not specifically designed to reduce mercury (Power Scorecard; EPA 1998).

Existing regulated sources in Arizona include 11 coal-fired electric steam generating units (five generating plants). Based on EPA information, all but two units burn subbituminous coal. To control gaseous air pollutants, seven of the units currently use wet scrubbers, two use dry scrubbers, and two use no pollution control equipment. Existing mercury capture may occur as a co-benefit of air pollution control technologies for SO₂, NO_x and particulate matter. Elemental mercury vapor (Hg⁰), however, is insoluble and would not be captured in a wet scrubber although the soluble compounds (Hg⁺ and Hg⁺⁺) could be absorbed and captured in the scrubbing solution (EPA, Mercury web site). The chlorine content of coal, when combined with other data (e.g., mercury content of coal), can be used to predict the quantities of each type of mercury emitted (ENSR).

Activated carbon injection (ACI) can achieve moderate to high levels of mercury control; however, performance is related to its physical and chemical characteristics. Capture capacity increases with increasing surface area and pore volume. ACI can be used in conjunction with existing pollution control technologies and/or with additional control devices, such as a fabric filter (EPA 2003). The costs of ACI are expected to range from 0.2 to 0.8 mills/kWh. A mill is one-tenth of a cent. These costs are low compared to the costs of controlling SO₂ (3-5 mills/kWh) and NO_x (1-2 mills/kWh) (NESCAUM).

This cost range, expressed in mills, includes capital and operating expenses (in 2003 dollars). Costs include annualized capital charges, annual fixed operation and maintenance costs (O&M), and annual variable O&M costs. Since some control approaches are currently under development, costs represent preliminary estimates that ultimately will be refined as new mercury control technologies mature to commercial status (Srivastava, et al.).

Hg⁺ and Hg⁺⁺ compounds are captured in the aqueous slurry of wet flue gas desulfurization (FGD) systems. Gaseous compounds of Hg⁺ and Hg⁺⁺ are absorbed in the liquid slurry and dissolved species are thought to react with dissolved sulfides from the flue gas (e.g., H₂S) to form mercuric sulfide (HgS) which precipitates from the liquid solution as sludge. The capture of mercury in systems with wet FGD scrubbers is dependent on the relative amount of Hg⁺⁺ in the inlet flue gas and on the particulate matter control technology. Flue gases from subbituminous coal-fired boilers mainly contain insoluble Hg⁰ (i.e., elemental mercury vapor). Therefore, a process for oxidizing Hg⁰ in coal combustion flue gas is needed for these plants. Oxidizing catalysts and reagents have been developed and should become commercially available in the near future. For these plants, coal blending may be required as a means to increase oxidized mercury content in flue gas (EPA 2003). In addition to coal blending and flue gas treatment, coal cleaning may be an option.

Mercury is volatilized and converted to Hg⁰ at high temperatures. Hg⁰ is oxidized to Hg⁺⁺ as the flue gas cools. The Hg⁰ may be oxidized to mercuric oxide (HgO), mercuric sulfate (HgSO₄), mercuric chloride (HgCl₂), or another mercury compound. This occurs in coal-fired combustors where low concentrations of hydrogen chloride (HCl) exist and where equilibrium conditions do not take place. Oxidation of Hg⁰ to HgCl₂ and to other ionic compounds is abetted by catalytic reactions on the surface of fly ash or sorbents, as well as by other compounds present in flue gas. NO_x selective catalytic reduction enhances oxidation of Hg⁰ in flue gas and results in increased mercury removal in a wet FGD system (EPA 2003).

Hg⁰, HgCl₂, and HgO potentially can be adsorbed onto porous solids, such as activated carbon, and other sorbents that can be collected in a particulate matter control device. These mercury forms also can be captured in carbon bed filters. Mercury removal also occurs in wet scrubbers. HgCl₂ is water soluble and reacts with alkali metal oxides in an acid-base reaction. Thus, an acid gas scrubber for SO₂ control can effectively capture HgCl₂. Since Hg⁰ is insoluble in water, it must be adsorbed onto a sorbent or converted to a soluble form of mercury than can be collected by wet scrubbing. HgO has low solubility so it must be collected by a method similar to what could be used for Hg⁰ (EPA 2003).

In addition to capital investments, regulated sources will have minimal to moderate expenditures for start-up costs, operation and maintenance, coal analyses, stack testing, reporting and recordkeeping. The costs of installing mercury control technology could reach a moderate level due to the time involved for engineering analyses, permitting and construction. This process could take up to five years. The rule allows six after adoption.

With the increase in compliance costs for coal-fired electric power plants in the state, it is likely that these power plants will pass on increased compliance costs to consumers of electrical power. Based on the cost of capturing mercury, however, the cost to the individual consumer could be considered minimal: from 70 cents to a little over \$2.00 for the average household (National Wildlife Federation).

In the absence of trading, Arizona power plants would have to reduce emissions by an amount approximately equal to the reductions required by the state rule in order to comply with CAMR in 2018. Thus, the state rule imposes control costs above those required by CAMR only to the extent that the state rule (1) imposes an earlier deadline (2013 versus 2018) and (2) ends up imposing costs per ounce of mercury reduced that exceed the costs of purchasing allowances in the market created by CAMR.

The requirement to acquire allowances through trading on a two-for-one basis will impose additional costs on regulated plants that rely on trading to comply with CAMR. This cost can be reduced through the early installation of controls, which would allow a source to generate and bank allocated allowances. Allocated allowances, unlike those acquired through trading, are not subject to the two-for-one requirement.

Consultants

This group also includes engineering services, laboratories, lawyers, and associated businesses. ADEQ anticipates that this class of persons is expected to experience increasing revenues as regulated sources seek a variety of consulting services. Potentially, increased revenues for this class of persons could range from several thousand dollars to hundreds of thousands of dollars.

Pollution Control Vendors

This entity includes those that sell pollution control equipment, boilermakers, and installers of equipment. This represents another class of persons that can expect to experience increased revenues as sources purchase and install air pollution control equipment. Potentially, revenues could range from several thousands of dollars to hundreds of thousands of dollars.

General Public and Consumers

Public health improvements can be expected to accrue with mercury emission controls. Methylmercury and metallic mercury vapors are very harmful because more mercury in these forms reaches the brain. It represents a serious threat to human health because it can cross the placental and blood-brain barrier to cause prenatal harm. Newborns also can be exposed through breast milk. Mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning could result in irritability, shyness, tremors, changes in vision or hearing, and memory difficulties (Rang 2004).

EPA estimates that as many as one in six women of childbearing age in the U.S. have mercury levels in their blood that creates a risk to a developing fetus (NRDC). Newborns as well as children represent a high-risk subcategory due to their metabolisms, physiology and behaviors.

Recent studies that compared mercury concentrations in umbilical cord blood and maternal blood have shown that cord blood has on average 70 percent higher mercury concentrations. Therefore, as many as 10 percent of the babies born each year in the U.S. (410,000) have been exposed in-utero to mercury levels that exceed EPA's reference dose (STAPPA/ALAPCO).

National blood mercury data from the Centers for Disease Control and Prevention suggest that 316,588-637,233 children annually have cord blood mercury levels > 5.8 µg/L. This is a level associated with loss of IQ which causes diminished economic productivity that lasts the lifetime of these children (Trasande, et al.).

The blood-brain barrier is incompletely developed until after the first year of life. Lipophilic methylmercury can cross the placenta and concentrate in the central nervous system. The neurotoxicity of methylmercury was recognized in the 1950s. In Minamata, Japan, the consumption of fish and shellfish contaminated by mercury discharged from an acetaldehyde manufacturer resulted in symptoms ranging from numbness or tingling in the extremities to death in at least 1,760 residents and at least 30 cases of cerebral palsy (Allchin; Trasande, et al.).

Consumers may experience higher electrical costs as sources pass on higher compliance costs. However, any increases in product costs are expected to be minimal. The degree to which a source potentially can pass on compliance costs is based on price elasticity of demand and supply.

Elasticity is defined as the response by buyers and sellers to an increase in price. The price elasticity of demand measures the sensitivity of quantity demanded to a change in price. For example, if a 5 percent increase in the price of a product results in a 10 percent decline in sales, the good would be classified as relatively elastic. Conversely, if that same 5 percent increase in the price of the good resulted in only a 4 percent decline in sales, that good would be classified as inelastic. In other words, it can be said that consumers of that product are less sensitive to an increase in price. A product will be more elastic if substitute products are readily available, if the product is relatively important in consumers' budgets, and if the time-frame is relatively short because consumers are likely to be more sensitive to price over a longer period. A general rule is that most increased compliance costs can be passed on to consumers if demand for a product is relatively inelastic and supply is elastic, as is the case with electric power.

Other Anticipated Impacts

This section contains probable impacts on business revenues, payroll expenditures, employment, state revenues, small businesses, and ecosystems.

Business Revenues or Payroll Expenditures

It is expected that this rule will not impact industry output, business revenues, payroll expenditures, or earnings to a significant degree. ADEQ does expect this rulemaking to produce changes in the price of electricity, but only minimally. Any change in electricity demand and industry profitability and growth is expected to be insignificant under this rulemaking.

Private and Public Employment

ADEQ believes that employment impacts will be minor. ADEQ anticipates a slightly higher demand for labor requirements for sources affected by this rulemaking, as well as increased labor requirements from the other classes of persons as discussed earlier.

ADEQ does not expect short- or long-run employment, production, or industrial growth in Arizona to be negatively impacted. Further, no sources are expected to close from the implementation of this rulemaking.

State Revenues

State revenues are not expected to be negatively impacted.

Small Businesses

Under § 41-1055(B)(5)(c)(i-iii), the methods that agencies may employ to reduce the impact on small businesses include the following: (1) establish less costly compliance requirements; (2) establish less costly schedules or less stringent deadlines for compliance; and (3) exempt small businesses from any or all requirements. However, under § 41-1035, agencies must consider each of the methods set forth in this Section and reduce the impact, by using one or more, if the agency finds that the methods are legal and feasible in meeting the statutory objectives of the rulemaking. These methods include: (1) establishing less stringent compliance or reporting requirements; (2) establishing less stringent schedules or deadlines in the rule for compliance or reporting requirements; (3) consolidating or simplifying compliance or reporting requirements; (4) establishing performance standards to replace design or operational standards; and (5) exempting small businesses from any or all rule requirements.

ADEQ determined that there are no small businesses subject to this rulemaking. Therefore, it is moot to consider each of the methods prescribed in A.R.S. §§ 41-1035 and 41-1055(B) for reducing the impact on small businesses. The rule contains regulatory flexibility that is available to all sources regardless of classification. ADEQ could not find other alternative methods that would reduce the impact of this rulemaking on sources, or that would be less intrusive or less costly to implement the statutory objectives. ADEQ could not exempt small businesses, or even establish less stringent standards or schedules from compliance or reporting requirements.

Impact on Ecosystems

Arizona is a land of extremes with great biological diversity. Numerous types of ecosystems, such as deserts, plains, meadows, forests, canyons, grasslands, and riparian areas, provide a host of services. For example, services include production of goods, generation and maintenance of biodiversity, and life support services (processing of waste products, climate stability, etc.).

In simplistic terms, an ecosystem is an ecological community with all of the species that constitute it along with its physical environment, regarded as a unit. Species are in the thousands, including wildlife and aquatic life. Society, however, undervalues their importance since they are not traded in formal markets. Furthermore, extensive valuation methods to quantify, or even monetize, the value of lost ecological services do not exist. Economic values arise from not only the myriad services they provide, but intrinsic beauty and intellectual/spiritual amenities as well. Values for ecosystems could range in the multi-millions of dollars.

Mercury accumulates up aquatic food chains, which means that organisms in higher trophic levels have higher mercury concentrations than those occupying the lower levels. Piscivores occupy the top trophic levels (e.g., humans, bald eagles, cormorants, herring gulls, and other species that consume fish). Wildlife species, such as the bald eagle and otter, can prey on fish that occupy high trophic levels (e.g., trout and salmon that feed on smaller forage fish). Smaller piscivorous wildlife, such as kingfishers and ospreys, feed on the smaller forage fish, which in turn, feed on zooplankton or benthic invertebrates. Finally, zooplankton feed on phytoplankton and smaller benthic invertebrates feed on algae and detritus (EPA 1997). A large predatory fish, for example, can have mercury concentrations that are 10,000 times the levels of mercury in the water it inhabits (Rang).

Mercury deposited from the atmosphere becomes bioavailable through reactions occurring in aquatic ecosystems. Mercury can then be converted by bacteria in the sediments to methylmercury which is toxic to humans and wildlife.¹ Adverse effects on fish, birds, and mammals include death, reduced reproductive success, impaired growth and development, as well as behavior abnormalities. Other effects on birds and mammals include liver and kidney damage and neurobehavioral effects. Adverse effects on plants include death and sublethal effects: for aquatic plants, it can include plant senescence, growth inhibition, and decreased chlorophyll content; for terrestrial plants, it can include decreased growth, leaf injury, root damage, and inhibited root growth and function (EPA 1997).

Therefore, by controlling mercury emissions from power plants, potential benefits should accrue to numerous ecosystems, and the environment in general, in Arizona. The National Wildlife Foundation summarized the costs and benefits of requiring mercury controls on coal-fired power plants as follows:

For a minimal increase in consumers' energy bills, coal-burning power plants can be retrofitted with cutting-edge mercury control equipment that will provide public health and environmental benefits nationwide. Not only does mercury reduction bolster the large commercial and recreational fishing industries in many states, it also generates jobs in manufacturing, installing, and operating this equipment (National Wildlife Foundation).

¹ There is increasing evidence that methylmercury affects behavior patterns in fish populations (STAPPA/ALAPCO 2005).

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: David Lillie
Address: ADEQ, Air Quality Planning Section
1110 W. Washington
Phoenix, AZ 85007
Telephone: (602) 771-4461 (Any extension may be reached in-state by dialing 1-800-234-5677, and entering the seven-digit number.)
Fax: (602) 771-2366
E-mail: Lillie.David@azdeq.gov

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule, or if no proceeding is scheduled, where, when, and how persons may request an oral proceeding on the proposed rule:

6:00 pm, September 12, 2006
Conference Room 250
1110 W. Washington St.
Phoenix, AZ 85007
Close of Comment: September 12, 2006

11. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

Not applicable

12. Incorporations by reference and their location in the rules:

40 CFR §§ 60.4101-4176	R18-2-733(A)
40 CFR § 60.50a(h)	R18-2-734(C)
40 CFR §§ 60.49a(p), 60.4170-4176	R18-2-734(D)
40 CFR Part 75, Subpart I	R18-2-734(D)

13. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

**CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR POLLUTION CONTROL**

ARTICLE 7. EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS

Section

R18-2-701.	Definitions
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ARTICLE 7. EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS

R18-2-701. Definitions

For purposes of this Article:

1. "Acid mist" means sulfuric acid mist as measured in the Arizona Testing Manual and 40 CFR 60, Appendix A.
2. "Architectural coating" means a coating used commercially or industrially for residential, commercial or industrial buildings and their appurtenances, structural steel, and other fabrications such as storage tanks, bridges, beams and girders.
3. "Asphalt concrete plant" means any facility used to manufacture asphalt concrete by heating and drying aggregate and mixing with asphalt cements. This is limited to facilities, including drum dryer plants that introduce asphalt into the dryer, which employ two or more of the following processes:
 - a. A dryer.
 - b. Systems for screening, handling, storing, and weighing hot aggregate.

- c. Systems for loading, transferring, and storing mineral filler.
- d. Systems for mixing asphalt concrete.
- e. The loading, transferring, and storage systems associated with emission control systems.
- 4. "Black liquor" means waste liquor from the brown stock washer and spent cooking liquor which have been concentrated in the multiple-effect evaporator system.
- 5. "Boiler" means an enclosed fossil- or other fuel-fired combustion device used to produce heat and to transfer heat to recirculating water, steam or other medium.
- 6. "Bottoming-cycle cogeneration unit" means a cogeneration unit in which the energy input to the unit is first used to produce useful thermal energy and at least some of the reject heat from the useful thermal energy application or process is then used for electricity production.
- ~~57.~~ "Calcine" means the solid materials produced by a lime plant.
- 8. "Coal" means any solid fuel classified as anthracite, bituminous, subbituminous or lignite by the ASTM Standard Specification for Classification of Coals by Rank D388-77, 90, 91, 95, or 98a.
- 9. "Coal-derived fuel" means any fuel (whether in a solid, liquid or gaseous state) produced by the mechanical, thermal or chemical processing of coal.
- 10. "Coal-fired" means combusting any amount of coal or coal-derived fuel, alone or in combination with any amount of any other fuel, during any year.
- 11. "Cogeneration unit" means a stationary, coal-fired boiler or stationary, coal-fired combustion turbine:
 - a. Having equipment used to produce electricity and useful thermal energy for industrial, commercial, heating or cooling purposes through the sequential use of energy; and
 - b. Producing during the 12-month period starting on the date the unit first produces electricity and during any calendar year after which the unit first produces electricity:
 - i. For a topping-cycle cogeneration unit: useful thermal energy not less than 5 percent of total energy output; and useful power that, when added to one-half of useful thermal energy produced, is not less than 42.5 percent of total energy input, if useful thermal energy produced is 15 percent or more of total energy output, or not less than 45 percent of total energy input, if useful thermal energy produced is less than 15 percent of total energy output; and
 - ii. For a bottoming-cycle cogeneration unit, useful power not less than 45 percent of total energy input.
- 12. "Combustion turbine" means:
 - a. An enclosed device comprising a compressor, a combustor, and a turbine and in which the flue gas resulting from the combustion of fuel in the combustor passes through the turbine, rotating the turbine; and
 - b. If the enclosed device under paragraph (1) of this definition is combined cycle, any associated heat recovery steam generator and steam turbine.
- 13. "Commercial operation" means the time when the owner or operator supplies electricity for sale.
- ~~614.~~ "Concentrate" means enriched copper ore recovered from the froth flotation process.
- ~~715.~~ "Concentrate dryer" means any facility in which a copper sulfide ore concentrate charge is heated in the presence of air to eliminate a portion of the moisture from the charge, provided less than 5% of the sulfur contained in the charge is eliminated in the facility.
- ~~816.~~ "Concentrate roaster" means any facility in which a copper sulfide ore concentrate is heated in the presence of air to eliminate 5% or more of the sulfur contained in the charge.
- ~~917.~~ "Condensate stripper system" means a column, and associated condensers, used to strip, with air or steam, TRS compounds from condensate streams from various processes within a kraft pulp mill.
- ~~1018.~~ "Control device" means the air pollution control equipment used to remove particulate matter or gases generated by a process source from the effluent gas stream.
- ~~1419.~~ "Converter" means any vessel to which copper matte is charged and oxidized to copper.
- 20. "Electric generating plant" means all electric generating units located at a stationary source.
- 21. "Electric generating unit" means:
 - a. A stationary, coal-fired boiler or stationary coal-fired combustion turbine, other than a boiler or turbine that qualifies as a cogeneration unit, serving at any time since the start-up of a unit's combustion chamber a generator with nameplate capacity of more than 25 megawatts electric (MW) producing electricity for sale. 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, the unit shall be subject to this subsection on the day on which the unit no longer qualifies as a cogeneration unit.
 - b. A cogeneration unit serving at any time a generator with nameplate capacity of more than 25 MW and supplying in any calendar year more than one-third of the unit's potential electric output capacity or 219,000 megawatt-hours (MWh), whichever is greater, to any utility power distribution system for sale.
- 22. "Existing electric generating plant" means all electric generating units located at a stationary source during a control period other than units that have been allocated allowances to emit mercury pursuant to 40 CFR § 60.4142(c) for that control period.

- ~~1423~~. "Facility" means an identifiable piece of stationary process equipment along with all associated air pollution equipment.
- ~~1424~~. "Fugitive dust" means fugitive emissions of particulate matter.
- ~~1425~~. "High sulfur oil" means fuel oil containing 0.90% or more by weight of sulfur.
26. "Inlet mercury" means the average concentration of mercury in the coal burned at an electric generating unit, as determined by ASTM methods or alternative methods approved by the Department.
- ~~1527~~. "Lime kiln" means a unit used to calcinate lime rock or kraft pulp mill lime mud, which consists primarily of calcium carbonate, into quicklime, which is calcium oxide.
- ~~1628~~. "Low sulfur oil" means fuel oil containing less than 0.90% by weight of sulfur.
- ~~1729~~. "Matte" means a metallic sulfide made by smelting copper sulfide ore concentrate or the roasted product of copper sulfide ores.
30. "Mercury" means mercury or mercury compounds in either a gaseous or particulate form.
- ~~1831~~. "Miscellaneous metal parts and products" for purposes of industrial coating include all of the following:
- Large farm machinery, such as harvesting, fertilizing and planting machines, tractors, and combines;
 - Small farm machinery, such as lawn and garden tractors, lawn mowers, and rototillers;
 - Small appliances, such as fans, mixers, blenders, crock pots, dehumidifiers, and vacuum cleaners;
 - Commercial machinery, such as office equipment, computers and auxiliary equipment, typewriters, calculators, and vending machines;
 - Industrial machinery, such as pumps, compressors, conveyor components, fans, blowers, and transformers;
 - Fabricated metal products, such as metal-covered doors and frames;
 - Any other industrial category which coats metal parts or products under the Code in the "Standard Industrial Classification Manual, 1987" of Major Group 33 (primary metal industries), Major Group 34 (fabricated metal products), Major Group 35 (non-electric machinery), Major Group 36 (electrical machinery), Major Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), and Major Group 39 (miscellaneous manufacturing industries), except all of the following:
 - Automobiles and light-duty trucks;
 - Metal cans;
 - Flat metal sheets and strips in the form of rolls or coils;
 - Magnet wire for use in electrical machinery;
 - Metal furniture;
 - Large appliances;
 - Exterior of airplanes;
 - Automobile refinishing;
 - Customized top coating of automobiles and trucks, if production is less than 35 vehicles per day;
 - Exterior of marine vessels.
- ~~1932~~. "Multiple-effect evaporator system" means the multiple-effect evaporators and associated condenser and hotwell used to concentrate the spent cooking liquid that is separated from the pulp.
33. "Nameplate capacity" means, starting from the initial installation of a generator, the maximum electrical generating output (in MW) that an electric generating unit is capable of producing on a steady-state basis during continuous operation as specified by the manufacturer.
- ~~2034~~. "Neutral sulfite semichemical pulping" means any operation in which pulp is produced from wood by cooking or digesting wood chips in a solution of sodium sulfite and sodium bicarbonate, followed by mechanical defibrating or grinding.
- ~~2135~~. "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils as specified in ASTM D-396-90a (Specification for Fuel Oils), gas turbine fuel oils Numbers 2-GT through 4-GT as specified in ASTM D-2880-90a (Specification for Gas Turbine Fuel Oils), or diesel fuel oils Numbers 2-D and 4-D as specified in ASTM D-975-90 (Specification for Diesel Fuel Oils).
36. "Potential electric output capacity" means 33 percent of a unit's maximum design heat input, divided by 3,413 Btu per kilowatt-hour, divided by 1,000 kilowatt-hours/per megawatt-hour, and multiplied by 8,760 hours per year.
- ~~2237~~. "Process source" means the last operation or process which produces an air contaminant resulting from either:
- The separation of the air contaminants from the process material, or
 - The conversion of constituents of the process materials into air contaminants which is not an air pollution abatement operation.
- ~~2338~~. "Process weight" means the total weight of all materials introduced into a process source, including fuels, where these contribute to pollution generated by the process.
- ~~2439~~. "Process weight rate" means a rate established pursuant to R18-2-702(E).
- ~~2540~~. "Recovery furnace" means the unit, including the direct-contact evaporator for a conventional furnace, used for burning black liquor to recover chemicals consisting primarily of sodium carbonate and sodium sulfide.

2641. "Reid vapor pressure" means the absolute vapor pressure of volatile crude oil and volatile non-viscous petroleum liquids, except liquified petroleum gases, as determined by ASTM D-323-90 (Test Method for Vapor Pressure of Petroleum Products) (Reid Method).
2742. "Reverbatory smelting furnace" means any vessel in which the smelting of copper sulfide ore concentrates or calcines is performed and in which the heat necessary for smelting is provided primarily by combustion of a fossil fuel.
2843. "Rotary lime kiln" means a unit with an included rotary drum which is used to produce a lime product from limestone by calcination.
2944. "Slag" means fused and vitrified matter separated during the reduction of a metal from its ore.
3045. "Smelt dissolving tank" means a vessel used for dissolving the smelt collected from the kraft mill recovery furnace.
3146. "Smelter feed" means all materials utilized in the operation of a copper smelter, including metals or concentrates, fuels and chemical reagents, calculated as the aggregate sulfur content of all fuels and other feed materials whose products of combustion and gaseous by-products are emitted to the atmosphere.
3247. "Smelting" means processing techniques for the smelting of a copper sulfide ore concentrate or calcine charge leading to the formation of separate layers of molten slag, molten copper, or copper matte.
3348. "Smelting furnace" means any vessel in which the smelting of copper sulfide ore concentrates or calcines is performed and in which the heat necessary for smelting is provided by an electric current, rapid oxidation of a portion of the sulfur contained in the concentrate as it passes through an oxidizing atmosphere, or the combustion of a fossil fuel.
3449. "Standard conditions" means a temperature of 293K (68° F or 20° C) and a pressure of 101.3 kilopascals (29.92 in. Hg or 1013.25 mb).
3550. "Supplementary control system" (SCS) means a system by which sulfur dioxide emissions are curtailed during periods when meteorological conditions conducive to ground-level concentrations in excess of ambient air quality standards for sulfur dioxide either exist or are anticipated.
51. "Topping-cycle cogeneration unit" means a cogeneration unit in which the energy input to the unit is first used to produce useful power, including electricity, and at least some of the reject heat from the electricity production is then used to provide useful thermal energy.
52. "Total energy output" means, with regard to a cogeneration unit, the sum of useful power and useful thermal energy produced by the cogeneration unit.
3653. "Vapor pressure" means the pressure exerted by the gaseous form of a substance in equilibrium with its liquid or solid form.

R18-2-733. Incorporation of Federal Standards of Performance for Mercury Emissions from Coal-Fired Electric Steam Generating Units

- A.** The provisions of 40 CFR §§ 60.4101-4176, subpart HHHH, Emission Guidelines and Compliance Times for Coal-Fired Electric Steam Generating Units, as of July 1, 2005 (and no future amendments or editions) are incorporated by reference and are on file with the Department.
- B.** Beginning in the control period for 2012, Hg emissions from an existing electric generating plant shall not exceed the total of the following:
1. Allowances allocated to the plant by the Department and available to be deducted from the compliance account for the plant under 40 CFR § 60.4154(a) as of the allowance transfer deadline; and
 2. One-half of any other allowances available to be deducted from the compliance account for the plant as of the allowance transfer deadline.
- C.** Beginning in the control period for 2012, the owner or operator of an existing electric generating plant shall transfer to the Department's general account in accordance with 40 CFR § 60.4160 allowances equal to the amount, if any, by which total Hg emissions from the plant during the control period exceed allowances allocated to the plant by the Department and available to be deducted from the compliance account for the plant under 40 CFR § 60.4154(a) as of the allowance transfer deadline.
- D.** The transfer required by subsection (C) shall be completed within 30 days after the Administrator deducts all allowances required to be deducted by 40 CFR § 60.4154 for the control period.
- E.** Allowances held in the Department's general account pursuant to subsection (C) shall not be available for transfer.
- F.** For purposes of determining compliance with subsection (C), the Department shall treat allowances as having been deducted from the compliance account for an existing plant in the order prescribed by 40 CFR § 60.4154(c)(2), regardless of any instructions provided to the Administrator pursuant to 40 CFR § 60.4154(c)(1).

R18-2-734. State Standards of Performance for Mercury Emissions from Coal-Fired Electric Steam Generating Units

- A.** The requirements of this rule apply to owners and operators of electric generating units.
- B.** Except as provided in subsection (F), rolling 12-month average mercury emissions from an electric generating plant shall not exceed the greater of 10 percent of inlet mercury or 0.0083 pound per gigawatt-hour. Mercury emissions from an elec-

tric generating unit, when averaged with emissions from other electric generating units at the same electric generating plant, shall comply with this limit for the 12 calendar months ending on the later of the following, and each subsequent 12-calendar-month period:

1. December 31, 2013; or
2. 12 full calendar months after the electric generating unit starts commercial operation.

- C.** Compliance with the emission standards in subsection (B) or the temporary alternative standard established pursuant to subsection (G) shall be determined in accordance with the method set forth at 40 CFR § 60.50a(h), as of July 1, 2005 (and no future amendments or editions), which is incorporated by reference and is on file with the Department.
- D.** The owner or operator of an electric generating plant subject to this rule shall measure, record, and report the mercury in the exhaust gases by meeting the requirements of 40 CFR §§ 60.49a(p), 60.4170-60.4176, and 40 CFR Part 75, Subpart I, as of July 1, 2005 (and no future amendments or editions), which is incorporated by reference and is on file with the Department.
- E.** By January 1, 2009, the owner or operator of an electric generating plant that commenced construction before that date shall submit an application for a significant permit revision under R18-2-320 to incorporate the emission standards in subsection (B) and the monitoring, recordkeeping and reporting requirements of subsections (C) and (D) into the plant's permit. The application shall include a control strategy for meeting the emission standards and a demonstration that the control strategy is projected to meet the standards.
- F.** The owner or operator of an electric generating plant shall not be subject to a compliance action for failure to meet the standard in subsection (B) if all of the following conditions are satisfied:
1. The owner or operator of the electric generating plant has installed and operated control technology or boiler technology or has followed practices projected to meet the standard in subsection (B) in accordance with the control strategy approved as part of the electric generating plant's permit;
 2. The owner or operator has maintained the electric generating plant, including any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing mercury emissions;
 3. The control strategy has failed to result in emissions meeting the standard in subsection (B);
 4. The owner or operator notifies the Department of the failure to comply with subsection (B) by January 30, 2014; and
 5. By July 1, 2014, the owner or operator files an application for a significant permit revision that includes a compliance schedule providing for compliance with the base standard as soon as practicable but no later than December 31, 2017.
- G.** A permit revision issued pursuant to subsection (F) shall include the following terms:
1. An emission limit in pounds per gigawatt-hour that the monitoring data for the electric generating plant indicates can be achieved with controls and practices in place on the date the revision is issued;
 2. An expiration date for the emission limit established pursuant to subsection (G)(1) of December 31, 2017, or the earliest date by which compliance with subsection (B) can be achieved, whichever is earlier; and
 3. A requirement that average emissions for the 12 calendar months ending on the expiration date established pursuant to subsection (G)(2), and each subsequent 12-month period shall meet the limit in subsection (B).
- H.** By January 30, 2025, the owner or operator of an electric generating plant shall submit an application for a significant permit revision containing an analysis of the best available control technology for controlling mercury emissions. The analysis shall consider only emission reduction methods that may be used with controls installed under this Section and shall address the incremental costs and emission reductions associated with those methods. The Department shall impose a best available control technology standard on mercury emissions from the plant in the significant revision if that standard is more stringent than subsection (B).
- I.** After December 31, 2014, the Department shall not issue a permit allowing construction of an electric generating unit with a net heat rate exceeding 8,900 Btu per kilowatt-hour for bituminous coal, 9,800 Btu per kilowatt-hour for subbituminous coal, or 9,500 Btu per kilowatt-hour for lignite coal.