ILLINOIS POLLUTION CONTROL BOARD
November 2, 2006

IN THE MATTER OF:	)	
	)	
PROPOSED NEW 35 ILL. ADM. CODE 225	)	R06-25
CONTROL OF EMISSIONS FROM LARGE	)	(Rulemaking - Air)
COMBUSTION SOURCES (MERCURY)	)	

Proposed Rule. Second Notice.

OPINION AND ORDER OF THE BOARD (by G.T. Girard, A.S. Moore):

SUMMARY OF TODAY'S ACTION

The Board today proceeds to second notice with a proposal to reduce emissions of mercury from coal-fired electrical generating units in the State. The Board will submit the proposal to the Joint Committee on Administrative Rules (JCAR) pursuant to Administrative Procedure Act (APA) (5 ILCS 100/5 *et seq*. (2004)). The proposal the Board adopts today includes a mercury emissions standard of 0.0080lb/GWh or a 90% reduction from input mercury, a temporary technology based standard (TTBS), and a multi-pollutant control system (MPS). The Board has accepted some changes in the proposal while rejecting others. The following will give a brief overview of today's opinion and order.

Guide to the Board's Opinion

The Board's opinion is divided into several sections beginning with the procedural background (page 4), a summary of the proposal including the rule language (page 6), a brief summary of the public comments and a list of some of those who commented (page 19), and a list of persons who testified (page 21). The substantive portions of the opinion begin with a summary of the issues (page 22), followed by a discussion of the technical feasibility of the proposal (page 22). Under technical feasibility, the opinion is divided into four topics: (1) general comments (page 23); (2) control technology (page 25); (3) measurement of mercury removal (page 37); and (4) flexibility, which includes discussion of the TTBS and the MPS (page 41).

The next section of the opinion addresses the issue of economic reasonableness (page 54). The economic reasonableness section is also divided into four topics: (1) deposition and modeling (page 54); (2) health effects (page 63); (3) fish advisories (page 69); and (4) economics of compliance (page 72). Following economic reasonableness is a section devoted to the legal issues raised in the comments (page 78). The legal issues raised are grouped as follows: (1) Illinois and federal administrative law (page 78); (2) Section 27 of the Environmental Protection Act (Act) (415 ILCS 5/27 (2004) (page 81); (3) Section 10 of the Act (415 ILCS 5/10 (2004) (page 83); (4) Supremacy and Commerce Clauses of the United States Constitution (page 84); and (5) Due Process Clause of the United States Constitution (page 87).

The final two sections of the opinion address issues surrounding: (1) Kincaid Generation, L.L.C. (Kincaid) (page 87); and (2) whether the proposal will meet the federal requirements (page 88). These two sections are followed by the Board's conclusion (page 90) and the Board's order (page 90). At the end of the Board's order a list of abbreviations and acronyms has been included for the convenience of the public as an Appendix (page 145).

Summary of the Board's Decision

The Board has received over 7,000 public comments, held 18 days of hearings, and entered over 100 exhibits into the record in this proceeding. After carefully reviewing the entirety of the record, the Board finds that the proposal as amended at second notice is technically feasible and economically reasonable. Further, the Board finds that the Board's authority extends to including the MPS in the proposal for second notice. In making these determinations the Board examined several issues and those will be summarized in the following paragraphs.

Technical Feasibility

The Board considered arguments that the proposal's preferred control technology will not achieve the standard established in the rule. The Board disagrees and finds that the use of halogenated activated carbon injection (HCI) has been demonstrated to achieve the established standards. Further, the Board finds that the size of the specific collection area (SCA) does not impact mercury reduction with the use of HCI. The Board finds that the duration of the testing used to demonstrate the feasibility of HCI is sufficient and that an absolute emissions limit is appropriate.

The Board considered arguments that the measurement of mercury removal cannot be accomplished to the level required to prove compliance with the standards. The Board notes that the measurement requirements in the proposal are substantially identical to the measurement requirements for the Clean Air Mercury Rule (CAMR) developed by the United States Environmental Protection Agency (USEPA). Many of the issues concerning the measurement requirements are issues, which relate to the underlying federal requirements; therefore, the Board defers to the USEPA's decision to adopt the requirements. In addition, the Board finds that the testimony offered in opposition to the measurement requirements is not persuasive. Therefore the Board finds that the measurement of mercury removal can be accomplished to the level required to prove compliance with the standards.

The Board next considered the issue of flexibility in the proposal, including averaging, the TTBS, and the MPS option. The Board finds that averaging, both on a systemwide and a 12-month rolling basis, adds flexibility to the proposal that helps establish technical feasibility of the proposal. The Board also finds that the TTBS will add flexibility for compliance; and the addition of the TTBS does not equate with the conclusion that the underlying standard is not technically feasible. As to the MPS, the Board finds that the MPS offers yet another alternative for achieving compliance and will result in additional removal of pollutants not regulated in this proceeding.

Economic Reasonableness

In reviewing the economic reasonableness of the proposal, the Board includes arguments on deposition, modeling, health effects, and fish advisories. The Board does so because the parties attack the economics of the proposal using these areas. The first issue considered by the Board is whether the deposition and the modeling of the deposition of mercury support the emissions standards in the proposal. The Board finds that they do. The Board finds that relying on studies not specific to Illinois is legitimate and something the Board has done in the past. Further, the Board finds that the modeling method relied upon by the Illinois Environmental Protection Agency's witnesses is an appropriate method and supports the proposal. The Board finds that the record indicates that lowering emissions of mercury in Illinois will impact the amount of mercury deposited in Illinois waters. Therefore, the Board finds that the deposition and modeling evidence in the record support the adoption of the proposed mercury emissions standards.

The Board next considered arguments concerning whether the reduction of mercury emissions will result in health benefits to Illinois citizens. The Board finds that the evidence in the record indicates that health benefits can be expected. Therefore, the Board finds that the expected health benefits support the adoption of the proposed mercury emissions standards.

The Board considered arguments that reduction of mercury emissions will not impact fish advisories in Illinois. The Board disagrees and finds that reduction of mercury emissions may lead to delistings from the Special Mercury Advisory. Therefore, the Board finds that the potential delistings support the adoption of the proposed mercury emissions standards.

The Board considered arguments that the cost of compliance does not justify the adoption of the mercury emissions standards. The Board finds that the incremental cost differences between compliance with CAMR and with the proposal, along with the significant reduction of mercury emissions, cause this proposal to be economically reasonable. Therefore, the Board finds that the record supports a finding that the rule is economically reasonable.

Legal Issues

The Board considered arguments challenging the Board's authority to add the MPS to the rulemaking at second notice. The Board finds that the MPS is a logical outgrowth of the proposal and as such is not contrary to either Illinois or federal administrative law. The Board has found the MPS to be economically reasonable and technically feasible; and therefore, the addition of the MPS does not violate Section 27 of the Act (415 ILCS 5/27 (2004)). Further the Board finds that the MPS does not violate Section 10 of the Act (415 ILCS 5/10 (2004)) because of the voluntary nature of the MPS. The Board also finds that adding the MPS to the rule does not violate the Supremacy Clause or the Commerce Clause of the United States Constitution. Finally, the Board finds that the proposal does not violate the Due Process Clause of the United States Constitution.

Kincaid

The Board addressed concerns from Kincaid that due to the utility's unique nature in Illinois, the proposal is not technically feasible or economically reasonable for Kincaid. The Board agrees that Kincaid is uniquely situated and suggests that Kincaid pursue other regulatory relief.

Federal Requirements

The Board considered arguments that the proposal, with the TTBS and the MPS, will not be able to meet the requirements established by CAMR. The Board finds that the proposal, with the TTBS and the MPS, can meet the federal requirements.

PROCEDURAL BACKGROUND

On March 14, 2006, the Illinois Environmental Protection Agency (Agency) filed a proposal for rulemaking to limit mercury emissions from large coal-fired electrical generating units (EGU). The proposal was filed pursuant to Sections 9.10, 27, and 28.5 of the Act (415 ILCS 5/9.10, 27, and 28 (2004)). On March 16, 2006, the Board accepted the proposal for first notice under the "fast-track" rulemaking provisions of Section 28.5 of the Act (415 ILCS 5/28.5 (2004)), without commenting on the merits of the proposal.

On April 20, 2006, the Board ruled, in response to various motions, that the Board has the authority under Section 28.5 of the Act (415 ILCS 5/28.5 (2004)) to reject a proposal filed by the Agency pursuant to Section 28.5, if the Board finds that the proposal does not meet the statutory requirements. The Board further found that the proposal met the statutory requirements of Section 28.5 of the Act because failure to adopt a mercury emissions standard could result in the USEPA enforcing the federal CAMR. The Board reasoned that the USEPA enforcing CAMR would constitute a "sanction" as that term is used in Section 28.5 of the Act (415 ILCS 5/28.5 (2004)).

While the Board was considering the motions to remove the proposal from the fast-track procedures, Dynegy Midwest Generation, Inc. (Dynegy), Kincaid, and Midwest Generation, L.L.C. (Midwest Generation) (collectively plaintiffs) filed a complaint in the Sangamon County Circuit Court on April 3, 2006. That case is Dynegy Midwest Generation, Inc., Kincaid Generation, L.L.C., and Midwest Generation, L.L.C. v. PCB and IEPA, No 2006-CH-213. In that complaint, plaintiffs sought declaratory relief from the court that the use of the fast-track procedures was inappropriate for this rulemaking, that the schedule set by the Board and the hearing officer could not proceed, and that Section 28.5 was unconstitutional. The plaintiffs also asked for injunctive relief. On April 17, 2006, the plaintiffs filed a motion seeking a preliminary injunction against the Board and the Agency. The Sangamon County Circuit Court heard argument on the motion on April 27, 2006, and entered an order granting a preliminary injunction on May 1, 2006. On May 8, 2006, after Dynegy and Ameren filed joint statements with the Board in this rulemaking docket, the Board filed a motion to dismiss the circuit court case, which is still pending.

On May 4, 2006, the Board decided to proceed with the Agency's March 14, 2006 proposal pursuant to Section 27 of the Act (415 ILCS 5/27 (2004)). The Board acknowledged

the order of the court, and stated the Board's intent to abide by the court's decision. The Board canceled the hearings scheduled to begin on May 8, 2006, and rescinded the schedules set forth by both the Board and the hearing officer in their respective March 16, 2006 orders. The Board also re-first noticed the proposed rule under the APA (5 ILCS 100/5 *et seq*. (2004)). At the same time, the Board filed a notice of withdrawal of the original first notice that appeared in the *Illinois Register* on March 31, 2006 (30 *Ill. Reg.* 5957). The Board cited only Section 27 of the Act (415 ILCS 5/27 (2004)) as authority for the proposed rule in the new first notice. The new first notice was published in the *Illinois Register* on May 19, 2006 (30 *Ill. Reg.* 9281).

On May 23, 2006, the Agency filed a motion to amend the proposal. On June 15, 2006, the Board accepted the amendment, which was published in the *Illinois Register* on July 28, 2006 (30 *Ill. Reg.* 12706).

The Board began hearings in this proceeding on June 12, 2006, in Springfield before Board Hearing Officer Marie Tipsord. The Springfield hearings continued day-to-day through and including June 23, 2006. After the close of the Springfield hearings, Dynegy and Midwest Generation filed a motion to strike Dr. Gerald Keeler's testimony at the Springfield hearing. On July 20, 2006, the Board denied that motion finding that the rules of evidence in rulemakings before the Board differ from those in a contested case before the Board. In a rulemaking, "[a]ll information that is relevant and not repetitious or privileged will be admitted by the hearing officer." 35 Ill. Adm. Code 102.426. Thus, the Board found that Dr. Keeler's testimony was admissible in this rulemaking proceeding.

The Board began a second set of hearings on August 14, 2006, in Chicago. The Chicago hearings continued day-to-day through and including August 23, 2006.[1] During the hearing, a request for additional hearings was made on the record. The hearing officer directed that the request be filed with the Board and on August 24, 2006, Midwest Generation filed a motion to schedule additional hearings. By hearing officer order, response time was shortened to allow responses without undue delay in the proceeding. The Board received responses from Ameren Energy Generation Company, Amerenenergy Resources Generating Company, and Electric Energy, Inc. (Ameren), the Agency, and Environmental Law and Policy Center, in opposition to the motion. Kincaid responded in support of the motion. On September 7, 2006, the Board denied the request for additional hearings.

In accordance with Section 27(b) of the Act, the Board requested, in letters dated March 16, 2006 and May 10, 2006, that Department of Commerce and Economic Opportunity (DCEO) conduct an economic impact study for this rulemaking. On June 26, 2006, DCEO responded that DCEO does not have the resources to perform economic impact studies on this rulemaking. The Board received a second response letter on June 29, 2006, which also indicated that DCEO would not perform an economic impact study. During the Chicago hearings, the Board specifically sought comment on the decision of DCEO (*see* CTr. at 6-7).

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[1] The transcript pages for the Springfield hearing are not consecutively numbered and therefore will be cited with date and a.m. or p.m. The Chicago hearing transcripts will be cited as "CTr. at".

Pursuant to the hearing officer's order, the deadline for filing comments to ensure that the comments were considered by the Board before proceeding was September 20, 2006. Between the close of hearing and September 20, 2006, the Board received 7286 comments that will be discussed below. Also on September 20, 2006, Midwest Generation filed a motion to correct transcript. The Board did not receive any responses to the motion. The Board grants that motion.

On September 25, 2006, Ameren filed a motion for leave to file *instanter* supplemental post-hearing comments. The Board did not receive any responses to the motion. The Board grants that motion and accepts the comment.

PROPOSAL

The following section of this opinion will summarize the Agency's reasons for submitting this proposal. Next, the Board will summarize the proposed rule language and the justification provided in the proposal for the suggested language. The proposal filed by the Agency includes a statement of reasons (Reasons) that describes the Agency's reasons for submitting the proposal. The proposal also includes a technical support document (TSD) which includes technical information supporting the rulemaking proposal. Both items will be referred to as necessary to summarize the Agency's proposed rule language.

General Reasons for Proposal

The Agency indicates that the rulemaking is intended to meet certain obligations of the State of Illinois under the federal Clean Air Act (CAA) (42 U.S.C. § 7401 *et seq*.). Reasons at 1. The Agency states that the proposal is brought to satisfy the State's obligation to submit a state implementation plan (SIP) to address the requirements of USEPA's CAMR (*see* 70 Fed. Reg. 28606 (May 18, 2005)) and Section 9.10 of the Act. *Id*., citing 415 ILCS 5/9/10 (2004). The Agency explains that while the proposed rule is consistent with CAMR, the proposal addresses serious deficiencies present in the CAMR including:

> the unnecessary delay in achieving mercury emissions reductions, the inherent concerns associated with a cap and trade program to control a persistent, bioaccumulative toxin, the inadequate mercury reductions contained in the CAMR, and the legal basis upon which CAMR was adopted. Reasons at 1.

Concerns About Mercury

Mercury is a naturally occurring trace element found in the environment as well as a pollutant released to the environment by human or anthropogenic activities. Reasons at 2. Mercury is a persistent environmental contaminant, which cannot be degraded or destroyed. TSD at 29. Mercury exists in two general forms in the environment: inorganic, which include elemental mercury, and organic forms. *Id*. Mercury combines with carbon to form compounds referred to as organic mercury. Inorganic mercury compounds are formed when mercury combines with other non-carbon elements such as chlorine, sulfur and oxygen. *Id.*

Natural sources of mercury include outgassing from volcanoes and evaporation from natural bodies of water. Regarding the anthropogenic sources, mercury emissions from combustion of fossil fuel such as coal-fired EGU represent the largest source category of mercury emissions in the United States. Reasons at 2; TSD at 31. USEPA estimated that coal-fired EGUs contribute about 34% of the total man-made mercury emissions. Emissions of mercury occur in three forms: elemental (Hg^0), gas phase divalent (Hg^{2+}) (reactive gaseous mercury) and particulate-bound divalent mercury (Hg_p). *Id.* According to the Agency, reactive and particulate forms of mercury compounds have the greatest impact on near-field deposition of mercury. Reasons at 2. These forms of mercury are water-soluble and are generally more readily deposited to the earth's surface through wet or dry deposition. TSD at 29.

While the various forms of mercury are known to induce toxic responses in the human body, ingestion of methylmercury through fish consumption poses the greatest exposure risk to human beings. TSD at 37. The Agency states that the deposition of mercury on the land and into waters is the serious health concern. Reasons at 2. The Agency maintains that nearly 50% of the mercury entering many bodies of water comes from air deposition and once in the water some mercury transforms to methylmercury. *Id.* Methylmercury is formed by biological process and is a highly toxic form of mercury. Methylmercury is the form of mercury that is a concern for potential health effects from mercury. Reasons at 3.

Methylmercury can be ingested by the lower trophic level organisms where the mercury can bioaccumulate in fish tissue. Reasons at 3. Concentrations of methylmercury in predatory fish then build up over the fish's entire lifetime, accumulating in the fish tissues as the predatory fish consume other species in the food chain. *Id.* Therefore, fish and wildlife at the top of the food chain can have higher concentrations of mercury than the lower organisms. *Id.* Thus, the most common exposure of mercury for humans is through consumption of mercury contained in the food supply. *Id.*

The Agency notes that when humans consume fish containing methylmercury, the methylmercury is absorbed into the blood and distributed throughout the tissues of the body. Reasons at 3. Methylmercury can be passed to a fetus in pregnant women and sufficient exposure may lead to neurological effects on the unborn child. *Id.* The effect of prenatal exposure can occur even if the exposure does not affect the mother. *Id.* As a result of exposure to methylmercury children may be at an increased risk of poor performance on neurobehavioral tests such as those measuring attention, fine motor function, language skills, visual-spatial abilities, and verbal memory. *Id.* Mercury contamination of Illinois waters has resulted in fish consumption advisories being issued for every body of water in the State, according to the Agency. Reasons at 3.

Clean Air Act and CAMR

Under Section 112(b) (42 U.S.C. § 7412(b)) of the CAA, mercury is listed as a hazardous air pollutant (HAP). Reasons at 4. Section 112 of the CAA requires the establishment of maximum achievable control technology (MACT) standards applicable to new and existing sources. *Id.* The CAA required the USEPA to conduct a study of electric utility boilers to assess the hazards to public health from emissions of HAPs. *Id.* Pursuant to Section 112(n)(1)(A) of

the CAA (42 U.S.C. § 7412(n)(1)(A)), USEPA found that regulation of coal and oil-fired utility boilers was necessary and appropriate. Reasons at 4.

In January 2004, USEPA proposed federal rules governing the emissions of mercury from coal-fired electric generating units. Reasons at 6-7. In response to the federal proposal, the Agency submitted comments that took issue with the federal rules. Reasons at 7-8. The Agency challenged USEPA's regulation under Section 111 of the CAA rather than Section 112(d) of the CAA. Reasons at 8. The Agency argued that the mercury limits must be more stringent than those proposed and that the rule should be fuel neutral without favoring one type of coal. *Id*. The Agency also opposed trading of mercury allowances and argued for reductions to occur by 2010. Reasons at 8-9. USEPA adopted CAMR on May 18, 2005, and did not make changes to address the Agency's concerns. Reasons at 9.

The Agency takes issue with CAMR for several reasons. Reasons at 10. The Agency does not believe that CAMR would result in sufficient reductions of mercury in a timely manner. *Id*. The Agency also is concerned that CAMR will impede efforts to encourage clean-coal technology that will allow use of Illinois coal. *Id*. The Agency, because of these concerns, asked the Illinois Attorney General's Office to appeal CAMR and that appeal was filed on May 27, 2006. Reasons at 11. Thirteen other states have also filed one or more appeals of CAMR. Illinois' appeal was consolidated with other challenges. Reasons at 11, citing Illinois v. USEPA, Nos. 05-1174 and 05-1189 (D.C.Cir.).

Under CAMR, the USEPA established a cap and trade program to reduce nationwide coal-fired power plant emissions of mercury in two phases. Reasons at 23, citing 70 Fed. Reg. 28619. The first phase is effective in 2010 and is set at 38 tons per year. *Id*., at 70 Fed. Reg. 28606. The second phase, effective in 2018, sets the emissions rate at 15 tons per year. *Id*. CAMR's market based cap and trade program distributes mercury allowances that equate to emissions of one ounce of mercury. *Id*. CAMR also allows for banking of mercury allowances. Reasons at 23.

CAMR established an annual mercury budget for each state beginning in 2010. Reasons at 23, citing 70 Fed. Reg. 28649-50. Each state's plan under CAMR must include emissions control requirements and compliance procedures to demonstrate that the state's annual budget will be met. *Id*. CAMR establishes Illinois' annual budget as 1.594 tons per year for the period 2010 through 2017, and 0.629 tons per year for the period 2018 and thereafter. Reasons at 24, citing 70 Fed. Reg. 28649-50. CAMR's 2018 national cap of 15 tons per year equates to approximately a 70% reduction in mercury emissions from the 1999 baseline year. Reasons at 24.

Section 9.10 of the Act

The Illinois General Assembly also saw a need for examination of mercury emissions, and therefore, added Section 9.10 to the Act (415 ILCS 5/9.10 (2004)). Reasons at 5. Section 9.10 of the Act required the Agency to report to the General Assembly findings "that address the potential need for the control or reduction of emissions from fossil fuel-fired electric generating plants." 415 ILCS 5/9.10(b) (2004); Reasons at 5. In Section 9.10 of the Act, the General

Assembly specified several areas for the Agency to address including the "reduction of mercury as appropriate . . . that are sufficient to prevent unacceptable local impacts from individual facilities" with consideration of developments in federal law that may affect action by Illinois. *Id*.

The Agency published a report entitled *Fossil Fuel-Fired Power Plants: Report to the House and Senate Environment and Energy Committees* in September 2004 (Section 9.10 Report). Reasons at 6. The Section 9.10 Report indicated that control of mercury emissions was necessary, but did not specify a level of control. *Id*. The Agency stated its belief that independent, full and complete economic assessments should be performed on a mercury reduction rule to examine the impact to Illinois jobs in the coal and power industry. *Id*.

Purpose and Effect of Agency's Proposal

The Agency proposed this rulemaking to satisfy Illinois' obligation to submit a SIP addressing the requirements of CAMR and to address applicable requirements of Section 9.10 of the Act (415 ILCS 5/9.10(2004)). Reasons at 23. The Agency seeks to achieve maximum mercury reductions while providing flexibility. Reasons at 24. To do this, the Agency proposes to phase in compliance, include provisions to allow compliance to be demonstrated by averaging systemwide and plant wide, and to allow for relief for EGUs that will be shut down. *Id*.

Specifically, the proposal requires EGUs that serve a generator greater than 25 megawatts producing electricity for sale to begin utilizing control technology by July 1, 2009. Reasons at 24. The proposal allows compliance to be demonstrated by either using a mercury emissions standard of 0.0080lb/GWh or a 90% reduction from input mercury. *Id*. The standards apply on a rolling 12-month average basis and compliance can be shown on a source-wide basis. Reasons at 24-25. Companies with several sources may meet these standards by averaging between the sources as long as each source attains at least a 75% reduction. Reasons at 25. The emissions standards do not apply if an existing EGU plans to permanently shut down by 2010. *Id*.

CAMR requires monitoring of mercury emissions, so the proposal includes requirements for monitoring. Reasons at 26. The monitoring requirements specify that units must comply with the federal CAMR monitoring requirements of 40 C.F.R. 75.

Temporary Technology Based Standard

On June 15, 2006, the Board granted a motion to amend the proposal to include a TTBS. A source may use the TTBS to demonstrate compliance with the proposed standards if the EGUs are equipped and operated with control systems which include HCI and either a cold side electrostatic precipitator (ESP) or a fabric filter. Proposed Section 225.234(b). The TTBS is limited to only 25% of the total rated MW capacity for the owner or operators of more than one EGU. Proposed Section 225.234(b)(3).

Multi-Pollutant Standards

Although not a part of the Agency's proposal, the Board will discuss the MPS here for organizational purposes. On July 28, 2006, Ameren and the Agency filed a joint statement asking that the Board include a multi-pollutant standard in the proposed rule. *See* Exh. 75. At hearing, Ameren testified concerning the proposed language and the Agency joined Ameren in answering questions about the MPS language. *See* CTr. 1-442. On August 21, 2006, Dynegy and the Agency also filed a joint statement with Dynegy joining in supporting the MPS and suggesting changes to the MPS. *See* PC 6283, CTr. at 1341-43. A corrected copy of the language was filed on August 23, 2006. PC 6284.

The MPS is a voluntary provision that allows Illinois units to comply with mercury reductions using co-benefits from SO_2 and NO_x emissions reductions. PC 6301 at 4. A source must commit to reducing SO_2 and NO_x emissions and, in exchange, the source has additional time to achieve the mercury emissions standard of 0.0080 lb/GWh or 90% reduction of mercury. Exh. 75 at 1-2, PC 6301 at 4, PC 6284 at 2-3. The MPS requires that SO_2 and NO_x allowances necessary to meet the requirements of the MPS be surrendered to the Agency for retirement. Exh. 75 at 2, PC 6284 at App.A, 10. The MPS requires specific reductions of SO_2 and NO_x emissions rates and imposes deadlines for installation of HCI controls. Exh. 75 at 1, PC 6284 at 2-3.

Ameren and the Agency anticipate that installing and operating pollution control equipment pursuant to the MPS will achieve significant reductions of SO_2 and NO_x emissions beyond those required by existing regulations and beyond the federal Clean Air Interstate Rule (CAIR). Exh. 75 at 2. Ameren and the Agency state that the MPS is both technically feasible and economically reasonable and that the level of SO_2 and NO_x emissions reductions will contribute to Illinois' efforts to achieve attainment of National Ambient Air Quality Standards (NAAQS). Exh. 75 at 3. Ameren also testified to the technical feasibility and economic reasonableness of the MPS. *See*, *e.g.*, CTr. at 248-50, 307.

Dynegy's joint statement with the Agency echoes the comments concerning the reduction of SO_2 and NO_x emissions made by the Ameren and the Agency in their joint statement. PC 6284 at 4. Dynegy and the Agency also indicate that the revised proposal is economically reasonable and technically feasible. PC 6284 at 5. Ameren supports the revised MPS amendments filed by Dynegy and the Agency. PC 6301 at 6.

Rule Language

The following section summarizes the actual rule language of the proposal.

Section 225.100. This is the standard severability clause in the rule. The Section provides that if any section, subsection or clause of Part 225 is found to be invalid, the validity of Part 225 as a whole will not be affected. Reasons at 29.

Section 225.120 and 225.130. In these sections the Agency sets forth abbreviations, acronyms, and definitions used in Part 225. Reasons at 29. The Agency also incorporates definitions found in 35 Ill. Adm. Code 211. *Id.*

Section 225.140. Part 225 incorporates several sections of the *Code of Federal Regulations* by reference. Reasons at 30. Specifically, this section incorporates 40 C.F.R. 60.17, 60.45a, 60.49a(k)(l) and (p), 60.4170 through 60.4176. *Id*. These sections of 40 C.F.R. Part 60 address Standards of Performance for New Stationary Sources. *Id*. Subsection (b) incorporates by reference 40 C.F.R. Part 75. *Id*. Under CAMR, state plans must require that EGUs comply with the monitoring, recordkeeping, and reporting provisions of 40 C.F.R. Part 75, which addresses continuous emission monitoring. *Id*. Subsection (c) incorporates by reference standard test methods that are to be utilized under Part 225. *Id.*

Section 225.200. Subpart B of Part 225 is proposed to control mercury emissions from coal-fired electric generating units in Illinois. Reasons at 30.

Section 225.202. This section sets forth the measurement methods for mercury under Part 225. Reasons at 30.

Section 225.205. Subsection (a) provides that Subpart B applies to all stationary coal-fired boilers and stationary coal-fired combustion turbines serving a generator with nameplate capacity of more than 25 MWe and producing electricity for sale. Reasons at 31.

Subsection (b) includes language that determines when Subpart B applies to a cogeneration unit. Specifically, Subpart B applies to a cogeneration unit serving at any time a generator with nameplate capacity of more than 25 MWe and supplying in any calendar year more than one-third of the unit's potential electric output capacity or 219,000 MWh, whichever is greater, to any utility power distribution system for sale. Reasons at 31. The proposed language provides that "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 subsection (a) of this Section starting on the day which the unit first no longer qualifies as a cogeneration unit." *Id*.

Section 225.210. This section requires that to be in compliance with Subpart B an owner or operator of a source with one or more EGUs must apply for a Clean Air Act Permit Program (CAAPP) permit that addresses the applicable requirements of Subpart B. Reasons at 31. Subsection (b) specifically requires the owner or operator to comply with the monitoring requirements of Section 225.240 through 225.290 of Subpart B. *Id*. The Agency proposes that emissions measurements recorded and reported in accordance with Section 225.240 through 225.290 of Subpart B will determine compliance with mercury requirements under Section 225.230 or 225.237. Reasons at 31-32. Subsection (c) requires compliance with the mercury emissions reduction requirements set forth under Section 225.230 or 225.237. Reasons at 32. Subsection (d) sets forth the recordkeeping and reporting requirements for owners or operators of EGUs under Subpart B. *Id*. The owners or operators must keep the following records: emission monitoring information, copies of all reports, compliance certifications, all documents necessary to demonstrate compliance with Subpart B, copies of all documents from the permit application and any other submission under Subpart B. *Id*. The owner or operator must keep the records for five years, unless the Agency extends this period for cause in writing prior to the end of five years. *Id*.

Subsection (e) governs liability and sets forth that the owner or operator of each source must meet the requirements of Subpart B and that any provision of Subpart B that applies to a source will also apply to the owner and operator of the source and to the owner and operator of each EGU at the source. Reasons at 32. Subsection (f) includes language that limits the effect of Subpart B on other authorities. *Id*. The Agency provides that no provision of Subpart B can be construed to exempt or exclude the owner and operator of a source or EGU from compliance with any provision of an approved State Implementation Plan, a permit, the Act or the CAA. *Id.*

Section 225.220. This section addresses CAAPP permit requirements and provides in subsection (a) that each source submit a CAAPP permit application that addresses all applicable requirements of this Subpart. Reasons at 33. Subsection (a) also establishes a timeline for the submission of permit applications. *Id.* In subsections (b) and (c), the content and information required in the permit application and permit are set forth. *Id.* The proposed language in subsection (c) requires that each permit issued by the Agency and subject to Subpart B address all applicable requirements of this Subpart and contain federally enforceable conditions. *Id*.

Section 225.230. This section sets forth emissions standards for EGUs at existing sources. Reasons at 33. Subsection (a) provides that beginning July 1, 2009, the EGU must comply with one of the following standards on a rolling 12-month basis: "(1) an emission standard of 0.0080 lb/GWh gross electrical output; or (2) a minimum 90% reduction of input mercury." *Id*. Subsection (b) provides that as an alternative to compliance with subsection (a) an EGU may demonstrate that the actual emissions of mercury are less than the allowable emissions from the EGU on a rolling 12-month basis. *Id*. Subsection (b) also includes the equations necessary for compliance and provides that if an EGU does not comply with Section 225.265 of this Subpart to determine mercury input, the allowable emissions will be calculated based on the electrical output of the EGU. Proposed Section 225.230(b).

Subsection (c) provides that for two EGUs that share a common stack, and where mercury monitors are in the common stack, compliance with applicable emission standards must be determined as if the two EGUs were a single EGU, as provided for by 40 C.F.R. Part 75, Subpart I. Reasons at 34. Subsection (d) requires that a source with multiple EGUs may alternatively comply with subsection (a) by demonstrating that the actual emissions of mercury are less than the allowable emissions of mercury from all EGUs at the source on a rolling 12-month basis. Proposed Section 225.230(c). Subsection (d) provides formulas for determining the maximum allowable emissions of mercury from all the EGUs at a source. *Id*. If a source that relies on subsection (d) fails to meet the requirements of subsection (d) in a given 12-month period, all EGUs at the source in such reliance will be considered out of compliance with the applicable standards of Subpart B for the entire last month of that period. Reasons at 33-34.

Section 225.232. Subsection (a) provides that through December 31, 2014, as an alternative to compliance with Section 225.230(a), an EGU may comply with emissions standards through an averaging demonstration. Reasons at 34-35. The EGU must show that actual mercury emissions from the EGU and other EGUs covered by the demonstration are less than the allowable emissions from all such EGUs on a rolling 12-month basis. *Id*.

Subsection (b) proposes that each EGU covered by the demonstration must "comply with one of the following emission standards on a source-wide basis for the period covered by the demonstration: (1) An emission standard of 0.020 lb/GWh gross electrical output; or (2) A minimum 75% reduction of input mercury." Reasons at 35. Subsection (c) provides that the equations set forth in Section 225.230(a)(2), (a)(3), or (d) (2) determine compliance with emissions standards under this section. Reasons at 35. The owner or operator must apply the equations that address all EGUs at the sources covered by the demonstration, rather than the equations that address only EGUs at one source. *Id*.

Subsection (d) provides that owners or operators of multiple existing sources with EGUs may only participate in averaging demonstrations with existing sources they own or operate. Reasons at 35. However, the owners or operators of specifically enumerated single sources with EGUs may participate in demonstrations with each other. *Id*. The proposed language requires that participants that are single existing sources with EGUs be authorized through federally enforceable permit conditions for each participating source. *Id*. Under subsection (e), "a source may be included in only one [d]emonstration during each rolling 12-month period." *Id*. Subsection (f) requires that EGUs using the demonstration to comply with "Subpart B must complete the determination of compliance for each 12-month rolling period no later than 60 days following the end of the period." Reasons at 36.

Subsection (g) provides that if a source applies the demonstration to comply with Subpart B and fails, the compliance status of such source will be determined under Section 225.230, as if the demonstration did not apply. Reasons at 36. Subsection (h) includes that if one source of two participating in a demonstration does not maintain the required records, data, and reports for the EGUs at the source or does not submit copies of such documents to the Agency upon request, this will be deemed a failure to demonstrate compliance and both participating sources will be subject to Section 225.230 to determine compliance. *Id.*

Section 225.235. Section 225.235(a) provides that the standards do not apply to an EGU that will be permanently shut down. Reasons at 36. To comply with this section, an owner or operator who will not be constructing a new EGU to replace the existing unit must notify the Agency no later than June 30, 2009, that it is planning to permanently shut down by December 31, 2010. *Id*. Otherwise, if the owner or operator plans to construct a new EGU to specifically replace the existing unit, the existing unit must shut down by December 31, 2011, for this section to apply. *Id*. The existing EGU must be permanently shut down by the specified dates, unless the owner or operator demonstrates to the Agency, prior to such date, that factors beyond the owner or operator's reasonable control have interfered with the shut down plan, in which case an extension may be given. Proposed Section 225.235(a). In these circumstances, an operator or owner that will not replace the existing EGU may receive an extension requiring the permanent shut down of the unit by December 31, 2011. *Id*. If the owner or operator of an existing EGU is constructing a new EGU, the deadline for permanent shut down of the existing EGU may be extended to June 30, 2013, so long as after December 31, 2012, the existing EGU only operates as a "back-up unit to address periods when the new generating units are not in service." *Id*.

Along with the notification, the EGU must submit a description of actions that have been taken to shut down the EGU and a description of actions that will be taken to complete the shut

down. Prop. Section 225.235(a). To rely on this section, an owner or operator must have applied for a construction permit or be pursuing a federally enforceable agreement that requires the permanent shut down of the EGU, and by June 30, 2009, must have applied for revisions to the operating permit that terminate the authorization to operate the unit. *Id*. To rely on this section, an owner or operator must have obtained a construction permit or have entered into a federally enforceable agreement and obtained revised operating permits in accordance with this section, by June 30, 2010. *Id*.

Subsection (b) provides that any EGU not required to comply with Section 225.230 pursuant to this section, "shall not be included when determining whether any other EGUs at the source or other sources are in compliance with Section 225.230 of this Subpart." Prop. Section 225.235(b).

Subsection (c) provides that if an owner or operator relies on this section in lieu of compliance with Section 225.230(a) and fails to permanently shut down by the required date, the EGU will be considered a new EGU and therefore subject to the emissions standards in Section 225.237(a) of Subpart B. Reasons at 38.

Section 225.237. Subsection (a)(1) provides that a source that has not commenced commercial operations before January 1, 2009, is a new source and must "comply with one of the following emissions standards for each EGU on a rolling 12-month basis: (1) An emission standard of 0.0080 lbs/GWh gross electrical output; or (2) A minimum 90% reduction of input mercury." Reasons at 38. Subsection (a)(2) allows that the equations in Section 225.230(a)(2), (a)(3), or (b)(2) of Subpart B may be used to demonstrate compliance. *Id*.

Subsection (b) provides that the commencement date of the initial 12-month rolling period for which a new EGU must comply with subsection (a)(1) of this Section is the same date that the initial performance test for the mercury emissions standard under 40 C.F.R. 60.45 commences. Reasons at 38. The required continuous emissions monitoring system for mercury emissions must be certified prior to this date. *Id*. "Thereafter, compliance shall be demonstrated on a rolling-12-month basis in terms of calendar months." *Id*.

Section 225.240. This section requires that an EGU must comply with monitoring, recordkeeping and reporting requirements in this section and those of Sections 225.250 through 225.290 of Subpart B and Subpart I of 40 C.F.R. Part 75. Reasons at 39. If an EGU shares a common stack with units that are not EGUs and emissions are not monitored in the duct to the common stack from each EGU then emissions monitoring must comply with 40 C.F.R. 75.82(b)(2) and this Section, "including monitoring the duct to the common stack from each unit that is not an EGU." *Id*. However, if the EGU counts the combined emissions measured at the common stack as the mass emissions of mercury, for the EGU's recordkeeping and compliance purposes, then the aforementioned measures for EGUs that share a common stack with units that are not EGUs are not required. *Id*.

In subsection (a), the Agency sets forth requirements for installation, certification and data accounting. This subsection requires the owner or operator to install all required monitoring systems and successfully complete all required certification tests, in accordance with this Section

and Sections 225.250 through 225.290 of Subpart B and 40 C.F.R. 75.21 and 75.82, and record, report, and quality-assure the data from such monitoring systems. Reasons at 39.

Subsection (a)(4) provides that to qualify to use the low mass emissions excepted monitoring methodology, the EGU must meet the requirements set forth in this subsection, and demonstrate eligibility through initial emissions testing, which must be conducted before the dates set forth in subsections 225.240(a)(4)(A) and (B). Proposed Section 225.240(a). For an EGU to be eligible to use the excepted emissions monitoring methodology, the EGU may not emit more than 464 ounces (29 pounds) of mercury per year pursuant to 40 C.F.R. 75.81(b), must demonstrate that the EGU is eligible to use the methodology by performing emissions testing in accordance with 40 C.F.R. 75.81(c), must comply with other applicable requirements of 40 C.F.R. 75.81(b) through (f), and must submit to the Agency a copy of any information that is required to be submitted to the USEPA under these provisions. *Id*.

Subsection (a)(4) requires that if an EGU commenced commercial operations before July 1, 2008, initial emissions testing, to demonstrate eligibility of an EGU for the low mass emissions excepted methodology, must be conducted before "January 1, 2009, or 45 days prior to relying on the low mass emissions excepted methodology, whichever date is later." Proposed Section 225.240(a). If the EGU commenced commercial operation on or after July 1, 2008, initial emissions testing shall be conducted "at least 45 days prior to the applicable date specified under subsection (b)(2) of this Section or 45 days prior to relying on the low mass emissions methodology, whichever date is later." *Id*.

Subsection (b) requires EGU to meet the emissions monitoring system certification and other emissions monitoring requirements of subsections (a)(1) and (a)(2) of this Section on or before the dates specified in subsections (b)(1) (2) and (3). Proposed Section 225.240(b). The owner or operator must record, report, and quality-assure the emissions monitoring systems required under subsection (a)(1) of this Section on and after the specified dates. *Id*. Under subsection (b)(1) an EGU that commences commercial operation before July 1, 2008, is required to comply with emissions monitoring certification on or before January 1, 2009. *Id.* Subsection (b)(2) provides that an EGU that commences commercial operation after July 1, 2008, is required to comply with monitoring system certification by 90 unit operating days or 180 calendar days after commercial operations commence, whichever occurs first. *Id*.

Subsection (b)(3) proposes that an EGU that completes construction of a "new stack or flue or installation of add-on mercury emissions controls, a flue gas desulfurization system (FGD), a selective catalytic reduction system, a fabric filter, or a compact hybrid particulate collector system is complete after the applicable" deadline is required to recertify the continuous emissions monitoring system within 90 unit operating days or 180 calendar days after the date on which emissions first exit the new system, stack, flue, device or filter, whichever is first. Reasons at 39.

Subsection (c) requires that if an EGU does not meet the applicable deadline for certification of any required emissions monitoring system, the owner or operator is required to determine, record, and report maximum potential values and, where appropriate, minimum potential values for mercury concentration, stack gas flow rate, stack gas moisture content, and

any other parameters required to determine mercury mass emissions in keeping with 40 C.F.R. 75.80(g) for each system. Proposed Section 225.240(c). Under subsection (c)(2) if an EGU that is required to be recertified pursuant to subsection (b)(3) of this Section fails to meet the deadline for recertification of any emissions monitoring system, the owner or operator is required to, "for each such system, determine, record, and report substitute data using the applicable missing data procedures in 40 C.F.R. 75.80(f), in lieu of the maximum potential (or, as appropriate, minimum potential) values, for a parameter if the owner or operator demonstrates that there is a continuity between the data streams for that parameter before and after the construction or installation under subsection (b)(3) of this Section." *Id*.

Subsection (d) provides that an EGU may not use "any alternative emissions monitoring system, alternative reference method for measuring emission, or any other alternative to the emissions monitoring and measurement requirements of this Section and Sections 225.250 through 225.290 of this Subpart," unless the USEPA promulgates the alternative and the Agency approves it in writing or if such alternative is approved in writing by the Agency and the USEPA. Reasons at 41.

Subsection (d)(3) provides that an owner or operator may not disrupt "the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby 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, Sections 225.250 through 225.290 of this Subpart, and Subpart I of 40 C.F.R. Part 75." Proposed Section 225.240(d). Under subsection (d)(4), an EGU must not discharge mercury emissions without accounting for all such emissions pursuant to "applicable provisions of this Section, Section 225.250 through 225.290 and Subpart 1 of 40 C.F.R. Part 75." *Id*. An EGU must not retire or permanently discontinue use of the continuous emissions monitoring system or a component thereof, other than in the limited circumstances enumerated in this subsection. *Id*.

Subsection (e) provides that an EGU in long-term cold storage must comply with applicable provisions of 40 C.F.R. Part 75 for monitoring, recordkeeping, and reporting for such units. Reasons at 42.

Section 225.250. Subsection (a) includes provisions for initial certification and recertification procedures for a continuous emissions monitoring system or excepted monitoring system (sorbent trap monitoring system) under 40 C.F.R. 75.15. Reasons at 42.

Subsection (b) proposes that a monitoring system will be exempt from the initial certification requirements of this Section if the following provisions are met: the monitoring system has been previously certified pursuant to 40 C.F.R. Part 75, and "the applicable quality assurance and quality control requirements of 40 C.F.R. 75.21 and Appendix B to 40 C.F.R. Part 75 are fully met." Reasons at 42. However, a monitoring system required by section 225.240 that is exempt from initial certification requirements must never-the-less comply with the recertification provisions of this section. *Id*.

Subsection (c) sets forth that the applicable certification and recertification requirements in 40 C.F.R. 75.81(c) through (f) will apply to an EGU qualified to use the mercury low mass emissions excepted methodology under 40 C.F.R. 75.81(b). Reasons at 43.

Under subsection (d), within 45 days of completing all initial certification and recertification tests required under this section, the owner or operator is required to submit an application to the Agency including the information required by 40 C.F.R. 75.63. *Id.*

Section 225.260. Subsection (a) provides that the missing data procedures in Subparts D and I of 40 C.F.R. Part 75, where applicable, will be applied to substitute data whenever any emissions monitoring system fails to meet quality assurance and quality control requirements or data validation requirements of 40 C.F.R. Part 75. Reasons at 43.

Subsection (b) sets forth that the Agency will issue a notice of disapproval of the certification status of a monitoring system if an audit and review of the initial certification or recertification reveal that such monitoring system should not have been certified or recertified because of the following reasons. Reasons at 43. The Agency will issue such notice of disapproval if both at the time of initial certification or recertification application and submission and at the time of the audit the monitoring system did not meet a particular performance specification or failed to meet other requirements under Section 225.250 of Subpart B or failed to meet applicable provisions of 40 C.F.R. Part 75. *Id*. Such notice of disapproval acts to revoke prospectively the certification status of the monitoring system. *Id*. The initial certification and recertification procedures in Section 225.250 apply to each disapproved monitoring system. *Id*.

Section 225.261. This section provides that an EGU that uses a mercury concentration monitoring system and a flow monitoring system to monitor and report, will also monitor and report heat input rate at the EGU level using the procedures set forth in 40 C.F.R. Part 75. Reasons at 44.

Section 225.263. Under this Section, if an EGU complies with this Subpart, by means of either Section 225.230(a)(1) or 225.230(b) or (d) or 225.232, the owner or operator "shall monitor gross electrical output of the associated generator(s) in MWh on an hourly basis." Proposed Section 225.263.

Section 225.265. If the EGU complies by means of Section 225.230(a)(2) or uses input mercury levels and complies by means of Section 225.230(b) or (d) or Section 225.232, the owner or operator must "[p]erform daily sampling of the coal combusted in the EGU for mercury content." Proposed Section 225.265. The owner or operator "shall collect a minimum of one 2-lb. grab sample per day of operation from the belt feeders anywhere between the crusher house or breaker building and the boiler." *Id*. The sample should be taken in a manner so that it will be representative of the mercury content of coal burned that day. Prop at 44. The owner or operator is required to analyze the grab sample using the following tests: to determine heat content, "ASTM D5865-04, Standard Test Method for Gross Calorific Value of Coal and Coke, or equivalent approved in writing by the Agency"; to determine moisture content, "ASTM D3173-03, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, or equivalent approved in writing by the Agency"; and to measure the mercury content, "ASTM

D6414-01, Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by Acid Extractor or Wet Oxidation/Cold Vapor Atomic Absorption, ASTM D3684-01, Standard Test Method for Total Mercury in Coal by the Oxygen Bomb Combustion/Atomic Absorption Method, or equivalent approved in writing by the Agency". Reasons at 44-45.

A source with multiple EGUs may take one sample per crusher house or breaker building, rather than one sample per EGU, if the EGUs share the crusher house or breaker building. Reasons at 45. For such a source the owner or operator must determine the mercury content in terms of lbs/trillion Btu using the data analyzed. *Id*.

If an EGU is required to comply with this Section, the owner or operator must conduct sampling and analysis pursuant to this Section at least 30 days before the start of the month for which this requirement applies if the EGU is in daily service, and "if the EGU is not in daily service, on the day that the EGU resumes operation." Reasons at 45.

Section 225.270. For a source with one or more EGUs, the owner or operator must submit written notification to the Agency pursuant to 40 C.F.R. 75.61 for each EGU or group of EGUs monitored at a common stack and each non-EGU monitored under 40 C.F.R. 75.82(b)(2)(ii). Reasons at 45.

Section 225.290. Under subsection (a)(1), the owner or operator of an EGU and its designated representative must comply with applicable recordkeeping and reporting requirements of 40 C.F.R. 75.84 and those of this section. Reasons at 45-46. In subsection (a)(2), if the EGU is subject to emissions standards, the owner or operator must keep records for each month identifying the emissions standard with which the EGU is complying or from which the owner or operator is calculating allowable emissions. Proposed Section 225.290. Such an EGU must also maintain records of the daily mercury content of coal used and the daily and monthly input mercury in the file required under 40 C.F.R. 75.84(a), if the EGU complies with this Subpart "by means of Section 225.230(a)(2) or 225.237(a)(1)(B) or us[es] input mercury levels to determine the allowable emissions of the EGU." *Id*. An EGU must maintain records of the daily and monthly gross electrical output in the file required under 40 C.F.R. 75.84(a), if such EGU complies "with this Subpart by means of Section 225.230(a)(1) or 225.237(a)(1)(A) or using electrical output to determine the allowable emissions of the EGU." *Id*.

In subsection (a)(3), the owner or operator must maintain records of monthly emissions of mercury from each EGU. For an EGU that complies by means of section 225.230(b) or (d) of this Subpart, the owner or operator must additionally maintain records of the monthly allowable emissions of mercury from the EGU. Reasons at 46. In subsection (a)(4), an EGU that is participating in an averaging demonstration pursuant to Section 225.232 must keep records of the other sources and other EGUs covered by the demonstration and within 60 days of the end of each month, calculate and record the actual and allowable mercury emissions for the month and the 12-month rolling period. *Id*. Subsection (a)(5) specifies the quality assurance records that a source must maintain. Proposed Section 225.290 In subsection (a)(6), the Agency provides that an EGU must maintain an electronic copy of all electronic submittals to the USEPA pursuant to 40 C.F.R. 75.84(f). *Id*. In subsection (a)(7), the Agency provides that an EGU must retain all

records required by this Section on site, unless otherwise provided for in the CAAPP permit, and that the EGU will provide copies of any record to the Agency upon request. *Id.*

Subsection (b) proposes that the owner or operator will submit quarterly reports and sets forth the information that must be included in such reports. Reasons at 47. Under subsection (c) the owner or operator will be required to submit a compliance certification in support of each quarterly report and sets forth the contents of such certification. *Id.* Subsection (d) requires that the owner or operator submit an Annual Certification of Compliance to the Agency no later than May 1 of each year. *Id.* Subsection (d) also sets forth the contents of such Certification of Compliance and provides that the Certification of Compliance shall address compliance for the previous calendar year. *Id.* Subsection (e) requires that the owner or operator promptly notify the Agency of deviations of requirements of Subpart B, for each EGU. *Id.* Subsection (f) requires that within 45 days of completing a quality assurance relative accuracy test audit (RATA) the EGU shall submit the RATA report to the Agency for affected EGUs. *Id.*

Section 225.295. In this Section, the mercury emissions allocation to the state under CAMR must not be allocated to any EGU or other source of mercury emissions. Reasons at 47. The Agency must hold all allowances allocated to the state by USEPA and the Agency shall instruct USEPA to permanently retire all such allowances at the end of each calendar year. *Id.*

PUBLIC COMMENTS

The Board has received an unprecedented number of comments in this proceeding. As of today the Board has received 7,286comments. Those comments range from lengthy post-hearing comments from the participants to postcards and notes from citizens of the State. The overwhelming majority of the comments support the adoption of the Agency's proposal. Due to the volume of comments received, the Board cannot individually summarize all of the comments, nor can the Board list all those by name who filed a comment. The Board's decision not to individually summarize or identify an individual does not mean that the Board has not reviewed the comments or did not consider the comments in reaching today's decision. The Board appreciates each and every comment and the time taken by the individuals to present their thoughts and opinions to the Board. All the comments received by the Board in this proceeding can be viewed on the Board's web sites at www.ipcb.state.il.us., through the Clerk's Office On Line link.

The Board will list the organizations and public officials who filed comments below. However, rather than summarize all the comments, the Board will include comments where appropriate when discussing the issues remaining in this proceeding. The Board has received comments from throughout the State and specifically from the following organizations or public officials in support of the proposed rule:

Sinai Health System (PC 6322)
Ounce of Prevention Fund (PC 6321)
Northern Illinois Public Health Consortium, Inc. (PC 6320)
Metropolitan Chicago Healthcare Council (PC 6319)
Illinois Public Health Association (PC 6318)

Illinois Maternal and Child Health Coalition (PC 6317)
Illinois Environmental Council and Alliance for the Great Lakes (PC 6316)
Illinois Division of the Izaak Walton League, Illinois Council of Trout Unlimited, National Wildlife Federation, Natural Resource Defense Council, Prairie Rivers Network (PC 6315)
Illinois Academy of Family Physicians (PC 6314)
Citizen Action Illinois (PC 6313)
Children's Hospital of Illinois (PC 6312)
Child Care Coalition of Lake County (PC 6311)
American Lung Association of Metropolitan Chicago (PC 6310)
American Bottom Conservancy (PC 6309)
American Academy of Pediatrics, Illinois Chapter (PC 6308)
Access Living (PC 6307)
Advocate Health Care (PC 6306)
Sierra Club, Illinois Chapter (PC 6305)
Citizens Against Ruining the Environment (PC 6304)
Kathryn Tholih of Center for Neighborhood Technology (PC 6303)
Susan Spengler, President, League of Women Voters, Palatine Area (PC 6285)
April K. Holden, Village Clerk, Village of Downers Grove (PC 6276)
Sadhu A. Johnston, Commissioner, Chicago Department of Environment (PC 6232)
Illinois Public Interest Research Group (numerous comments)
Chicago Clean Power Coalition (numerous comments)
Representative Barbara Flynn Currie (PC 44)
Michael D. Belsky, Mayor, City of Highland Park (PC 3)
Mayor Richard H. Hyde, City of Waukegan (PC 2)
Governor Rod R. Blagojevich (PC 1)

The supporters of the rule discuss the issues concerning health effects from ingestion of methylmercury. Many note that coal-fired plants are the main stationary source of mercury in the State. The supporters urge the Board to adopt the proposal submitted by the Agency. Among the public comments are a substantial number of post cards, which echo the concerns about the health effects of mercury ingestion.

The Board has also received the following comments in opposition to the proposal:

Phillip M. Gonet, President, Illinois Coal Association (PC 6295)
Eugene M. Trisko, General Counsel, Unions for Jobs and the Environment (PC 6286)
Scott Wiseman, Vice President, Center for Energy and Economic Development, Inc. Midwest Region (PC 6286)

The opponents rely on economic reasons for their opposition to the proposal. They express concerns about the increased costs of generating electricity in Illinois and the impact on consumers and businesses as a result. The opponents urge the Board to adopt the federal CAMR rule instead of the Agency's proposal.

The Board received final comments from the following participants, which will be included in the discussion of the issues below:

Prairie State Generating Company. L.L.C. (Prairie State) PC 6294
City of Springfield, City Water Light & Power (CWLP) PC 6296
Environmental Law and Policy Center (Environmental Advocates) PC 6297[2]
Illinois Environmental Protection Agency (Agency) PC 6298
Kincaid Generation, L.L.C. (Kincaid) PC 6299
Midwest Generation, L.L.C. (Midwest Generation) PC 6300
Ameren Energy Generating Company, AmerenEnergy Resource Generating Company, and Electric Energy, Inc. (Ameren) PC 6301
Illinois Environmental Regulatory Group (IERG) PC 6302
Illinois Chapter of the Sierra Club (Sierra Club) PC 6305

PERSONS WHO PROVIDED TESTIMONY

The following individuals prefiled testimony on behalf of the Agency:

Jim Ross (Exh. 1)
Dr. Deborah Rice (Exh. 3)
Jeffrey W. Sprague (Exh. 7)
Marcia Willhite (Exh. 8)
Dr. Thomas C. Hornshaw (Exh. 9)
Dr. Gerald J. Keeler (Exh. 10)
Christopher Romaine (Exh. 36)
Richard E. Ayers, Esq. (Exh. 39)
Robert J. Kaleel (Exh. 41)
Sid Nelson, Jr. (Exh. 43)
David C. Foerter (Exh. 45)
Dr. James E. Staudt (Exh. 50)
Dr. Ezra D. Hausman (Exh. 51)

Dr. Michael W. Murray testified (Exh. 74) on behalf of the Environmental Law and Policy Center.

Dianna Tickner, Vice-President of Prairie State Generating Station, LLC., presented testimony on behalf of Prairie State (Exh. 80).

On behalf of Midwest Generation the following individuals testified:

J. Edward Cichanowicz (Exh. 84)

[2] The Board notes that the Illinois Chapter of the Sierra Club filed a comment (PC 6305) that is virtually identical to the Environmental Advocates' comment (PC 6297); therefore, the Board will use PC 6297 and all citations will be to that comment. However, the Board acknowledges that the Illinois Chapter of the Sierra Club joins in all the comments.

Dr. Ishwar Prasad Murarka (Exh. 114)
William DePriest (Exh. 115)
James Marchetti (Exh. 118)
Krish Vijayaraghavan (Exh. 126)
Dr. Peter M. Chapman (Exh. 129
Dr. Gail Charnley (Exh. 130)
Richard D. McRanie (Exh. 132)

Mr. Michael L. Menne (Exh. 76) and Dr. Anne E. Smith (Exh. 77) testified on behalf of Ameren.

Mr. C. J. Saladino (Exh. 138) and Mr. Andy Yaros (Exh. 137) testified on behalf of Kincaid.

ISSUES

Section 27 of the Act requires that the Board must determine that a rule of general applicability is economically reasonable and technically feasible before adopting the rule. While two utilities (Ameren and Dynegy) support adoption of this rule as amended during this proceeding, other utilities still challenge the rule. The major challenges to the rule are that the Agency has not demonstrated that the rule is technically feasible or economically reasonable. In challenging technical feasibility, the opponents raise the following issues: (1) the availability of the control technology, (2) the feasibility of measuring emissions reductions, and (3) the compliance flexibility in the proposal. In discussing economic reasonableness the opponents discuss issues concerning: (1) the deposition of mercury and modeling of deposition, (2) the health effects of mercury and whether control of emissions will result in positive health effects, (3) the fish advisories, and lastly (4) the costs of compliance.

Participants also challenge the legal basis for adding proposed amendments to the proposal without first providing notice of the amendments pursuant to the Administrative Procedure Act (APA) (5 ILCS 100/1-1 *et. seq*. (2004)). Participants also question whether the amendments conform to federal law. For purposes of discussion, the Board will address the arguments concerning the technical feasibility of the proposal, with amendments recommended during the hearings. Next, the Board will discuss the economic reasonableness of the proposal and amendments as well as discussing the potential health benefits from mercury regulation. Finally, the Board will discuss the legal challenges to the proceeding.

In addition to these general issues, the Board will discuss the unique circumstances surrounding Kincaid. Kincaid is in a unique position due to the size of the facility and steps Kincaid has already taken for compliance.

TECHNICAL FEASIBILITY

General Comments

The Board will summarize the general comments related to technical feasibility in this section.

Midwest Generation's Comment

Midwest Generation's final comment expresses a deep concern that the rule, even with the "flexibility" is not technically feasible. PC 6300. Midwest Generation has expressed these concerns in four general areas. First, Midwest Generation does not believe the controls preferred by the Agency are sufficiently developed and available for use as controls. Second, Midwest Generation questions the efficiency of the controls, particularly the use of HCI. Third, Midwest Generation challenges the adequacy of monitoring methods for measuring mercury emissions to demonstrate compliance with the proposed regulations. And fourth, Midwest Generation argues that the "flexibility" in the proposed rule does not really provide flexibility to utilities in complying with the proposed rule.

Kincaid's Comment

Kincaid has a 1,250-megawatt coal-fired power plant in Illinois, which is Kincaid's only plant in Illinois. PC 6299 at 2. Kincaid believes that mercury emissions reductions from coal-fired utility boilers are warranted; however man-made emissions of mercury are small in comparison to other sources around the world. *Id*. Further, Kincaid argues that the Agency's proposal to reduce mercury emissions from coal-fired utilities in Illinois by 90% is unreasonable. Kincaid asserts that the proposed rule places Kincaid at a competitive disadvantage over other electricity providers in Illinois and is unfair to Kincaid. PC 6299 at 1-2. Kincaid supports this assertion with arguments regarding the emissions reductions required in the rule and the flexibility of the rule.

Prairie State's Comment

Prairie State believes that the inclusion of the TTBS, if revised as they suggested, would alleviate many of Prairie State's concerns. PC 6294 at 15. However, Prairie State does have additional suggestions for changes in the proposed rule. *Id*. First, Prairie State recommends adding ASTM D6722-01 "Standard Test Method for Total Mercury in Coal and Combustion Residues by Direct Combustion Analysis" to Section 225.202 as an acceptable method. *Id*. USEPA has accepted this method and Prairie State believes Illinois should as well. PC 6294 at 15-16.

Prairie State argues that Section 225.210(e) should be amended to require compliance be judged on a unit level, not both a unit level and source level. PC 6294 at 16. Prairie State opines that by requiring both the unit and the source be in compliance, the rule is effectively assessing two violations if a unit fails to meet an emissions level. *Id*. Finally Prairie State urges the Board to allow averaging for new as well as existing units. *Id*.

Environmental Advocates' Comment

Environmental Advocates strongly support the proposed mercury rule, including the MPS. PC 6297 at 1. Environmental Advocates argue that the record before the Board demonstrates the public health and environmental benefits to Illinois that will be achieved by the adoption of the Illinois proposal rather than CAMR. *Id*. Environmental Advocates assert that the record is clear that the additional reductions can be achieved using available technology without creating disproportionate costs to utilities or consumers. *Id*. Environmental Advocates opine that the question is not whether mercury should be controlled, because CAMR does that, but whether the proposal "will produce public health and environmental benefits through deeper, faster reductions than those mandated under CAMR in a manner that is reasonable for regulated entities to achieve." PC 6297 at 2. Environmental Advocates focus their comments on evidence in the record about Illinois-specific factors that provide justification for going beyond CAMR. *Id*.

Environmental Advocates argue that as an initial matter, the remaining opponents' position that the rule is not technically feasible or economically reasonable is difficult given Ameren and Dynegy now support the rule. PC 6297 at 9. Environmental Advocates point out that CWLP has agreed to include in the PSD permit a requirement to comply with the standards proposed in the rule. *Id*. Environmental Advocates assert that the remaining opponents have presented no facility-specific or companywide information about the projected cost of compliance and in fact Midwest Generation's witness, Mr. DePriest specifically declined to answer questions about specific companies. *Id*.

Agency's Comment

The Agency's final comment reiterates that this rulemaking is intended to satisfy Illinois' obligation to submit a state plan to USEPA to address the requirements of CAMR, while addressing the deficiencies of CAMR. PC 6298 at 1. The Agency notes that over 40% of Illinois' electricity is generated from coal-fired power plants, which are the largest source of uncontrolled mercury emissions in Illinois. PC 6298 at 2. The rulemaking is designed to achieve a high level of mercury reductions, based on the Agency's finding that mercury control technology is technologically feasible and economically reasonable. *Id*. The proposed rule will allow for mercury reductions to take place in two phases beginning in 2009. *Id*. The proposal includes flexibility by allowing for systemwide averaging during the first phase and the TTBS. *Id*. The Agency has also joined with Ameren and Dynegy for the inclusion of the MPS. PC 6298 at 2-3.

The Agency notes that in the TSD, the Agency classifies existing coal-fired units in Illinois into five categories. PC 6298 at 5. The first category is units that can comply with emissions requirements in the proposed rule through co-benefit removal, this includes bituminous units equipped with FGD (scrubbers), selective catalytic reduction (SCR), and the circulating fluidized bed boiler at Marion. *Id*. The second category includes small-capacity bituminous coal units that are currently unscrubbed, which may or may not meet the rule requirements but are eligible for the TTBS or MPS. *Id*. The third category is units with an ESP that plan to install fabric filters downstream of the ESP. *Id*. The fourth category includes two units burning Powder River Basin (PRB) coal and using hot side ESPs, which the Agency agrees

will have to install fabric filters to comply with the rule requirements. *Id*. The last category is units firing PRB coal with cold side ESPs, the largest group of units in Illinois. *Id*.

The Agency argues that the principle area of disagreement remaining in this rule is the last category of units and the methods necessary for those units to meet requirements of the Illinois mercury rule. PC 6298 at 5-6. The Agency asserts that the evidence before the Board demonstrates that PRB coal-fired units will be able to use sorbent injection to achieve a 90% or better reduction in mercury emissions on the timetable proposed in the rule. PC 6298 at 5. The Agency maintains that Mr. Cichanowicz's opinions regarding the technical feasibility of sorbent injections systems are based on speculation and are contradicted by the evidence in the record. PC 6298 at 6.

Control Technology

In this section of the opinion, the Board will summarize the concerns of the participants regarding the actual controls available for mercury emissions reductions. After summarizing the comments, the Board will discuss the comments and the record in the proceeding and make a finding on the technical feasibility of reducing mercury emissions.

Midwest Generation's Comment.

Controls. Midwest Generation notes that according to Dr. Staudt, sorbent injection is the most developed technology for mercury removal. PC 6300 at 14. In this regard, Midwest Generation points out that there are three types of sorbent injection mechanisms described by Dr. Staudt in the TSD. PC 6300 at 14. Those three types are: (1) injection of sorbent upstream of an existing ESP or fabric filter; (2) TOXECON, which consists of a fabric filter downstream of the ESP with the sorbent injected between the ESP and fabric filter; (3) TOXECON-II, which requires injection of the sorbent between fields in the ESP. PC 6300 at 14, citing Exh. 50 at 5.

Midwest Generation argues that the Agency's proposed standard of 90% mercury emissions reduction is based on the Agency's belief that the installation of HCI will achieve 90% reduction. PC 6300 at 9. If HCI does not reduce mercury emissions by 90%, Midwest Generation asserts that the Agency relies on the "flexibility" in the rule to achieve compliance. *Id*. Based on the Agency's assertions regarding the use of HCI in the TSD, Midwest Generation maintains that the technical feasibility question is "whether sorbents [injection] can consistently and reliably achieve mercury reductions at the levels required by the rule over long term operation." PC 6300 at 9, 15. In order to demonstrate technical feasibility, Midwest Generation argues that the Agency must establish that HCI alone is technically feasible and will achieve 90% reduction over the long term. PC 6300 at 9-10.

Midwest Generation asserts that the use of HCI has many problems including the fact that the technology is still developing (PC 6300 at 14, 16, 36, 40) and may not be commercially available (PC 6300 at 37-38). Also injection of sorbent may cause issues with particulate matter (PM) (PC 6300 at 17, 47) and the availability of the controls in terms of material and time to construct may not be sufficient to meet the requirements of the rules (PC 6300 at 47).

Developing Technology. More specifically in terms of the developing nature of the technology, Midwest Generation points to Dr. Staudt's testimony and argues that he has described "an evolving control approach, not one for which a responsible regulatory authority or an affected company can be assured will produce the required reductions." PC 6300 at 14. Midwest Generation states that the level of mercury removal achievable using HCI is what is being questioned, not the feasibility of the installation and operation of the activated carbon injection hardware or equipment. PC 6300 at 36.

Midwest Generation argues that the Agency has not demonstrated that the HCI sorbents will reliably, consistently, and over the long term reduce mercury emissions by 90%. PC 6300 at 36. Midwest Generation believes that HCI is an evolving technology that requires more testing. *Id*. Midwest Generation states that the additional need for testing is why the Department of Energy (DOE) has funded a test currently under way at the Crawford Generating Station. *Id*. Midwest Generation notes that USEPA also found that mercury removal technology is evolving and DOE does not believe that the technology is "there" yet. PC 6300 at 36-37, citing 70 Fed. Reg. 28614-5 and Exh. 55.

Midwest Generation comments that the Electric Power Research Institute (EPRI)[3] does not believe that the HCI technology is commercially available. PC 6300 at 37. EPRI, according to Midwest Generation, distinguishes between "commercially available" and "offered for sale commercially" and EPRI considers the mercury control technologies to be offered for sale commercially, but not commercially available. PC 6300 at 37-38, citing Exh. 113. Midwest Generation points to the definitions of "commercially available" given by Dr. Staudt and Mr. Nelson to argue that their definitions are "more akin" to EPRI's definition of "offered for sale commercially" than EPRI's definition of "commercially available". *Id*. Midwest Generation notes that EPRI's definition of "commercially available" technology means a technology whose performance can be predicted with confidence based on sufficient long-term testing utilizing different configurations and coal types. PC 6300 at 38.

Midwest Generation also pointed out Mr. DePriest's testimony supports its position regarding the availability of control equipment. PC 6300 at 47. Midwest Generation characterized the testimony as expressing concern in terms of material and labor, where companies are not confident that the mercury control technology will yield reliable, consistent results. *Id*.

Particulate Matter. Midwest Generation's concern about increased particulate matter emissions was delineated by the testimony of Mr. DePriest. PC 6300 at 4, citing CTr. at 1080. Mr. DePriest expressed a concern that the ability of an ESP to maintain particulate matter emissions and opacity limits could be affected by increased loading of carbon. *Id*. Mr. Cichanowicz also had concerns that additional carbon loading could negatively impact PM and opacity compliance. PC 6300 at 47, citing CTr. at 584-87. Mr. Cichanowicz identified concerns about the characteristics of the activated carbon because the activated carbon is significantly

[3] EPRI was established in 1973 as an independent, nonprofit center for public interest energy and environmental research. EPRI's members represent over 90% of the electricity generated in the United States. *See* www.epri.com.

different from the carbon in the ash loading typically handled by an ESP. PC 6300 at 47, citing CTr. at 593. Mr. DePriest feels that because of switching to low sulfur PRB coal, there is not much margin left in the ESPs to take on additional particulate loading. PC 6300 at 47, citing CTr. at 1159. Mr. DePriest also noted that retrofitting additional collecting areas (ESP fields) to accommodate the sorbents will be extremely difficult considering the current configurations of existing ESPs and other plant infrastructure. Exh. 115 at 11.

Do the Controls Work. Midwest Generation points to evidence in the record that Midwest Generation believes establishes that not only is the technology still evolving, but as currently developed, the technology will not achieve compliance with the rule. Specifically, Midwest Generation challenges the length of the tests relied upon by the Agency, as well as the test results applicability to Illinois. Midwest Generation also notes several problems with the technology that have not been fully explored such as the impact of the size of the ESPs specific collection area (SCA) and the space availability for baghouses to be added at the optimum locations.

Length of Tests. Midwest Generation asserts that the technology has not demonstrated a consistent, long-term removal rate of 90%. PC 6300 at 11. Midwest Generation believes that the conclusions of Dr. Staudt that 90% reduction can occur with the installation of sorbents injection systems are based on the results of tests at various EGUs lasting from a few days to a year. PC 6300 at 11-12. Midwest Generation asserts that most of the tests upon which justification for the rule is based were only 30-day tests that do not provide sufficient operational information regarding the long-term effects of injecting activated carbon. PC 6300 at 12. Midwest Generation notes that there is only one test discussed in this record that lasted for one year and that test is the Gaston Plant test. PC 6300 at 12, citing TSD at 125-26, 6/21pmTr. at 24, 6/22Tr. at 121.

Midwest Generation argues that the results of the Gaston Plant test do not "totally square" with the Agency's assertion that HCI is tested and commercially available. PC 6300 at 12. First, Midwest Generation points out that the Gaston Plant burns low-sulfur bituminous coal, while most Illinois plants burn PRB coal, which is a low-sulfur subbituminous coal. *Id*.

Second, Midwest Generation notes that the Gaston plant was testing mercury removal through a TOXECON, or fabric filter arrangement and the question was the air-to-cloth ratio necessary to achieve 90% removal. PC 6300 at 12, citing CTr. at 497-98. Midwest Generation indicates that the results of Gaston showed a removal rate of only 85.6% and to determine whether the TOXECON arrangement could achieve 90% removal a greater air-to-cloth ratio was simulated. *Id*. The simulation did result in a 90% removal for periods of less than 12 months. *Id*. Midwest Generation concedes that Mr. Cichanowicz stated that he believes that 90% removal is "highly likely" if a system were initially designed to include TOXECON; however, the Gaston Plant was not so designed and did not achieve 90% removal on a sustained 12-month basis. PC 6300 at 12, citing CTr. at 500.

Third, the Gaston Plant had a baghouse in place following a mal-performing hot side ESP. PC 6300 12-13, citing CTr. at 499. However, according to Midwest Generation there are only three hot side ESPs in Illinois and none are followed by a baghouse. PC 6300 at 13. The

remaining EGUs in Illinois have cold side ESPs. *Id*. Midwest Generation argues that therefore, the Gaston Plant test is not really applicable to any EGU in Illinois with a cold side ESP and there is no long-term information regarding the ability of HCI to consistently, reliably remove mercury at a rate of 90%. *Id*.

As to the 30-day tests discussed by both Dr. Staudt and Mr. Nelson, Midwest Generation is skeptical of the applicability of the short-term test results as predictor of long-term performance of the sorbent injection systems and cautions against reliance upon them. PC 6300 at 16, 40. Midwest Generation argues that the Board and those who will be regulated by the rule, should consider and rely on long-term data that has been fully assessed for quality, accuracy, and meaning. PC 6300 at 16. Midwest Generation asserts that the danger of relying upon short-term test results or unpublished test results was demonstrated by Mr. Nelson. PC 6300 at 16. Midwest Generation points out that Mr. Nelson provided information on the Crawford Station test, which was later corrected. PC 6300 at 16-17, citing Exh. 88 and PC 6287. Midwest Generation maintains that HCI was not achieving 90% removal during preliminary testing at Crawford Station and accurate monitoring could not be performed. PC 6300 at 17.

Size of SCA and Placement of Additional Controls. An additional concern pointed out by Midwest Generation is the effect the size of the SCA may have on the ability of an ESP to remove mercury. PC 6300 at 39. Mr. Cichanowicz stated: "There is perhaps something about large SCA ESPs that makes it amenable to high levels of mercury removal." PC 6300 at 39, citing CTr. at 554. Midwest Generation draws attention to Figure 5.2 in Mr. Cichanowicz's prefiled testimony that suggests there is a direct or indirect relationship between mercury removal and ESP SCA size. PC 6300 at 39, citing Exh. 84 at 4. Mr. Cichanowicz noted that removal of mercury in the 90 to 95% range occurred at the large ESPs and not in the smaller ESPs. PC 6300, at 39, citing CTr. at 523-24. According to Mr. Cichanowicz, smaller ESPs are more common in Illinois. *Id*.

Midwest Generation asserts that Dr. Staudt and Mr. Nelson claim that SCA size has no role in mercury removal. PC 6300 at 39. Midwest Generation maintains that their position "has not been proven" in this proceeding. *Id*. According to Midwest Generation, Mr. Cichanowicz was making the point that no one thoroughly understands the relationship between SCA size and mercury removal. PC 6300 at 29.

Mr. Cichanowicz provided several exhibits that were aerial photos of units in Illinois where larger ESPs had been constructed over a smaller ESP. PC 6300 at 39, citing Exh. 89-92. Midwest Generation argues that these exhibits also establish how much ductwork is involved in retrofitting plant sites. PC 6300 at 39. Mr. Cichanowicz testified that with Exhibits 94 and 95 he intended to illustrate the lack of space available for the installation of TOXECON or a larger ESP which would be necessary to meet the required mercury reductions. *Id*. Midwest Generation argues that Mr. Cichanowicz was making the point that there is no room for placement of additional controls at a location that makes the most control efficiency sense. PC 6300 at 40.

Kincaid's Comment

Kincaid asserts that the Illinois proposal is "generally acknowledged to be the most stringent mercury proposal" in the country and there is uncertainty around the technology necessary to meet a sustained 90% reduction or 0.0080 lb/GWh emissions standard. PC 6299 at 4. Kincaid maintains that the hearing record in this proceeding supports the position that the technology to achieve 90% reduction or 0.0080 lb/GWh emissions standard is not currently available. *Id*. Kincaid points to Mr. Ross's statement that "some of them [EGUs] may not reach 90%." PC 6299 at 4, citing CTr. at 211. Mr. Ross went on to state that the MPS recognizes that there may be potential difficulties and the MPS will give more time in the "broad multi-pollutant category." PC 6299 at 4, citing CTr. at 212.

Kincaid states that they do not have confidence that HCI can achieve a sustained 90% reduction or 0.0080 lb/GWh emissions standard at the current state of technology. PC 6299 at 4. Kincaid does not believe the technology has been fully demonstrated nor does Kincaid believe that the technology is "commercially available" at this time. *Id*. Kincaid concurs with an opinion from Dr. Staudt in a March 2006 article that "a broad and aggressive R&D program now under way will yield more experience and information in the next few years." PC 6299 at 4-5, citing Exh. 54. Kincaid argues that such expectations do not provide guaranteed performance and absent guarantees, Kincaid cannot accept the risk of potential non-compliance. PC 6299 at 5.

Kincaid points to the testimony of Mr. Cichanowicz to support the argument that HCI has not been proven to achieve the levels necessary to meet the Illinois proposal. Mr. Cichanowicz stated that activated carbon injection is not sufficiently developed to consistently deliver high mercury removal under the varied conditions in Illinois despite impressive results from selected demonstrations. PC 6299 at 5, citing Exh. 84 at 3. Kincaid points out that Mr. Cichanowicz concedes that 90% removal or better has been demonstrated, the results are from short-term tests and so the extent to which those can be applied to the long term is uncertain. *Id*. Kincaid notes that Mr. Cichanowicz also believes that to achieve 90% reduction a mercury removal target of 93%-95% should be designed for in the systems. PC 6299 at 6, citing Exh. 84 at 2.

Kincaid asserts that many researchers and other companies agree that mercury specific controls are not advanced enough to reach 90% reduction. PC 6299 at 5-6. Kincaid points to Ameren's testimony that absent the MPS, Ameren will not rely on carbon injection alone to achieve 90% reductions. *Id*. Kincaid argues that EPRI also supports this position. PC 6299 at 6. As further evidence of Kincaid's position, Kincaid points to Mr. Nelson and his information on Crawford Station. PC 6299 at 7. Kincaid asserts that the presentation by Mr. Nelson at the Chicago hearing "captures the 'rush to judgment' approach" the development of new air technology can take. PC 6299 at 7-8. Kincaid argues that as the investment in pollution control equipment will be in the millions of dollars, power companies must take a "carefully measured, well developed or 'proven' approach" to control. PC 6299 at 8.

Kincaid expresses serious concerns with an absolute emissions limit because the technology will not be able to achieve the absolute emissions limits or achieve the 90% emissions reduction. PC 6299 at 35. Kincaid does not believe that an absolute emissions limit is appropriate even in 2015. *Id*. Kincaid asserts that any adoption of an absolute emissions limitation is "at best, a guess by the Board" that technologies will work as described. *Id*.

Kincaid argues that including language in the rule that specifically allows a request for an adjusted standard or a site-specific rule to be filed with the Board can alleviate this legitimate corporate concern. PC 6299 at 35-36.

Prairie State's Comment

Prairie State is concerned that the record lacks information on the ability of existing mercury control technologies to effectively remove mercury from high sulfur coal, such as Illinois coal. PC 6294 at 2. Prairie State notes that Ms. Tickner expressed this concern and. the TSD, and testimony of Dr. Staudt and Mr. DePriest support her position. *Id*. Prairie State argues the Mr. Nelson's testimony also suggests that the technology may not be available for high sulfur coals. PC 6294 at 3, citing 6/22Tr. at 73. Prairie State notes that Dr. Staudt's testimony acknowledged that high sulfur coal is a difficult situation and the apparent reason is SO_3 interference. PC 6294 at 4, citing 6/22Tr. at 98, CTr. At 1230.

Prairie State asserts that control of mercury emissions at coal-fired plants is extremely difficult for many reasons, including the minute amount of mercury in stack gas. PC 6294 at 3. Prairie points out that short-term testing has occurred at only 28 coal-fired units, which comprise about 2.3% of the coal-fired units in the United States. *Id*. Like Midwest Generation, Prairie State points to DOE's recent conclusion that mercury control technology is still developing and the technologies might not be available for all coal types and all power plant configurations. PC 6264 at 3, citing Exh. 55 at 1. Prairie State indicates that the USEPA reached a similar conclusion about mercury controls in the preamble of the CAMR rule. PC 6294 at 3-4, citing 70 Fed. Reg. 28,619. Prairie State argues that there is thus no technical basis for assuming 90% control of mercury is achievable at all coal-fired power plants. PC 6294 at 4. Prairie State maintains that this is especially true for mercury control of high sulfur coals like those that Prairie State will be burning. *Id*.

Prairie State points out that Dr. Staudt offered unsupported testimony that technology on new facilities will allow the new facilities to meet the mercury reduction standards in the rule; however, Prairie State argues that the limited available data suggests otherwise. PC 6294 at 4. Prairie State maintains that in the one study available to date on high sulfur coal at Conesville, the data indicates a removal rate of less than 50% is achievable. PC 6294 at 4, citing Exh. 80. And, according to Prairie State, the removal rate was even worse using brominated carbon. *Id*. Prairie State concedes that the Conesville test may not be directly transferable to Prairie State due to different control technologies, but Conesville is the only test available for insight into injection of sorbent on high sulfur coal. PC 6294 at 4.

Prairie State's concerns about mercury control technology extend to the unavailability of guarantees that the technologies will provide the removal necessary to meet the rule requirements. PC 6294 at 5. Prairie State has been working with contractors for the past three years to determine the capabilities of mercury controls and vendors of the proposed technologies have indicated a willingness to guarantee 84% mercury removal for Prairie State. *Id*. This removal rate is based on the mercury content of the Illinois coal Prairie State will burn and 84% removal rate is insufficient to meet the rule requirements. *Id*.

Prairie State explains that a new facility is seeking guarantees that controls will work, to cover the cost of the entire facility, about $2 to $3 billion. PC 6294 at 6. Contractors will wrap the various guarantees from vendors into one overall guarantee to cover the scope of the project and this is necessary to get financing for a project. *Id*. If a guarantee cannot be obtained, Prairie State argues that it would be because the technology is not currently available and no one wants to build a $2 to $3 billion facility and hope the technology works. *Id*.

Trading. Prairie State is concerned that the proposed rule creates a future regulatory uncertainty and one way to eliminate that uncertainty is to adopt CAMR's model trading rule and layer the Illinois requirements on top of the model trading rule. PC 6394 at 6-7. Prairie State believes that this is necessary because if Illinois opts out of CAMR, then the CAMR mercury budget for Illinois will be a hard cap on annual emissions in Illinois. PC 6294 at 7. Prairie State is troubled that in 2018, utilities could be in compliance with the Illinois rule, but the total emissions could exceed the CAMR budget. *Id*. If that were to happen, Prairie State argues that Illinois would need to require more reductions of mercury because utilities could not purchase allowances from other states. *Id*. Prairie State opines that one way for Illinois emissions to exceed the mercury budget is if mercury control technologies do not perform as advertised and this is of particular concern with high sulfur coals. PC 6294 at 8.

Prairie State asserts that a recurring theme with a trading program is the potential for "hot spots" to be created. PC 6294 at 8. Prairie State argues that the evidence presented to the Board indicates that a mercury cap and trade program will not create "hot spots". *Id*. Prairie State points out that Dr. Keeler's modeling is a receptor model and cannot make future predictions and thus cannot answer the question of how mercury deposition will change at any given location. *Id*. Prairie State notes that Mr. Vijayaraghavan did present modeling which predicted future deposition and that modeling indicates that full implementation of 2020 CAIR and CAMR will lead to less mercury deposition in Illinois than the proposed rule, except for three grid cells where increases in mercury deposition of less than three percent are predicted. PC 6294 at 8-9. Prairie State opines that adding the CAMR trading rule to the proposed rule will thus not lead to "hot spots" in Illinois. PC 6294 at 9.

Environmental Advocates' Comment

Environmental Advocates argue that activated carbon injection units are designed to achieve in excess of 90% mercury removal once optimized with operations at specific facilities. PC 6297 at 11, citing Exh. 50 at 6-7. However, Environmental Advocates assert that the technical feasibility of the rule is not based on the use ACI alone to meet the proposed standards. *Id*. Environmental Advocates maintain that the record contains several other examples of practical, existing technologies and techniques to reduce mercury alone or in conjunction with ACI. *Id*. Environmental Advocates point out that ultimately the rule allows the operator to decide how to combine options to meet the standards. *Id*. Environmental Advocates list the technologies and techniques including: (1) using a very low mercury coal or to blend with lower mercury coals; (2) employing or enhancing existing pollution control technologies; and (3) monitoring existing facility performance. PC 6297 at 11-12.

Agency's Comment

The Agency maintains that the record demonstrates that PRB coal-fired units with cold side ESPs can achieve 90% or better reductions using sorbent injection of halogenated powdered activated carbon (PAC) at a treatment range of about 3lb/MMacf. PC 6298 at 6, citing TSD at 149. This position is supported by Dr. Staudt's testimony that sorbent injection of halogenated PAC has been shown to be very effective at several full-scale coal-fired boiler installations and that 90% removal was achieved. PC 6298 at 6, citing Exh. 50 at 6.

The Agency concedes that Mr. Cichanowicz does not agree that sorbent injection alone will be sufficient. PC 6298 at 7. However, the Agency argues that Mr. Cichanowicz's opinion rests on the premise that sorbent injection upstream of a cold side ESP is incapable of providing high levels of mercury reduction. *Id*. The Agency notes that Mr. Cichanowicz's opinion is based on his position that there is insufficient data to demonstrate mercury control technology is available at present to assure compliance. *Id*. The Agency argues that Mr. Cichanowicz posed the wrong test and the issue is really whether the technology will be available to meet the requirements of the regulation when the regulations become effective. PC 6298 at 7-8. The Agency opines that the evidence supports the Board making this conclusion. PC 6298 at 8.

The Agency points to the TSD that includes a list of 28 field demonstrations that are complete and 11 more in progress or planned. PC 6298 at 8, citing TSD at 125-26. The Agency asserts that unlike the arguments presented by industry, the Agency's position is supported by actual test results sponsored by DOE and others. *Id*. The Agency maintains that on units burning PRB coal with cold-side ESPs, 90% removal or better has been demonstrated at multiple sites using halogenated PAC at treatment rates of about 3lb/MMacf. PC 6298 at 8. The Agency argues that the consistency of these results at multiple sites provides a high degree of confidence that the 90% removal will be accomplished in Illinois. *Id*. The Agency notes that the results varied only if carbon other than halogenated PAC was used or carbon with lower activity was used. *Id*.

The Agency also challenges the point made by Mr. Cichanowicz that the size of the ESP and SCA, might effect performance of the sorbent injection. PC 6298 at 8-11. The Agency notes that Mr. Cichanowicz in his testimony indicated that the relationship "suggested" was "anecdotal" and not reflective of "any fundamental theorem of carbon" mercury absorption. PC 6298 at 8. The Agency asserts that Mr. Cichanowicz acknowledged the variation in the effectiveness of sorbent injection in field demonstrations charted in Figure 5.2 of his testimony are explained by other factors such as type of sorbent, coal type, and sulfur content of coal. *Id*. The Agency asserts that Dr. Staudt's testimony shows a strong relationship between the amount of sorbent injected and the amount of mercury removal. PC 6298 at 9. This relationship is borne out when holding constant the type of coal and sorbent when plotting test results, according to the Agency. PC 6298 at 10-11.

The Agency does concede that injection of SO_3, to improve ash resistivity for the ESP, can adversely affect mercury capture by sorbent. PC 6298 at 11. Dr. Staudt has suggested the injection of SO_3 can occur downstream of mercury sorbent injection and this would avoid the adverse affect. *Id*. The Agency argues that alternative methods can be used to address ash resistivity as well. The Agency points out that the only companies in Illinois injecting SO_3 are

Ameren, Dynegy, and Electric Energy, all of which now support the proposed rule. PC 6298 at 12.

Board Discussion of Control Technology

In the TSD, the Agency classifies coal-fired EGUs in Illinois into five categories depending on the pollution control equipment coal type. For the EGUs utilizing coal type and control figurations other than PRB units with cold-side ESPs, the Board agrees with the Agency that these units will be able to comply with the proposed mercury regulation by utilizing co-benefits, MPS. TTBS, and control devices such as fabric filters. The Agency's agreements with Ameren and Dynegy also support this view. However, the main concern of the utilities opposing the Agency's mercury proposal relates to the Agency's preferred control technology for PRB coal-fired units with cold-side ESPs, namely HCI (halogenated activated carbon injection). HCI for mercury control in an EGU uses halogenated powdered activated carbon (PAC) to bind and remove mercury.

When challenging the Agency's position on the use of HCI, Midwest Generation, Kincaid, and Prairie State refer to the Agency's preferred control technology for PRB coal-fired units with cold-side ESP as activated carbon injection (ACI). However, the Agency in its TSD distinguishes between ACI and HCI. The TSD notes that early experience with untreated PAC raised questions regarding mercury removal rates on units firing subbituminous coals using untreated PAC. TSD at 123. Thus, the TSD notes that the focus of subsequent testing has been on new sorbents such as halogenated PAC. Dr. Staudt also stated that unlike untreated PAC, halogenated PAC sorbents were formulated specifically to address the mercury capture needs of coal-fired boilers. Exh. 50 at 6. Based on the results of the additional testing with halogenated sorbents described in the TSD, the Agency concluded that mercury emissions reduction of 90% or greater is achievable on PRB coal-fired units with cold-side ESPs using sorbent injection of halogenated PAC or HCI. PC 6298 at 6. To avoid any confusion regarding the sorbent type, the Board will refer to the Agency's preferred control technology as halogenated activated carbon injection (HCI) in the following discussion.

As described in the TSD, sorbent injection technology is a well-established method to control mercury emissions for municipal waste combustors (MWC) that is now being applied to coal-fired power plants. *See* TSD at 118-22. The system consists of a storage silo, metering valve, pneumatic conveyor system, and series of pipes that direct the sorbent that is blown into the plant ductwork. TSD at 120. The commonly used sorbents include untreated PAC and chemically treated sorbents such as the halogenated PAC. While untreated PAC has been found to be very effective in controlling mercury emissions from MWC, halogenated PAC has been found to be very effective in controlling mercury emissions from coal-fired power plants. TSD at 122.

The issues raised by the utilities concerning the application of HCI to control mercury emissions for Illinois EGUs can be grouped as follows: (1) HCI will not be able to achieve the required mercury reductions as advertised; (2) HCI performance is affected by the size of the SCA; (3) HCI has not been sufficiently tested; and, (4) the proposed absolute emissions limits

cannot be met. The Board will discuss these four issues in the subsection below before rendering conclusion at the end of this section.

Will HCI Achieve 90% Mercury Reduction? Midwest Generation, Kincaid, and Prairie State all argue that HCI alone will not achieve 90% mercury reduction on a consistent basis. However, the Board notes that the proposal does not contemplate that HCI alone will work for all units. Also, the Agency does not argue that HCI alone will always provide sufficient control. As noted above, the Agency's position regarding the application of HCI pertains to only PRB coal-fired units with cold-side ESPs. Other affected units would have to comply with the proposed regulations through co-benefit (*e.g.*, use of FGD, SCR, etc.), MPS, TTBS, or installation of control equipment (*e.g.*, HCI, fabric filters, etc.).

In fact, the TSD and Dr. Staudt's testimony contains extensive information relating to other technologies. *See, e.g.*, TSD at 109-18, 145-47; Exh. 50 at 2-3. Some of those technologies include coal washing, boiler flue gases air pollution control equipment and air pollution control equipment designed to remove particulate matter, or FGD systems. *Id*. Based on the record, all of these technologies can provide a co-benefit for mercury removal from coal. Thus, the Agency did anticipate that, while HCI is one technology, co-benefits from other technologies could also be used to remove mercury from coal.

Dr. Staudt does concede that boilers that fire subbituminous coal, many of which are in Illinois, are not likely to achieve high levels of mercury removal from co-benefits alone and would require the installation of HCI. Exh. 50 at 4.

As to the HCI technology, arguments are made that the technology is still developing and may not be commercially available. Kincaid and Midwest Generation rely on the testimony of Mr. Cichanowicz concerning the probability that the injection of sorbent will result in 90% removal of mercury. Kincaid lacks confidence that 90% reduction can be achieved consistently with sorbent injection alone. Midwest Generation notes that even Dr. Staudt believes that the technology is evolving and Midwest Generation believes more testing is necessary to establish that the technology will work and is commercially available. Prairie State notes that there has been a lack of testing of sorbent injection with high sulfur coal, which Prairie State plans to use.

Midwest Generation concedes that the technical feasibility of installing and operating the HCI hardware is not being questioned; rather, the level of mercury reduction that can be achieved is the issue. *See* PC 6300 at 36. Given this concession by Midwest Generation, the Board looks to determine if the record supports the proposition that 90% reduction or an emissions standard of 0.0080 lb/GWh can be met using HCI. The TSD devotes several pages to field tests of HCI, both completed and in progress that demonstrate 90% removal occurs with sorbent injection. *See, e.g.*, TSD at 122-30. Also, the TSD discusses the control technologies at Illinois plants and even list the technologies the Agency anticipates will be used for each EGU at each plant in Illinois. *See* TSD at 147-62. Thus, unlike the general concerns raised by Midwest Generation and Kincaid, the TSD specifically addresses controls at each plant in Illinois. *See* TSD at 162-63, Table 8.9.

Both Dr. Staudt's testimony and the TSD indicate that at least some of the units in Illinois will be able to achieve 90% mercury emissions reduction with HCI. *See* Exh. 50 at 6, TSD at 162-63. The units where 90% reduction may not be achieved are those that have PM control issues, or units that use SO_3 as flue gas conditioner. The Board agrees with the Agency that the units whose performance is affected by SO_3 can overcome the adverse effect by injecting SO_3 downstream of mercury sorbent injection or by using alternative conditioning methods. The units with PM issues can use TTBS or averaging to comply with the regulations during the period of optimization of controls and operation.

The TSD also provides evidence as to the actual commercial availability of sorbents and the continued development of sorbents. *See* TSD at 139-44. Specifically the TSD indicates that sorbent injection systems can generally be fully installed and commissioned within six months of placing an order. TSD at 139. The TSD refers to at least one guarantee from a vendor that sorbent injection will result in 90% removal. TSD at 140-41. The TSD indicates that activated carbon sorbents are available from a number of suppliers and that there is long-term experience with sorbent injection of municipal waste incinerators. TSD at 142. The TSD also notes that work is underway to improve sorbents. TSD at 143. Thus, the record contains detailed information on the commercial availability and development of sorbent injection controls. Further, the Board notes that the proposed rules allow a period of almost three years for the affected units to achieve compliance. Based on the record, the Board finds that HCI technology is available to meet the requirements of the proposed rules.

Prairie State's comment concerning the lack of information on high-sulfur coals and reliance on statements by DOE is of concern to the Board. However, Prairie State acknowledges that with changes to the TTBS, most of Prairie State's concerns could be addressed. *See* PC 6294 at 15. The Board will therefore address the concerns of Prairie State under the discussion of TTBS below.

Midwest Generation expresses concerns that the injection of sorbents may cause issues with particulate matter. The TSD acknowledges that sorbent injection has the potential to affect particulate matter control devices. TSD at 134. However, the TSD notes that dozens of tests programs have been run where the sorbent is injected upstream of the ESP and in only one has there been adverse impacts observed. *Id*. Again the record contains evidence of actual test data demonstrating that increased emissions of particulate matter will not occur. However, if PM issue does come up at plant, the Board notes that the affected plant may utilize the flexibilities allowed in the proposed regulations, such as TTBS and averaging, to comply with the rules during the period of optimization of control equipment.

Size of the SCA. Midwest Generation raises an issue, based on Mr. Cichanowicz's testimony concerning the effect of SCA size on mercury reductions. The Board does not find evidence to support this concern. Mr. Cichanowicz concedes: "Figure 5-2 is not intended to reflect any fundamental theorem of carbon HG absorption or ESP residence time, but rather projects an anecdotal relationship." Exh. 84 at 4. Mr. Cichanowicz offers his opinion that achieving 90 to 93% mercury removal on larger units such as St. Clair and Meramac, with ESPs of 720 and 400 SCA, respectively "portends the same result on small ESPs at stations such as Will County and Hennepin." *Id*. However, Mr. Cichanowicz's opinion is not supported by the

evidence in the record. Actually, the record indicates that the variations in effectiveness of sorbent injection shown in Figure 5-2 (Exh. 84 at 39) submitted by Mr. Cichanowicz are explained by other factors, including choice of sorbent, coal type, and coal sulfur content. Further, the record suggests a strong relationship between the amount of halogenated sorbent and mercury removal. Therefore, the Board finds that the record does not demonstrate that the size of the SCA will impact mercury reduction HCI.

Length of Tests. Midwest Generation, Kincaid and Prairie State argue that the short-term duration of the field testing is insufficient to establish that 90% reduction of mercury can be consistently achieved over the long term. Midwest Generation attempts to distinguish the single 12-month test included in the record from any potential applicability in Illinois. The Board is cognizant that the short-term testing is not a substitute for long-term testing. However, the results of multiple field tests of HCI on PRB coal-fired units with cold side ESPs have demonstrated 90% or better removal at sorbent rates of 3 lb/Mmacf. Further, the Board believes that the three-year compliance period allowed by the proposed regulations provides sufficient time for utilities to install HCI systems, and optimize sorbent rates and plant operations to comply with the standards. Therefore, the Board finds that the short-term testing is sufficient to demonstrate technical feasibility.

Absolute Emissions Limit. Kincaid and Prairie State both express concerns about the Board establishing an absolute emissions limit. Kincaid argues that setting an absolute emissions limit is a guess by the Board that technologies will develop to achieve the required reductions, while Prairie State believes that Board should adopt the CAMR trading provisions and layer the Illinois rule on top of trading. As to Kincaid's assertion that the Board will be "guessing" that technology will develop to achieve an absolute emissions limit, the Board disagrees. As discussed above, the Board has ample evidence to demonstrate that HCI, either alone or with other technologies, can achieve 90% reduction of mercury. Further, the Board finds no merit in Kincaid's suggestion to include specific language in the proposed regulations allowing affected plants to seek an adjusted standard or a site-specific rule; the proposed regulations do not prohibit an owner or operator of a power plant from seeking site-specific relief pursuant to Sections 27 or 28.1(c) of the Act. Therefore, the Board does not share Kincaid's concerns about absolute emissions limitations.

Because the Board believes that 90% reduction can occur, given the record before the Board concerning the state of the technology, the Board does not see the need to consider a trading program for mercury emissions. And, as will be discussed below, the Board also does not believe that there will be an issue for Illinois to achieve the CAMR budgeted limits. Therefore, trading will not be included in the rule.

Board Conclusion. The Board finds that the record demonstrates that the mercury emissions controls proposed in the rule are technically feasible. The Board has found evidence that the affected utilities are afforded a number of alternative options to comply with the proposed mercury limitations, including control technology, co-benefits, averaging, and TTBS. Regarding mercury control technology, the Board finds that sorbent injection with halogenated PAC or HCI is technically feasible for PRB coal-fired units with cold side ESPs to comply with the proposed mercury limits. Field tests at multiple sites have demonstrated that 90% removal is

achievable over 30-day testing and although short-term testing is not always optimal, in this instance, the testing is sufficient to demonstrate technical feasibility. The evidence in the record does not support potential problems with particulate matter or concerns about the size of the SCA. The technologies are commercially available from several vendors and at least one vendor testified in the proceeding and will provide guarantees for 90% removal.

In addition, the Board finds that co-benefits achieved through the use of FGD, SCR or selective non-catalytic reduction (SNCR), and installation control equipment including fabric filters are technically feasible options for EGUs utilizing coal type and control configurations other than PRB coal-fired units with cold-side ESPs. Also, the rules allow sufficient time for plant operators to install control equipment and optimize operations to comply with the mercury emissions limits. And finally, the record demonstrates that an absolute emissions rate is viable, can be achieved and trading is not necessary.

Measurement of Mercury Removal

In this section of the opinion, the Board will summarize the concerns of the participants regarding the measurement of mercury removal. After summarizing the comments, the Board will discuss the comments and the record in the proceeding and make a finding regarding the technical feasibility of measuring mercury levels required by this rulemaking.

Midwest Generation's Comment

Midwest Generation argues that mercury removal cannot be precisely, consistently, and continuously measured. PC 6300 at 41. Midwest Generation asserts that for a rule to be technologically feasible, the affected sources must be able to know if they are in compliance. *Id*. The rule requires removal of mercury at a rate of 90% and the rate is not based on emissions factors, but on actual measurement. *Id*. Midwest Generation points to testimony from Mr. McRanie that the minute levels of mercury that must be measured to demonstrate compliance with this rule cannot be accurately measured. PC 6300 at 41-42. Midwest Generation maintains that the mercury levels are less than the trace level of the measurement devices. PC 6300 at 42.

Midwest Generation notes that Mr. McRanie distinguished between detecting mercury and measuring mercury and pointed out that the precision and accuracy of measuring mercury at the levels required by the rule "are unknown because such data do not exist." PC 6300 at 42, citing CTr. at 1724-2715. The applicable federal monitoring rules, which are incorporated in this rule by reference, allow ± 1.0 $\mu g/m^3$ error in calibrating the measurement instruments. PC 6300 at 42, citing Exh. 133 at 6. Midwest Generation asserts that this allowable error is greater than the emissions standard of .0080 lb/GWh or 0.80 $\mu g/m^3$. PC 6300 at 42, citing Exh. 133 at 2. Midwest Generation maintains that requiring that an emissions limit not exceed a level that is lower than the measurement error is not technically feasible. PC 6300 at 42.

Mr. McRanie opined that based on field observations the precision of mercury measurement is actually more in the range of ± 0.5 $\mu g/m^3$. Midwest Generation maintains that if the true value of mercury emissions is 0.80 $\mu g/m^3$ the continuous emissions monitoring system (CEMS) might read anywhere from 0.0 and 1.3 $\mu g/m^3$ with no calibration error. PC 6300 at 42.

Midwest Generation points to test results from Mr. McRanie comparing mercury analyzers operated during the best months and asserts that the results confirm that measurement precision does not support the proposed rule. *Id*.

Midwest Generation raises concerns about using a measurement method developed for a cap and trade program, like the federal CAMR, in a rule that requires command and control, like the proposed rule. PC 6300 at 43. Midwest Generation notes that if a measurement method is inaccurate or biased, under a cap and trade system, the worst scenario is that a unit would need to buy additional allowances if needed. *Id*. Midwest Generation argues that however, under command and control, the inaccuracy could lead to civil and criminal penalties and the Agency has presented no answer to that. *Id*.

A second problem pointed to by Midwest Generation is one arising from the measurement method and the missing data substation provisions of the federal rules. PC 6300 at 43. According to Midwest Generation the federal regulations target 100% data capture and impose increasingly "draconian substitute data requirements" where data is not available. PC 6300 at 43, citing 40 C.F.R. § 75.33. Midwest Generation notes that this substitution requirement has been typical of cap and trade programs. PC 6300 at 43. Midwest Generation notes that according to Mr. McRanie, USEPA "long ago determined that missing data substitution is inappropriate" for command and control regulations. PC 6300 at 43, citing Exh. 132 at 3, 36-36.

Lastly, Midwest Generation states that there is a problem with percent reduction which requires accurate measurement of mercury in the coal and mercury in the stack. PC 6300 at 43. Midwest Generation reiterates that CEMS is inaccurate, but also asserts there are problems with measurement of input mercury. PC 6300 at 43-44. Mr. McRanie pointed to problems in determining the input mercury, the amount of mercury in the coal burned, and with the coal sampling requirements in the rule. PC 6300 at 44, citing Exh. 132 at 36-37. A particular concern of Mr. McRanie's according to Midwest Generation is the lack of methodology in the proposal for calculating input mercury. *Id*.

Midwest Generation asserts that the inaccuracies of CEMS and imprecision in the approach to coal sampling will compound themselves and produce unreliable results. PC 6300 at 44. Midwest Generation maintains that even if both input and emissions could be measured accurately, the fact that input is measured on a daily basis with one grab sample, while emissions are determined from CEMS could distort the results. *Id*. Midwest Generation argues that if the single grab sample yielded a lower than actual mercury content rate, then proving 90% removal might be difficult, even though the source might actually be reaching the result. *Id*.

Midwest Generation argues that mercury monitoring technology is also evolving. PC 6300 at 44. Currently, mercury monitoring equipment can experience downtimes 50-70% of the time, falling far short of 100% data capture. *Id*. Mr. McRanie believes that monitoring will improve, but the obvious problems have been addressed and the remaining issues will be more difficult absent a breakthrough in technology. PC 6300 at 44-45, citing CTr. at 1695-96.

Prairie State's Comment

Prairie State asserts that currently there are many questions about USEPA's monitoring requirements and whether CEMS can accurately measure mercury emissions at the levels necessary to demonstrate compliance. PC 6294 at 9. Prairie State points to Mr. McRanie's testimony concerning CEMS and demonstrating compliance with CAMR, much less the more stringent Illinois proposal. *Id*. Prairie State notes that the USEPA measurement requirements are currently being challenged in federal court and there may be changes to the measurement requirements. *Id*. Prairie State recommends that the Board incorporate USEPA's monitoring requirements by reference and not include specific mercury monitoring requirements. PC 6294 at 10.

Agency's Comment

The Agency states that while the proposed rule has many differences from CAMR, the proposed rule is identical to CAMR concerning emissions monitoring. PC 6298 at 33. The Agency argues that Mr. McRanie claimed that the monitoring of mercury emissions was problematic; however, he conceded that the requirements in Illinois were the same as those required by CAMR. *Id*. The Agency asserts that since Illinois sources would be subject to the same mercury monitoring requirements whether or not the Board promulgates the proposed rule, Mr. McRanie's comments are "essentially a non-issue." *Id*.

The Agency notes that Mr. McRanie provided similar comments to USEPA during the CAMR rulemaking process and USEPA finalized the rules containing mercury monitoring requirements anyway. PC 6298 at 33. The Agency asserts that Mr. McRanie's objectivity on this issue is in question and he was unfamiliar with parts of the Agency's proposal designed to address potential monitoring issues such as averaging. PC 6298 at 34. The Agency maintains that Mr. McRanie conceded that mercury monitoring technology was improving and more improvement is expected before the Illinois rules become effective. PC 6298 at 35.

The Agency provided as part of the final comment a document from USEPA's Clean Air Markets Division entitled *Mercury Emissions Monitoring Program For Coal-Fired Boilers under the Clean Air Mercury Rule, Status Report, August 2006.* PC 6298, Attach 1. According to the Agency, this document indicates that monitoring equipment is improving in performance and reliability and precision in CEMS have improved dramatically. PC 6298 at 35. The Agency notes that the document states that mercury monitoring technologies continue to advance at a rapid rate and are on track to meet the CAMR requirements. PC 6298 at 35-36. USEPA also does not see a problem with the number of units available for use. *Id*.

In addition to the USEPA document, the Agency points to the Thermo Electron mercury monitoring brochure, which promises that the monitors are easy to use and maintain. PC 6298 at 36, citing Exh. 133. EPRI documents also indicate that by 2007 commercially offered CEMS for mercury will be accurate and field ready. PC 6298 at 36-37, citing Exh. 137. Thus, the Agency argues that the Board should discard Mr. McRanie's entire testimony. PC 6298 at 38.

The Agency notes that none of the potentially affected sources provided prefiled testimony concerning the use of sorbent traps technology for measurement of mercury emissions,

and Mr. McRanie admitted that he was asked only to address CEMS. PC 6298 at 38. The Agency argues that the fact remains that sorbent trap technology is an acceptable alternative to CEMS and EPRI is a supporter of sorbent traps. *Id*. EPRI is working with vendors on a 2007 deliverable that includes a commercially available, reliable sorbent trap mercury measuring system. *Id*. The Agency asserts that the information from EPRI indicates that sources could save up to $80,000 over CEMS. PC 6298 at 39.

The Agency argues that aspects of the proposed rule are similar to a trading rule and therefore data substitution is acceptable. PC 6297 at 39. The Agency notes that the proposal allows averaging, which Mr. McRanie agreed was "in conceptual thought" similar to trading. *Id*, citing CTr. at 1749. Further, Mr. McRanie admitted being unfamiliar with certain parts of the proposed rule including the averaging provisions. PC 6297 at 40, citing CTr. at 1747-48, 1754. The Agency also pointed out that Mr. McRanie admitted that without the use of data substitution companies faced with possible noncompliance could avoid accounting for excess emissions and avoid the intent of the regulation. PC 6297 at 40, citing CTr. at 1772.

Board Discussion of Measurement of Mercury Removal

Before addressing the arguments made concerning CEMS, the Board notes that the proposal incorporates the USEPA provisions for mercury monitoring and the provisions are nearly identical. *See* Prop. at 42. Prairie State has suggested that the Board simply incorporate the USEPA rules without including specific mercury monitoring requirements in the proposed rule. The Board has reviewed the Part 75 rules and the Agency's proposed rules. The Board is not convinced that the minor differences warrant a change in the language. Further, incorporation of the Part 75 rules may not alleviate the concerns of Prairie State as the APA requires that incorporations be date-specific. Accordingly, changes to Part 75 will not be automatically included in Board rules. *See* 1 Ill. Adm. Code 100.385; 5 ILCS 100/5-75 (2004). Since the proposed intent of monitoring requirements is to track the federal rules, the Board expects the Agency to propose amendments to the monitoring provisions if the federal rules are revised as a result of a court decision.

The issues raised by Midwest Generation and Prairie State concerning measurement of mercury removal are all directed at the use of CEMS. Further, both Midwest Generation and Prairie State rely on the testimony of Mr. McRanie. However, the Board has concerns about the testimony of Mr. McRanie. First, Mr. McRanie's testimony identifies problems with CEMS that are inherent in the monitoring and are problems the USEPA considered when adopting the monitoring requirements that are included by reference in the proposal. *See* CTr. at 1736-37. Mr. McRanie specifically stated that USEPA "did not do a bad job in putting those Part 75 monitoring requirements together." CTr. at 1737, *see also* CTr. 1742.

Second, Mr. McRanie did not prefile testimony concerning the sorbent trap method for monitoring mercury removal monitoring, which is also a part of the proposal. In fact, Mr. McRanie stated that he was asked to address CEMS, but no one told him not to discuss sorbent trap methodology. CTr. at 1780. Mr. McRanie did then mention that he did not find there to be a lot of interest in using the sorbent trap methodology as a CEMS process. CTr. at 1780-81. In the preamble to CAMR, USEPA states that mercury emissions are determined either by

continuously collecting mercury emissions data from each affected unit by installing and operating a CEMS or an appropriate long-term method such as sorbent trap method. See 70 FR 28610. Further, USEPA states that sorbent trap monitoring systems may be used ‘‘across the board,’’ provided that rigorous quality assurance (QA) procedures are implemented. These QA requirements are found in 40 C.F.R. 75.15 and in 40 C.F.R. part 75. *See* 70 Fed. Reg. 28631.

The Board is also concerned that Mr. McRanie was unfamiliar with the portions of the proposal that would allow averaging both systemwide and on a 12-month rolling basis. *See* CTr. at 1747-48. Because of his unfamiliarity with the averaging provisions of the proposed rules, Mr. McRanie's testimony about the substitution of data was less helpful to the Board, as the Board observes similarities between averaging in this proposed rule and trading rules. The Board agrees with the Agency that aspects of the proposed rules do not require compliance with a hard cap limit on emissions at all times, which is similar to a trading rule. Further, similar to the proposed rules, CAMR also requires compliance with the final standard of performance for mercury to be determined on the basis of a rolling 12-month average calculation. *Id*. Therefore, the Board finds that data substitution provisions prescribed in the federal rules are appropriate for addressing data handling under the proposed regulations.

In summary, the Board is presented with a rule, identical in substance to federal requirements for mercury monitoring. USEPA examined the technology available and determined what methods were appropriate. Also, both USEPA and EPRI, an organization for which Mr. McRanie works, believe that problems with CEMS can be corrected and that the equipment will be available by 2009. Further, the Agency provided evidence that at least one supplier disputes some of Mr. McRanie's positions. *See* Exh. 134.

Board Conclusion. While Mr. McRanie testified about problems with CEMS, contrasting evidence includes the USEPA's decision to adopt the Part 75 monitoring requirements and evidence that contradicts some of Mr. McRanie's testimony. Based on the evidence in the record, the Board finds that mercury monitoring technology is technologically feasible. The Board also finds that the technology is currently available. Therefore, the Board will proceed to second notice without substantively amending the monitoring requirements in the proposal.

Flexibility

In this section the Board will summarize the concerns of the participants regarding the flexibility of the proposal including the inclusion of the MPS. After summarizing the comments, the Board will discuss the comments and the record in the proceeding and make a finding regarding the technical feasibility of the flexibility of the proposal including the MPS and TTBS.

Midwest Generation's Comment

Midwest Generation asserts that the "flexibilities" provided for in the proposal as amended do not cure the problems with HCI and are not truly flexibilities. PC 6300 at 3. The four flexibilities discussed by Midwest Generation are:

1. 12-Month Rolling Averaging
2. Systemwide Averaging Demonstrations
3. Temporary Technology Based System (TTBS)
4. Multi-pollutant System (MPS). PC 6300 at 19-34.

Each of these presents some problems, according to Midwest Generation. *Id*.

12-Month Rolling Averaging. Midwest Generation concedes that compliance with a 12-month rolling average might be easier than compliance with an instantaneous standard; however, the use of the 12-month rolling average does not eliminate concerns about HCI achieving a 90% reduction. PC 6300 at 19. First, Midwest Generation asserts that the target control level for the EGUs must be greater than 90% to maintain compliance. *Id*. Midwest Generation states that this is obvious mathematical logic if an average is used to show compliance because the assumption is that at times you will be over and at times you will be under the average. *Id*. Thus, Midwest Generation argues the actual target for emissions reductions must be greater than 90%. *Id*. Midwest Generation argues that the 30-day test demonstration generally did not establish an average reduction rate of 90%. PC 6300 at 20.

A second problem with the 12-month rolling average, according to Midwest Generation is with the measurement. PC 6300 at 20. As discussed above, Midwest Generation argues that measuring 90% removal is difficult so measuring more than 90% is even more difficult. *Id*. Midwest Generation objects to the emissions reduction standard, not that the compliance determination is expressed as a 12-month rolling average, because the 90% reduction is not technically feasible. *Id*.

Systemwide Averaging Demonstrations. Midwest Generation maintains that systemwide averaging also does not allow real flexibility for several reasons. PC 6300 at 20. First, Midwest Generation notes that this demonstration applies only to companies with multiple sources although a provision is included for so called orphan sources. *Id*. Midwest Generation argues that the orphan sources provision is "specious" because one of the companies listed is part of Ameren and a second source has agreed to extensive controls in new permits (City Light & Power of Springfield (CWLP)). PC 6300 at 20-21. This leaves Southern Illinois Power Cooperative (SIPC) and Kincaid. PC 6300 at 21. SIPC is a very small (290 MW) when compared to Kincaid (1320 MW). *Id*. Midwest Generation notes that both plants have some controls in place that will remove mercury, but given the disparity in sizes Midwest Generation does not believe that Kincaid would benefit from averaging with SIPC . *Id*. Midwest Generation asserts that because of this limitation, the rule of general applicability precludes one plant from participating because of circumstances of ownership. *Id*.

Midwest Generation asserts that the averaging demonstration assumes that there is an ability to average and that the reductions can be measured. PC 6300 at 22. Midwest Generation notes that the averaging demonstration requires at least a 75% reduction for each source participating and this would suggest the averaging would be used to reach 90% reduction. *Id*. To achieve 90% reduction systemwide, would then require other plants to achieve reductions of well over 90%, argues Midwest Generation. *Id*. Midwest Generation gives as an example the Powerton Plant, Midwest Generation's largest, and notes that if that plant achieves the 75%

reduction necessary for averaging, Midwest Generation's other plants in Illinois would need to average 96% removal. *Id*. Midwest Generation maintains that those plants would need to have a target reduction of 98% and even short-term tests have not achieved that level of reduction. *Id*.

TTBS. Midwest Generation argues that the TTBS does not afford "appreciable" flexibility if any at all. PC 6300 at 23. Midwest Generation notes that to be eligible for the TTBS, the system must be equipped with HCI and either a cold side ESP or a fabric filter and must inject halogenated or other equivalent activated carbon at a rate of 5 lb/Mmacf for subbituminous coal and 10 lb/Mmacf for bituminous coal. *Id*., citing Proposed 225.234(b). Midwest Generation opines that the system must be equipped with the same emissions control hardware and operated in the same manner as the control and operation that the Agency asserts will achieve 90% reduction. *Id*. Midwest Generation asserts that the inclusion of the TTBS "suggests that the Agency is not as confident of the ability of the technology" as the Agency would have the Board believe. *Id*.

Like averaging, Midwest Generation notes that Kincaid cannot use the TTBS because of the size of Kincaid's units (CTr. at 1847-48) and CWLP and SIPC are also unlikely to use the TTBS. PC 6300 at 23-24. Midwest Generation has two units that could benefit from a TTBS-type flexibility; however, both units have hot side ESPs. PC 6300 at 24. Midwest Generation concedes that installation of fabric filters on these two units could achieve compliance, if the measurement concerns were alleviated. *Id*.

MPS. Midwest Generation articulates five issues that Midwest Generation believes the addition of the MPS creates. PC 6300 at 26. Those issues are:

1. that the companies that co-sponsored the MPS with the Agency believe that compliance with the underlying rule is not technically feasible and/or economically reasonable;
2. that the companies that co-sponsored the MPS with the Agency are very concerned with the financing and timing of installation of the equipment that would be necessary to comply with the underlying rule;
3. whether it is appropriate for the Agency to require NO_x and SO_2 emissions limitations in this mercury rulemaking, which it claims in the Joint Statements will affect how the Agency approaches so-called "post-CAIR" emissions reductions necessary for the state to demonstrate attainment of the ozone and $PM_{2.5}$NAAQS when the Agency has presented no support or information in this regard in this rulemaking proceeding;
4. whether the Board has the authority to regulate SO_2 in a rule of general applicability, given the prohibitions of Section 10 of the Act; and
5. whether it is constitutional for the Agency to prohibit participation in national trading programs. Including NO_x and SO_2 provisions is inappropriate, even in a section represented to be voluntary, in a mercury rule, and it is unconstitutional for the Board to interfere with national emissions trading programs. PC 6300 at 26.

The Board will address the legal issues raised in points three, four, and five later in this opinion (*see supra* at 78). The issues of the economic reasonableness will also be discussed below (*see supra* at 54). In this section, the Board will summarize the argument regarding technical feasibility.

Midwest Generation points out that Mr. Menne testified in support of the MPS, stating that Ameren was not confident that HCI alone would ensure that Ameren could comply with the 90% reduction. PC 6300 at 26, citing CTr. at 169. Mr. Menne indicated that Ameren would need to add baghouses or fabric filters at each unit still burning bituminous coal in order to comply. PC 6300 at 26, citing CTr. at 159. Mr. Menne indicated that Ameren will not tolerate or risk noncompliance. PC 6300 at 27, citing CTr. at 100. Midwest Generation shares Ameren's view that compliance is important and states that "companies cannot share in the Agency's cavalier view that a technology that works some of the time" is adequate to support a rule that imposes compliance obligations. PC 6300 at 27.

Midwest Generation argues that "none of the companies" believe that reliance on HCI alone will achieve compliance with the proposed rule. PC 6300 at 27. Further, Midwest Generation states that "all of the companies" have confidence that the co-benefits of NO_x and SO_2 control equipment are necessary to achieve compliance with the mercury reductions proposed in this rule. *Id*. Midwest Generation maintains that the USEPA also recognized the co-benefits and expected companies to coordinate CAIR and CAMR controls. *Id*. Midwest Generation asserts that the implication of the proposed MPS is that Dynegy and Ameren, companies representing over half the generating capacity in the State, cannot comply with the rule in the manner proposed within the timeframes proposed. *Id*. Midwest Generation argues that, as a result of the Agency's support, the Agency too finds that "as a rule of general applicability, the underlying rule is not technically feasible." *Id*.

Kincaid's Comment

Systemwide Averaging. Kincaid argues that the provisions for systemwide averaging creates an "unequal, unfair playing field" for Kincaid due to the smaller pool of units eligible for inclusion in an averaging demonstration with Kincaid. PC 6299 at 15. Further, Kincaid maintains that Kincaid will be forced into a "sellers market" in trying to strike a deal with another company that may have no incentive for participation. *Id*. Kincaid notes that for larger companies as many as 19 units could be included while Kincaid is allowed to average with far fewer units. *Id*.

TTBS. Kincaid argues that the TTBS does not offer flexibility for Kincaid because of the design of Kincaid's power plant. PC 6299 at 11. Kincaid's two units are 625 megawatt units. PC 6299 at 15. Kincaid expects the emissions from both units to be identical and does not expect one unit to meet a more stringent requirement. PC 6299 at 11. Because the proposed TTBS limits availability to no more than 25% of the company's capacity in the State, Kincaid is specifically excluded from the provisions of the TTBS. PC 6299 at 15. Kincaid notes that the Agency agrees with that assessment of the TTBS. PC 6299 at 16. Further, because Kincaid expects the emissions to be identical from the two units, expansion of the TTBS to include Kincaid would provide relief to Kincaid. PC 6299 at 11.

MPS. Kincaid argues that the agreements struck by Ameren, Dynegy, and the Agency effectively allow more than 8000 megawatts of coal-fired generation in Illinois to avoid the 90% reduction requirement until 2015. PC 6299 at 3. Kincaid notes that this is more than 50% of the coal-fired generation in Illinois. *Id*. Kincaid states that the MPS has been designed to accommodate the exclusive needs of Ameren and Dynegy and makes no attempt at universal appeal or feasibility. PC 6299 at 12.

Kincaid asserts that the MPS forces emissions reductions at the Ameren and Dynegy plants that are well underway at other plants. PC 6299 at 12. Kincaid points out as an example that Kincaid has had declining NO_x and SO_2 emissions since 1998. *Id*. Kincaid maintains that the NO_x emissions from Kincaid are the lowest rate for a coal-fired utility in Illinois. *Id*. Kincaid expects the NO_x emissions in 2009, after the SCRs are operated on a year round basis, to be comparable to or lower than the NO_x limit of the MPS effective in 2012. *Id*.

Kincaid argues that the SO_2 emissions rate are even more impressive and are as low as any other coal-fired utility in Illinois for 2002-2004. PC 6299 at 13. Kincaid opines that the SO_2 emissions reductions achieved by the units in the MPS will need more than ten years to achieve the same reductions in SO_2 emissions that Kincaid has made since 1998. PC 6299 at 14. Kincaid argues that for facilities like Kincaid that have already reduced NO_x and SO_2 emissions, additional percentage deductions like those proposed in the MPS, are not technically feasible or economically reasonable. *Id*.

CWLP's Comment

CWLP limited the final comment to issues concerning the MPS. PC 6296 at 2. CWLP argues that the MPS is unclear as to whether EGUs scheduled for permanent shutdown are to be considered in the calculation of the base emissions rate. *Id*. CWLP asserts that a plain reading of Sections 225.233(a)(3)(B) and 223.235 suggest that the base emissions rate calculation does not include EGUs scheduled for shutdown. PC 6296 at 2-3. CWLP argues that EGUs scheduled for shutdown should be included otherwise the additional emissions reductions required by the MPS could not be achieved. PC 6296 at 3. CWLP offers language to amend the rule to allow for inclusion of EGUs scheduled for shutdown. *Id*.

CWLP also is concerned that the MPS could negatively impact new EGUs because of the requirement to surrender allowances for retirement. PC 6296 at 4. CWLP argues that the Agency should allow the transfer of allowances to new EGUs at the same existing source that are prevented by definition from joining the MPS. *Id*.

Prairie State's Comment

TTBS. Prairie State argues that because of the lack of long-term data, a technology based standard must be included in the rule. PC 6294 at 10. Prairie State believes that such a standard is necessary to bridge the gap between what technologies are capable of in 2009 versus 2018. *Id*. Prairie State concedes that the short-term tests may be promising; however, the tests are insufficient to conclude that the standards proposed can be sustained on a daily basis. *Id*.

Prairie State asserts that USEPA took into account timing in adopting CAMR, while the Agency did not. PC 6294 at 11. Prairie State argues that a rule requiring compliance in 2009 will have to be based on technology available today given permitting, procurement and installation issues. *Id*. Prairie State opines that if the Agency is correct and the technology will be capable of 90% reduction, a technology based standard may never need to be used. *Id*. However, Prairie State believes that without a technology based standard, facilities will be "required to shut down, greatly curtail operations, or face enforcement actions" because the facilities cannot comply with the standards. *Id*.

Prairie State believes that the TTBS needs improvement and delineates five different areas of concern. PC 6294 at 11-15. First, Prairie State argues that eligibility should not be tied to the use of a particular sorbent as such language is too restrictive and ignores new technologies and reagents. PC 6294 at 12. Prairie State argues that the preliminary data on high sulfur coal indicated that halogenated activated carbon may be less effective than other activated carbons and the rule should not require an EGU to go through an alternative process to use other sorbents. *Id*. Prairie State opines that the rule should allow the Agency to approve sorbents and allow an EGU to use such approved sorbents. *Id*. Prairie State suggests language to reflect this idea. *Id*.

Second, Prairie State asserts that the TTBS should allow an optimization study to determine the optimum injection such as the one Prairie State performed in its construction permit. PC 6294 at 11. An optimization study would allow for consideration of variables that affect mercury removal and Prairie State argues that it is unclear if variables were considered in the proposed TTBS. *Id*. Further, Prairie State asserts that the provisions of Prairie State's construction permit should be an acceptable alternative to the default rates in the TTBS. *Id*. New facilities, whose construction permits already include a provision regarding mercury control and the use of sorbent, should not be required to repeat the permitting process under a TTBS. PC 6294 at 13.

Third, Prairie State believes that the TTBS should allow for a lower injection rate if particulate matter emissions are adversely impacted. PC 6294 at 13. Prairie State acknowledges that new units should not have the same particulate control device size concerns as existing units; new units may still experience problems given the lack of long-term data. *Id*. Prairie State also recommends that "safety issues" be added as a basis for lowering injection rates, given the testimony concerning a fire at a TOXECON baghouse. PC 6294 at 13-14.

Fourth, Prairie State has some confusion regarding the requirement to record the activated carbon feed on an hourly average basis. PC 6294 at 14. Prairie State asserts that there does not seem to be a rationale for requiring a facility to average the activated carbon feed on an hourly basis. *Id*. Further, Prairie State maintains that as the mercury content of coal cannot be feasibly monitored and recorded on an hourly basis, knowing the injection rate will provide no useful information. *Id*.

Fifth, Prairie State is concerned about potential timing issues with the TTBS. PC 6294 at 14. Specifically, Prairie State notes that under Section 225.237 compliance with the proposed standard commences on the date of the initial performance test. *Id*. Prairie State further notes

that application for the TTBS must be made at least three months prior to compliance with Section 225.237 has to be demonstrated and must be included in a Title V permit. *Id*. Prairie State maintains that theoretically a facility would need to submit the Title V application to comply with the TTBS three months after initial start-up and before the compliance period is complete. *Id*. Prairie State recommends that the rule be clarified. *Id*.

MPS. Prairie State argues that the proposed MPS may have serious consequences for new facilities within Illinois. PC 6294 at 15. Primarily, Prairie State is concerned about the availability of SO_2 and NO_x allowances for new facilities. *Id*. Prairie State asserts that if a majority of existing units sign up for the MPS, the pool of available allowances will be substantially reduced. *Id*. Prairie State suggests that the Agency make those relinquished allowances available to new facilities for purchase. *Id*.

IERG's Comment

MPS. IERG filed a comment on behalf of IERG's member companies, not participating in the negotiations regarding the MPS. PC 6302 at 1. IERG notes that the Agency at hearing testified that the protective language regarding further reductions of NO_x and SO_2 emissions was limited to coal-fired EGUs choosing the MPS compliance standards. PC 6302 at 2-3. IERG's understanding of this language and testimony is that the Agency would look to EGUs not following the MPS and/or non-EGUs to achieve further reductions in NO_x and SO_2 emissions. PC 6302 at 3. IERG is seeking further clarification on this point. *Id*.

IERG has supported the CAIR/CAMR mercury emissions reductions and views the MPS as a natural extension of the co-benefit model of CAIR/CAMR. PC 6302 at 3. IERG maintains that the rulemaking as originally proposed did not appear to contemplate such an approach and while IERG understands the inclusion of compliance alternatives and the co-benefits that NO_x and SO_2 emissions reductions provide, the Agency originated separate regulatory paths for the control of mercury. PC 6302 at 3-4. IERG is concerned that the proposed MPS could have implications for other sources and IERG is not certain that the other sources have been made fully aware of these implications. PC 6302 at 4. IERG asks that the Board seek clarification from the Agency as to the implications of the MPS to other sources of NO_x and SO_2 emissions. PC 6302 at 4-5.

Ameren's Comment

Ameren argues that compliance with the proposed rule with the addition of the MPS is technically feasible and economically reasonable and the extensive record fully supports the adoption of the rule as amended by the MPS. PC 6301 at 1, 7. Ameren asserts that the proposed rule as amended by the MPS balances the Agency's environmental goal of establishing effective mercury controls while supporting industry's goal of a more stable and certain regulatory framework. *Id*. Ameren maintains that only Midwest Generation and SIPC have indicated continued objection to the proposed mercury rule and unlike Ameren, Dynegy and Kincaid have failed to prove any alternative proposals or amendments. PC 6301 at 6. Ameren argues that Midwest Generation and SIPC did not present any witnesses from their own respective companies to testify regarding how the proposed rule will directly impact their companies. *Id*.

Ameren asserts that a multi-pollutant approach for controlling emissions of mercury, NO_x and SO_2 is advantageous over the traditional, single pollutant scheme. PC 6301 at 7. Ameren states that since reduction of mercury emissions can be obtained as co-benefits from the control of NO_x and SO_2 emissions, allowing companies to synchronize the control of these emissions is important for environmental regulations directed at EGUs. *Id*. Ameren indicates that evaluations performed by Ameren and consultants for Ameren revealed that mercury emissions reductions that would approach 90% using current technologies would require either a FGD/SCR system for units burning bituminous coal, or a fabric filter plus sorbent injection for units burning subbituminous coal. *Id*. Ameren argues that the installation of fabric filters is more expensive than an ACI-halogenated sorbent system, and Ameren therefore decided that mercury control would need to be coordinated with the company's overall NO_x and SO_2 emissions reduction strategy. PC 6301 at 7-8.

Ameren developed the alternative MPS proposal of general applicability that would reduce mercury emissions to satisfy the Agency's original proposal while making substantial reductions in NO_x and SO_2 emissions. PC 6301 at 8. Mr. Menne testified that the MPS provisions allow an additional level of flexibility for mercury control, if a source commits to making specified reductions in NO_x and SO_2 emissions within a set timeframe. *Id*. Mr. Menne indicated that the MPS will require 90% reduction on most units on a timeframe extended by only three years while requiring reductions in NO_x and SO_2 emissions beyond those required by CAIR. *Id*. Ameren asserts that Illinois EGUs electing to comply with the proposal using the MPS will provide an additional health benefit not initially anticipated by the proposed rule. *Id*.

Ameren argues that the MPS is generally available to all EGUs in Illinois and even if all the EGUs chose to take advantage of the MPS, the mercury emissions will be under the state mercury caps imposed by CAMR. PC 6301 at 9. Ameren notes that both Dynegy and Ameren testified that the MPS is technically feasible and both plan to take advantage of the MPS. PC 6301 at 9-10. Further, Ameren argues that even if other EGUs determine that the MPS is not technically feasible for their systems, the proposed rule allows them to utilize either the TTBS, the output based standard or the percent reduction standard to attain compliance with the Agency's proposed mercury rule. PC 6301 at 10.

Impact on CAIR Proceeding. Ameren responded to questions posed at the close of the Chicago hearing and indicated that nothing in the MPS limits in any way the Board's authority to adopt NO_x and SO_2 emissions limits in the up coming CAIR rulemaking or any future rulemaking. PC 6301 at 10. Ameren argues that if the Board adopts the MPS, nothing requires a determination by the Board that the control of NO_x and SO_2 emissions is sufficient to attain CAIR or future nonattainment limits. *Id*. Ameren asserts that there is no conflict between the MPS provisions and the pending CAIR rulemaking and the Board's authority is in no way prejudiced by the MPS amendments. PC 6301 at 11. Ameren maintains that the MPS is one envisioned by both USEPA and supported by the Lake Michigan Air Director Consortium. *Id*. Ameren points out that even Mr. Cichanowicz's testimony supports a multi-pollutant strategy. PC 6301 at 12.

Environmental Advocates' Comment

Environmental Advocates argue that the proposal contains at least nine features which offer flexibilities. PC 6297 at 9. Environmental Advocates note that very few of the opponent's experts include any of these flexibility mechanisms in their testimony. PC 6297 at 11. Environmental Advocates list those nine features as:

1. allowing a regulated entity to choose to comply using an output-based standard or a percentage reduction;
2. allowing a regulated entity to elect to comply using any combination of techniques and technologies to meet an output-based or reduction standard;
3. providing regulated entities with almost three years before compliance is required;
4. allowing compliance to be determined on a 12-month rolling average;
5. allowing owners of multiple EGUs to choose to comply by averaging among units during the first phase of the regulatory phase (through 2013), and allowing owners of single EGUs to average with other similarly situated operators;
6. allowing a complete op-out for units the regulated entity decides to shutdown;
7. allowing a regulated entity to choose to use the TTBS to set aside 25% of its units from meeting a numeric standard until 2015, upon a showing that these units are optimizing ACI mercury control equipment and meeting other operational requirements;
8. allowing a regulated entity to choose an integrated pollution control strategy which will control mercury and other pollutants through the MPS; and
9. providing for the same alternative mercury monitoring requirements contained in the federal CAMR, including the use of sorbent trap monitoring devises as well as newer CEMS. PC 6297 at 9-10.

Environmental Advocates argue that the proposal provides practical flexibility to regulated entities to allow the entities to decide how to achieve the mercury reductions. PC 6297 at 11. Environmental Advocates maintains that the Board has a complete record on activated carbon injection systems which indicates that the units can be "relatively inexpensive," quickly installed, installed while the plant operates, and easily integrated with existing pollution control equipment. *Id.*

MPS and Impact on CAIR. Environmental Advocates also responded to questions posed at the close of the Chicago hearing. Environmental Advocates assert that the MPS is a voluntary program and one avenue of compliance with the mercury removal standards. PC 6297 at 13. Environmental Advocates maintain that the MPS contain no mandatory NO_x and SO_2 emissions reductions. *Id.* Further, Environmental Advocates point out that the MPS does not dictate that companies undertaking the MPS be viewed as in compliance with CAIR. *Id.* Environmental Advocates opine that once CAIR is adopted companies who have opted into the MPS may in fact be in compliance with CAIR. *Id.*

Environmental Advocates concede that a goal of the MPS is to begin addressing CAIR requirements in addition to mercury reductions; however, the outcome of the CAIR proceeding is not predetermined. PC 6297 at 14. The anticipated result of the MPS is that the reduction of NO_x and SO_2 emissions will exceed CAIR reductions, but that is only an anticipated result, according to Environmental Advocates. *Id.* Environmental Advocates maintain that entities opting to comply using the MPS will still be required to comply with CAIR. *Id.* Companies will still need to comply with cap and trade requirements of CAIR and the numeric emissions limits of the MPS. *Id.*

Agency's Comment

MPS. The Agency believes that a multi-pollutant strategy can have numerous advantages over traditional, single-pollutant schemes. For example, a MPS can increase protection of public health and the environment, reduce pollution more cost-effectively, and offer greater certainty to industry and regulators. PC 6297 at 44. The Agency argues that because mercury reductions can be achieved as a co-benefit to controls installed for NO_x and SO_2 emissions reductions, allowing companies to synchronize control of these pollutants makes sense. *Id.*

The Agency argues that as a general matter the MPS will have no impact on mercury control for companies that do not opt in to the MPS. PC 6297 at 57. The mercury control requirements for companies who do not choose the MPS are the same as the requirements before the addition of the MPS. *Id.* The Agency asserts that the MPS is simply an alternative compliance method. *Id.* As to NO_x and SO_2 emissions rates under the MPS, the Agency calculated the rates for Midwest Generation and found that Midwest Generation would be required to meet the same NO_x emissions rates as Ameren and the same SO_2 reduction rate as Dynegy. *Id.*

The Agency does suggest several minor changes to the language proposed in the MPS. PC 6297 at 64-65.

MPS and Impact on CAIR. The Agency notes that the mercury rule focuses on the control of mercury, but contains an optional MPS that allows companies to commit to voluntarily meet numerical standards for both NO_x and SO_2 and in return receive additional flexibility in complying with the mercury standards. PC 6297 at 43-44. The Agency points out that two companies comprising over half of the coal-fired electric generating capacity in Illinois have indicated they will use the MPS. PC 6297 at 44.

The Agency notes that both the mercury rule with the MPS and the CAIR proposal target NO_x and SO_2 emissions and in that respect the goals are the same. PC 6297 at 44-45. CAIR is a cap and trade program and sources are not technically restricted in the amount of emissions they actually emit. PC 6298 at 45-46. However, a source must hold sufficient allowances to cover their emissions during a reconciliation period. *Id.* Allowances can come from out-of-state sources and Illinois sources; consequently, Illinois would not be the only direct beneficiary of emissions reductions. PC 6298 at 46. Under the MPS, sources within Illinois owned by one

power company will be required to meet either specific NO_x and SO_2 numeric emissions limits or a percent reduction. PC 6298 at 46-47. In addition, a source is not allowed to sell, trade or bank outside of the confines of the Illinois companies any allocated allowances equal to the level of emissions reductions needed for compliance with the MPS. PC 6298 at 47. As a result, an amount of allowances equal to the extra reductions beyond CAIR that are a result of the MPS are removed from trading and cannot be used in Illinois or other states. *Id*. The Agency asserts that this ensures that the reductions provide benefits in Illinois and region wide. *Id*.

The Agency maintains that a company that opts to utilize the MPS for mercury control must still comply with the requirements of CAIR. PC 6298 at 49. The Agency states that a company utilizing the MPS will need to maintain sufficient allowances to meet the requirements of CAIR and emit NO_x and SO_2 at a level that complies with the requirements of the MPS. *Id*. The Agency argues that compliance with both rules was contemplated and accounted for in the MPS language. *Id*.

The Agency concedes that allowances needed to meet the MPS limits must be surrendered; however, allowances that are a result of over compliance with the MPS can be freely traded or banked. PC 6298 at 50. The Agency also points out that since the CAIR requirements will be effective (2009 and 2010) before the mercury removal requirements under the MPS, a company electing to comply with mercury removal via the MPS will need to comply with CAIR until 2012 and 2013. *Id*. The Agency believes that once the MPS limits and CAIR limits apply initial compliance with the MPS will result in inherent compliance with the emissions reduction requirements of the proposed CAIR with regard to SO_2. *Id*.

Board Discussion of Flexibility

The following discussion will be grouped in three areas. First, the Board will discuss averaging, and then the Board will address the TTBS. Finally, the Board will discuss the issue surrounding the MPS, including the interaction between the MPS and the CAIR rulemaking. In this section of the opinion the Board will not address the legal issues concerning the proposal of the MPS, those are discussed later in this opinion. The Board notes that as a general proposition, Midwest Generation and Kincaid argue that the rule does not really offer flexibility.

Averaging. Midwest Generation does not believe that averaging eliminates concerns about HCI achieving 90% reduction, because to average 90% reduction mathematically, at times, even higher than 90% reduction will be required. Midwest Generation also has concerns about measurements of mercury reductions. Midwest Generation and Kincaid maintain that systemwide averaging will not add real flexibility because of the over compliance which will be mathematically required and for Kincaid, they will be forced into a seller's market. The Board appreciates the concerns of Kincaid and, as will be discussed in more detail below, the Board believes Kincaid is uniquely situated in Illinois.

As to Midwest Generation's concerns, while the Board recognizes that compliance based on an average would involve reductions higher than 90% at some EGUs, the Board notes that the standard also allows units with lower than 90% to come into compliance. As noted above, the record indicates that technology capable of achieving greater than 90% mercury reductions is

available. Further, the Board has found that 90% mercury reductions, and monitoring requirements for measuring such reductions to determine compliance are technically feasible. Therefore, the averaging components of the proposal add flexibility for utilities and the Board finds that the record supports their inclusion.

TTBS. Both Midwest Generation and Kincaid feel that the TTBS does not really offer flexibility. Kincaid notes that the Kincaid facility is not eligible for the TTBS, and as indicated above, the Board will discuss the unique nature of Kincaid later in this opinion. Midwest Generation maintains that to be eligible for a TTBS, a unit must install the same control equipment as necessary to achieve 90% reduction. Further, according to Midwest Generation the inclusion of the TTBS demonstrates the Agency does not believe that the rule is technically feasible.

The Board disagrees with Midwest Generation. Simply because a rule offers flexibility and alternative ways to achieve compliance does not mean the rule is not technologically feasible. The Board has reviewed the record and as discussed above, the Board finds the evidence supports the proposed standard of 90% reduction or 0.0080 lb/GWh emissions standard. As pointed out by the Environmental Advocates, the inclusion of multiple avenues for compliance, including the TTBS, is additional evidence to support the Board's determination that the rule is technically feasible.

As discussed above, Prairie State lists five particular concerns with the TTBS and suggests language to address these concerns. The Board has reviewed the language changes suggested and examined the language proposed. The Board is convinced that the changes suggested by Prairie State will clarify the intent of the TTBS. Therefore, the Board will make the suggested changes.

MPS. Midwest Generation believes that because Ameren and Dynegy proposed the MPS, Ameren and Dynegy do not believe the underlying rule is technically feasible. Further, Midwest Generation believes that Ameren and Dynegy are concerned with financing and timing of installation of equipment. Kincaid believes that the MPS is imposing emissions standards for NO_x and SO_2 that other companies have been adhering to and that the MPS is tailored for Ameren and Dynegy. The Board does not share these concerns. First, as indicated above, the record in this proceeding indicates that the Agency has always understood that mercury reduction can be achieved through co-benefits. The Board finds that the MPS is memorializing a type of co-benefit and that any company in Illinois may take advantage of the MPS. The MPS simply offers companies alternatives for compliance that may be more economically reasonable.

The Agency's final comment includes calculations for Midwest Generation and the calculations demonstrate that if Midwest Generation were to utilize the MPS, the NO_x and SO_2 emissions would be similar to those for Dynegy and Ameren. The decision to utilize the MPS is voluntary and the MPS, like the TTBS, is an alternative compliance option in the rule. As the Board stated above, the inclusion of alternative compliance options does not render the rule technically infeasible. Furthermore, Ameren and Dynegy have specifically stated that the MPS is technically feasible for their companies, and although Kincaid may not be in a position to

utilize the MPS, other companies may. Therefore, the Board finds that the rule with or without the inclusion of the MPS is technologically feasible.

Additional concerns including the MPS involve the relationship with CAIR and with other sources. The Agency, Environmental Advocates, and Ameren all addressed the relationship between CAIR and the inclusion of the MPS. All point out that the MPS is voluntary and nothing in the language of the MPS can be viewed as implying that compliance with the MPS equates with compliance with CAIR. Further, both Environmental Advocates and the Agency agree, that if a company utilizes the MPS for mercury control, the company must still comply with the requirements of CAIR. Based on these discussions and the Board's review of the MPS language and the CAIR proposal (*See* Proposed New Clean Air Interstate Rules (CAIR) SO_2, NO_x Annual and NO_x Ozone Season Trading Programs, 35 Ill. Adm. Code 225.Subparts A, C, D and E R06-26), the Board agrees that the proposed MPS does not conflict or in any way abridge the Board's authority in CAIR.

The remaining issues raised have to do with the surrendering of allowances and the impact of the MPS on other sources. Both Prairie State and CWLP suggest that rather than surrendering and then retiring allowances, the Agency use those allowances for new facilities. IERG raises a concern about the language that any additional reductions will be sought from other sources.

The Board is not convinced that requiring that allowances be surrendered and then retired will have a detrimental impact on new facilities. Allowances for SO_2 and NO_x will be available pursuant to CAIR and the record in this proceeding does not support the change requested by Prairie State and CWLP. As to the impact on other sources, any additional reductions will be accomplished through rulemaking proceedings and at that time other sources can challenge the changes. Nothing in the MPS automatically reduces emissions for sources that do not elect to utilize the MPS.

The Board has reviewed the issues raised about the technical feasibility of the MPS and inclusion of the MPS in the proposed rule. Based on the record, the Board finds that the MPS is technically feasible and the Board will proceed to second notice with the rule including the MPS. The Board will include the changes to the MPS suggested by the Agency in PC 6298 and agreed to by Ameren.

Board Conclusion. The Board finds that the rule offers flexibility allowing the regulated community to choose alternative methods for compliance with the rule. Including alternative compliance methods does not somehow render the underlying rule technically infeasible. Rather, the inclusion of such flexibility solidifies the technical feasibility of the rule proposal. Therefore, the Board finds that the proposed inclusion of alternative options for compliance is appropriate.

Board Conclusion on Technical Feasibility

The Board finds that the proposal the Board adopts today is technically feasible. The proposal sets forth requirements for the control of mercury emissions that are feasible and can be

achieved by utilities in the State. The proposal calls for measuring mercury emissions in a manner, which is also technically feasible. Finally, the rule allows flexibility for compliance with the emissions standards that further support the technical feasibility of the rule.

ECONOMIC REASONABLENESS

Because the opponents argue issues surrounding deposition and the modeling of deposition of mercury, the health benefits which may be achieved by controlling mercury, fish advisories and the economics of controlling emissions when challenging the economic reasonableness of the proposal, the Board will address those issues in this section of the opinion. The following will summarize the comments on each of those areas and then the Board will discuss the findings of the Board.

Deposition and Modeling

In this section of the opinion, the Board will summarize the arguments of the participants concerning deposition and modeling deposition of mercury. After summarizing the arguments, the Board will discuss the issues and make findings on the issues.

Midwest Generation's Comment

Because the Agency has justified the proposal on the basis of protecting the public health in Illinois and eliminating mercury-impaired waters by reducing fish tissue methylmercury levels in the state, Midwest Generation suggests that a threshold issue is "whether there is a local impact on such methylmercury levels from power plant emissions of mercury." PC 6300 at 64. Midwest Generation states that, "[i]f there is no local deposition or if local deposition is not to impaired waterbodies, reducing the emissions will not have the desired effect." *Id*. Generally, Midwest Generation argues that the Agency has failed to demonstrate that coal-fired EGUs are the source of a mercury problem and that the proposal will actually reduce deposition of mercury to the state's waters. *Id*. at 64-65.

Specifically, Midwest Generation argues that "[t]he Agency presented no chemistry transport or deterministic modeling data or any dispersion modeling to support its claim that Illinois coal-fired power plants contribute to mercury deposition in Illinois waterbodies." PC 6300 at 64. Midwest Generation notes that the Agency entered into a contract with Environ for the performance of CAMx chemistry transport modeling to determine whether mercury deposition from power plants contributes to impairment of Illinois waters. *Id*. Midwest Generation argues that the Agency saw Environ's preliminary results and then canceled the contract because it "did not like those results." *Id*.

Midwest Generation states that the Agency relied on the expertise of Dr. Gerald Keeler, who testified with regard to two studies he performed: the Lake Michigan Mass Balance Study from 1994-95 (Exh. 26), and a Steubenville study (PC 6292). Dr. Keeler also commented on a Florida study from 2002 (Exh. 20) and a Detroit study from 2005 (Exh. 27). Midwest Generation argues that the Agency cannot claim that the proposal will actually protect public health in Illinois because none of the studies relied upon by Dr. Keeler show whether Illinois

EGU's impair Illinois waters or whether the proposal will have an effect on the level of any impairment. PC 6300 at 65.

Midwest Generation makes a number of points in an effort to discount the findings of Dr. Keeler's Steubenville study. First, Midwest Generation disputes Dr. Keeler's view that the type of coal burned in the vicinity of Steubenville does not matter. PC 6300 at 67-68, citing 6/15Tr. at 115-16. Midwest Generation stresses that Illinois EGUs largely burn PRB coal, which emits mostly elemental mercury that is less readily deposited and less likely to undergo methylation than reactive gaseous mercury (RGM). PC 6300 at 66-67, citing Exh. 44, Exh. 127, 6/15Tr. at 34-35, 115-17. Second, Midwest Generation argues that the landscape near Steubenville influenced the results of the study there. PC 6300 at 68. Specifically, Midwest Generation notes that Steubenville is situated at the eastern end of Ohio River, which scarcely influences Illinois, "with a mountain range to the east affecting weather patterns." *Id*. With respect to this issue of geography, Midwest Generation argues that "[t]here is nothing about the Steubenville study that is transferable to Illinois' circumstances." *Id*. Third, Midwest Generation notes that Dr. Keeler attributed a great deal of precipitation during his study to hurricane-related events, suggesting that his findings may have been influenced by events that are not likely to be repeated. *Id*., citing 6/16Tr. at 9-10, Exh. 32. Fourth, Midwest Generation cites Dr. Peter Chapman's examination of mercury levels in sediment and fish relative to the location of Illinois power plants, which "found no consistent relationship." PC 6300 at 68, citing Exh. 129 at 7, 8/22Tr. at 47-48. Finally, Midwest Generation notes that "the determinative or chemical transport modeling performed by USEPA in the course of the CAMR and by AER Incorporated (AER), both in the course of the development of comments on the CAMR and in the course of its modeling performed for this rulemaking, predicted deposition within the range of that measured by Dr. Keeler." PC 6300 at 68, citing Exh. 32, CTr. at 1404.

Midwest Generation also makes a number of arguments to discount the Florida study. Midwest Generation notes that, while the area near the Everglades includes coal-fired power plants, "the greatest number of sources and those whose mercury emissions were significantly reduced were various types of incinerators." PC 6300 at 69. Generally, these incinerators have a number of features that distinguish them from power plants. Incinerators tend to burn fuel that is "extremely variable." *Id*. at 70. Incinerators also generally have a shorter stack height and emit at a lower velocity, two factors influencing the height to which a plume will rise. *Id*., citing CTr. at 1472. Also, incinerators tend to emit more RGM than power plants. PC 6300 at 70, citing Exh. 126 at 15-16. Furthermore, Midwest Generation argues that, in terms of weather, vegetation, area, and other factors, impaired waters in Illinois bear no resemblance to the Everglades. PC 6300 at 71. Consequently, Midwest Generation argues that the Florida study is "largely irrelevant" and that "there is no reason to expect similar results in Illinois." PC 6300 at 69. "The Agency's naked assumption that the results are transferable does not make it so." *Id*.

Midwest Generation quickly dismisses the Lake Michigan Mass Balance Study, which "showed typical urban contributions to atmospheric mercury levels over the Lake Michigan basin." PC 6300 at 65, citing TSD, App. B at 4. Midwest Generation emphasizes Dr. Keeler's statement that the Chicago-Gary "urban/source area contributed almost 20% of the total deposition to Lake Michigan, and 14% to the wet deposition." PC 6300 at 65, citing TSD, App. B at 9. Midwest Generation further emphasizes that that the study found higher mercury levels

in urban areas than in rural areas. PC 6300 at 65, citing TSD, App. B at 4. Noting that Dr. Keeler himself attributed some mercury to mobile sources (PC 6300 at 65, citing 6/15Tr. at 22), and arguing that, as a matter of logic, Illinois mercury levels can in part also be attributed to mobile sources, Midwest Generation insinuates that the study does not provide an accurate basis for attributing mercury deposition to particular sources. *See* PC 6300 at 65.

Midwest Generation argues that "[t]he power generation companies presented the only chemistry transport modeling of predicted mercury deposition in Illinois by Illinois power plants." PC 6300 at 71, citing Exh. 126, Exh. 127. Midwest Generation recommends that the Board consider the results obtained by AER using a model called TEAM (Trace Element Analysis Model). PC 6300 at 71-72. Midwest Generation argues that TEAM has been peer-reviewed and published (PC 6300 at 71, citing CTr. at 1354, Exh. 127), has been improved regarding atmospheric mercury (PC 6300 at 71, citing Exh. 126), yields results similar to those obtained by USEPA using the Community Multi-Scale Air Quality (CMAQ) model (PC 6300 at 71, citing CTr. at 1355), and is consistent with the conclusion of the Steubenville study (PC 6300 at 71, citing CTr. at 1404, 1513, Exh. 127).

Midwest Generation stresses AER's conclusion "that 19% of the mercury deposition in Illinois is attributable to <u>all</u> power plants in the U.S." PC 6300 at 73, citing CTr. at 1370-71, Exh. 127 (emphasis in original). More specifically, argues Midwest Generation, "AER found that the difference in deposition between the Illinois mercury rule and the 2020 CAIR/CAMR reductions is less than 10%." PC 6300 at 74, citing Exh. 127. Midwest Generation further argues that AER located "no elevated concentrations of mercury predicted within the vicinity of any of the power plants under any scenario." PC 6300 at 74 n.38 (defining "hot spot").

Midwest Generation argues that, in 2010, CAIR/CAMR will reduce mercury deposition in Illinois by approximately five percent. PC 6300 at 73, citing CTr. at 1410, Exh. 127. Midwest Generation further argues that, assuming no net change attributable to the MPS, the Agency's proposal would generate an additional reduction in deposition of approximately four percent. PC 6300 at 73, citing CTr. at 1410, Exh. 127. Midwest Generation cites the testimony of both Dr. Chapman and Dr. Charnley, who believe that this additional four percent reduction would not measurably reduce methylmercury levels in Illinois fish tissues, would not cause any waterbody to be removed from the state's list of mercury-impaired waters, and would not affect the health of Illinois citizens. PC 6300 at 73, citing 8/22Tr. at 12-15, 1660. Since Midwest Generation claims that the Agency's rules will not produce any of these effects, Midwest Generation argues that "the Agency's claimed benefits are illusory and the justification for the proposal fails." PC 6300 at 73.

<u>Environmental Advocates' Comment</u>

The Environmental Advocates argue that both Dr. Keeler for the Agency and Mr. Vijayaraghavan for Midwest Generation have provided support for the proposition "that reducing mercury emissions from Illinois coal plants is likely to result in a reduction in mercury deposition in Illinois itself." PC 6297 at 8-9. Stressing that the Board may and will adopt regulations that control only one source category, or emissions into a single medium, or emissions posing a potential threat, the Environmental Advocates argue that, "when measured

next to the facts in the record, the Illinois EPA's mercury pollution reduction proposal greatly exceeds the threshold for regulatory activity." PC 6297 at 5.

The Environmental Advocates argue that "Illinois' coal-fired power plants are the largest unregulated source of mercury emissions in the state." PC 6297 at 5. The Environmental Advocates cite a National Emissions Inventory showing that those power plants contribute as much as 71% of mercury emissions in the state, more than the national average of a 44% contribution. *Id*., citing 6/12Tr. at 47, TSD at 33-34. The Environmental Advocates further argue that "[t]his fact alone, largely uncontested in this rulemaking, provides a powerful justification for the development of an Illinois-specific rule mandating deeper, faster reductions from this source category than required under CAMR." PC 6297 at 6.

The Environmental Advocates rely in part on the testimony of Mr. Vijayaraghavan in support of their claim that the Agency's proposal will reduce mercury deposition in Illinois more than CAMR. By 2010, argue the Environmental Advocates, Mr. Vijayaraghavan testified that the Agency's proposal will generate an additional 4.2% reduction in deposition compared with CAMR and that that reduction will occur throughout the state. PC 6297 at 6, citing CTr. at 1422, 1433, 1462. In addition, the Environmental Advocates emphasize Mr. Vijayaraghavan's estimate that in 2010 the Agency's proposal will reduce mercury deposition by 321 pounds more than CAMR. PC 6297 at 7. The Environmental Advocates also rely on Dr. Keeler's Steubenville study attributing mercury deposition there to local and regional coal combustion (*see* PC 6292) in support of their claim that "reducing mercury emissions from Illinois coal plants is likely to result in a reduction in mercury deposition in Illinois itself." PC 6297 at 8-9.

Agency's Comment

The Agency's TSD concedes that there remains some degree of uncertainty regarding the manner in which atmospheric processes deposit mercury on the ground, and the Agency further acknowledges that the issue requires additional research. TSD at 81. However, the Agency stresses that "recent monitoring, modeling, and other research in recent years has led to an increased understanding of the sources of mercury, the chemical transformations that affect it, and the processes in the atmosphere that cause it to be deposited to the ground." PC 6298 at 15, citing TSD at 81 (§ 5.1). The Agency's TSD concludes "that, by reducing mercury emissions from coal-fired generating units in Illinois, the proposed Illinois EPA rule would significantly reduce deposition of mercury in Illinois." PC 6298 at 15, citing TSD at 81 (§ 5.1). The Agency notes studies conducted in Florida and Massachusetts, which "showed rapid and steep declines in measured concentrations of mercury in fish tissue when mercury emissions from nearby sources such as incinerators and fossil fuel combustion were curtailed by regulations." PC 6298 at 15, citing TSD at 81-86 (§ 5.2). The Agency argues that the testimony of Dr. Gerald Keeler supports these conclusions. PC 6298 at 15-16.

Specifically, Dr. Keeler testified regarding a multi-year source-receptor study of mercury deposition in the vicinity of Steubenville, Ohio. PC 6298 at 16. That study collected daily precipitation samples in 2003-2004 and then analyzed them to determine the presence of trace elements. *Id*. The study then employed modeling to identify those elements as "fingerprints" corresponding to various categories of emissions sources. *Id*. "To determine the direction and

distance from which samples arrived, the researchers used back trajectory analysis of available weather systems." *Id*. The Agency states that, on the basis of this study, Dr. Keeler concluded that coal combustion sources accounted for approximately 70 percent of the wet deposition of mercury. *Id*., *see generally* PC 6292. "Other large industrial sources located in the area of Steubenville were not significant contributors to mercury deposition." PC 6298 at 16, citing Exh. 10 at 4. The Agency further states that Dr. Keeler's analysis showed that "a substantial amount of the mercury deposition found at the Steubenville site was due to local and regional sources." PC 6298 at 16, citing Exh. 10 at 3. Regarding the form of mercury emitted by coal combustion sources, the Agency notes Dr. Keeler's statement that "the lifetime of elemental mercury in the atmosphere is likely much shorter than previously believed. Thus mercury may be deposited much closer to its source, even if emitted in elemental form, if oxidizing compounds are present in the atmosphere." PC 6298 at 16, citing TSD at 78.

The Agency stresses the scientific basis for Dr. Keeler's conclusions. The Agency notes that Dr. Keeler's source-receptor study is empirical in nature, relying on "observation made at sampling or receptor sites." PC 6298 at 16-17, citing Exh. 10 at 4. The Agency further notes that Dr. Keeler compared his methods to the source-oriented Eulerian models such as that used by Midwest Generation's witness, Mr. Vijayaraghavan. While acknowledging that those Eulerian models can be useful, Dr. Keeler stated that they

> are limited by the large uncertainties in emission inventories including the lack of speciated mercury emission profiles, atmospheric mercury chemistry, and accurate wet and dry deposition parameterizations. Receptor models differ from source-oriented models in that they use statistical methods for which implementation only relies upon observations of deposition at a location or receptor. PC 6298, citing Exh. 10 at 4.

More specifically, the Agency emphasizes Dr. Keeler's statement that CMAQ, a Eulerian model endorsed by USEPA, "underestimated mercury wet deposition by varying amounts up to a factor of two." PC 6298 at 17.

The Agency notes Dr. Keeler's testimony that "reduction in emissions from coal combustion sources in the region would have a significant impact on the amount of mercury deposited via both wet and dry deposition." PC 6298 at 17, citing Exh. 10 at 5. The Agency further notes that, because Illinois has 21 coal-fired EGUs emitting approximately four tons of mercury annually, Dr. Keeler argued that reduced emissions would particularly benefit impaired waters in Illinois. PC 6298 at 17, citing Exh. 10 at 5. Specifically, the Agency states Dr. Keeler's view that "reductions in emissions of mercury in Illinois will yield significant reductions in mercury deposition in Illinois." PC 6298 at 17, citing TSD at 81, 6/13Tr. at 98.

The Agency argues that Mr. Vijayaraghavan actually "confirmed the accuracy of Dr. Keeler's critique of the use of Eulerian models to predict deposition of mercury." PC 6298 at 19. The Agency first claims that Mr. Vijayaraghavan "admitted that there were few actual measurements of the mercury species emitted by coal-fired power plants, even though the deposition and biological activity of different mercury species are very different." *Id*., citing CTr. at 1383, 1386-87. Second, the Agency argues that Mr. Vijayaraghavan acknowledges that

mercury emissions can be affected by factors such as the chlorine content of coal but that these factors have not been measured and generate some degree of uncertainty. PC 6298 at 19, citing CTr. at 1383-84. Third, the Agency claims that Mr. Vijayaraghavan stated that his model makes assumptions about the atmospheric chemistry of mercury because of uncertainties regarding the transformation of mercury species. PC 6298 at 19, citing CTr. at 1388. Finally, the Agency claims that Mr. Vijayaraghavan acknowledges that his model may not accurately predict local or regional contribution to mercury deposition because it does not take into account the effect of thunderstorms. PC 6298 at 19-20, citing CTr. at 1394-95, 1397-99, 1467, 1470, 1472.

The Agency suggests that Mr. Vijayaraghavan's testimony on behalf of Midwest Generation on the issue of deposition is not inconsistent with Dr. Keeler's. *See* PC 6298 at 18-20. First, the Agency notes that "Mr. Vijayaraghavan agreed that the source-receptor method used by Dr. Keeler was a valid method of investigation of mercury deposition." PC 6298 at 18. Second, the Agency noted Mr. Vijayaraghavan's comment that his own modeling analysis yielded a result consistent with Dr. Keeler's conclusion that coal-fired EGUs located within 1000 kilometers of Steubenville contribute approximately 70% of wet mercury deposition in the vicinity of Steubenville. *Id*., citing CTr. at 1512. Third, the Agency argues that Mr. Vijayaraghavan acknowledged that the Agency's proposal would provide approximately twice the reduction in mercury deposition of CAMR in 2010 and that most of the benefits of that accelerated reduction would occur in Illinois. PC 6298, citing CTr. at 1422, 1425, 1428, 1434, 1436, 1462.

Board Discussion on Deposition and Modeling

As noted above, Midwest Generation disagrees with the Agency's conclusion that significant mercury emissions reduction in Illinois will yield significant reductions of mercury deposition in Illinois. Midwest Generation's concerns about modeling and mercury deposition focuses on three main areas: (1) the Agency's reliance on results of studies performed in other parts of the country such as Ohio, Florida, and Massachusetts that are not specific to Illinois; (2) appropriateness of using receptor models instead of chemical transport or deterministic model; (3) whether the predicted local deposition of mercury is significant enough to warrant mercury controls on Illinois coal combustion plants. The Board will address those concerns below.

Reliance on Studies Not Specific to Illinois. Midwest Generation asserts that none of the studies relied upon by the Agency's expert Dr. Keeler show whether Illinois EGUs impair Illinois waters or whether the proposal will have an effect on the level of any impairment. Midwest Generation argues that the results of the studies relied upon by the Agency are not applicable to Illinois because of differing weather systems, geographic settings, and coal types. The Board notes that the Agency relies on the results of the Florida and Massachusetts studies to support the Agency's assertions. However, the Agency primarily relies upon Dr. Keeler's Steubenville study and his hearing testimony to conclude that reduction of mercury emissions from EGUs will result in a reduction of local wet deposition of mercury.

Although the studies relied upon by the Agency were not Illinois specific, the Board notes that it is not unusual for the Board to adopt regulations relying on such studies. The Board routinely adopts regulations based on regional or nationwide modeling performed by the USEPA

that are not specific to Illinois. In light of this, the Board will consider the studies submitted by the Agency in evaluating the merits of the Agency's proposal. Initially, the Board recognizes that while the sources of mercury emissions considered in the Florida and Massachusetts studies were primarily incinerators, the Steubenville study dealt with coal combustion sources. Although all the three studies support the Agency's contention that reduction of mercury emissions from coal combustion plants would significantly reduce local mercury deposition, the Board will discuss the issues raised by Midwest Generation concerning the Steubenville Study, since Agency's justification is largely based on that study.

Regarding the Steubenville study, the Board considers whether the conditions in Steubenville, Ohio make the results so unique that the results are not applicable to any area other than Steubenville. The Board notes that Dr. Keeler provided testimony as to why the results of Steubenville study are applicable to Illinois. He testified that "conditions [in Steubenville] are not unique or anomalous to make them so they are not usable or transferable to conditions that we would have in Illinois." 6/16amTr. at 84. Dr. Keeler explained that the Great Lakes are dominated by synoptic meteorological transport, which is the large-scale movement of the "highest and low pressure systems" across the Great Lakes. *Id*. Therefore, as long as specific meteorology that occurs in a location is taken into account, the controlling factors are not that much different for Illinois than Ohio. *Id*. at 84-85.

With respect to coal type, and the form (elemental or reactive) of mercury emissions, Midwest Generation argues that Illinois EGUs primarily burn PRB coal, which results in the emissions of mostly elemental mercury in contrast to mostly reactive mercury emitted by sources in the Steubenville area. Elemental mercury is less readily deposited and less likely to undergo methylation. Dr. Keeler testified that while municipal and medical waste incinerators emit greater than 80% reactive mercury, coal-fired utilities emissions of reactive mercury range from approximately 52 to 82%. The lower end of the range represents emissions from sub-bituminous (PRB) coal-fired plants. 6/14Tr. at 244. Although the proportion of reactive mercury in emissions from PRB coal burning plants is less than bituminous coal-fired plants, the Board notes that the proportion of such emissions from PRB coal plants are still greater than 50%. Further, Dr. Keeler testified that recent studies pertaining to mercury chemistry suggests that in certain environments, such as downwind of urban areas, elemental mercury is rapidly transformed to reactive mercury. 6/15Tr. at 192. He noted that observational evidence at Steubenville indicates this phenomenon. 6/15Tr. at 193.

In light of the above, the Board finds that reliance on the findings of the Steubenville study to evaluate the impact mercury emissions from Illinois utilities on Illinois waters is appropriate.

Receptor Model v. Chemical Transport Model. Midwest Generation argues that the Board should consider AER's modeling results presented by Midwest Generation's expert, Mr. Vijayaraghavan. Midwest Generation asserts that the receptor modeling performed by Dr. Keeler reflects what is actually in the atmosphere and cannot predict future deposition. PC 6300 at 72. Midwest Generation maintains that the chemical transport or deterministic model called TEAM used by AER predicts the impact of mercury emissions from Illinois power plants on Illinois water bodies. PC 6300 at 64. Midwest Generation maintains that the Agency did not

present any chemical transport or deterministic modeling to demonstrate that the target of the rule is the source of the perceived problem; or that the proposed rule will have the desired effect of reducing deposition from Illinois power plants to Illinois waters. PC 6300 at 64-65.

The Board notes that regulating agencies routinely use models for evaluating impacts of various emissions reduction levels on air quality, or apportioning the sources of a specific contaminant. However, the type of model relied upon depends on the purpose of the evaluation. In this proceeding, as noted by Midwest Generation, the first question that needs to be answered is whether the Illinois coal-fired utilities (the target of the rules) are the significant source of mercury impairment of Illinois water bodies. In order to answer this question, the Board must determine that the mercury emissions from Illinois coal-fired plants are a significant source of mercury deposition in the state. The record indicates that while receptor models have been used successfully to apportion sources of mercury deposition, the chemical transport or deterministic models are limited by large uncertainties in emissions inventory, and lack of speciated mercury emissions profiles, atmospheric mercury chemistry and accurate deposition parameterization.

Mr. Vijayaraghavan, who performed AER's modeling exercise, recognized shortcomings in the deterministic models. He acknowledged that there are few actual measurements of mercury emissions from EGUs and that "there is some level of scientific estimation that goes into this emissions modeling." CTr. at 1383. He further agreed that a number of factors influence mercury emissions from EGUs, leading to "some level of uncertainty in emissions." *Id*. at 1384. Also, he states that the chemical transformation of mercury in the atmosphere is not understood with complete certainty and that the TEAM model must make some assumptions regarding that phenomenon. *Id*., at 1387-88. Mr. Vijayaraghavan also acknowledged that the TEAM model fails to account fully for thunderstorms, resulting in underestimation of mercury deposition. *Id*., at 1394-95.

To the contrary, the record indicates a multivariate statistical receptor models have been used successfully in Ohio, and Florida to apportion sources of mercury deposition. These models use statistical methods that are implemented by relying on observations of deposition at a site or receptor. Further, receptor models are not dependent on source profiles or emissions inventories. In this regard, the Board notes that Dr. Keeler provided extensive testimony regarding the Steubenville Study, which involved the use of receptor models to determine sources contributing to mercury in wet deposition. This study found that coal-fired utilities contributed approximately 70% of the mercury wet deposition at the Steubenville site. Although this study was not Illinois specific, as noted above, the Board found that the study results are applicable to Illinois. Therefore, the Board finds that the Agency correctly relied on the receptor modeling to demonstrate that Illinois utilities are a significant source of mercury deposition within the state.

Whether the Predicted Local Deposition of Mercury Warrant Mercury Controls.

As noted above, the Steubenville study results indicate that coal combustion sources accounted for approximately 70 percent of the wet deposition of mercury at the Steubenville site. Further, Dr. Keeler's analysis showed that "a substantial amount of the mercury deposition found at the Steubenville site was due to local and regional sources." PC 6298 at 16, citing Exh. 10 at 3. Although the Steubenville study addressed wet deposition, Dr. Keeler noted that "[e]levated

ambient mercury levels near large sources suggest that dry deposition would also be elevated and likely to be similar in magnitude to the wet deposition." Exh. 10 at 5. Accordingly, he concludes that "reductions in emissions from coal combustion sources in the region would have a significant impact on the amount of mercury deposited via both wet and dry deposition." *Id.*

Testifying on the issue of deposition on behalf of Midwest Generation, Mr. Vijayaraghavan did not persuasively undermine Dr. Keeler's conclusions on that issue. Although Mr. Vijayaraghavan performed deposition estimates based on a Eulerian model known as TEAM (CTr. at 1355-56), he did not dispute the validity of the source-receptor model used by Dr. Keeler. *See* CTr. at 1512-13. In fact, he agreed that Dr. Keeler's source-receptor method produced results comparable to and within the range of his own estimate of mercury deposition contributed by coal-fired EGUs. *Id*.

Addressing the effects of the proposed regulation in 2010, Mr. Vijayaraghavan agreed that the Agency's proposal would result in an additional decrease in mercury deposition in comparison with the federal CAMR rule. CTr. at 1422-23, 1457. Stated another way, Mr. Vijayaraghavan agreed that, in 2010, the federal CAMR rule would result in higher levels of mercury deposition for virtually the entire State of Illinois. *Id*. at 1436-37. He also stated that the Agency's proposal would by 2010 reduce mercury deposition by approximately the same amount that CAMR would reduce it by 2020. *Id*. at 1430. Mr. Vijayaraghavan also agreed that Illinois would receive most of the benefits of the rule. *Id*. at 1425. Applying the TEAM model to the single year of 2010, Mr. Vijayaraghavan acknowledged that the Agency's proposal would reduce mercury deposition in Illinois by 321 pounds more than the federal CAMR proposal. *Id*. at 1496-97.

In addition to the above modeling studies, the Board notes that mercury deposition study in the Florida Everglades showed that within a few years after state and federal requirements reduced mercury emissions, mercury measured in the tissues of largemouth bass "showed substantial declines." TSD at 81-82. The Agency further states that the relation between atmospheric mercury load to the Everglades and the body burden of largemouth bass has been modeled to be nearly one-to-one. TSD at 84-85; 6/14Tr. at 205-08 (Keeler testimony); Exh. 20 at 68. Similarly, significant reductions in mercury emissions resulted in a steep decline in fish tissue levels from the waters of northeastern Massachusetts within five years. TSD at 86; Exh. 20 at 14; TSD at 86 (Figure 5.8: Representative Fish Tissue Mercury and Incinerator Emissions Changes Versus Time in NE MA). The Board recognizes that the Florida and Massachusetts study dealt with reduction of mercury emissions mostly from incinerators. However, both the studies lend support to the Agency's contention that significant reduction in mercury deposition results in reduction of mercury levels in fish tissue.

Based on the above evidence, the Board finds that the record strongly supports the Agency's contention that mercury emissions from Illinois utilities contribute significantly to mercury deposition on Illinois waters. Further, the Board finds that a reduction of mercury emissions from Illinois utilities would have significant impact on the amount of mercury deposited on Illinois waters.

Board Conclusions on Modeling and Deposition. The Board finds that the record in this proceeding, including the testimony of Dr. Gerald Keeler, demonstrates that a reduction in mercury emissions in Illinois will result in reduction of mercury deposition in the State. Although the Agency relies heavily upon Dr. Keeler's Steubenville study (PC 6292), the Board believes that that study persuasively demonstrates that local and regional coal combustion sources contribute significantly to the wet deposition of mercury. The Board finds that the results of the Steubenville study are valid for evaluating the impact of mercury emissions from Illinois utilities on Illinois waters. Further, the use of receptor models is appropriate for apportioning the sources of mercury deposition. Finally, while the Florida and Massachusetts studies may be based upon factors such as geography and sources that are different from Illinois, the Board finds those studies support the Agency's contention that a reduction of mercury deposition will result in a reduction of mercury levels in fish tissue.

On the basis of the record, the Board concludes that that a reduction in mercury emissions in Illinois will result in reduction of mercury deposition in the state. The Board notes that, compared with CAMR, the Agency's proposal reduces those mercury emissions more quickly and more deeply. Accordingly, the Board finds that the Agency's proposal can be expected to result in reduced mercury deposition in the state and the expected result supports adoption of the proposal.

Health Effects

In this section of the opinion, the Board will address the participants' arguments concerning the health effects from the ingestion of mercury. All parties agree that ingestion of methylmercury by sensitive populations, such as pregnant women and young children, can cause negative health effects. However, the opponents mainly argue that reducing mercury emissions in Illinois will have little impact on potential health effects in Illinois. The Board will conclude by analyzing the arguments and making the Board's findings on this issue.

Midwest Generation's Comment

Midwest Generation acknowledges that "[t]here is no dispute that mercury, consumed in fish or seafood in the form of methylmercury at high enough levels can be a health risk for certain sensitive portions of the population." PC 6300 at 51. Nonetheless, Midwest Generation argues that reducing mercury emissions will generate health benefits only if several steps follow one another:

> the reduced emissions would have reached an Illinois waterbody; that waterway would have the right chemistry to convert this small, incremental amount of mercury to an incremental amount of methylmercury; that waterbody has the necessary biota for the incremental methylmercury to move up the biological chain to predator, sport fish; that fish has to be caught by a fisherman; [and] that fish has to be consumed by a member of the sensitive population and has to contain alone, or in combination with other fish consumed by that person, sufficient methylmercury to actually pose a health risk. (characterizing relationship as "very attenuated"). *Id*., *see* PC 6300 at 63.

Suggesting that the Agency did not adequately analyze the effects of the Agency's own proposal, Midwest Generation states that any health benefit produced by that proposal "would be so small, so improbable, as to be equivalent to zero compared to CAMR in the relatively short time there is even any difference between CAMR and the proposal." PC 6300 at 51-52.

At hearing, Midwest Generation presented the testimony of Dr. Charnley in support of its assertions regarding health effects. Dr. Charnley noted that other regulatory entities and scientific organizations have developed a range of exposure limits for methylmercury. Exh. 130 at 14-15; Exh. 130, Exh. 6. Dr. Charnley attributes this range to "different decisions about which study was the most representative or valid, the approach taken to evaluate the relationship between dose and response, and the choice of uncertainty factor." Exh. 130 at 15. Although she states that the various limits may not reflect the scientific evidence equally well, "[n]one of those choices are necessarily 'right' or 'wrong' scientifically." *Id*. Dr. Charnley further states that the difference between these limits "illustrates the widespread differences of opinion that are possible in terms of scientific interpretation and policy choices." Exh. 130 at 20. Midwest Generation asserts that Dr. Charnley testified that any risk from the consumption of fish was overstated by the Agency's expert, Dr. Rice. PC 6300 at 80. Midwest Generation argues that valid regulatory choices concerning methylmercury should be considered and based on objective analysis and relevant evidence. PC 6300 at 81.

Expanding Midwest Generation's perspective beyond Illinois, Midwest Generation argues that "the already immeasurably small [benefit] becomes even more infinitesimal." PC 6300 at 52. Midwest Generation states that the record demonstrates that only approximately one percent of global atmospheric loading of mercury is attributable to U.S. power plants. *Id*., citing Exh. 126 at 3, CTr. at 1488. Considering that small proportion and taking into account the steps described above that Midwest Generation believes must follow one another in order to alleviate the health risk of methylmercury exposure, Midwest Generation argues that the Agency's proposal would effectively produce results "too tiny to measure" and provide no health benefit at all. *See* PC 6300 at 52. Accordingly, Midwest Generation argues that there is no justification for reducing mercury emissions beyond levels required by CAMR. PC 6300 at 62.

Environmental Advocates' Comment

The Environmental Advocates note that "[u]p to three-quarters of tested water bodies have fish with mercury levels that justify a fish consumption advisory." PC 6297 at 3, citing 6/12Tr. at 67. While the Environmental Advocates note that an advisory recommends eating no more than one fish meal per week (PC 6297 at 3, citing 6/13Tr. at 31), the advisory is not self-enforcing. "[T]here is no legal mechanism actually preventing people from eating any amount of mercury-containing fish from Illinois waters." PC 6297 at 3. The Environmental Advocates note that the Illinois Department of Natural Resources every year issues approximately 700,000 fishing licenses (PC 6297 at 3, citing 6/12Tr. at 61) and that children, who are susceptible to mercury exposure, may fish in Illinois without obtaining a license (PC 6297 at 3, citing 6/16Tr. at 63). Assessing the health risks these persons may face, the Environmental Advocates cite "a study of Illinois anglers conducted between 1987 and 1993, which demonstrates anglers will

consume unhealthy quantities of fish even though advisories exist." PC 6297 at 3, citing Exh. 9 at 4-5.

Agency's Comment

The Agency describes mercury as a "persistent, bioaccumulative neurotoxin" (TSD at 18), and no participant in this proceeding has squarely challenged that characterization. The Agency acknowledges that there is some uncertainty in determining the precise extent to which reduced mercury emissions will reduce adverse human health effects. PC 6298 at 22. Further, the Agency has characterized the adverse health effects from methylmercury contamination as "the major reason for developing this proposal." TSD at 26. Yet, the Agency acknowledges that "[t]here is scientific uncertainty in attempting to assess the extent to which mercury emission reductions from power plants translate to reduced atmospheric deposition, reduced methylmercury generation, reduced methylmercury accumulation in fish, and ultimately reduced adverse human health effects." PC 6298 at 22. Indeed, the Agency states that it neither intended nor expected that a reduction in mercury emissions from EGUs would correspond exactly to a reduction in fish tissue mercury concentrations. *Id*. Nonetheless, the Agency claims it is "clear" that any reduction or elimination of fish consumption advisories is unlikely without deeply reduced mercury emissions. *Id*. The Agency stresses that, compared to CAMR, the proposal provides "deeper and quicker emission reductions." *Id*.

In her testimony before the Board, Dr. Deborah Rice described more than six cross-sectional studies exploring "the effects of environmental methylmercury intake on the development of the child." Exh. 3 at 3. Dr. Rice testified that each of these studies showed adverse effects including "auditory and visual effects, memory deficits, deficits in visuospatial ability, and changes in motor function" related to the level of methylmercury in the children's bodies. *Id*.

In addition, Dr. Rice testified regarding longitudinal prospective studies from the Faroe Islands (TSD, Exh. A at 4-5), the Seychelles Islands (TSD, Exh. A at 3-4), and New Zealand (TSD, Exh. A at 2-3) on the effects of mothers' methylmercury exposure on the neuropsychological function of their children. Exh. 3 at 3. Specifically, the studies analyzed the concentration of methylmercury in the mother's hair or umbilical cord blood as "a measure of prenatal exposure of the child to methylmercury." Exh. 3 at 3. The studies from the Faroe Islands and New Zealand showed methylmercury exposure associated with adverse effects including decreased IQ, and deficits in memory, language processing, attention, and fine motor coordination. *Id*. Furthermore, Dr. Rice testified on the basis of those two studies that these adverse effects may be greater at lower maternal methylmercury levels than at higher levels. Exh. 3 at 4; Exh. 5; 6/13Tr. at 51-52 (describing shape of relationship as non-linear, logarithmic, and supralinear). The Seychelles Islands study was not prospective in that the mother-infant pairs were recruited after the births of the children. 6/13Tr. at 10-11. Accordingly, Dr. Rice noted that "it can be argued that the measure of exposure might not have been quite as precise in the Seychelles as it was in the other two studies." 6/13Tr. at 11. Furthermore, Dr. Rice testified that, although the Seychelles Islands investigators found that their data did not support the claim that prenatal methylmercury exposure solely from consumption of ocean fish poses a developmental risk, those investigators have conducted benchmark dose analysis presumably in

order to determine an adverse effect level. 6/13Tr. at 28-29; 8/22Tr. at 84 (noting in Charnley testimony that analysis generated a statistically lower confidence limit on dose associated with adverse effect).

The Agency states that USEPA defines a "reference dose" (RfD) as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime." PC 6298 at 22 (citing USEPA Integrated Risk Information System). The Agency further states that the National Research Council (NRC) has determined that USEPA's RfD for methylmercury of 0.1 micrograms per kilogram of body weight per day (ug/kg/day) is scientifically justifiable. *Id*., citing TSD, App. A at 10. While the Agency states that an RfD helps to define an acceptable level of exposure to methylmercury, the RfD "is not a 'bright line' and does not represent a true threshold in a toxicological sense." *Id*. at 22-23, citing 6/13Tr. at 88.

The National Research Council (NRC), when reviewing the USEPA's methylmercury RfD, relied upon a Faroe Islands study, but also reviewed studies from the Seychelles Islands and New Zealand. PC 6298 at 22-24. The Agency states that "[t]he Faroe Islands study was truly prospective in that maternal participants were recruited before the children were born" (noting the Seychelles study recruited cohort approximately six months after birth of children). *Id*. The Agency notes that a cohort of more than 900 children made the Faroe Island study the largest of the three. *Id*. The Agency further notes that the Faroe Island study used biological markers including umbilical cord blood and maternal hair. *Id*. Faroe Islands investigators found that "cord blood was a better predictor of the performance of the child than was maternal hair," although the Seychelles Islands and New Zealand studies measured only maternal hair mercury concentrations. *Id*.

The Agency states that average maternal hair methylmercury concentrations in the Faroe Island, Seychelles Islands, and New Zealand cohorts exceeded USEPA's RfD. PC 6298 at 23. The Agency further states that the range of those maternal hair concentrations "has significant overlap" with that of women in the United States. *Id*. More specifically, the Agency refers to a study finding that approximately ten percent of women had hair mercury levels exceeding the RfD and that "an equivalent or slightly greater percentage of women would exceed the reference dose based upon recent National Health and Nutrition Examination Survey (NHANES) data." *Id*., citing 6/13Tr. at 58 (Oken study). The Agency also notes the testimony of Dr. Rice that the Oken study "suggests effects from methylmercury exposures that are below the USEPA reference dose." *Id*., citing 6/13Tr. at 55.

In addition to the three longitudinal studies from the Faroe Island, Seychelles Islands, and New Zealand, the Agency also relies upon three prospective studies from Massachusetts, Poland, and the Philippines, each of which evaluated "mercury body-burdens and the human health effects of methylmercury exposure." PC 6298 at 25, citing TSD, App. A at 5. The Agency also argues that "[c]ross-sectional studies evaluating mercury exposure and neuropsychological deficits have indicated adverse effects." PC 6298 at 25. The Agency notes a study involving Portuguese women who ate an average of 2.5 fish meals each week and in whose children "[n]eurological function deficits were noted." *Id*. at 25-26, citing 8/22Tr. at 97.

The Agency discounts "[s]tudies showing a relationship between increased prenatal fish consumption and better performance by children on neurodevelopmental tests." PC 6298 at 26. Specifically, the Agency claims that those studies have not generally controlled for maternal IQ and the child's environment, "covariants known to be the strongest performance determinants." *Id*., citing 6/13Tr. at 35. The Agency further claims that it may be difficult to interpret or compare these studies because they may measure different markers or may include inadequate or inappropriate statistical assessments. PC 6298 at 26. In addition, the Agency suggests that there may be a low threshold between fish consumption and improved cognitive development, citing a study noting no incremental improvement with fish consumption more frequent than once every two weeks. *Id*., citing 8/22Tr. at 89 (Daniels study).

The Agency further argues that study results do not clearly show that polychlorinated biphenyls (PCBs) contribute to the neurotoxic responses attributed to methylmercury. PC 6298 at 26. Specifically, the Agency claims that, while methylmercury and PCB testing may measure the same cognitive functions, the evidence in the Faroe Islands study does not clearly support a combined methylmercury and PCB neurotoxic effect. *Id*. The Agency stresses Dr. Charnley's testimony stating that "[t]he possible neurotoxic influence of PCB exposure did not explain the methylmercury associated neurobehavioral deficits." PC 6298 at 27, citing 8/22Tr. at 103. The Agency dismisses "Dr. Charnley's contention that reducing methylmercury in Illinois waters will not lead to the elimination of the fish consumption advisories because PCBs will still be present." PC 6298 at 27. The Agency describes this contention as "meaningless": "[i]f the Board adopted this point of view no pollution control regulation would be justified because there are always going to be other pollutants contaminating the air." *Id*.

Addressing what it perceives to be inadequacies in CAMR, the Agency notes that CAMR allows trading of emissions allowances and seeks to reduce mercury emissions within the United States as a whole. The Agency suggests that CAMR may not actually reduce mercury emissions in Illinois and states that "Illinois cannot depend upon CAMR from a public health perspective." PC 6298 at 27. The Agency cites USEPA's own projections for reduction of mercury deposition under CAMR by 2020. Noting that those projections show significant reductions in deposition in only a few areas of the State, the Agency concludes "that CAMR will have a modest impact on existing mercury deposition in Illinois." *Id*., citing Exh. 130, Exh. 2. The Agency concludes that modest reductions within Illinois may be sufficient from a national perspective but that "Illinois clearly needs something more." PC 6298 at 28.

The Agency plainly discounts the testimony of Dr. Gail Charnley, who questioned the impact of the Agency's proposal on public health and who described the benefits of the proposal as "political only." Exh. 130 at 20; *see* PC 6298 at 21-22. The Agency argues that Dr. Charnley's expressed preference for an emissions trading program such as CAMR constitutes a bias diminishing the weight of her testimony. PC 6298 at 21, citing 8/22Tr. at 1678. The Agency further argues that "Dr. Charnley has no record of independent research evaluating these types of programs." PC 6298 at 21. The Agency claims that this lack of experience casts doubt on her ability to compare the respective health benefits of CAMR and the Agency's proposal. PC 6298 at 21-22, citing 8/22Tr. at 1679, 1682. Generally, the Agency states that "Dr. Charnley attempts to create a long chain of uncertainty" designed to convince the Board to take no action

on the Agency's proposal. PC 6298 at 28, citing 8/22Tr. at 1659-60. Arguing that fish advisories are now in effect for Illinois waters and that CAMR will not significantly reduce mercury deposition, the Agency states that the case for the proposal overcomes even Dr. Charnley's high burden of justification. *See* PC 6298 at 29.

Board Discussion on Health Effects

With regard to the health effects of methylmercury, the Board must determine if the reduction of mercury emissions, leading to less deposition of mercury, will result in health benefits to the citizens of the State. Midwest Generation agrees that there is no dispute that methylmercury, consumed in fish or seafood at high enough levels can be a health risk for certain sensitive portions of the population. The Board agrees and clearly the record in this proceeding, including the testimony of Dr. Rice, demonstrates that mothers' intake of methylmercury has detrimental effects upon the development of their children. Both cross-sectional and longitudinal prospective studies have shown an association of methylmercury exposure with decreased IQ and with deficits in areas including memory, attention, and fine motor coordination. Although the Seychelles Islands study did not confirm this association, that study as described above may have measured methylmercury exposure less precisely than similar studies.

The Board notes that Dr. Rice's testimony also indicates that methylmercury is associated with cardiovascular or coronary heart disease, including heart attack and death. Exh. 3 at 6. She noted that studies in Finnish men found an association between hair mercury levels and myocardial infarction, cardiovascular disease, and death.

The Board notes that Dr. Charnley stated that various entities have developed a range of exposure limits for methylmercury. The Board accepts her view that this range is not attributable to fundamental scientific error but instead results from differences in opinion, interpretation, and policy choices. Accordingly, the Board cannot conclude that the results of the studies cited in the record are based upon an invalid and unreasonably low exposure limit. However, the Board places significant weight on USEPA's reference dose. The Board has adopted a number of regulations setting standards based upon USEPA's reference doses for various chemical contaminants, including water quality standards, groundwater standards, and soil remediation levels.

Even as the proponent in this proceeding, the Agency acknowledges that there is not likely to be an exact correspondence between reducing mercury emissions and reducing human health effects. As noted previously under discussion of mercury deposition, the record indicates that coal-fired utilities are a significant source of local mercury deposition. Further, the studies presented by the Agency suggest a strong correlation between reduction of mercury emissions from local and regional sources and lower mercury levels in fish tissue. Therefore, on the basis of the record, the Board concludes that improving public health and reducing or eliminating fish consumption advisories are not likely to occur without reducing mercury emissions from Illinois utilities. The Board notes that, compared with CAMR, the Agency's proposal reduces mercury emissions from Illinois utilities more quickly and more deeply. There is no guarantee under CAMR that mercury emissions would occur in Illinois since the rule establishes a nation-wide

cap and trade program. Accordingly, the Board finds that the Agency's proposal can be expected to result in additional health benefits and that those benefits support adoption of the proposal.

Fish Advisories

This section of the opinion will summarize arguments concerning whether or not the reduction of mercury emissions will impact fish advisories in the State. The Board will conclude by analyzing the arguments and making the Board's findings on this issue.

Midwest Generation's Comment

Midwest Generation notes the Agency's justification for the proposal that reducing mercury emissions by 90% "will reduce fish tissue mercury concentrations to levels that will eliminate mercury-impaired waters from Illinois." PC 6300 at 74. Midwest Generation argues, however, that

> [t]he Agency has provided no evidence that any reductions in the level of deposition that may result from the rule would in turn be reflected in reduced fish tissue methylmercury levels in Illinois, the basis for the Agency's assumption that the proposal would eliminate or at least substantially reduce mercury-impaired waters in Illinois and provide a significant, discernable health benefit to Illinois residents. PC 6300 at 5-6.

Midwest Generation concludes that "[t]he proposed rule will not accomplish these goals." PC 6300 at 74.

Stating that there exists a "vast amount of analysis" mustered in support of CAMR by USEPA, Midwest Generation argues that the Agency has performed none of the analysis that ought to provide the basis for its proposal on this issue. PC 6300 at 75. Specifically, Midwest Generation argues that "[t]he Agency has not determined the amount of any mercury deposition or fish tissue concentration reduction that would result from the proposed rule, if adopted." *Id*., citing 6/14Tr. at 122, 166, 302-04. Midwest Generation further argues that "[t]he Agency did not assess the extent to which Illinois residents eat Illinois freshwater fish or even the extent to which Illinois fisherman eat the fish they catch." PC 6300 at 75, citing 6/16Tr. at 71-73. Midwest Generation further argues that the Agency did not assess the impact of out-of-state sources of mercury, non-point sources of mercury, or factors affecting the methylation process. PC 6300 at 75-76, citing 6/14Tr. at 41-44, 45-46, 127, 134, 248, 268, 302. Midwest Generation further claims that Agency overlooked its own data relevant to the issue of fish tissue mercury levels. *See* PC 6300 at 76. As an example, Midwest Generation stresses Dr. Hornshaw's testimony for the Agency, in which he stated "that mercury fish tissue concentrations in Illinois have remained essentially flat since 1988" despite regulation reducing mercury emissions from other sources. *Id*., citing 6/14Tr. at 183-87.

On the issue of reducing fish tissue mercury concentration, Midwest Generation strenuously disputes the Agency's reliance on two particular studies, one from Massachusetts

and one from Florida. *See* PC 6300 at 76-77. Generally, Midwest Generation argues that the Agency has failed to show that waters in either of those states are similar enough to Illinois waters to expect similar results here. PC 6300 at 77. More specifically, Midwest Generation argues that "the Agency totally ignored the data in those studies that showed no reduction or even an increase in fish tissue mercury levels following reductions in mercury emissions." *Id*. Midwest Generation further argues that, despite significant reductions in mercury deposition, these studies simply did not show consistent reductions in fish tissue mercury levels and did not eliminate mercury-impaired waters. PC 6300 at 78.

Midwest Generation also criticizes the Agency's water quality and fish flesh data, characterizing it as falling "far short of what is necessary to support a rulemaking." PC 6300 at 78. Midwest Generation notes that "[t]he Agency has fish tissue mercury information for only about 1,000 miles of the about 71,000 miles of streams in Illinois and for only eight of the more than 3,000 lakes in Illinois larger than six acres." *Id*., citing 6/14Tr. at 106-08. Midwest Generation argues that, although mercury was not detected in many samples, the Agency has assumed in practice that mercury is present at the detection limit. PC 6300 at 78, citing 6/14Tr. at 158-59, TSD at 63.

Midwest Generation places some emphasis on claims that the Agency has inconsistently described the effect of the proposal. PC 6300 at 79. Specifically, Midwest Generation notes that Ms. Willhite foresees a one-to-one relationship between reduction in mercury deposition and in fish tissue mercury concentrations. *Id*., citing 6/14Tr. at 166-67, 194-95. Midwest Generation further notes that, in his testimony, Mr. Ross foresees only that those reductions would correspond with one another. PC 6300 at 79, citing 6/19Tr. at 126-28.

Midwest Generation argues that the Agency's conclusions rest on "unsupported assumptions" rather than valid assessments and studies, and Midwest Generation stresses Dr. Chapman's characterization of the Agency's data collection as "sparse." PC 6300 at 78-79, citing 8/22Tr. at 17-18. Midwest Generation also stresses Dr. Chapman's testimony that, with all of the complexities associated with regulating mercury and with the absence of critically important data, "he would not expect to see a measurable reduction in fish tissue mercury concentrations based on the small predicted additional mercury deposition reduction resulting from the proposed rule, as compared to CAMR." PC 6300 at 80, citing Exh. 129 at 11. Midwest Generation further stresses that, "[b]ased on a complete set of relevant data, USEPA determined that CAMR provided adequate protection." PC 6300 at 82.

Environmental Advocates' Comment

The Environmental Advocates note that "[t]he Illinois Department of Public Health has established mercury advisories for all water bodies in Illinois due to levels of methylmercury in predator fish." PC 6297 at 3, citing Exh. 1 at 5, 6/12Tr. at 57, 6/14Tr. at 97. The Environmental Advocates further note that 62 river segments comprising 1,034 miles in length and eight lakes comprising 6,624 acres in area are impaired on the basis of mercury. PC 6297 at 3, citing Exh. 1 at 5-6. The Environmental Advocates also note that "[u]p to three-quarters of tested water bodies have fish with mercury levels that justify a fish consumption advisory. PC 6297 at 3, citing 6/12Tr. at 67. Finally, the Environmental Advocates stress that "[i]n fish tissue sampling

conducted between 1988 and 2001, two-thirds to three-quarters of all bass and walleye from Illinois waters have mercury levels that would justify a consumption advisory" (PC 6297 at 3, citing 6/13Tr. at 71), which "cautions against eating more than one fish meal per week" (PC 6297 at 3, citing 6/13Tr. at 31).

The Environmental Advocates stress that, because this caution is merely advisory in nature, "there is no legal mechanism preventing people from eating any amount of mercury-containing fish from Illinois waters." PC 6297 at 3. The Environmental Advocates cite the testimony of Dr. Hornshaw, who referred to a 1987-93 study of Illinois anglers. The Environmental Advocates claim that the study determined that "anglers will consume unhealthy quantities of fish even though advisories exist." PC 6297 at 3-4, citing Exh. 9 at 4-5. The Environmental Advocates stress Dr. Hornshaw's conclusion based on his review of the literature that "sport anglers may consume amounts of sport-caught fish that could allow them and their families to exceed health-based limits for chemical contaminants in their catch." PC 6297 at 4, citing Exh. 9 at 5. Ultimately, the Environmental Advocates state that, "[b]ecause of well-documented conditions in Illinois waterbodies and fish, and the associated risks to Illinois anglers, fish consumers and wildlife, there is a strong justification to develop an Illinois-specific regulatory approach to control mercury." PC 6297 at 4.

Agency's Comment

The Agency states that "[t]he Illinois Fish Contaminant Monitoring Program (FCMP) is a cooperative effort of five Illinois agencies, the Departments of Agriculture, Emergency Management, Natural Resources, and Public Health, and the Illinois EPA." PC 6298 at 30. The Agency further states that "[t]he primary goal of the FCMP is to identify for Illinois anglers through sport fish consumption advisories those species of fish and bodies of water that may pose the greatest potential risks to the anglers and their families, and allow them to avoid these risks by making informed judgments about the types and amounts of fish they eat." *Id*., citing TSD at 54-55, Exh. 9 at 2. Specifically, the FCMP has issued a statewide mercury advisory and has placed fifteen bodies of water on a Special Mercury Advisory. PC 6298 at 30-31; *see also* Exh. 11 (*Illinois Fishing Information 2006*). As FCMP generates more data on levels of methylmercury in fish, the original list of four bodies of water on the first Special Mercury Advisory in 2002 has been expanded to 15 bodies of water in 2006, including for the first time an entire river system (the Little Wabash River and its tributaries)." PC 6298 at 32.

The Agency characterizes as "extremely misleading" Dr. Peter Chapman's claim that 74% of the waters listed as impaired due to mercury would still be impaired due to PCBs even if the Agency's proposal "resulted in all fish in the listed waters achieving compliance with the mercury criteria". PC 6298 at 31; *see generally* Exh. 129. The Agency responds that there are "numerous waters that could have been listed as impaired due to mercury but have not because of FCMP policy decisions." PC 6298 at 31. For example, the FCMP requires two or more recent samples exceeding a criterion for a contaminant in order to issue an advisory. *Id*. Also, FCMP has "decided that initial samples of predator species having mercury levels in the one meal/week range (0.06-0.22 mg/kg) will not be followed up, since the statewide advisory already covers those samples." *Id*. The Agency argues that, if it had followed up those initial samples, many more waters may have been listed as impaired for mercury. *Id*. In support of this claim,

the Agency notes that "two-thirds to three-quarters of all waters sampled between 1988-2001 had predator species that would require advisories for mercury." *Id*., citing TSD at 53.

The Agency argues that the Agency "has presented testimony in support of the proposition that reductions in mercury emissions ultimately result in reduction in mercury in fish tissue." PC 6298 at 32; *see* Exh. 20 (study published by Florida Department of Environmental Protection), Exh. 21 (study published by Massachusetts Department of Environmental Protection). By requiring a 90% reduction in mercury emissions by 2009, the Agency reflects its position that "larger and faster reductions in mercury emissions are the most appropriate way to address sport fish advisories for methylmercury." PC 6298 at 32. The Agency states its expectation that adoption of its proposal will slow the growth of the Special Mercury Advisory, possibly result in delistings from that advisory, and reduce the waters listed as impaired due to mercury. PC 6398 at 32-33.

Board Discussion on Fish Advisories

The Board notes that the record in this proceeding, including the testimony of Dr. Hornshaw and Ms. Willhite, indicates that the Agency's proposal can be expected to result in reductions in fish tissue mercury concentrations in Illinois. In this regard, the Board has previously found that the evidence in the record supports the Agency's contention that Illinois coal-fired EGUs represent a significant source of mercury deposition on Illinois waters. *See supra* 59. Further, the record supports Agency's position that reduction of mercury emissions result in lower mercury levels in fish tissue. Consequently, the Board believes that adoption of the proposal can be expected to result in delistings from the Special Mercury Advisory, and reduce the number of waters listed as impaired due to mercury.

The Board notes Midwest Generation's argument that the Agency's witnesses may not have described the expected results of this proposal with perfect consistency. However, those descriptions do not irreconcilably conflict with one another and do not undercut the Agency's general rationale for the proposal. The Board notes that even if reduction of mercury emissions from Illinois utilities does not result in the reduction of mercury levels in fish tissue on a one-to-one basis, the record supports the Agency's position that the proposal will result in a significant reduction in fish tissue mercury levels.

The Board concludes that reducing fish tissue mercury concentrations and reducing or eliminating fish consumption advisories are not likely to occur without reducing mercury emissions. Compared to CAMR, the Agency's proposal reduces mercury emissions from Illinois utilities more quickly and more deeply. Accordingly, the Board finds that the Agency's proposal can be expected to result in reducing fish tissue mercury concentrations and reducing or eliminating fish consumption advisories and that those benefits support adoption of the proposal.

Economics of Compliance

In this section of the opinion, the Board will address the arguments made by the participants concerning the economics of complying with the proposal. The Board concludes this section with a discussion and the Board's findings.

Midwest Generation's Comment

Midwest Generation argues that the realistic and necessary cost of complying with the Agency's proposal is so great that adoption of the proposal is economically unreasonable. PC 6300 at 50, 54. As a preliminary matter, Midwest Generation states that "[t]here is only a limited dispute as to the costs of various mercury control equipment." PC 6300 at 54. Midwest Generation argues that there are significant differences between the Agency's and the opponents' cost estimates based on differing "assumptions as to what control equipment will need to be installed." *Id*. at 55. Specifically, Midwest Generation states that the Agency has concluded that use of HCI alone will achieve compliance with the Agency proposal. PC 6300 at 54. Midwest Generation also states the opponents' position that, while HCI will provide some level of control, it has not yet been persuasively shown to be able to satisfy the requirements of that proposal. *Id*. Midwest Generation argues that, because compliance with the Agency's proposal will require more than HCI alone, the proposed rule is "impossible financially." PC 6300 at 3.

Midwest Generation accounts for industry's caution with regard to the sufficiency of HCI by arguing that the Agency and the utilities face very different risks from reaching the wrong conclusion about that sufficiency. *See* PC 6300 at 54-55. Midwest Generation states that the Agency risks nothing if the conclusion that HCI is sufficient to comply with the proposal proves to be incorrect. *Id*. at 55. On the other hand, Midwest Generation states that, if companies rely upon an incorrect conclusion regarding the sufficiency of HCI, then companies that rely on the Agency's conclusion will risk "criminal and civil enforcement actions by the Agency and USEPA, citizens' suits, possible penalties, and even shut-down orders." *Id*. Accordingly, Midwest Generation states that the Agency and the utilities reach very different conclusions about the cost of complying with the proposal because they differ with regard to the technology required to comply. *Id*.

Midwest Generation notes that the analysis of the Agency's proposal conducted by ICF Resources, Inc. (TSD at 167-84) and the testimony of Dr. Ezra Hausman (6/22Tr. at 274-91, 6/23Tr. at 292-447) are "somewhat inconsistent" but that the two agree "that the proposal will cost $32 million per year more than CAMR in 2010 through 2017." PC 6300 at 56, citing TSD at 159. Midwest Generation further notes that trading emissions under CAMR and co-benefits obtained through CAIR distribute costs more evenly than the Agency's proposal. PC 6300 at 56. Ultimately, Midwest Generation characterizes the Agency's cost estimate as a "grotesque underestimate" and states that capital costs alone "will be over $1 billion more than CAIR/CAMR" (emphasis in original). *Id*.

In support of this conclusion, Midwest Generation refers to the testimony of Mr. Marchetti. *See* Exh. 118. Stressing the technology and the schedule for installation that would provide some assurance that EGUs could comply with the Agency's proposal, Mr. Marchetti states that the capital costs alone would be $1.77 billion. PC 6300 at 56, citing Exh. 118 at 7, 8/18Tr. at 1298. Tallying non-capital expenses, Mr. Marchetti concluded that the Agency's proposal would cost EGUs approximately $200 million per year for ten years in addition to costs imposed by CAIR/CAMR. PC 6300 at 57, citing Exh. 118 at 11, 8/18Tr. at 1301.

Midwest Generation further argues that, although she testified in support of the proposal including an MPS, Dr. Anne Smith reached a conclusion with regard to costs that is comparable to Mr. Marchetti's. PC 6300 at 57. Specifically, Dr. Smith testified that Ameren must raise "nearly $650 million in 2006 present value" by 2009 in order to comply with the Agency's proposal. *Id*., citing Exh. 77 at 11. According to Midwest Generation, "the proposal would impose on Ameren alone some $450 million more than CAIR/CAMR in capital costs and just by 2009" (emphasis in original). PC 6300 at 57. Midwest Generation notes Dr. Smith's estimate that, without the MPS provisions, the Agency proposal would cost all EGUs approximately $1.13 billion more than CAIR/CAMR. *Id*., citing 8/15Tr at 398-99.

Midwest Generation further argues that "the so-called flexibility provisions," *i.e.*, the TTBS and the MPS, do not effectively mitigate these costs. PC 6300 at 58. With regard to the TTBS, Midwest Generation claims that the Agency presented no evidence about the effect of the TTBS on costs. *Id*. Midwest Generation also argues that the TTBS is explicitly limited by its own terms to no more than 25% of generators. *Id*. Furthermore, Midwest Generation argues that, to the extent that any generator avails itself of the TTBS, it will merely postpone and not reduce its costs. PC 6300 at 58. With regard to the MPS, Midwest Generation notes that Ameren's own witness testified that, if only Ameren elected to use it, then the present value of Ameren's costs would actually increase to $1.35 billion. *Id*., citing Exh. 77 at 12, 8/15Tr. at 400. Midwest Generation accounts for Ameren's willingness to support a more costly option by citing Dr. Smith's testimony that "[t]here are substantial benefits to companies if they can spread the capital costs over a longer period of time." PC 6300 at 58, citing Exh. 77 at 10.

In addition, Midwest Generation suggests that the Agency is oblivious "to the fact that the [proposed] rule places Illinois' power generators at a competitive disadvantage with power producers in other states." PC 6300 at 4, citing Exh. 77 at 10, Exh. 118 at 6-7, 8/15Tr. at 430-32. Midwest Generation stresses the testimony of Mr. Marchetti, who testified that compliance costs are even more onerous because the generation of electricity will decline, reducing revenues for Illinois EGUs. PC 6300 at 4, citing Exh. 118 at 6. Ultimately, argues Midwest Generation, Illinois consumers will bear the weight of higher costs. PC 6300 at 5.

Ameren's Comment

Ameren states that it offered an MPS amendment to the Agency's proposal in order to obtain mercury emissions reductions as a co-benefit of control devices used to reduce emissions of SO_2 and NO_x. PC 6301 at 7. Ameren argues that the MPS "synchronizes the control of these emissions" in an economically reasonable manner. *Id*. Ameren refers to the testimony of Mr. Menne, who stated that "the MPS will meet the goal of 90 percent mercury emissions on most units, on a time frame extended by only three years, as well as making significant reduction in NO_x and SO_2, above those required by CAIR." PC 6301 at 8, citing Exh. 75, Exh. 76. Ameren also cites the testimony of Dr. Smith. PC 6301 at 9; *see* Exh. 77. She stated that, although the MPS requires larger expenditures than the Agency's original proposal because of the added NO_x and SO_2 controls, "these expenditures are greatly smoothed out, in a manner that should be far more feasible to finance, and with a far more manageable rate of increase in demands on cash flow." PC 6301 at 9, citing 8/15Tr. at 388-442. Dr. Smith characterized these higher capital expenditures as "a prudent trade-off for Illinois EGUs to make 'from the perspective of corporate

financial stability, corporate management of construction projects (with associated operational stability), and the creation of opportunities to achieve these environmental benefits at a lower ultimate total cost.'" PC 6301 at 9, citing Exh. 77.

Kincaid's Comment

Kincaid argues that the Agency has throughout this proceeding relied on ACI in support of a 90% reduction in mercury emissions. PC 629 at 8-11. Kincaid believes that this reliance is misguided on two bases. First, Kincaid believes that actual costs for constructing and operating ACI systems are substantially higher than the estimated costs provided by Dr. Staudt in his testimony for the Agency. PC 6299 at 8-9, citing 6/21Tr. at 5, 7. Second, Kincaid claims it has demonstrated "that ACI is not capable of reliably achieving the required emissions level all of the time." PC 6299 at 9. Accordingly, Kincaid believes it "must rely on fully demonstrated technologies" such as the TOXECON system including an ACI system in addition to a fabric filter. PC 6299 at 9-10, citing TSD at 130. While the Agency suggests that capital costs for a TOXECON system would be in the range of $40-60/KW, Kincaid notes that the U.S. Department of Energy estimated those costs at $126/KW. PC 6299 at 10. For Kincaid, that higher estimate represents capital costs of $157 million to install the TOXECON system. *Id.* Kincaid concludes by stating that "[t]his cost is not economically reasonable and no portion of the testimony in the record supports such excessive costs as being economically reasonable." *Id.*

Environmental Advocates' Comments

The Environmental Advocates first stress that it is difficult for any opponent of the proposal to argue that it is not economically feasible when both Ameren and Dynegy support the proposal as amended by the MPS. PC 6297 at 9. The Environmental Advocates also stress that "the remaining opponents have presented no facility-specific or companywide information about the projected costs of compliance." PC 6297 at 9. The Environmental Advocates emphasize that Mr. DePriest, a Midwest Generation witness, testified that "he had prepared cost estimates, but was not at liberty to share this analysis." PC 6297 at 9, citing 8/17Tr. at 1058, 1065, 1069.

The Environmental Advocates state that, in addition to providing no projected compliance costs, the opponents also failed to evaluate any of the elements of the Agency's proposal that "provide substantial flexibility to regulated entities." PC 6297 at 9. The Environmental Advocates argue, for example, that Mr. Marchetti's testimony "on economic modeling did not account for either the TTBS or the MPS." PC 6297 at 11, citing 8/18Tr. at 1308-09. The Environmental Advocates listed the elements of the Agency's proposal that they view as adding flexibility for EGUs. First, the Environmental Advocates note that the proposal allows "a regulated entity to choose to comply using an output-based standard, .008 lbs/gwh, or a percentage reduction, 90%." PC 6297 at 9; *see* Proposed Section 225.230(a)(1). Second, the Environmental Advocates state that the proposal allows "a regulated entity to elect to comply using any combination of techniques and technologies." PC 6297 at 10, citing Proposed Section 225.233. Third, the Environmental Advocates stress that the language of the proposal delays compliance for nearly three years to July 1, 2009. PC 6297 at 10; *see* Proposed Section 225.230(a)(1).

Fourth, the Environmental Advocates emphasize that the Agency's proposal allows "compliance to be determined on a 12-month rolling average." PC 6297 at 10; *see* Proposed Section 225.230(a). Fifth, the Environmental Advocates note, the proposal includes provisions "allowing owners of multiple EGUs to choose to comply by averaging among units during the first phase of the regulatory program (through 2013), and allowing owners of single EGUs to average with other similarly situated operators." PC 6297 at 10; *see* Proposed Section 225.232. Sixth, the Environmental Advocates stress that the Agency's proposal allows "a complete opt-out for units the regulated entity decides to shutdown." PC 6297 at 10; *see* Proposed Section 225.235.

Seventh, the Environmental Advocates note that the TTBS allows a regulated entity "to set aside 25% of its units from meeting a numeric standard until 2015, upon a showing that these units are optimizing ACI mercury control equipment and meeting other operational requirements." PC 6297 at 10; *see* Proposed Section 225.234. Eighth, emphasize the Environmental Advocates, the proposal allows a regulated entity to elect to follow a multi-pollutant control strategy. PC 6297 at 10; *see* Proposed Section 225.233. Finally, the Environmental Advocates also note that the proposal provides "for the same alternative mercury monitoring requirements contained in the federal CAMR," including newer CEM systems. PC 6297 at 10; *see* Proposed Section 225.240.

Emphasizing the cost of ACI systems and elements of the proposal that are intended to provide flexibility to regulated entities, the Environmental Advocates claim that "it is not surprising that Dr. Ezra Hausman characterized the cost to owners of Illinois coal plants as almost negligible." PC 6297 at 12. Specifically, Dr. Hausman stated the total annual cost of the Agency's proposal as $33 million. PC 6297, citing Exh. 51 at 8. The Environmental Advocates argue that "[t]here is reason to believe the impact on consumers would be close to zero." PC 6297 at 11-12. Dr. Hausman argued that there exists no mechanism through which Illinois consumers could be directly charged those minimal costs of adopting the Agency's proposal. PC 6297 at 12. "Consequently, Dr. Hausman estimates the total additional cost to consumers to be between $0 and $11 million." PC 6297 at 12, citing Exh. 51 at 8.

Agency's Comment

The Agency argues that it has provided a detailed and accurate estimate of the cost for each Illinois EGU to comply with the proposed rule. PC 6298 at 13, citing TSD at 161-66. The Agency disputes Mr. Marchetti's suggestion that only industry's estimates weighed site-specific data. PC 6298 at 14. The Agency claims that the "economic analysis considered site-specific factors when evaluating the suitability, cost and performance of mercury control technology." PC 6298 at 13-14. Specifically, the Agency states that it took into account factors including "fuel characteristics, duct sizes, ESP sizes, use of flue gas conditioning, and other plant-specific matters that may affect the sorbent injection system design." PC 6298 at 13. The Agency also reports that Agency personnel visited every plant to verify the information on which it relied in calculating its estimates. *Id*. Ultimately, the Agency concludes that the cost estimates are well supported because test results show that the use of sorbent injection will allow plants burning PRB coal to meet the requirements of the Agency proposal. PC 6298 at 14 (referring to TSD and Staudt testimony).

The Agency argues that actual compliance costs have some likelihood of being lower than the Agency's current estimates. PC 6298 at 15. First, the Agency acknowledges that some sorbents can interfere with beneficial reuse of fly ash. PC 6298 at 15. Because of that expected adverse effect, the Agency suggests that it has included the cost of disposing of that fly ash into the economic analysis. *See id.* The Agency notes, however, that new sorbents are undergoing testing in order to determine whether those effects on fly ash can be reduced or eliminated. *Id.* (referring to TSD § 8.4.4.3). Second, the Agency argues that "[s]orbent costs are also expected to drop from the estimate in the TSD." PC 6298 at 15. The Agency stresses Mr. Cichanowicz's testimony that expanded use of SCRs generated competition to supply the catalyst, which substantially reduced prices for it. *Id.* The Agency expects that "a market for mercury sorbent will attract competitors that will likely drive down prices." *Id.*

The Agency argues that industry's "exceedingly large" estimate of the cost of complying with the proposal stems from Mr. Cichanowicz's belief that sorbent injection would not produce a 90% reduction in mercury emissions and that fabric filters would therefore be necessary at plants burning PRB coal. PC 6298 at 14. The Agency discounts the basis of Mr. Cichanowicz's testimony on this issue by arguing that his view about any relationship between ESP size and mercury removal efficiency "does not withstand analysis." PC 6298 at 14. The Agency further argues that Mr. Cichanowicz has misinterpreted the work of Dr. Clack (8/16Tr. at 740-64) and has misunderstood testing at the Yates Unit 1 plant in Georgia (8/16Tr. at 640-42). *Id.*

Board Discussion of Economic Compliance

With regard to the economic reasonableness of the Agency's proposal, Midwest Generation has acknowledged that "[t]here is only a limited dispute as to the costs of various mercury control equipment." PC 6300 at 54. Instead, the Agency and the opponents of the proposal strenuously disagree about the control equipment that must necessarily be installed in order to comply with the proposal. The Agency states that "the evidence from actual test programs supports the conclusion of Illinois EPA that sorbent injection will allow PRB coal-fired units to meet the requirements of the proposed Illinois rule, supporting Illinois EPA's cost estimate." PC 6298 at 14. The Agency estimates that "[t]he yearly additional control costs associated with the Illinois rule are $33 million." Exh. 51 at 8. In his testimony on behalf of the Agency, Dr. Hausman translated that amount "into an average cost increase for the Illinois coal plants of $0.375/MWh." *Id.* Dr. Hausman further noted that "current retail prices in Illinois are about $70.00/MWh and are likely to increase if price caps are removed as proposed." *Id.*

Midwest Generation argues that testing to date has not shown that sorbent injection alone is sufficient to comply with the Agency's proposal. Accordingly, Midwest Generation believes that EGUs cannot rely on sorbent injection alone and will have to install additional mercury control equipment in order to avoid facing an enforcement action. Midwest Generation argues that the Agency's proposal will result in capital costs of more than $1 billion more than those required by CAIR/CAMR. PC 6300 at 56. Including non-capital costs, Midwest Generation claims that the Agency proposal would cost EGUs approximately $200 million each year for ten years in addition to the costs required by CAIR/CAMR. *Id.* at 57, citing 8/18Tr. at 1301, Exh. 118 at 11.

In the preceding section of this opinion and order, the Board extensively addressed the technological feasibility of the Agency's proposal. *See supra* 22. The Board found the Agency's proposal technically feasible by considering sorbent injection as the means to achieve required reductions in mercury emissions for PRB coal-fired units along with the flexibility offered by TTBS, MPS and averaging. *See supra* 51. Based on this finding, the Board believes that the annual incremental cost of compliance with the proposed rules instead of CAMR will be consistent with the Agency's estimate of $33 million rather than the compliance costs presented by Midwest Generation and Kincaid. The Board recognizes that the cost for some units such as those opting into MPS may be higher, but those costs also represent the cost of controlling SO_2 and NOx. In view of the significant reductions in mercury emissions expected by the implementation of the proposed rules, the Board finds that the Agency's proposal as amended is economically reasonable.

Board Conclusion on Economic Reasonableness

The Board fully recognizes that the Agency proposal will result in costs for Illinois EGUs and that those costs will exceed those required by implementation of CAMR. Nonetheless, the Board noted above that, compared with CAMR, the Agency's proposal reduces mercury emissions more quickly and more deeply than CAMR. The Board concluded above on the basis of the record in this proceeding that the proposed rule can be expected to result in reduction of mercury deposition and to benefit the public health in the state. Therefore, the Board finds that when the Agency's estimated compliance costs are weighed against the expected benefits, the proposed rule that the Board adopts today is economically reasonable.

LEGAL ISSUES

The participants have raised several legal issues concerning portions of the proposal. Both Kincaid and Midwest Generation challenge the Board's authority to adopt the language of the MPS before proceeding to second notice. Specifically, Kincaid argues that the Board cannot adopt the NO_x and SO_2 provisions under Illinois and federal administrative law. PC 6299 at 19. Kincaid also argues that adoption of NO_x and SO_2 is prohibited by Section 27 of the Act (415 ILCS 5/27 (2004)) and SO_2 rules are prohibited by Section 10 of the Act (415 ILCS 5/10 (2004)). PC 6299 at 30. Midwest Generation joins Kincaid in challenging the inclusion of SO_2 limits as being a violation of Section 10 of the Act (415 ILCS 5/10 (2004)). PC 6300 at 29. Kincaid and Midwest Generation argue that the U.S. Constitution precludes adoption of the MPS. PC 6299 at 31; PC 6300 at 32.

In addition to the legal challenges concerning the MPS, Midwest Generation also argues that the inability to measure mercury removal violates the Due Process Clause of the Constitution. PC 6300 at 46. The Board will address each of the challenges in turn.

Illinois and Federal Administrative Law

Kincaid's Comment

Kincaid argues that adoption of the MPS would violate both federal and State administrative law because of the inclusion of NO_x and SO_2 limits. PC 6299 at 19. Kincaid cites numerous federal cases which establish that if the amendment is not a "logical outgrowth" of the rulemaking, the amendment is improper. PC 6299 at 19-25. Kincaid argues that other states have also confronted this issue and referenced and followed the federal holdings. PC 6299 at 26. However, Kincaid has found no Illinois case law on point, but relies on Senn Park Nursing Center v. Miller, 104 Ill. 2d 169, 470 N.E.2d 1029 (Ill. 1984) for support. In Senn Park, the Illinois Supreme Court indicated that actual knowledge of a change by an appealing party was not sufficient to satisfy the agency's legal requirements for notice and comment as to the change. PC 6299 at 27, citing Senn Park, 470 N.E.2d at 1035.

Kincaid asserts that the Board's adoption of the MPS would violate the "fundamental and long-established tenet of administrative law" that only amendments, which are a logical outgrowth of the original proposal, may be adopted. PC 6299 at 27. The proposed rule did not contain any reference to regulation of NO_x and SO_2 so no potentially interested party would have "any inkling" that NO_x and SO_2 might be addressed in the final rule, argues Kincaid. *Id*. Further, Kincaid asserts that the fact that the MPS is only one method of achieving compliance does not relieve the Board from the requirements of the APA. *Id*.

Kincaid maintains that the failure to identify the MPS in the Board's first notice has specifically prejudiced Kincaid. PC 6299 at 28. Kincaid notes that no formal notice for the concept of regulating SO_2 and NO_x was ever provided and that, given the brief time between the filing of the joint statement and the Board's hearing, there was not adequate opportunity to respond to the MPS in any meaningful manner. PC 6299 at 28. Kincaid argues that these are not minor concerns as controls on SO_2 and NO_x are highly technical and can cost tens or hundreds of millions of dollars. PC 6299 at 28-29. Kincaid opines that for the Board to believe that Kincaid could intelligently respond to such a significant departure from the original proposal in only ten business days is arbitrary and capricious. PC 6299 at 29. Kincaid maintains that not only would the adoption of the MPS violate fundamental and long established tenants of administrative law, Kincaid would be directly harmed by any such adoption. PC 6299 at 29.

Midwest Generation's Comment

Midwest Generation also questions whether regulation of SO_2 and NO_x under mercury regulation is appropriate. PC 6300 at 26. Midwest Generation argues that NO_x and SO_2 have nothing to do with the requirements to control mercury emissions and the inherent problems with inclusion of NO_x and SO_2 were "apparent" at the Chicago hearing. PC 6300 at 27-28. Midwest Generation asserts that participants found themselves repeatedly asking questions concerning the implications of the inclusion of NO_x and SO_2. PC 6300 at 28.

Agency's Comment

The Agency comments that the proposed rule focuses on the control of mercury emissions, but contains the optional MPS provisions so that companies can comply using an alternative method. PC 6298 at 43. The Agency states that under the MPS, companies can

commit to voluntarily meet numerical emissions standards for NO_x and SO_2 in return for flexibility in complying with the mercury emissions standards. PC 6298 at 43-44.

Board Discussion of Illinois and Federal Administrative Law

The legal challenge to adopting the MPS presented here is simply that regulation of NO_x and SO_2 is not a logical outgrowth of the regulation of mercury. If the MPS required every EGU in the State to comply with NO_x and SO_2 emissions standards, the Board might agree with the arguments presented by Kincaid and Midwest Generation. However, the MPS does not require every EGU in the State to comply with emissions standards for NO_x and SO_2. Rather, the MPS establishes mercury emissions limits and to achieve those emissions limits, EGUs may elect to utilize co-benefits realized from emissions reductions of NO_x and SO_2. An EGU that does not choose to comply with the mercury rule using the MPS is not subject to NO_x and SO_2 reductions as a result of this rulemaking.

Control of mercury emissions and limits on those emissions is the subject of this rulemaking. During the public rulemaking process, Ameren, Dynegy and the Agency put forth an alternative method for compliance with the mercury emissions limits proposed in this rulemaking. The proposal of this alternative, from the public and the proponent, is exactly the type of change the Board anticipates when developing a rulemaking through the Board's public process. After reviewing a proposal, members of the regulated community may raise an alternative with which the proponent can agree. The alternative is then suggested to the Board. Ultimately, the Board's acceptance of the MPS is a result of the public participating in this proceeding and suggesting an alternative that better serves the individual companies proposing the change, while meeting the goals of the proposal. Ameren, Dynegy, and the Agency have suggested an alternative mercury emissions control plan, which happens to include limits on other pollutants; but in the end, the alternative is a plan for the control of mercury emissions. This rulemaking was proposed to and includes limits on mercury emissions. Therefore, the Board finds that the suggested addition of the MPS from Ameren, Dynegy and the Agency is a logical outgrowth of the process.

The record contains extensive comment from participants indicating that there are co-benefits from controlling SO_2 and NO_x emissions that reduce mercury emissions. *See* TSD at 199; 6/21pmTr. at 45-46, 51. Thus, the proposal of an alternative, designed to take advantage of those co-benefits, is logical and an appropriate amendment to the rule.

The next challenge involves the timing of the proposed amendment. Kincaid argues that by proposing such a significant departure from the original proposal, Kincaid did not have sufficient time to prepare a response. PC 6299 at 29. Kincaid asserts that for the Board to believe that Kincaid could respond is arbitrary and capricious. *Id*. The Board believes that Kincaid has overstated the nature of the MPS proposal. The MPS is an alternative method for compliance with the underlying standard, not a replacement of that standard. The inclusion of the MPS will not change the underlying requirements that Kincaid must meet; the MPS is merely an alternative for companies to consider. Nothing in the MPS would require any company to utilize the MPS, each company must determine that on their own.

Thus, the proposal of the MPS by Ameren and the Agency at the time that prefiled testimony was due for the second Board hearing was appropriate. The participants had time to examine the language change and prepare questions for Ameren before the prefiling deadline of August 7, 2006, for questions and hearing began on August 14, 2006. Many questions were prefiled and Ameren and the Agency answered several follow-up questions. *See* CTr. at 1-442. The participants then had until September 20, 2006, the deadline for public comment, to file written post-hearing comments and further address the issue of the MPS. Both Kincaid and Midwest Generation have filed extensive comments, which the Board today considers.

For the reasons discussed, the Board finds that adding the MPS language to the proposed rule is consistent with federal and state administrative law. Further, the Board finds that the submission of the joint statement at the time that prefiled testimony was due for the second Board hearing did allow meaningful time for other participants to review the language and develop questions.

Section 27 of the Act

Kincaid's Comment

Kincaid notes that Section 27 of the Act (415 ILCS 5/27 (2004)) requires the Board to consider the technical feasibility and economic reasonableness of "reducing the particular type of pollution for which controls are sought." PC 6299 at 30. Kincaid argues that there is no factual basis in the record that the MPS is technically feasible and economically reasonable for Ameren and Dynegy except for their acquiescence to the language. *Id.* Kincaid further asserts that there is no basis in the record that the controls of the MPS are technically feasible and economically reasonable for any facility other than Ameren and Dynegy. PC 6299 at 30-31. Kincaid presented testimony that the MPS would not be technically feasible and economically reasonable for Kincaid. PC 6299 at 31. Kincaid maintains that the Board cannot avoid Section 27 requirements for rulemaking simply by stating that the MPS requirement is only one option in a broad array of options. *Id*.

Midwest Generation's Comment

Midwest Generation argues that the Agency has a statutory burden in this rulemaking to provide support for the proposal. PC 6300 at 6. Midwest Generation asserts that promulgation of a rule where there is a lack of support would be arbitrary and capricious. *Id*. Further, Midwest Generation asserts that Section 27 of the Act (415 ILCS 5/27 (2004)) requires the Agency to demonstrate that the rule is technically feasible and economically reasonable. PC 6300 at 8, 50. Midwest Generation cites Commonwealth Edison Co. v. PCB, 25 Ill. App. 3d 271, 323 N.E.2d 84 (1st Dist. 1974) to support the argument. Midwest Generation points to language in Commonwealth Edison that defines "technically feasible" and "economically reasonable" as a determination that the rule "is reasonable and capable of compliance by a substantial number of individual units in the state" by a specified deadline. PC 6300 at 8, 50 citing Commonwealth Edison, 25 Ill. App. 3d at 281-82. Midwest Generation maintains that the Agency has not demonstrated that the rule is technically feasible and economically reasonable. PC 6300 at 8, 50.

Ameren's Comment

Ameren disagrees with Kincaid and argues that adoption of the MPS will not violate Section 27 of the Act (415 ILCS 5/27 (2004)); however, Ameren's argument does not relate to the issue of technical feasibility and economical reasonableness. PC 6301 at 12-14. Rather, Ameren argues that Section 27 of the Act (415 ILCS 5/27 (2004)) allows the Board to include in a rule of general applicability provisions that set different requirements for different sources, areas, and companies. PC 6301 at 12-13.

Ameren asserts that Midwest Generation's argument made in Midwest Generation's oral motion (*see* CTr. at 75-89) that the MPS cannot be included because this is a rule of general applicability is erroneous. PC 6301 at 12-14. Ameren argues that Midwest Generation's reliance on Commonwealth Edison, in the oral motion (*see* CTr. at 77), was misplaced. PC 6301 at 13. Ameren maintains that the court in Commonwealth Edison held only that the Board could choose not to make exceptions in rules of general applicability for individual companies and not that the Board was prohibited from adopting different rules for different situations. *Id*. Further, Ameren notes that none of the proposed rule revisions are directed at specific Illinois EGUs, but rather allow flexibility for compliance with the mercury rule. PC 6301 at 13-14. Different EGUs can choose how the company will ultimately comply from the options available including the output based standard, a percent reduction standard, the TTBS, or the MPS. PC 6301 at 14. In Ameren's opinion the fact that a company may not choose an option for compliance has no bearing on the Board's authority to adopt the option. *Id*.

Board Discussion of Section 27 of the Act

As to the issue of whether the record contains information sufficient to determine the technical feasibility and economic reasonableness of the MPS, the Board refers to the discussion *infra* at 22 and 54. In essence, the Board has reviewed the record and based on the information in the record found that the MPS is technically feasible and economically reasonable. As will be discussed below, the Board is aware of the issues facing Kincaid in complying with any part of this proposed rule. However, the individual problems faced by Kincaid can be addressed in other forums. Generally, the Board believes the MPS offers a viable alternative for compliance. Therefore, Kincaid's argument that adoption of the MPS would violate Section 27 of the Act (415 ILCS 5/27 (2004)) is not persuasive. The Board finds that because the Board has taken into account the technical feasibility and the economic reasonableness of the MPS, the adoption of the MPS is allowed under Section 27 of the Act (415 ILCS 5/27 (2004)).

The Board also rejects Midwest Generation's argument that the rule violates Section 27 of the Act because the rule is not technically feasible and economically reasonable as defined by the court in Commonwealth Edison. As discussed *infra* at 53 and 78, the Board has found the proposed rule to be technically feasible and economically reasonable. The Board finds that the regulated community with one exception, Kincaid, can comply with the proposed rule as amended at second notice. As discussed below, the Board believes that Kincaid should seek relief from the rule requirements.

As to Ameren's position that the Act allows the Board to adopt "exceptions" in a rule of general applicability, the Board agrees with Ameren. The court in Commonwealth Edison stated:

> Substantive rules of this nature are promulgated for general, not special, application. Consequently, investigators for the Board gather facts and solicit expert advice in regard to pollution problems affecting all types of companies in a particular trade. In a case like the present one, the Board would have been charged with investigating facts and operations of all types of generating units -- single-and multi-unit, commercial, industrial, and public utility -- and from these surveys extrapolate the appropriate principles and propose the necessary regulations. The Board cannot be expected to research, evaluate, and make allowance for every special, unusual, or unique problem involving every producer of electrical energy. Where one fails to challenge the rules generally and instead seeks to relax their enforcement against him exclusively due to arbitrary and unreasonable hardship, the legislature has determined that the appropriate remedy is for the aggrieved party to seek a variance in accordance with Title IX of the Act. If that is denied, the aggrieved can petition to this court for review based on the record at that proceeding. We hold, therefore, that Commonwealth's 'as applied' argument cannot be raised at this stage of review. Commonwealth Edison 25 Ill. App. 3d at 281, 323 N.E.2d at 90.

Plainly, the court's finding is that an individual company cannot challenge the Board's rules of general applicability based on hardships associated with that individual company. However, nothing in the court's statements, nor the Act, limits the Board's ability to develop compliance alternatives for companies in a rule of general applicability.

The Board finds that the authority of the Board pursuant to the Act does allow the Board to amend a rule of general applicability to create exceptions. In this case, the MPS is available to all companies operating in the State. The Board is aware that Kincaid, due to its unique circumstances, may not be able to utilize the MPS; however, that fact does not limit the Board's authority to adopt the MPS.

Section 10 of the Act

Kincaid's Comment

Kincaid argues that Section 10 of the Act (415 ILCS 5/10 (2004)) prohibits the adoption of SO_2 regulations and emissions standards for existing fuel combustion stationary emissions sources outside Chicago, St. Louis, and Peoria Metropolitan areas unless those regulation are necessary to meet the Primary National Ambient Air Quality Standards (NAAQS). PC 6299 at 30. Kincaid argues that there is no evidence in the record that the SO_2 portion of the MPS is necessary for attaining and maintaining the SO_2 NAAQS. *Id.* Further, Kincaid notes that many of Ameren's and Dynegy's facilities are located outside the three metropolitan areas. *Id.* Kincaid maintains that the fact that the MPS is one method of achieving overall compliance with

the mercury proposal does not relieve the Board from the prescription of Section 10 of the Act (415 ILCS 5/10 (2004)). PC 6299 at 30.

Midwest Generation's Comment

Midwest Generation agrees with Kincaid that Section 10 of the Act (415 ILCS 5/10 (2004)) prohibits the adoption of SO_2 regulations. PC 6300 at 29. Midwest Generation argues that the plain language of Section 10 is clear and limits the extent to which SO_2 can be regulated. *Id*. Midwest Generation asserts that as a result the Board cannot enact regulations that are more restrictive than necessary to attain the primary or secondary NAAQS for SO_2. *Id*. Midwest Generation maintains that because there are no SO_2 nonattainment areas in the State, the Board cannot adopt SO_2 limitations outside the three metropolitan areas. PC 6300 at 20. Midwest Generation maintains that the record does not support inclusion of NO_x and SO_2 because the Agency can point to no requirements that are necessary for the State to comply with ozone or particulate matter NAAQS. PC 6300 at 28.

Board Discussion of Section 10 of the Act

The Board is unpersuaded by the argument that Section 10(B) of the Act (415 ILCS 5/10(B) (2004)) prohibits adoption of the MPS. Section 10(B) of the Act (415 ILCS 5/10 (2004)) provides that the Board "shall adopt sulfur dioxide regulations and emissions standards . . ." for the State, except for Chicago, St. Louis, and Peoria Metropolitan areas, that are "not more restrictive than necessary to attain and maintain" the primary NAAQS SO_2 and within a reasonable time the secondary NAAQS SO_2. 415 ILCS 5/10(B)(1) (2004)).

Kincaid and Midwest Generation's arguments must fail because the Board is not adopting sulfur dioxide regulations in this rulemaking. The Board is developing a rule which limits the emissions of mercury in the State. One compliance option for mercury emissions limitations is the use of the MPS. The MPS will allow a source to voluntarily reduce SO_2 emissions to allow for co-benefits that limits mercury emissions. If a source does not choose to use the MPS for mercury control, there are no new emissions limits for SO_2. Thus, the Board finds that Section 10 of the Act does not prohibit the adoption of the MPS language.

Supremacy Clause and Commerce Clause

Kincaid's Comment

Kincaid argues that adoption of the MPS would violate both the Commerce Clause and the Supremacy Clause of the U.S. Constitution. PC 6299 at 31-32. The Supremacy Clause invalidates state laws that interfere with or are contrary to federal law; while the Commerce Clause prohibits restrictions on interstate commerce. *Id*. Kincaid relies on Clean Air Markets v. Pataki, 194 F. Supp. 2d 147 (N.D.N.Y. 2002) to support the argument. *Id*. Specifically, Kincaid notes that in Clean Air Markets, New York passed a law restricting trading of SO_2 allowances and the court found federal law preempted the restriction. PC 6299 at 31. Further, in Clean Air Markets, the court found that New York's law imposed a burden on interstate commerce. PC 6299 at 32.

Kincaid notes that the MPS requires that SO_2 allowances be surrendered. Kincaid argues that this surrender effectively prohibits trading of SO_2 allowances. PC 6299 at 31. Kincaid maintains that surrendering of allowances, for the Agency to retire, reduces the size of allowances available pursuant to Title IV of the CAA. Kincaid asserts that under the Supremacy Clause and Clean Air Markets, Illinois cannot impede the CAA's cap and nationwide SO_2 allowance trading systems. PC 6299 at 31-32. Therefore, Kincaid argues that the CAA may preempt the MPS.

Further, Kincaid asserts that adoption of the MPS may violate the Commerce Clause. PC 6299 at 32. Kincaid states that like Clean Air Markets, the MPS may prohibit Illinois sources from transferring SO_2 allowances in spite of the federal free-market system. *Id.*

Midwest Generation's Comment

Midwest Generation too relies on Clean Air Markets in arguing that the adoption of the MPS would violate the Supremacy Clause and the Commerce Clause of the U.S. Constitution. PC 6300 at 30-34. Midwest Generation's arguments regarding the Supremacy Clause and the Commerce Clause echo those presented by Kincaid and will not be repeated. However, Midwest Generation also questions whether the MPS is a truly "voluntary" option for companies in Illinois. PC 6300 at 30. Midwest Generation relies on U.S. v. Butler, 297 U.S. 1 (1936) for the proposition that "voluntary" is not always "voluntary" in fact. PC 6300 at 30. In Butler, the court determined that the price of refusing to comply was a loss of benefits and as a result the "asserted power of choice is illusory" in that case. PC 6300 at 31, citing Butler 297 U.S. at 70-71.

Midwest Generation argues that the underlying mercury rule is so stringent that companies cannot comply with the requirements absent some relief. PC 6300 at 31. The only option for delaying compliance is the MPS and the MPS is the only "safe harbor" according to Midwest Generation. *Id.* Thus, Midwest Generation asserts that the "voluntary" language of the MPS is illusory. *Id.*

Ameren's Comment

Ameren disagrees with Kincaid and Midwest Generation and argues that Clean Air Markets does not apply to the MPS and federal law will not be violated by the adoption of the MPS. PC 6301 at 14. Ameren argues that the MPS is significantly different from the New York statute invalidated in Clean Air Markets because the MPS has no direct impact on either out-of-state or in-state EGUs that choose not to participate in the MPS. *Id.* Ameren points out that the New York statute took revenues from the sale of allowances by New York EGUs to upwind sources and required a restrictive covenant on all sales that prohibited sale to upwind sources. PC 6301 at 15. Ameren argues that, by contrast, participation in the MPS is voluntary and does not conflict with Title IV of the CAA. *Id.* According to Ameren, the voluntary nature of the MPS eliminates the concern of the Clean Air Markets court that the allowances be freely transferable to any other person. PC 6301 at 16. Ameren maintains that by making the election to participate in the MPS, the company is agreeing to freely transfer allowances to the Agency.

Id. Ameren also asserts that Title IV of the CAA allows for transfer of allowances to the state for retirement and that USEPA has entered into agreements, which required the surrender of allowances. PC 6301 at 16-17.

Ameren maintains that the MPS does not discriminate against interstate commerce and, therefore, does not violate the Commerce Clause. PC 6301 at 18. Ameren notes that the court in Clean Air Markets struck down the statute because the law did not restrict or penalize transfer of allowances between New York generators, the statute gave a preferred right of access to in-state units over units in upwind states. PC 6301 at 19. Ameren argues that no such preference exists with the MPS; both in-state and out-of-state utilities will be deprived of the surrendered allowances. *Id*.

Agency's Comment

The Agency agrees that the MPS does not allow trading of allowances that are generated as a result of measures taken to comply with the MPS numeric emissions limits for NO_x and SO_2. PC 6298 at 49. The allowances needed to meet the MPS limits are required to be retired or surrendered on an annual basis; however, over-complying with the MPS limits can result in allowances which may be sold or traded. PC 6298 at 50.

The Agency notes that under CAIR, certain allowances for SO_2 and NO_x must be retired each year. PC 6298 at 53. The Agency maintains that only the incremental amount of any additional allowances retired as necessary to meet the MPS limits could have an impact on the trading program. *Id*. The Agency asserts that there should be no additional NO_x allowances retried due to participation in the MPS. *Id*. The Agency further asserts that the impact on SO_2 allowances would also be minimal due to the region-wide scope of the trading program. *Id*.

Board Discussion of Supremacy Clause and Commerce Clause

The Board is not convinced that the adoption of the MPS will violate either the Commerce Clause or the Supremacy Clause. Midwest Generation and Kincaid's reliance on Clean Air Markets is misplaced, as the facts of that case are obviously distinguishable from the facts surrounding the MPS. In Clean Air Markets, the New York statute clearly limited the ability to trade allowances by among other things requiring that a restrictive covenant be placed on an allowance when traded. The Clean Air Markets court found that the restrictions on trading violated both the Commerce Clause and the Supremacy Clause. However, that is not the case with the MPS. The MPS does not restrict trading; rather, an allowance is surrendered to the Agency, which in turn retires the allowance. Agreeing to participate in the MPS and thus placing the company in the position of surrendering an allowance is voluntary. If a company does not participate in the MPS, nothing in the rule limits the ability to trade, sell or purchase NO_x and SO_2 allowances. Therefore, the MPS is factually distinguishable from the New York statute and is not contrary to the Commerce Clause or the Supremacy Clause.

As previously discussed, the Board finds that the MPS is voluntary. Nothing in the language of the MPS requires a company to utilize the MPS. And in fact, the proposed rule

includes other options for compliance such as the TTBS and averaging. Therefore, the Board finds that adopting the MPS is not contrary to the court's decision in Butler.

Due Process Clause

Midwest Generation asserts that mercury emissions cannot be measured with sufficient accuracy to determine compliance with or violation of the proposed rule. PC 6300 at 46. Thus, according to Midwest Generation, the rule fails to provide adequate notice or fair notice as required by the Due Process Clause of the US Constitution. *Id*. Midwest Generation maintains that a regulation imposing a binding legal obligation must provide fair notice of those obligations to the parties being regulated. *Id*. Midwest Generation relies on several cases to support this proposition. *Id*. Those cases are General Electric Co. v. EPA, 53 F.3d 1324, 1328-29 (D.C. Cir. 1995); Trinity Broad. of Florida, Inc. v. FCC, 21 1 F.3d 618, 628 (D.C. Cir. 2000); United States. v. Chrysler Corp., 158 F.3d 1350, 1355 (D.C. Cir. 1998); United States v. Hoechst Celanese Corp., 128 F.3d 216, 224 (4th Cir. 1997); Diamond Roofing Co. v. OSHRC, 528 F.2d 645, 649 (5th Cir. 1976); Phelps Dodge Corp. v. FMSHRC, 681 F.2d 1189, 1193 (9th Cir. 1982). *Id*.

Midwest Generation argues that the monitoring technology required by the rule is not accurate enough for a company to determine compliance with the rule; thus a company cannot know if the emissions are in compliance. PC 6300 at 46. Midwest Generation argues that this makes the proposed rule invalid because a company will not have proper notice of what is compliant with the rule. *Id*.

Board Discussion of Due Process Clause

The Board finds that the rule does not violate the Due Process clause of the Constitution. As discussed above, the measurement methods included in the proposal are nearly identical to the measurement requirements of CAMR. Thus, even if the Board were to adopt CAMR, the regulated community would be subject to the same requirements for measurement. Further, the Board has found that the measurement methods proposed are technically feasible and will allow for the measurement of mercury emissions. Therefore, the rule does give proper notice as to what will be noncompliance and accordingly does not violate the Due Process Clause.

KINCAID

As discussed above, Kincaid believes that due to the unique aspects of Kincaid's operations, Kincaid is not eligible for the flexibilities in the proposed rule. PC 6299 at 14. Further, the MPS also provides no relief for Kincaid, because Kincaid argues that reductions in NO_x and SO_2 required by the MPS are reductions Kincaid has already achieved. PC 6299 at 14. Therefore, Kincaid asks the Board to include language that would be applicable to Kincaid that would require Kincaid to install mercury control equipment on both units in 2009, disallows trading of mercury allowances, and targets greater mercury reductions than CAMR, sooner. PC 6299 at 33.

The Board agrees that compliance with the rule as proposed, even with the inclusion of the MPS and TTBS, is not feasible for Kincaid due to the unique circumstances of the facility in

Illinois. The Board has reviewed the amendments offered by Kincaid, but the Board does not find the record adequately supports the changes suggested by Kincaid. Therefore, the Board recommends that Kincaid seek relief from this rule of general applicability using the variance, adjusted standard or site-specific rule provisions of the Act. *See* 415 ILCS 5/28, 28.1, 35 (2004). The Board notes that both Section 28.1(e) and Section 38(b) of the provide an automatic stay of the rule of general applicability if the petition for adjusted standard or variance is filed within 20 days of the adoption of the rule. 415 ILCS 5/28.1, 38(b) (2004). This avenue for relief for Kincaid, will allow Kincaid to work with the Agency to develop a complete record for the Board's consideration.

FEDERAL REQUIREMENTS

Kincaid's Comment

Kincaid notes that under CAMR, each state must demonstrate that the emissions in the state will meet the mercury cap established under CAMR. PC 6299 at 32. Kincaid asserts that how demonstrating compliance with CAMR can be done if the Board adopts the MPS is unclear. *Id*. Kincaid maintains that if Ameren alone opts into the MPS, the emissions increase will be 500 pound. *Id*. Kincaid argues that if other sources opt into the MPS there is a question of whether or not compliance with mercury cap can be achieved. *Id*.

Kincaid also asserts that the adoption of the MPS would not meet the federal requirements for public participation in adoption of state regulations. PC 6299 at 33. Kincaid argues that the public notice did not include any indication that SO_2 and NO_x would be regulated by the proposal. *Id*. Kincaid opines that any rule submitted to USEPA without proper public participation must be rejected. *Id*.

Prairie State's Comment

Prairie State is concerned that the proposed rule creates a future regulatory uncertainty and one way to eliminate that uncertainty is to adopt CAMR's model trading rule and layer the Illinois requirement on top of the model trading rule. PC 6394 at 6-7. Prairie State believes that this is necessary because if Illinois opts out of CAMR, then the CAMR mercury budget for Illinois will be a hard cap on annual emissions in Illinois. PC 6294 at 7. Prairie State is troubled that in 2018, utilities could be in compliance with the Illinois rule, but the total emissions could exceed the CAMR budget. *Id*. If that were to happen, Prairie State argues that Illinois would need to require more reductions of mercury because utilities could not purchase allowances from other states. *Id*. Prairie State opines that one way for Illinois emissions to exceed the mercury budget is if mercury control technologies do not perform a advertised and this is of particular concern with high sulfur coals. PC 6294 at 8.

Environmental Advocates' Comment

The Environmental Advocates argue that the proposed rule is consistent with CAMR, while also being more advanced. PC 6297 at 2. The Environmental Advocates note that CAMR gives states the option to develop their own regulatory approaches for the control of mercury. *Id*.

Environmental Advocates assert that the Agency's proposal is more advanced and targeted than CAMR in protecting the health, safety and welfare if Illinois residents and preserving Illinois' natural environment. *Id*. Environmental Advocates opine that the question is not whether mercury should be controlled, because CAMR does that, but rather whether the Agency's proposal "will produce public health and environmental benefits through deeper, faster reductions than those mandated under CAMR in a manner that is reasonable for regulated entities to achieve." *Id*.

Agency's Comment

The Agency asserts that the proposed rule is sufficiently stringent so as to not jeopardize any exceedances of the CAMR caps. PC 6298 at 66. The Agency states that the budgeted emissions for Illinois equate to a reduction in mercury emissions of approximately 47% by 2010 and 78% by 2018. PC 6298 at 65. Because the proposed rule targets 90% reductions beginning in July 2009, compliance with the CAMR budgeted emissions should occur in both phase 1 an 2 of CAMR. *Id*. The Agency notes that the proposed rule does not include the CAMR budgeted emissions because several factors could affect Illinois' actual mercury emissions approaching the CAMR budgeted emissions. *Id*. Those factors included growth in the industry and additional emissions due to the TTBS and MPS. *Id*. However, the Agency does not believe that the introduction of the additional flexibility in the rule significantly increases the emissions of mercury so as to jeopardize the ability of Illinois to meet the CAMR budgeted emissions. PC 6298 at 66.

Specifically, the Agency asserts that with the MPS, by 2009, companies opting into the MPS are required to install mercury controls that will achieve 90% reduction on all units except certain small units. PC 6298 at 66. The small units are allowed delayed compliance until the end of 2012. *Id*. The Agency argues that the additional emissions from these small units would be minimal compared to the overall reductions and even after 2012, units not required to achieve 90% reduction must still achieve a high level of reduction. PC 6298 at 66-67.

The Agency also believes that the TTBS will not significantly impact Illinois meeting the CAMR budgeted emissions limits. PC 6298 at 67. The Agency notes that under the TTBS only 25% of a company's capacity is allowed to avoid the 90% reduction; however control is still required. *Id*. The Agency asserts that the difference in emissions for a company utilizing the TTBS will be small. *Id*

Board Discussion

The Board is convinced that even with the TTBS and the MPS in the rule, there is little potential for exceeding the CAMR cap. The Agency has indicated that the mercury emissions reductions that will occur for companies utilizing the TTBS and the MPS are significant enough to be within the CAMR cap. The Board agrees that with a target of 90% reduction, the amounts that will be over that 90% reduction due to companies utilizing the TTBS or the MPS, will not result in an exceedence of the CAMR cap. Because the Board does not find a potential for exceedence of the CAMR cap, the Board will not consider trading in the rule.

The Board has previously addressed the issue of notice concerning the addition of the MPS. Kincaid's arguments do not persuade the Board to alter that prior discussion. The subject of this rulemaking is mercury emissions control. The inclusion of an MPS that calls for co-benefits to achieve the emissions standards is a logical outgrowth of the rule and the regulation of SO_2 and NO_x emissions is the result of a voluntary program. The Board finds that this rulemaking has satisfied the public participation requirements of the USEPA.

Changes to the Rule

In addition to the inclusion of the MPS as discussed above, the Board has made changes designed to make the rule more readable and to clarify the language. The Board will not discuss those changes in detail, but the changes are shown in the rule language using strike-through and underline.

CONCLUSION

The Board finds that the proposal, as amended in this opinion and order, is technically feasible and economically reasonable. Further, the Board finds that the Board has the authority to include the MPS in the proposal at second notice and the Board does so. The Board finds that the rule allows flexibility to achieve compliance and will provide health benefits for the citizens of Illinois. Therefore, the Board adopts the proposal for second notice and the rule will be submitted to JCAR for second notice.

ORDER

The Board directs the Clerk to cause the filing of the following rule with the Joint Committee on Administrative Rules for second-notice review.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE B: AIR POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER c: EMISSION STANDARDS AND LIMITATIONS FOR STATIONARY SOURCES

PART 225
CONTROL OF EMISSIONS FROM LARGE COMBUSTION SOURCES

SUBPART A: GENERAL PROVISIONS

Section
225.100 Severability
225.120 Abbreviations and Acronyms
225.130 Definitions
225.140 Incorporations by Reference

SUBPART B: CONTROL OF MERCURY EMISSIONS FROM COAL-FIRED ELECTRIC GENERATING UNITS

Section

AUTHORITY: Implementing and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/27].

SOURCE: Adopted at 30 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 225.100 Severability

If any Section, subsection or clause of this Part is found invalid, such finding must ~~shall~~ not affect the validity of this Part as a whole or any Section, subsection or clause not found invalid.

Section 225.120 Abbreviations and Acronyms

Unless otherwise specified within this Part, the abbreviations used in this Part must ~~shall~~ be the same as those found in 35 Ill. Adm. Code 211. The following abbreviations and acronyms are used in this Part:

Act Environmental Protection Act [415 ILCS 5]
Btu British thermal unit

CAA	Clean Air Act [42 USC 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CEMS	continuous emission monitoring system
CO_2	carbon dioxide
EGU	electric generating unit
GWh	gigawatt hour
hr	hour
lb	pound
MPS	Multi Pollutant Standard
MW	megawatt
MWe	megawatt electrical
MWh	megawatt hour
NO_x	nitrogen oxides
O_2	oxygen
RATA	relative accuracy test audit
SO_2	sulfur dioxide
TTBS	Temporary Technology Based Standard
USEPA	United States Environmental Protection Agency

Section 225.130 Definitions

The following definitions ~~contained in this Section~~ apply ~~only to~~ for the ~~provisions~~ purposes of this Part. Unless otherwise defined in this Section ~~and unless~~ or a different meaning ~~of~~ for a term is clear from ~~it's~~ its context, the ~~definitions of~~ terms used in this Part ~~shall~~ have the meanings specified ~~for those terms~~ in 35 Ill. Adm. Code 211.

~~"Agency" means the Illinois Environmental Protection Agency~~ *"Agency" means the Illinois Environmental Protection Agency.* [415 ILCS 5/3.105]

"Averaging demonstration" means, with regard to Subpart B of this Part, a demonstration of compliance that is based on the combined performance of EGUs at two or more sources.

"Base Emission Rate" means, for a group of EGUs subject to emission standards for NOx and SO_2 pursuant to Section 225.233, the average emission rate of NOx or SO_2 from the EGUs, in pounds per million Btu heat input, for calendar years 2003 through 2005 (or, for seasonal NOx, the 2003 through 2005 ozone seasons), as determined from the data collected and quality assured by the USEPA pursuant to the 40 CFR 72 and 96 federal Acid Rain and NOx Budget Trading Programs for the emissions and heat input of ~~the~~ that group of EGUs.

~~"Board" means the Illinois Pollution Control Board~~ *"Board" means the Illinois Pollution Control Board.* [415 ILCS 5/3.105]

"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.

"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.

"Coal" means any solid fuel classified as anthracite, bituminous, subbituminous, or lignite by the American Society for Testing and Materials (ASTM) Standard Specification for Classification of Coals by Rank D388-77, 90, 91, 95, 98a, or 99 (Reapproved 2004).

"Coal-derived fuel" means any fuel (whether in a solid, liquid or gaseous state) produced by the mechanical, thermal, or chemical processing of coal.

"Coal-fired" means combusting any amount of coal or coal-derived fuel, alone or in combination with any amount of any other fuel, during a specified year.

"Cogeneration unit" means a stationary, fossil fuel-fired boiler or a stationary, fossil fuel-fired combustion turbine of which both of the following conditions are true:

Having It uses equipment used to produce electricity and useful thermal energy for industrial, commercial, heating, or cooling purposes through the sequential use of energy; and

Producing It produces either of the following during the 12-month period starting beginning on the date the unit first produces electricity, and during any subsequent calendar year after the calendar year that in which the unit first produces electricity:

For a topping-cycle cogeneration unit, both of the following:

Useful thermal energy not less than 5 five 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.; or

For a bottoming-cycle cogeneration unit, useful power not less than 45 percent of total energy input.

"Combustion turbine" means:

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

If the enclosed device under the above paragraph of this definition is combined cycle, any associated heat recovery steam generator and steam turbine.

"Commence commercial operation" means, ~~with regard to~~ for the purposes of Subpart B of this Part, with regard to an EGU ~~Electric Generating Unit~~ that serves a generator, to have begun to produce steam, gas, or other heated medium used to generate electricity for sale or use, including test generation. Such date must ~~shall~~ remain the unit's date of commencement of operation even if the EGU ~~Electric Generating Unit~~ is subsequently modified, reconstructed or repowered.

"Designated representative" means, ~~with regard to~~ for the purposes of Subpart B of this Part, the same as defined in 40 CFR 60.4102.

"Flue" means a conduit or duct through which gases or other matter is exhausted to the atmosphere.

"Gross electrical output" means the total electrical output from an EGU ~~Electric Generating Unit~~ before making any deductions for energy output used in any way related to the production of energy. For an EGU ~~Electric Generating Unit~~ generating only electricity, the gross electrical output is the output from the turbine/generator set.

"Input mercury" means the mass of mercury that is contained in the coal combusted within an EGU ~~Electric Generating Unit~~.

"Nameplate capacity" means, starting from the initial installation of a generator, the maximum electrical generating output (in MWe) that the generator is capable of producing on a steady-state basis and during continuous operation (when not restricted by seasonal or other deratings) as specified by the manufacturer of the generator or, starting from the completion of any subsequent physical change in the generator resulting in an increase in the maximum electrical generating output (in MWe) that the generator is capable of producing on a steady-state basis and during continuous operation (when not restricted by seasonal or other deratings), such increased maximum amount as specified by the person conducting the physical change.

"Output-based emission standard" means, ~~with regard to~~ for the purposes of Subpart B of this Part, a maximum allowable rate of emissions of mercury per unit of gross electrical output from an EGU ~~Electric Generating Unit~~.

"Repowered" means, ~~with regard to~~ for the purposes of an EGU, replacement of a coal-fired boiler with one of the following coal-fired technologies at the same source as the coal-fired boiler:

Atmospheric or pressurized fluidized bed combustion;

Integrated gasification combined cycle;

Magnetohydrodynamics;

Direct and indirect coal-fired turbines;

Integrated gasification fuel cells; or

As determined by the USEPA in consultation with the United States Department of Energy, a derivative of one or more of the technologies under this definition and any other coal-fired technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of January 1, 2005.

"Rolling 12-month basis" means, ~~with regard to~~ for the purposes of Subpart B of this Part, 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), with two exceptions. For determinations involving one EGU, calendar months in which the EGU does not operate (zero EGU operating hours) must ~~shall~~ not be included in the determination, and must ~~shall~~ be replaced by a preceding month or months in which the EGU does operate, so that the determination is still based on 12 months of data. For determinations involving two or more EGUs, calendar months in which none of the EGUs covered by the determination operates (zero EGU operating hours) must ~~shall~~ not be included in the determination, and must ~~shall~~ be replaced by preceding months in which at least one of the EGUs covered by the determination does operate, so that the determination is still based on 12 months of data.

Section 225.140 Incorporations by Reference

The following materials are incorporated by reference. These incorporations do not include any later amendments or editions.

a) 40 CFR 60, ~~§~~ 60.17, ~~§~~ 60.45a, ~~§~~ 60.49a(k)(1)~~, § 60.49a(p)~~ and (p), ~~§~~ 60.50a(h), and ~~§§~~ 60.4170 through 60.4176 (2005).

b) 40 CFR 75 (2005).

c) ASTM. The following methods from the American Society for Testing and Materials, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken PA 19428-2959, (610) 832-9585:

1) ASTM D388-77 (approved February 25, 1977), D388-90 (approved March 30, 1990), D388-91a (approved April 15, 1991), D388-95 (approved January 15, 1995), D388-98a (approved September 10, 1998), or D388-99 (approved September 10, 1999, reapproved in 2004), Classification of Coals by Rank ~~(Reapproved 2004)~~.

2) ASTM D3173-03, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke (Approved April 10, 2003).

3) ASTM D3684-01, Standard Test Method for Total Mercury in Coal by the Oxygen Bomb Combustion/Atomic Absorption Method (Approved October 10, 2001).

4) ASTM D5865-04, Standard Test Method for Gross Calorific Value of Coal and Coke (Approved April 1, 2004).

5) ASTM D6414-01, Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by Acid Extraction or Wet Oxidation/Cold Vapor Atomic Absorption (Approved October 10, 2001).

6) ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method) (Approved April 10, 2002).

SUBPART B: CONTROL OF MERCURY EMISSIONS FROM COAL-FIRED ELECTRIC GENERATING UNITS

Section 225.200 Purpose

The purpose of this Subpart B is to control the emissions of mercury from coal-fired electrical generating units operating in Illinois.

Section 225.202 Measurement Methods

Measurement of mercury must ~~shall~~ be according to the following:

a) Continuous emission monitoring pursuant to 40 CFR 75 (2005).

b) ASTM D3173-03, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke (Approved April 10, 2003), incorporated by reference in Section 225.140.

c) ASTM D3684-01, Standard Test Method for Total Mercury in Coal by the Oxygen Bomb Combustion/Atomic Absorption Method (Approved October 10, 2001), incorporated by reference in Section 225.140.

d) ASTM D5865-04, Standard Test Method for Gross Calorific Value of Coal and Coke (Approved April 1, 2004), incorporated by reference in Section 225.140.

e) ASTM D6414-01, Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by Acid Extraction or Wet Oxidation/Cold Vapor Atomic Absorption (Approved October 10, 2001), incorporated by reference in Section 225.140.

f) ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method) (Approved April 10, 2002), incorporated by reference in Section 225.140.

Section 225.205 Applicability

The following stationary coal-fired boilers and stationary coal-fired combustion turbines are EGUs and are subject to this Subpart B:

a) Except as provided in subsection (b) of this Section, a unit serving, at any time since the start-up of the unit's combustion chamber, a generator with nameplate capacity of more than 25 MWe producing electricity for sale.

b) 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 cogeneration unit serving at any time a generator with nameplate capacity of more than 25 MWe and supplying in any calendar year more than one-third of the unit's potential electric output capacity or 219,000 MWh, whichever is greater, to any utility power distribution system 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 must ~~shall~~ be subject to subsection (a) of this Section starting on the day on which the unit first no longer qualifies as a cogeneration unit.

Section 225.210 Compliance Requirements

a) Permit Requirements

The owner or operator of each source with one or more EGUs subject to this Subpart B at the source must apply for a CAAPP permit that addresses the applicable requirements of this Subpart B.

b) Monitoring Requirements

1) The owner or operator of each source and each EGU at the source must comply with the monitoring requirements of Sections 225.240 through 225.290 of this Subpart B.

2) The compliance of each EGU with the mercury requirements of ~~under~~ Sections 225.230 and 225.237 of this Subpart must ~~shall~~ be determined by the emissions measurements recorded and reported in accordance with Sections 225.240 through 225.290 of this Subpart B.

c) Mercury Emission Reduction Requirements

The owner or operator of any EGU subject to this Subpart B must ~~shall~~ comply with applicable requirements for control of mercury emissions of ~~under~~ Section 225.230 or Section 225.237 of this Subpart B.

d) Recordkeeping and Reporting Requirements

Unless otherwise provided, the owner or operator of a source with one or more EGUs at the source must ~~shall~~ keep on site at the source each of the documents listed in subsections (d)(1) through (d)(3) of this Section for a period of five years from the date the document is created. This period may be extended, in writing by the Agency, for cause, at any time prior to the end of five years~~, in writing by the Agency~~.

1) All emissions monitoring information~~,~~ gathered in accordance with Sections 225.240 through 225.290 ~~of this Subpart~~.

2) Copies of all reports, compliance certifications, and other submissions and all records made or required or documents necessary to demonstrate compliance with the requirements of this Subpart B.

3) Copies of all documents used to complete a permit application and any other submission under this Subpart B.

e) Liability

1) The owner or operator of each source with one or more EGUs must ~~shall~~ meet the requirements of this Subpart B.

2) Any provision of this Subpart B that applies to a source must ~~shall~~ also apply to the owner and operator of such source and to the owner and operator of each EGU at the source.

3) Any provision of this Subpart B that applies to an EGU must ~~shall~~ also apply to the owner and operator of such EGU.

f) Effect on Other Authorities. No provision of this Subpart B must ~~shall~~ be construed as exempting or excluding the owner or ~~and~~ operator of a source or EGU from compliance with any other provision of an approved State Implementation Plan, a permit, the Act, or the CAA.

Section 225.220 Clean Air Act Permit Program (CAAPP) Permit Requirements

a) Application Requirements

1) Each source with one or more EGUs subject to the requirements of this Subpart B is required to submit a CAAPP permit application that addresses all applicable requirements of this Subpart B, applicable to each EGU at the source.

2) For any EGU that commenced commercial operation:

A) on or before December 31, 2008, the owner or operator of such EGUs must submit an initial permit application or application for CAAPP permit modification that meets the requirements of this Section on or before ~~by~~ December 31, 2008.

B) after December 31, 2008, the owner or operator of any such EGU must submit an initial CAAPP permit application or application for CAAPP modification that meets the requirements of this Section not later than 180 days before initial startup of the EGU, unless the construction permit issued for the EGU addresses the requirements of this Subpart B.

b) Contents of Permit Applications

In addition to other information required for a complete application for CAAPP permit or CAAPP permit modification, the application must ~~shall~~ include the following information:

1) The ORIS (Office of Regulatory Information Systems) or facility code assigned to the source by the U.S. Department of Energy, Energy Information Administration, if applicable.

2) Identification of each EGU at the source.

3) The intended approach to the monitoring requirements of Sections 225.240 through 225.290 of this Subpart B.

4) The intended approach to the mercury emission reduction requirements of Section 225.230 or 225.237 of this Subpart B, as applicable.

c) Permit Contents

1) Each CAAPP permit issued by the Agency for a source with one or more EGUs subject to the requirements of this Subpart B must ~~shall~~ contain federally enforceable conditions addressing all applicable requirements of this Subpart B, which conditions must ~~shall~~ be a complete and segregable portion of the source's entire CAAPP permit.

2) In addition to conditions related to the applicable requirements of this Subpart B, each such CAAPP permit must ~~shall~~ also contain the information specified under subsection (b) of this Section.

Section 225.230 Emission Standards for EGUs at Existing Sources

a) Emission Standards

1) Beginning July 1, 2009, the owner or operator of a source with one or more EGUs subject to this Subpart B that commenced commercial operation on or before December 31, 2008, must ~~shall~~ comply with one of the following standards for each EGU on a rolling 12-month basis:

A) An emission standard of 0.0080 lb mercury/GWh gross electrical output; or

B) A minimum 90-percent reduction of input mercury.

2) For an EGU complying with subsection (a)(1)(A) of this Section, the actual mercury emission rate of the EGU for each 12-month rolling period, as monitored in accordance with this Subpart B and calculated as follows, must ~~shall~~ not exceed the applicable emission standard:

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

Where:

ER = Actual mercury emissions rate of the EGU for the particular 12-month rolling period, expressed in lb/GWh.

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

O_i = Gross electrical output of the EGU, in GWh, in an individual month in the 12-month rolling period, as determined in accordance with Section 225.263 of this Subpart B.

3) For an EGU complying with subsection (a)(1)(B) of this Section, the actual control efficiency for mercury emissions achieved by the EGU for each 12-month rolling period, as monitored in accordance with this Subpart B and calculated as follows, must ~~shall~~ meet or exceed the applicable efficiency requirement:

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

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 lbs, in an individual month in the 12-month rolling period, as determined in accordance with the emissions monitoring provisions of this Subpart B.

I_i = Amount of mercury in the fuel fired in the EGU, in lbs ~~pounds~~, in an individual month in the 12-month rolling period, as determined in accordance with Section 225.265 of this Subpart B.

b) Alternative Emission Standards for Single EGUs

1) As an alternative to compliance with ~~one of~~ the ~~above~~ emission standards in subsection (a) of this Section, the owner or operator of the EGU may comply with the emission standards of this Subpart B by demonstrating that the actual emissions of mercury from the EGU are less than the allowable emissions of mercury from the EGU on a rolling 12-month basis.

2) For ~~this~~ the purpose of demonstrating compliance with the alternative emission standards of this subsection (b), for each rolling 12-month period, the actual emissions of mercury from the EGU, as monitored in accordance with this Subpart B, must not exceed the allowable emissions of mercury from the EGU, as further provided by the following formulas:

$$E_{12} \leq A_{12}$$

$$E_{12} = \sum_{i=1}^{12} E_i$$

$$A_{12} = \sum_{i=1}^{12} A_i$$

Where:

E_{12} = Actual mercury emissions of the EGU for the particular 12-month rolling period.
A_{12} = Allowable mercury emissions of the EGU for the particular 12-month rolling period.
E_i = Actual mercury emissions of the EGU in an individual month in the 12-month rolling period.
A_i = Allowable mercury emissions of the EGU in an individual month in the 12-month rolling period, based on either the input mercury to the unit ($A_{Input\ i}$) or the electrical output from the EGU ($A_{Output\ i}$), as selected by the owner or operator of the EGU for that given month.
$A_{Input\ i}$ = Allowable mercury emissions of the EGU in an individual month based on the input mercury to the EGU, calculated as 10.0 percent (or 0.100) of the input mercury to the EGU.
$A_{Output\ i}$ = Allowable mercury emissions of the EGU in a particular month based on the electrical output from the EGU, calculated as the product of the output based mercury limit, i.e., 0.0080 lb/GWh, and the electrical output from the EGU, in GWh.

3) If the owner or operator of an EGU does not conduct the necessary sampling, analysis, and recordkeeping, in accordance with Section 225.265 of this Subpart B, to determine the mercury input to the EGU, the allowable emissions of the EGU must be calculated based on the electrical output of the EGU.

c) If two or more EGUs are served by common stack(s) and the owner or operator conducts monitoring for mercury emissions in the common stack(s), as provided for by 40 CFR 75, Subpart I, such that the mercury emissions of each EGU are not determined separately, compliance of the EGUs with the applicable emission standards of this Subpart B must ~~shall~~ be determined as if the EGUs were a single EGU.

d) Alternative Emission Standards for Multiple EGUs

1) As an alternative to compliance with the emission standards of subsection (a) of this Section, the owner or operator of a source with multiple ~~an~~ EGUs may comply with the emission standards of this Subpart B by demonstrating that the actual emissions of mercury from all EGUs at the source are less than the allowable emissions of mercury from all EGUs at the source on a rolling 12-month basis.

2) For ~~this~~ the purposes of the alternative emission standard of subsection (d)(1) of this Section, for each rolling 12-month period, the actual emissions of mercury from all the EGUs at the source, as monitored in accordance with this Subpart B, must not exceed the sum of the allowable emissions of mercury from all the EGUs at the source, as further provided by the following formulas:

$$E_S \leq A_S$$

$$E_S = \sum_{i=1}^{n} E_i$$

$$A_S = \sum_{i=1}^{n} A_i$$

Where:

E_S = Sum of the actual mercury emissions of the EGUs at the source.
A_S = Sum of the allowable mercury emissions of the EGUs at the source.
E_i = Actual mercury emissions of an individual EGU at the source, as determined in accordance with subsection (b)(2) of this Section.
A_i = Allowable mercury emissions of an individual EGU at the source, as determined in accordance with subsection (b)(2) of this Section.
n = Number of EGUs covered by the demonstration.

3) If an owner or operator of a source with two or more EGUs that is relying on this subsection (d) to demonstrate compliance fails to meet the requirements of this subsection (d) in a given 12-month rolling period, all EGUs at such source covered by the compliance demonstration are considered out of compliance with the applicable emission standards of this Subpart B for the entire last month of that period.

Section 225.232 Averaging Demonstrations for Existing Sources

a) Through December 31, 2013, as an alternative to compliance with the emission standards of Section 225.230(a) of this Subpart B, the owner or operator of an EGU may comply with the emission standards of this Subpart B by means of an Averaging Demonstration (Demonstration) that demonstrates ~~shows~~ that the actual emissions of mercury from the EGU and other EGUs at the source and other EGUs at other sources covered by the Demonstration are less than the allowable emissions of mercury from all EGUs covered by the Demonstration on a rolling 12-month basis.

b) The EGUs at each source covered by a Demonstration must also comply with one of the following emission standards on a source-wide basis for the period covered by the Demonstration:

1) An emission standard of 0.020 lb mercury/GWh gross electrical output; or

2) A minimum 75 percent reduction of input mercury.

c) For the purpose of this Section, compliance must ~~shall~~ be ~~determined~~ demonstrated using the equations in Section 225.230(a)(2), (a)(3), or (d)(2) ~~of this Subpart~~, as applicable, addressing all EGUs at the sources covered by the Demonstration, rather than by using only the EGUs at one source.

d) Limitations on Demonstrations

1) The owners or operators of more than one existing source with EGUs can only participate in Demonstrations that include other existing sources that they own or operate.

2) Single Existing Source Demonstrations

A) The owner or operator of only a single existing source with EGUs (i.e., City, Water, Light & Power, City of Springfield, ID 167120AAO; ~~Electric Energy, Inc., ID 127855AAC;~~ Kincaid Generating Station, ID 021814AAB; and Southern Illinois Power Cooperative/Marion Generating Station, ID 199856AAC) can only participate in Demonstrations with other such owners or operators of a single existing source of EGUs.

B) Participation in Demonstrations under this Section by the owner or operator of only a single existing source with EGUs must be authorized through federally enforceable permit conditions for each such source participating in the Demonstration.

e) A source may be included in only one Demonstration during each rolling 12-month period.

f) The owner or operator of EGUs using Demonstrations to show compliance with this Subpart B must complete the determination of compliance for each 12-month rolling period no later than 60 days following the end of the period.

g) If averaging is used to demonstrate compliance with this Subpart B, the effect of a failure to demonstrate compliance must ~~shall~~ be that the compliance status of each source must ~~shall~~ be determined under Section 225.230 of this Subpart B as if the sources were not covered by a Demonstration.

h) For purposes of this Section, if the owner or operator of any source that participates in a Demonstration with an owner or operator of a source that does not maintain the required records, data, and reports for the EGUs at the source, or that does not submit copies of such records, data, or reports to the Agency upon request, then the effect of this failure will be deemed to be a failure to demonstrate compliance and the compliance status of each source must ~~shall~~ be determined under Section 225.230 of this Subpart B as if the sources were not covered by a Demonstration.

Section 225.233 Multi-Pollutant Standards (MPS)

a) General.

1) As an alternative to compliance with the emissions standards of Section 225.230(a) ~~of this Subpart~~, the owner of eligible EGUs may elect for ~~such~~ those EGUs to ~~comply with~~ demonstrate compliance pursuant to this Section, which establishes control requirements and standards for emissions of NO_x and SO_2, as well as for emissions of mercury.

2) For the purpose of this Section, the following requirements apply:

A) An eligible EGU is an EGU that is located in Illinois ~~that~~ and which commenced commercial operation on or before December 31, 2004~~.~~; and

B) ~~For the purposes of this Section, ownership~~ Ownership of an eligible EGU is determined based on direct ownership, ~~or~~ by the holding a majority interest in a company that owns ~~an~~ the EGU or EGUs, or by the common ownership of the company that owns the EGU, whether through a ~~parent /subsidiary~~ parent-subsidiary relationship, as a sister corporation, or as an affiliated corporation with the same parent corporation, provided that the owner has the right or authority to submit a CAAPP application on behalf of the EGU.

3) The owner of one or more EGUs electing to ~~comply~~ demonstrate compliance with this Subpart B ~~by means of~~ purusant to this Section must submit an application for a CAAPP permit modification to the Agency, as provided in Section 225.220 ~~of this Subpart~~, that includes the information specified in subsection (b) of this Section and ~~that~~ which clearly states the owner's election to ~~comply with the provisions of~~ demonstrate compliance pursuant to this Section 225.233.

A) If the owner of one or more EGUs elects to ~~comply with~~ demonstrate compliance with this Subpart ~~by means of~~ purusant to

this Section, then all EGUs it owns in Illinois as of July 1, 2006, as defined in subsection (a)(2)(B) of this Section, must ~~shall~~ be thereafter subject to the standards and control requirements of this Section, except as provided in subsection (a)(3)(B) below. Such EGUs must ~~shall~~ be referred to as ~~an~~ a Multi-Pollutant Standard (MPS) Group.

B) Notwithstanding the foregoing, the owner may exclude from ~~the~~ an MPS Group any EGU scheduled for permanent shutdown that the owner so designates in its CAAPP application required to be submitted pursuant to subsection (a)(3) of this Section, with compliance for such ~~unit(s)~~ units to be achieved by means of Section 225.235 ~~of this Subpart~~.

4) When an EGU is subject to the requirements of this Section, the requirements ~~of this Section must shall~~ apply to all owners and operators of the EGU, and to the designated representative for the EGU.

b) Notice of Intent.

The owner of one or more EGUs that intends to comply with this Subpart B by means of this Section must ~~shall~~ notify the Agency of its intention by December 31, 2007~~,~~. ~~which notification must shall be accompanied by the~~ The following information must accompany the notification:

1) ~~Identification~~ The identification of each ~~of the EGUs~~ EGU that will be complying with this Subpart B by means of the multi-pollutant standards contained in this Section, with evidence that the owner has identified all EGUs that ~~its owns~~ it owned in Illinois as of July 1, 2006~~,~~ and ~~that~~ which commenced commercial operation on or before December 31, 2004~~.~~;

2) If an EGU identified in subsection (b)(1) of this Section ~~above~~ is also owned or operated by ~~an entity~~ a person different than the owner submitting the notice of intent, a demonstration that the submitter has the right to commit the EGU or authorization from the responsible official for the EGU accepting the application~~.~~;

3) The Base Emission Rates for the EGUs, with copies of supporting data and calculations~~.~~;

4) A summary of the current control devices installed and operating on ~~the EGUs~~ each EGU and identification of the additional control devices that will likely be needed for the ~~the EGUs~~ each EGU to comply with emission control requirements of this ~~section~~ Section, including identification of ~~the EGUs~~ each EGU in the MPS group that will be addressed by subsection

(c)(1)(B) of this Section, with information showing that the eligibility criteria for this ~~paragraph~~ subsection (b) are satisfied~~.~~; and

5) Identification of ~~any~~ each EGU ~~or EGUs~~ that ~~are~~ is scheduled for permanent shut down, as provided by Section 225.235, which will not be part of the MPS Group and which will not be ~~complying~~ demonstrating compliance with this Subpart B ~~by means of~~ pursuant to this Section.

c) Control Technology Requirements for Emissions of Mercury~~:~~.

1) Requirements for EGUs in an MPS Group.

A) For each EGU in an MPS Group other than an EGU that is addressed by ~~paragraph~~ subsection (c)(1)(B) of this Section for the period beginning July 1, 2009 (or December 31, 2009 for an EGU for which an SO_2 scrubber or fabric filter is being installed to be in operation by December 31, 2009), and ending on December 31, 2014 (or such earlier date that the EGU is subject to the mercury emission standard in subsection (d)(1) of this Section), the owner or operator of the EGU must ~~shall~~ install, to the extent not already installed, and properly operate and maintain one of the following emissions control devices:

i) A Halogenated Activated Carbon Injection System, complying with the sorbent injection requirements of subsection (c)(2) of this Section, except as may be otherwise provided by subsection (c)(4) of this Section, and followed by a Cold-Side Electrostatic Precipitator or Fabric Filter; or

ii) If the boiler fires bituminous coal, a Selective Catalytic Reduction (SCR) System and an SO_2 Scrubber.

B) An owner of an EGU in an MPS Group has two options under this subsection (c). For an MPS Group that contains EGUs smaller than 90 gross MW in capacity, the owner may designate any such EGUs to be not subject to subsection (c)(1)(A) of this ~~section~~ Section. Or, for an MPS Group that contains EGUs with gross MW capacity of less than 115 MW, the owner may designate any such EGUs to be not subject to subsection (c)(1)(A) of this Section, provided that the aggregate gross MW capacity of ~~such~~ the designated EGUs does not exceed 4% of the total gross MW capacity of the MPS Group. For ~~such EGUs~~ any EGU subject to one of these two options, unless the EGU is subject to the emission standards in subsection (d)(2) of this Section, beginning on January 1, 2013, and continuing until such date that the owner or operator

of the EGU commits to comply with the mercury emission standard in subsection (d)(2) of this Section, the owner or operator of the EGU must ~~shall~~ install and properly operate and maintain a Halogenated Activated Carbon Injection System~~, complying~~ that complies with the sorbent injection requirements of subsection (c)(2) of this Section, except as may be otherwise provided by subsection (c)(4) of this Section, and followed by either a Cold-Side Electrostatic Precipitator or Fabric Filter. The use of a properly installed, operated, and maintained Halogenated Activated Carbon Injection System that meets the sorbent injection requirements of subsection (c)(2) of this Section is ~~referred to~~ defined as the "principal control technique."

2) For each EGU for which injection of halogenated activated carbon is required by subsection (c)(1) of this Section, the owner or operator of the EGU must ~~shall~~ inject halogenated activated carbon in an optimum manner, which, except as provided in subsection (c)(4) of this Section, ~~must shall be deemed to be~~ is defined as all of the following:

A) ~~Use~~ The use of an injection system designed for effective absorption of mercury, considering the configuration of the EGU and its ductwork;

B) The injection of halogenated activated carbon manufactured by Alstom, Norit, or Sorbent Technologies, or the injection of any other halogenated activated carbon or sorbent that the owner or operator of the EGU ~~shows~~ has demonstrated to have similar or better effectiveness for control of mercury emissions; and

C) The injection of sorbent at the following minimum rates, as applicable:

i) For an EGU firing subbituminous coal, 5.0 lbs ~~pounds~~ per million actual cubic feet or, for any cyclone-fired EGU that will install a scrubber and baghouse by December 31, 2012~~,~~ and which already ~~meeting~~ meets an emission rate of 0.020 lb mercury/GWh gross electrical output or at least 75 percent reduction of input mercury, 2.5 lbs ~~pounds~~ per million actual cubic feet~~.~~;

ii) For an EGU firing bituminous coal, 10.0 lbs ~~pounds~~ per million actual cubic feet or for any cyclone-fired EGU that will install a scrubber and baghouse by December 31, 2012, and which already ~~meeting~~ meets an emission rate of 0.020 lb mercury/GWh gross electrical output or at least 75

percent reduction of input mercury, 5.0 lbs ~~pounds~~ per million actual cubic feet~~.~~;

iii) For an EGU firing a blend of subbituminous and bituminous coal, a rate that is the weighted average of the above rates, based on the blend of coal being fired~~.~~; or

iv) A rate or rates set lower by the Agency, in writing, than the rate specified ~~above may be set~~ in any of subsections (c)(2)(C)(i), (c)(2)(C)(ii), or (c)(2)(C)(iii) of this Section on a unit-specific basis, ~~to the extent~~ provided that the owner or operator of the EGU ~~demonstrates~~ has demonstrated that such rate or rates are needed so that carbon injection will not increase particulate matter emissions or opacity so as to threaten ~~compliance~~ noncompliance with applicable requirements for particulate matter or opacity.

D) For the purposes of ~~this~~ subsection (c)(2)(C) of this Section ~~this purpose~~, the flue gas flow rate must ~~shall~~ be determined for the point of sorbent injection; provided~~, however,~~ that this flow rate may be assumed to be identical to the stack flow rate if the gas temperatures at the point of injection and the stack are normally within 100^{o} F, or the flue gas flow rate may otherwise be calculated from the stack flow rate, corrected for the difference in gas temperatures.

3) The owner or operator of an EGU that seeks to operate an EGU with an activated carbon injection rate or rates that are set on a unit-specific basis pursuant to subsection (c)(2)(C)(iv) of this Section must ~~shall~~ submit an application to the Agency proposing such rate or rates, and must ~~shall~~ meet the ~~following~~ requirements of subsections (c)(3)(A) and (c)(3)(B) of this Section, subject to the limitations of subsections (c)(3)(C) and (c)(3)(D) of this Section:

A) The application must ~~shall~~ be submitted as an application for a new or revised federally enforceable operating permit for the EGU, and it must include a summary of relevant mercury emission data for the EGU, the unit-specific injection rate or rates that are proposed, and detailed information to support the proposed injection rate or rates~~.~~; and

B) This application must ~~shall~~ be submitted no later than the date that activated carbon must first be injected. For example, the owner or operator of an EGU that must inject activated carbon pursuant to subsection (c)(1)(A) of this subsection must ~~shall~~ apply for unit-

specific injection rate or rates by July 1, 2009. Thereafter, the owner or operator of the EGU may supplement its application.

C) ~~The~~ Any decision of the Agency denying a permit or granting a permit with conditions that set a lower injection rate or rates may be appealed to the Board pursuant to Section 39 of the Act~~.~~; and

D) The owner or operator of an EGU may operate at the injection rate or rates proposed in its application until a final decision is made on the application, including a final decision on any appeal to the Board.

4) During ~~an~~ any evaluation of the effectiveness of a listed sorbent, an alternative sorbent, or other technique to control mercury emissions, the owner or operator of an EGU need not comply with the requirements of subsection (c)(2) of this Section for ~~such~~ any system ~~as~~ needed to carry out ~~an~~ the evaluation ~~of the practicality and effectiveness of such technique~~, as further provided below:

A) The owner or operator of the EGU must ~~shall~~ conduct the evaluation in accordance with a formal evaluation program submitted to the Agency ~~Illinois EPA~~ at least 30 days ~~in advance.~~ prior to commencement of the evaluation;

B) The duration and scope of the evaluation ~~must shall~~ may not exceed the duration and scope reasonably needed to complete the desired evaluation of the alternative control technique, as initially addressed by the owner or owner in a support document submitted with the evaluation program~~.~~;

C) The owner or operator of the EGU must ~~shall~~ submit a report to the Agency ~~Illinois EPA~~ no later than 30 days after the conclusion of the evaluation ~~describing~~ that describes the evaluation ~~that was~~ conducted and ~~providing~~ which provides the results of the evaluation~~.~~; and

D) If the evaluation of the alternative control technique shows less effective control of mercury emissions from the EGU than was achieved with the principal control technique, the owner or operator of the EGU must ~~shall~~ resume use of the principal control technique. If the evaluation of the alternative control technique shows comparable effectiveness to the principal control technique, the owner or operator of the EGU may either continue to use the alternative control technique in a manner that is at least as effective as the principal control technique, or it may resume use of the principal control technique. If the evaluation of the alternative control technique shows more effective control of mercury

emissions than the control technique, the owner or operator of the EGU must ~~shall~~ continue to use the alternative control technique in a manner that is more effective than the principal control technique, ~~if~~ so long as it continues to be subject to this subsection (c) of this Section.

5) In addition to complying with the applicable recordkeeping and monitoring requirements in Sections 225.240 through 225.290 ~~of this Subpart~~, the owner or operator of an EGU ~~electing~~ that elects to comply with this Subpart B by means of this Section must ~~shall~~ also comply with the following additional requirements:

A) For the first 36 months that injection of sorbent is required, it must maintain records of the usage of sorbent, the exhaust gas flow rate from the EGU, and the sorbent feed rate, in pounds per million actual cubic feet of exhaust gas at the injection point, on a weekly average~~.~~;

B) After the first 36 months that injection of sorbent is required, it must monitor activated sorbent feed rate to the EGU, flue gas temperature at the point of sorbent injection, and exhaust gas flow rate from the EGU, automatically recording this data and the sorbent carbon feed rate, in pounds per million actual cubic feet of exhaust gas at the injection point, on an hourly average~~.~~; and

C) If a blend of bituminous and sub-bituminous coal is fired in the EGU, it must keep records of the amount of each type or coal burned and the required injection rate for injection of activated carbon, on a weekly basis.

6) In addition to complying with the applicable reporting requirements in Sections 225.240 through 225.290 ~~of this Subpart~~, the owner or operator of an EGU ~~electing~~ that elects to comply with this Subpart B by means of this Section must ~~shall~~ also submit quarterly reports for the recordkeeping and monitoring conducted pursuant to subsection (c)(5) of this Section.

d) Emission Standards for Mercury.

1) For each EGU in an MPS Group that is not addressed by subsection (c)(1)(B) of this Section, beginning January 1, 2015 (or such earlier date ~~that~~ when the owner or operator of the EGU notifies the Agency that it will comply with these standards) and continuing thereafter, the owner or operator of the EGU must ~~shall~~ comply with one of the following standards on a rolling 12-month basis:

A) An emission standard of 0.0080 lb mercury/GWh gross electrical output; or

B) A minimum 90-percent reduction of input mercury.

2) For each EGU in an MPS Group that has been addressed under subsection (c)(1)(B) of this Section, beginning on the date ~~that~~ when the owner or operator of the EGU notifies the Agency that it will comply with these standards and continuing thereafter, the owner or operator of the EGU must ~~shall~~ comply with one of the following standards on a rolling 12-month basis:

A) An emission standard of 0.0080 lb mercury/GWh gross electrical output; or

B) A minimum 90-percent reduction of input mercury.

3) Compliance with the mercury emission standard or reduction requirement of this subsection (d) must ~~shall~~ be calculated in accordance with Section 225.230(a) or (d) ~~of this Subpart~~.

e) Emission Standards for NO_x and SO_2.

1) NO_x Emission Standards~~:~~.

A) Beginning in calendar year 2012, and continuing in each calendar thereafter, for the EGUs in each MPS Group, the ~~owners~~ owner and ~~operators~~ operator of the EGUs must ~~shall~~ comply with an overall NOx annual emission rate of no more than 0.11 lbs/million Btu or ~~a~~ an emission rate equivalent to 52 percent of the Base Annual Rate of NO_x emissions, whichever is more stringent.

B) Beginning in the 2012 ozone season and continuing in each ozone season thereafter, for the EGUs in each MPS Group, the ~~owners~~ owner and ~~operators~~ operator of the EGUs must ~~shall~~ comply with an overall NO_x seasonal emission rate of no more than 0.11 lbs/million Btu or ~~a~~ an emission rate equivalent to 80 percent of the Base Seasonal Rate of NO_x emissions, whichever is more stringent.

2) SO_2 Emissions Standards~~:~~.

A) Beginning in calendar year 2013 and continuing in calendar year 2014, for the EGUs in each MPS Group, the ~~owners~~ owner and ~~operators~~ operator of the EGUs must ~~shall~~ comply with an overall SO_2 annual emission rate of 0.33 lbs/million Btu or a rate

equivalent to 44 percent of the Base Rate of SO_2 emissions, whichever is more stringent.

B) Beginning in calendar year 2015, and continuing in each calendar year thereafter, for the EGUs in each MPS Grouping, the ~~owners~~ owner and ~~operators~~ operator of the EGUs must ~~shall~~ comply with an overall annual emission rate for SO_2 of 0.25 lbs/million Btu or a rate equivalent to 35 percent of the Base Rate of SO_2 emissions, whichever is more stringent.

3) Compliance with the NO_x and SO_2 emission standards must ~~shall~~ be ~~determined~~ demonstrated in accordance with Sections 225.310, 225.410, and 225.510 ~~of this Part~~. The ~~owners~~ owner or ~~operators~~ operator of EGUs must complete the ~~determination~~ demonstration of compliance ~~by~~ before March 1 of the following year for annual standards and ~~by~~ before November 1 for seasonal standards, by which date a compliance report must ~~shall~~ be submitted to the Agency.

f) Requirements for NO_x and SO_2 Allowances.

1) The ~~owners~~ owner or ~~operators~~ operator of EGUs in an MPS Group must ~~shall~~ not sell or trade to any person or otherwise exchange with or give to any person NO_x allowances allocated to the EGUs in the MPS Group for vintage years 2012 and beyond that would otherwise be available for sale, trade, or exchange as a result of actions taken to comply with the standards in subsection (e) of this Section. Such allowances that are not retired for compliance must ~~shall~~ be surrendered to the Agency on an annual basis, beginning in calendar year 2013. This provision does not apply to the use, sale, exchange, gift, or trade of allowances among the EGUs in an MPS Group.

2) The owners or operators of EGUs in an MPS Group must ~~shall~~ not sell or trade to any person or otherwise exchange with or give to any person ~~SO2~~ SO_2 allowances allocated to the EGUs in the MPS Group for vintage years 2013 and beyond that would otherwise be available for sale or trade as a result of actions taken to comply with the standards in subsection (e) of this Section. Such allowances that are not retired for compliance or otherwise surrendered pursuant to a consent decree to which the State of Illinois is a party, must ~~shall~~ be surrendered to the Agency on an annual basis, beginning in calendar year 2014. This provision does not apply to the use, sale, exchange, gift, or trade of allowances among the EGUs in an MPS Group.

3) The provisions of this subsection (f) do not restrict or inhibit the sale or trading of allowances that become available from one or more EGUs in a MPS Group as a result of holding allowances that represent over-

compliance with the NO_x or SO_2 standard in subsection (e) of this Section, once such a standard becomes effective, whether such over-compliance results from control equipment, fuel changes, changes in the method of operation, ~~or~~ unit shut downs, or ~~for~~ other reasons.

4) For purposes of this subsection (f), NO_x and SO_2 allowances ~~must shall~~ mean allowances necessary for compliance with Sections 225.310, 225.410, or 225.510 ~~of this Part,~~ 40 CFR ~~Part~~ 72, or Subparts AA and AAAA of 40 CFR 96.~~101, et seq., and 40 CFR 96.301, et seq.~~ ~~The provisions of this~~ This Section ~~do~~ does not prohibit the ~~owners~~ owner or ~~operators~~ operator of EGUs in an MPS Group from purchasing or otherwise obtaining allowances from other sources as allowed by law for purposes of complying with federal or state requirements, ~~excluding~~ except as specifically ~~the requirements of~~ set forth in this Section.

5) ~~By~~ Before March 1, 2010, and continuing each year thereafter, the owner or operator of EGUs in an MPS Group must ~~shall~~ submit a report to the Agency ~~demonstrating~~ that demonstrates compliance with the requirements of this subsection (f) for the previous calendar year, and which ~~must shall include~~ includes identification of any allowances that have been surrendered to the USEPA or to the Agency~~,~~ and ~~identification of~~ any allowances that were sold, gifted, used, exchanged, or traded because they became available due to over-compliance. All allowances that are required to be surrendered must be surrendered by August 31, unless USEPA has not yet deducted the allowances from the previous year. A final report must be submitted to the Agency by August 31 of each year, verifying that the actions described in the initial report have taken place or, if such actions have not taken place, an explanation of all changes that have occurred and the reasons for such changes. If USEPA has not deducted the allowances from the previous year by August 31, the final report must be due, and all allowances required to be surrendered must be surrendered, within 30 days after such deduction occurs.

g) Notwithstanding 35 Ill. Adm. Code 201.146(hhh), until an EGU has complied with the applicable emission standards of subsections (d) and (e) of this Section for 12 months, the owner or operator of the EGU must ~~shall~~ obtain a construction permit for any new or modified air pollution control equipment ~~proposed~~ that it proposes to ~~be constructed~~ construct for control of emissions of mercury, NO_x, or SO_2.

Section 225.234 Temporary Technology-Based Standard for EGUs at Existing Sources

a) General.

1) At a source with EGUs that commenced commercial operation on or before December 31, 2008, for an EGU that meets the eligibility criteria in

subsection (b) of this Section, ~~as an alternative to compliance with the mercury emission standards in Section 225.230 of this Subpart,~~ the owner or operator of the EGU may temporarily comply with the requirements of this Section~~,~~ through June 30, 2015 as an alternative to compliance with the mercury emission standards in Section 225.230, as ~~further~~ provided in subsections (c), (d), and (e) of this Section.

2) An EGU that is complying with the emission control requirements of this Subpart B by operating ~~under~~ pursuant to this Section may not be included in a compliance demonstration involving other EGUs during the period that is operating ~~under~~ pursuant to this Section.

3) The owner or operator of an EGU that is complying with this Subpart B by means of the temporary alternative emission standards of this Section is not excused from any of the applicable monitoring, recordkeeping, and reporting requirements set forth in Sections 225.240 through 225.290 ~~of this Subpart~~

b) Eligibility.

To be eligible to operate an EGU ~~under~~ pursuant to this Section, the following criteria must ~~shall~~ be met for the EGU:

1) The EGU is equipped and operated with the air pollution control equipment or systems that include injection of halogenated activated carbon and either a cold-side electrostatic precipitator or a fabric filter.

2) The owner or operator of the EGU is injecting halogenated activated carbon in an optimum manner for control of mercury emissions, which must ~~shall~~ include injection of Alstrom, Norit, Sorbent Technologies, or other halogenated activated carbon that the owner or operator of the EGU ~~shows~~ has demonstrated to have similar or better effectiveness for control of mercury emissions, at least at the following rates set forth in subsections (b)(2)(A) through (b)(2)(D) of this Section, unless other provisions for injection of halogenated activated carbon are established in a federally enforceable operating permit issued for the EGU, ~~with~~ using an injection system designed for effective absorption of mercury, considering the configuration of the EGU and its ductwork. For ~~this~~ the ~~purpose~~ purposes of this subsection (b)(2), the flue gas flow rate must ~~shall~~ be determined for the point of sorbent injection (provided, however, that this flow rate may be assumed to be identical to the stack flow rate if the gas temperatures at the point of injection and the stack are normally within 100º F) or may otherwise be calculated from the stack flow rate, corrected for the difference in gas temperatures.

A) For an EGU firing subbituminous coal, 5.0 lbs ~~pounds~~ per million actual cubic feet.

B) For an EGU firing bituminous coal, 10.0 lbs ~~pounds~~ per million actual cubic feet.

C) For an EGU firing a blend of subbituminous and bituminous coal, a rate that is the weighted average of the above rates, based on the blend of coal being fired.

D) A rate or rates set on a unit-specific basis that are lower than the rate specified above to the extent that the owner or operator of the EGU demonstrates that such rate or rates are needed so that carbon injection would not increase particulate matter emissions or opacity so as to threaten compliance with applicable regulatory requirements for particulate matter or opacity.

3) The total capacity of the EGUs that operate ~~under~~ pursuant to this Section does not exceed the applicable ~~value below~~ of the following values:

A) For the owner or operator of more than one existing source with EGUs, 25 percent of the total rated capacity, in MW, of all the EGUs at ~~such~~ the existing sources that it owns or operates, other than any EGUs operating pursuant to Section 225.235 of this Subpart B.

B) For the owner or operator of only a single existing source with EGUs (i.e., City, Water, Light & Power, City of Springfield, ID 167120AAO; ~~Electric Energy, Inc., ID 127855AAC;~~ Kincaid Generating Station, ID 021814AAB; and Southern Illinois Power Cooperative/Marion Generating Station, ID 199856AAC), 25 percent of the total rated capacity, in MW, of the all the EGUs at ~~such~~ the existing sources, other than any EGUs operating pursuant to Section 225.235 ~~of this Subpart~~.

c) Compliance Requirements.

1) Emission Control Requirements.

The owner or operator of an EGU that is operating pursuant to this Section must ~~shall~~ continue to maintain and operate the EGU to comply with the criteria for eligibility for operation ~~under~~ pursuant to this Section, except during an evaluation of the current sorbent, alternative sorbents or other techniques to control mercury emissions, as provided by subsection (e) of this Section.

2) Monitoring and Recordkeeping Requirements.

In addition to complying with all applicable reporting requirements in Sections 225.240 through 225.290 ~~of this Subpart~~, the owner or operator of an EGU operating pursuant to this Section must ~~shall~~ also:

A) Through December 31, 2012, it must maintain records of the usage of activated carbon, the exhaust gas flow rate from the EGU, and the activated carbon feed rate, in pounds per million actual cubic feet of exhaust gas at the injection point, on a weekly average.

B) Beginning January 1, 2013, it must monitor activated carbon feed rate to the EGU, flue gas temperature at the point of sorbent injection, and exhaust gas flow rate from the EGU, automatically recording this data and the activated carbon feed rate, in pounds per million actual cubic feet of exhaust gas at the injection point, on an hourly average.

C) If a blend of bituminous and subbituminous coal is fired in the EGU, it must maintain records of the amount of each type of coal burned and the required injection rate for injection of halogenated activated carbon, on a weekly basis.

3) Notification and Reporting Requirements.

In addition to complying with all applicable reporting requirements in Sections 225.240 through 225.290 ~~of this Subpart~~, the owner or operator of an EGU operating pursuant to this Section must ~~shall~~ also submit the following notifications and reports to the Agency:

A) Written notification prior to the month in which any of the following events will occur:

i) ~~the~~ The EGU will no longer be eligible to operate under this Section due to a change in operation;

ii) ~~the~~ The type of coal fired in the EGU will change; the mercury emission standard with which the owner or operator is attempting to comply for the EGU will change; or

iii) ~~operation~~ Operation under this Section will be terminated.

B) Quarterly reports for the recordkeeping and monitoring conducted pursuant to subsection (c)(2) of this Section.

C) Annual reports detailing activities conducted for the EGU to further improve control of mercury emissions, including the measures taken during the past year and activities planned for the current year.

d) Applications to Operate under the Technology-Based Standard

1) Application Deadlines.

A) The owner or operator of an EGU that is seeking to operate the EGU ~~under~~ pursuant to this Section must ~~shall~~ submit an application to the Agency no later than three months prior to the date ~~that~~ on which compliance with Section 225.230 of this Subpart B would otherwise have to be demonstrated. For example, the owner or operator of an EGU that is applying to operate the EGU pursuant to this Section on June 30, 2010, when compliance with applicable mercury emission standards must be first demonstrated, must ~~shall~~ apply by March 31, 2010 to operate under this Section.

B) Unless the Agency finds that the EGU is not eligible to operate ~~under~~ pursuant to this Section or that the application for operation ~~under~~ pursuant to this Section does not meet the requirements of subsection (d)(2) of this Section, the owner or operator of the EGU is authorized to operate the EGU ~~under~~ pursuant to this Section beginning 60 days after receipt of the application by the Agency.

C) The owner or operator of an EGU operating pursuant to this Section must reapply to operate pursuant to this Section:

i) If it operated the EGU pursuant to this Section 225.234 during the period of June 2010 through December 2012 and it seeks to operate the EGU pursuant to this Section 225.234 during the period from January 2013 through June 2015.

ii) If it is planning a physical change to or a change in the method of operation of the EGU, control equipment or practices for injection of activated carbon that is expected to reduce the level of control of mercury emissions.

2) Contents of Application. An application to operate an EGU pursuant to this Section 225.234 must ~~shall~~ be submitted as an application for a new or revised federally enforceable operating permit for the EGU, and it must include the following documents and information:

A) A formal request to operate pursuant to this Section showing that the EGU is eligible to operate pursuant to this Section and describing the reason for the request, the measures that have been taken for control of mercury emissions, and factors preventing more effective control of mercury emissions from the EGU.

B) The applicable mercury emission standard in Section 225.230(a) with which the owner or operator of the EGU is attempting to comply and a summary of relevant mercury emission data for the EGU.

C) If a unit-specific rate or rates for carbon injection are proposed pursuant to subsection (b)(2) of this Section, detailed information to support the proposed injection rates.

D) An action plan describing the measures that will be taken while operating under this Section to improve control of mercury emissions. This plan must ~~shall~~ address measures such as evaluation of alternative forms or sources of activated carbon, changes to the injection system, changes to operation of the unit that affect the effectiveness of mercury absorption and collection, changes to the particulate matter control device to improve performance, and changes to other emission control devices. For each measure contained in the plan, the plan must ~~shall~~ provide a detailed description of the specific actions that are planned, the reason that the measure is being pursued and the range of improvement in control of mercury that is expected, and the factors that affect the timing for carrying out the measure, together with the current schedule for the measure.

e) Evaluation of Alternative Control Techniques for Mercury Emissions

1) During an evaluation of the effectiveness of the current sorbent, alternative sorbent, or other technique to control mercury emissions, the owner or operator of an EGU operating ~~under~~ pursuant to this Section need not comply with the eligibility criteria for operation ~~under~~ pursuant to this Section as needed to carry out an evaluation of the practicality and effectiveness of such technique, ~~as further provided as follows~~ subject to the following limitations:

A) The owner or operator of the EGU must ~~shall~~ conduct the evaluation in accordance with a formal evaluation program that it has submitted to the Agency ~~Illinois EPA~~ at least 30 days ~~in advance~~ prior to beginning the evaluation.

B) The duration and scope of the formal evaluation program must ~~shall~~ not exceed the duration and scope reasonably needed to complete the desired evaluation of the alternative control technique, as initially addressed by the owner or owner in a support document that it has submitted with the formal evaluation program pursuant to subsection (e)(1)(A) of this Section.

C) Notwithstanding 35 Ill. Adm. Code 201.146(hhh), the owner or operator of the EGU must ~~shall~~ obtain a construction permit for any new or modified air pollution control equipment to be constructed as part of the evaluation of the alternative control technique.

D) The owner or operator of the EGU must ~~shall~~ submit a report to the Agency ~~Illinois EPA~~, no later than 90 days after the conclusion of the formal evaluation program, describing the evaluation that was conducted, and providing the results of the formal evaluation program.

2) If the evaluation of the alternative control technique shows less effective control of mercury emissions from the EGU than achieved with the prior control technique, the owner or operator of the EGU must ~~shall~~ resume use of the prior control technique. If the evaluation of the alternative control technique shows comparable control effectiveness, the owner or operator of the EGU may either continue to use the alternative control technique in an optimum manner or resume use of the prior control technique. If the evaluation of the alternative control technique shows more effective control of mercury emissions, the owner or operator of the EGU must ~~shall~~ continue to use the alternative control technique in an optimum manner, if it continues to operate ~~under~~ pursuant to this Section.

Section 225.235 Units Scheduled for Permanent Shut Down

a) The emission standards of Section 225.230(a) ~~of this Subpart~~ are not applicable to an EGU that will be permanently shut down as ~~follows~~ described in this Section.:

1) The owner or operator of an EGU ~~for which~~ that relies on this Section ~~is being relied upon~~ must ~~shall~~ ~~by no later than~~ complete the following actions before June 30, 2009:

A) Have notified the Agency ~~Illinois EPA~~ that it is planning to permanently shut down the EGU by the applicable date specified in subsection (a)(3) or (4) of this Section. This notification must ~~shall be accompanied by~~ include a description of the actions that have already been taken to allow the shut down of the EGU and a

description of the future actions that must be accomplished to complete the shut down of the EGU, with the anticipated schedule for those actions and the anticipated date of permanent shut down of the unit.

B) Have applied for a construction permit or be actively pursuing a federally enforceable agreement that requires the EGU to be permanently shut down in accordance with this Section.

C) Have applied for revisions to the operating ~~permit(s)~~ permits for the EGU to include provisions that terminate the authorization to operate the unit in accordance with this Section.

2) The owner or operator of an EGU ~~for which~~ that relies on this Section ~~is being relied upon~~ must, ~~shall~~ ~~by no later than~~ before June 30, 2010, complete the following actions:

A) Have obtained a construction permit or entered into a federally enforceable agreement as ~~addressed by~~ described in subsection (a)(1)(B) of this Section; or

B) Have obtained revised operating ~~permit(s)~~ permits in accordance with subsection (a)(1)(C) of this Section.

3) The plan for permanent shut down of the EGU must provide for the EGU to be permanently shut down by no later than the applicable date specified below:

A) If the owner or operator of the EGU is not constructing a new EGU or other generating ~~units~~ unit to specifically replace the existing EGU, by December 31, 2010.

B) If the owner or operator of the EGU is constructing a new EGU or other generating ~~units~~ unit to specifically replace the existing EGU, by December 31, 2011.

4) The owner or operator of the EGU must permanently shut down the EGU by the date specified in subsection (a)(3) of this Section, unless the owner or operator submits a demonstration to the Agency ~~Illinois EPA~~ before ~~such~~ the specified date showing that circumstances beyond its reasonable control (such as protracted delays in construction activity, unanticipated outage of another EGU, or protracted shakedown of a replacement unit) have occurred that interfere with the plan for permanent shut down of the EGU, in which case the Agency may accept the demonstration as substantiated and extend the date for shut down of the EGU ~~may be extended~~ as follows:

A) If the owner or operator of the EGU is not constructing a new EGU or other generating ~~units~~ unit to specifically replace the existing EGU, for up to one year, i.e., permanent shut down of the EGU to occur by no later than December 31, 2011~~.~~; or

B) If the owner or operator of the EGU is constructing a new EGU or other generating ~~units~~ unit to specifically replace the existing EGU, for up to 18 months, i.e., permanent shutdown of the EGU to occur by no later than June 30, 2013; provided, however, that after December 31, 2012, the existing EGU must ~~shall~~ only operate as a back-up unit to address periods when the new generating units are not in service.

b) Notwithstanding Sections 225.230 and 225.232 ~~of this Subpart~~, any EGU that is not required to comply with Section 225.230 ~~of this Subpart~~ pursuant to this Section must ~~shall~~ not be included when determining whether any other EGUs at the source or other sources are in compliance with Section 225.230 ~~of this Subpart~~.

c) If an EGU, for which the owner or operator of the source has relied upon this Section in lieu of complying with Section 225.230(a) ~~of this Subpart~~ is not permanently shut down as required by this Section, the EGU must ~~shall~~ be considered to be a new EGU subject to the emission standards in Section 225.237(a) ~~of this Subpart~~ beginning in the month after the EGU was required to be permanently shut down, in addition to any other penalties that may be imposed for failure to permanently shut down the EGU in accordance with this Section.

Section 225.237 Emission Standards for New Sources with EGUs

a) Standards.

1) The owner or operator of a source with one or more EGUs, but that previously had not had any EGUs that commenced commercial operation before January 1, 2009, must ~~shall~~ comply with one of the following emission standards for each EGU on a rolling 12-month basis:

A) An emission standard of 0.0080 lb mercury/GWh gross electrical output; or

B) A minimum 90 percent reduction of input mercury.

2) For this purpose, compliance may be demonstrated using the equations in Section 225.230(a)(2), (a)(3), or (b)(2) ~~of this Subpart~~.

b) The initial 12-month rolling period for which compliance with the emission standards of subsection (a)(1) of this Section must be demonstrated for a new EGU ~~shall~~ will commence on the date that the initial performance test for the mercury emission standard under 40 CFR 60.45a also commences. The CEMSs ~~continuous emission monitoring system~~ required by this Subpart B for mercury emissions from the EGU must be certified prior to this date. Thereafter, compliance must ~~shall~~ be demonstrated on a rolling 12-month basis ~~in terms of~~ based on calendar months.

Section 225.238 Temporary Technology-Based Standard for New Sources with EGUs

a) General.

1) At a source with EGUs that previously had not had any EGUs that commenced commercial operation before January 1, 2009, for an EGU that meets the eligibility criteria in subsection (b) of this Section, as an alternative to compliance with the mercury emission standards in Section 225.237~~of this Subpart~~, the owner or operator of the EGU may temporarily comply with the requirements of this Section, through December 31, 2018, as further provided in subsections (c), (d), and (e) of this Section.

2) An EGU that is complying with the emission control requirements of this Subpart B by operating ~~under~~ pursuant to this Section may not be included in a compliance demonstration involving other EGUs at the source during the period that ~~such~~ the temporary technology-based standard is in effect.

3) The owner or operator of an EGU that is complying with this Subpart B ~~by means of~~ pursuant to this Section is not excused from applicable monitoring, recordkeeping, and reporting requirements ~~in~~ of Sections 225.240 through 225.290 ~~of this Subpart~~.

b) Eligibility. To be eligible to operate an EGU ~~under~~ pursuant to this Section, the following criteria must ~~shall~~ be met for the EGU:

1) The EGU is subject to Best Available Control Technology (BACT) for emissions of sulfur dioxide, nitrogen oxides, and particulate matter, and the EGU is equipped and operated with the air pollution control equipment or systems specified below, as applicable to the category of EGU:

A) For coal-fired boilers, injection of sorbent or other mercury control technique (e.g. reagent) approved by the Agency ~~halogenated activated carbon~~.

B) For an EGU firing fuel gas produced by coal gasification, processing of the raw fuel gas prior to combustion for removal of mercury with a system using a sorbent or other mercury control technique approved by the Agency ~~activated carbon~~.

2) For an EGU for which injection of a sorbent or other mercury control technique ~~halogenated activated carbon~~ is required ~~by~~ pursuant to subsection (b)(1) of this Section, the owner or operator of the EGU is injecting sorbent or other mercury control technique ~~halogenated activated carbon~~ in an optimum manner for control of mercury emissions, which must ~~shall~~ include injection of Alstrom, Norit, Sorbent Technologies, or other sorbent or other mercury control technique ~~halogenated activated carbon~~ that the owner or operator of the EGU ~~shows~~ demonstrates to have similar or better effectiveness for control of mercury emissions, at least at the ~~following rates~~ rate set forth in the appropriate of subsections (b)(2)(A) through (b)(2)(C) of this Section, unless other provisions for injection of sorbent or other mercury control technique ~~halogenated activated carbon~~ are established in a federally enforceable operating permit issued for the EGU, with an injection system designed for effective absorption of mercury. For ~~this purpose~~ the purposes of this subsection (b)(2), the flue gas flow rate must ~~shall~~ be determined for the point of sorbent injection or other mercury control technique (provided, however, that this flow rate may be assumed to be identical to the stack flow rate if the gas temperatures at the point of injection and the stack are normally within 100º F) , or the flow rate may otherwise be calculated from the stack flow rate, corrected for the difference in gas temperatures.

A) For an EGU firing subbituminous coal, 5.0 pounds per million actual cubic feet.

B) For an EGU firing bituminous coal, 10.0 pounds per million actual cubic feet.

C) For an EGU firing a blend of subbituminous and bituminous coal, a rate that is the weighted average of the above rates, based on the blend of coal being fired.

D) A rate or rates set on a unit-specific basis that are lower than the rate specified in subsections (b)(2)(A), (B), and (C) of this Section, ~~above~~ to the extent that the owner or operator of the EGU demonstrates that such rate or rates are needed so that sorbent injection or other mercury control technique would not increase particulate matter emissions or opacity so as to threaten compliance with applicable regulatory requirements for particulate matter or opacity or cause a safety issue.

c) Compliance Requirements .

1) Emission Control Requirements. The owner or operator of an EGU that is operating pursuant to this Section must ~~shall~~ continue to maintain and operate the EGU to comply with the criteria for eligibility for operation under this Section, except during an evaluation of the current sorbent, alternative sorbents, or other techniques to control mercury emissions, as provided by subsection (e) of this Section.

2) Monitoring and Recordkeeping Requirements. In addition to complying with all applicable reporting requirements in Sections 225.240 through 225.290 ~~of this Subpart~~,, the owner or operator of a new EGU operating pursuant to this Section must ~~shall~~ also:

A) Monitor sorbent ~~activated carbon~~ feed rate to the EGU, flue gas temperature at the point of sorbent injection or other mercury control technique, and exhaust gas flow rate from the EGU, automatically recording this data and the sorbent ~~activated carbon~~ feed rate, in pounds per million actual cubic feet of exhaust gas at the injection point, on an hourly average.

B) If a blend of bituminous and subbituminous coal is fired in the EGU, maintain records of the amount of each type of coal burned and the required injection rate for injection of sorbent ~~halogenated activated carbon~~, on a weekly basis.

C) If a mercury control technique other than sorbent injection is approved by the Agency, monitor appropriate parameter for that control technique as specified by the Agency

3) Notification and Reporting Requirements. In addition to complying with all applicable reporting requirements ~~in~~ of Sections 225.240 through 225.290 ~~of this Subpart~~, the owner or operator of an EGU operating pursuant to this Section must ~~shall~~ also submit the following notifications and reports to the Agency:

A) Written notification prior to the month in which any of the following events will occur: the EGU will no longer be eligible to operate under this Section due to a change in operation; the type of coal fired in the EGU will change; the mercury emission standard with which the owner or operator is attempting to comply for the EGU will change; or operation under this Section will be terminated.

B) Quarterly reports for the recordkeeping and monitoring conducted pursuant to subsection (c)(2) of this Section.

C) Annual reports detailing activities conducted for the EGU to further improve control of mercury emissions, including the measures taken during the past year and activities planned for the current year.

d) Applications to Operate under the Technology-Based Standard.

1) Application Deadlines.

A) The owner or operator of an EGU that is seeking to operate the EGU ~~under~~ pursuant to this Section must ~~shall~~ submit an application to the Agency no later than three months prior to the date that compliance with Section 225.237 ~~of this Subpart~~ would otherwise have to be demonstrated.

B) Unless the Agency finds that the EGU is not eligible to operate ~~under~~ pursuant to this Section or that the application for operation under this Section does not meet the requirements of subsection (d)(2) of this Section, the owner or operator of the EGU is authorized to operate the EGU ~~under~~ pursuant to this Section beginning 60 days after receipt of the application by the Agency.

C) The owner or operator of an EGU operating pursuant to this Section must reapply to operate pursuant to this Section if it is planning a physical change to or a change in the method of operation of the EGU, control equipment, or practices for injection of sorbent or other mercury control technique ~~activated carbon~~ that is expected to reduce the level of control of mercury emissions.

2) Contents of Application. An application to operate pursuant to this Section must ~~shall~~ be submitted as an application for a new or revised federally enforceable operating permit for the new EGU, and it must include the following information:

A) A formal request to operate pursuant to this Section showing that the EGU is eligible to operate pursuant to this Section and describing the reason for the request, the measures that have been taken for control of mercury emissions, and factors preventing more effective control of mercury emissions from the EGU.

B) The applicable mercury emission standard in Section 225.237 with which the owner or operator of the EGU is attempting to comply and a summary of relevant mercury emission data for the EGU.

C) If a unit-specific rate or rates for sorbent or other mercury control technique ~~carbon~~ injection are proposed pursuant to subsection (b)(2) of this Section, detailed information to support the proposed injection rates.

D) An action plan describing the measures that will be taken while operating ~~under~~ pursuant to this Section to improve control of mercury emissions. This plan must ~~shall~~ address measures such as evaluation of alternative forms or sources of sorbent or other mercury control technique ~~activated carbon~~, changes to the injection system, changes to operation of the unit that affect the effectiveness of mercury absorption and collection, and changes to other emission control devices. For each measure contained in the plan, the plan must ~~shall~~ provide a detailed description of the specific actions that are planned, the reason that the measure is being pursued and the range of improvement in control of mercury that is expected, and the factors that affect the timing for carrying out the measure, with the current schedule for the measure.

e) Evaluation of Alternative Control Techniques for Mercury Emissions

1) During an evaluation of the effectiveness of the current sorbent, alternative sorbent, or other technique to control mercury emissions, the owner or operator of an EGU operating ~~under~~ pursuant to this Section does not need ~~not~~ to comply with the eligibility criteria for operation ~~under~~ pursuant to this Section as needed to carry out an evaluation of the practicality and effectiveness of such technique, ~~as~~ further ~~provided as follows~~ subject to the following limitations:

A) The owner or operator of the EGU must ~~shall~~ conduct the evaluation in accordance with a formal evaluation program that it has submitted to the Agency ~~Illinois EPA~~ (JCAR) at least 30 days ~~in advance~~ prior to beginning the evaluation.

B) The duration and scope of the formal evaluation program must ~~shall~~ not exceed the duration and scope reasonably needed to complete the desired evaluation of the alternative control technique, as initially addressed by the owner or operator in a support document that it has submitted with the formal evaluation program pursuant to subsection (e)(1)(A) of this Section.

C) Notwithstanding 35 Ill. Adm. Code 201.146(hhh), the owner or operator of the EGU must ~~shall~~ obtain a construction permit for any new or modified air pollution control equipment to be constructed as part of the evaluation of the alternative control technique.

D) The owner or operator of the EGU must ~~shall~~ submit a report to the Agency ~~Illinois EPA~~ no later than 90 days after the conclusion of the formal evaluation program describing the evaluation that was conducted and providing the results of the formal evaluation program.

2) If the evaluation of the alternative control technique shows less effective control of mercury emissions from the EGU than was achieved with the prior control technique, the owner or operator of the EGU must ~~shall~~ resume use of the prior control technique. If the evaluation of the alternative control technique shows comparable effectiveness, the owner or operator of the EGU may either continue to use the alternative control technique in an optimum manner or resume use of the prior control technique. If the evaluation of the alternative control technique shows more effective control of mercury emissions, the owner or operator of the EGU must ~~shall~~ continue to use the alternative control technique in an optimum manner, if it continues to operate ~~under~~ pursuant to this Section.

Section 225.240 General Monitoring and Reporting Requirements

The owner or operator of an EGU must ~~shall~~ comply with the monitoring, recordkeeping, and reporting requirements as provided in this Section, Sections 225.250 through 225.290 of this Subpart B, and Subpart I of 40 CFR ~~Part~~ 75 (sections 75.80 through 75.84), incorporated by reference in Section 225.140. If the EGU utilizes a common stack with units that are not EGUs and the owner or operator of the EGU does not conduct emissions monitoring in the duct to the common stack from each EGU, the owner or operator of the EGU must ~~shall~~ conduct emissions monitoring in accordance with 40 CFR 75.82(b)(2) and this Section, including monitoring in the duct to the common stack from each unit that is not an EGU, unless the owner or operator of the EGU counts the combined emissions measured at the common stack as the mass emissions of mercury for the EGUs for recordkeeping and compliance purposes.

a) Requirements for installation, certification, and data accounting. The owner or operator of each EGU must ~~shall~~:

1) Install all monitoring systems required ~~under~~ pursuant to this Section and Sections 225.250 through 225.290 ~~of this Subpart~~ for monitoring mercury mass emissions (including all systems required to monitor mercury concentration, stack gas moisture content, stack gas flow rate, and CO_2 or O_2 concentration, as applicable, in accordance with 40 CFR 75.81 and 75.82).

2) Successfully complete all certification tests required ~~under~~ pursuant to Section 225.250 and meet all other requirements of this Section, Sections 225.250 through 225.290 ~~of this Subpart~~, and Subpart I of 40 CFR Part 75

applicable to the monitoring systems required under subsection (a)(1) of this Section.

3) Record, report, and ~~quality-assure~~ assure the quality of the data from the monitoring systems required under subsection (a)(1) of this Section.

4) If the owner or operator elects to use the low mass emissions excepted monitoring methodology for an EGU that emits no more than 464 ounces (29 pounds) of mercury per year pursuant to 40 CFR 75.81(b), ~~also~~ it must perform emissions testing in accordance with 40 CFR 75.81(c) to demonstrate that the EGU is eligible to use this excepted emissions monitoring methodology, as well as comply with all other applicable requirements of 40 CFR 75.81(b) through (f). Also, the owner or operator must submit a copy of any information required to be submitted to the USEPA ~~under~~ pursuant to these provisions to the Agency ~~Illinois EPA~~. The initial emissions testing to demonstrate eligibility of an EGU for the low mass emissions excepted methodology must ~~shall~~ be conducted by the applicable of the following dates:

A) If the EGU has commenced commercial operation before July 1, 2008, at least by January 1, 2009, or 45 days prior to relying on the low mass emissions excepted methodology, whichever date is later.

B) If the EGU has commenced commercial operation on or after July 1, 2008, at least 45 days prior to the applicable date specified ~~under~~ pursuant to subsection (b)(2) of this Section or 45 days prior to relying on the low mass emissions excepted methodology, whichever date is later.

b) Emissions Monitoring Deadlines. The owner or operator must ~~shall~~ meet the emissions monitoring system certification and other emissions monitoring requirements of subsections (a)(1) and (a)(2) of this Section on or before the applicable of the following dates. The owner or operator must ~~shall~~ record, report, and quality-assure the data from the emissions monitoring systems required under subsection (a)(1) of this Section on and after the applicable of the following dates:

1) For the owner or operator of an EGU that commences commercial operation before July 1, 2008, by January 1, 2009.

2) For the owner or operator of an EGU that commences commercial operation on or after July 1, 2008, by 90 unit operating days or 180 calendar days, whichever occurs first, after the date on which the EGU commences commercial operation.

3) For the owner or operator of an EGU for which construction of a new stack or flue or installation of add-on mercury emission controls, a flue gas desulfurization system, a selective catalytic reduction system, a fabric filter, or a compact hybrid particulate collector system is completed after the applicable deadline ~~under~~ pursuant to subsection (b)(1) or (b)(2) of this Section, by 90 unit operating days or 180 calendar days, whichever occurs first, after the date on which emissions first exit to the atmosphere through the new stack or flue, add-on mercury emissions controls, flue gas desulfurization system, selective catalytic reduction system, fabric filter, or compact hybrid particulate collector system.

c) Reporting Data.

1) Except as provided in subsection (c)(2) of this Section, the owner or operator of an EGU that does not meet the applicable emissions monitoring date set forth in subsection (b) of this Section for any emissions monitoring system required ~~under~~ pursuant to subsection (a)(1) of this Section must ~~shall~~, for each such monitoring system, determine, record, and report the maximum potential (or, as appropriate, the minimum potential) values for mercury concentration, the stack gas flow rate, the stack gas moisture content, and any other parameters required to determine mercury mass emissions in accordance with 40 CFR 75.80(g).

2) The owner or operator of an EGU that does not meet the applicable emissions monitoring date set forth in subsection (b)(3) of this Section for any emissions monitoring system required ~~under~~ pursuant to subsection (a)(1) of this Section must ~~shall~~, for each such monitoring system, determine, record, and report substitute data using the applicable missing data procedures as set forth in 40 CFR 75.80(f), in lieu 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 ~~under~~ pursuant to subsection (b)(3) of this Section.

d) Prohibitions.

1) No owner or operator of an EGU ~~must shall~~ may use any alternative emissions monitoring system, alternative reference method for measuring emissions, or ~~any~~ other alternative to the emissions monitoring and measurement requirements of this Section and Sections 225.250 through 225.290 ~~of this Subpart~~, unless such alternative is promulgated by the USEPA and approved in writing by the Agency, or the use of such alternative is approved in writing by the Agency and USEPA.

2) No owner or operator of an EGU ~~must shall~~ may operate ~~the~~ its 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, Sections 225.250 through 225.290 ~~of this Subpart~~, and Subpart I of 40 CFR 75.

3) No owner or operator of an EGU ~~must shall~~ may disrupt the CEMS ~~continuous emission monitoring system~~, any portion thereof, or any other approved emission monitoring method, and thereby 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, Sections 225.250 through 225.290 ~~of this Subpart~~, and Subpart I of 40 CFR 75.

4) No owner or operator of an EGU ~~must shall~~ may retire or permanently discontinue use of the CEMS ~~continuous emission monitoring system~~ or any component thereof, or any other approved monitoring system ~~under~~ pursuant to this Subpart B, except under any one of the following circumstances:

A) The owner or operator is monitoring emissions from the EGU with another certified monitoring system that has been approved, in accordance with the applicable provisions of this Section, Sections 225.250 through 225.290 of this Subpart B, and Subpart I of 40 CFR 75, by the Agency for use at that EGU and that provides emission data for the same pollutant or parameter as the retired or discontinued monitoring system; or

B) The owner or operator or designated representative submits notification of the date of certification testing of a replacement monitoring system for the retired or discontinued monitoring system in accordance with Section 225.250(a)(3)(A) ~~of this Subpart~~.

e) Long-term Cold Storage

The owner or operator of an EGU that is in long-term cold storage is subject to the ~~applicable~~ provisions of 40 CFR ~~75 for~~ 75.4 and 75.64 relating to monitoring, recordkeeping, and reporting for units in long-term cold storage.

Section 225.250 Initial Certification and Recertification Procedures for Emissions Monitoring

a) The owner or operator of an EGU must ~~shall~~ comply with the following initial certification and recertification procedures for a CEMS ~~continuous emissions monitoring system~~ (i.e., a CEMS ~~continuous emission monitoring system~~ or an

excepted monitoring system (sorbent trap monitoring system) ~~under~~ pursuant to 40 CFR 75.15, incorporated by reference in Section 225.140 required by Section 225.240(a)(1). The owner or operator of an EGU that qualifies for, and for which the owner or operator elects to use, the ~~low-mass-emissions~~ low-mass-emissions excepted methodology ~~under~~ pursuant to 40 CFR 75.81(b), incorporated by reference in Section 225.140 must ~~shall~~ comply with the procedures set forth in subsection (c) of this Section.

1) Requirements for Initial Certification. The owner or operator of an EGU must ~~shall~~ ensure that, for each CEMS ~~continuous emission monitoring system~~ required by Section 225.240(a)(1) ~~of this Subpart~~ (including the automated data acquisition and handling system), the owner or operator successfully completes all of the initial certification testing required ~~under~~ pursuant to 40 CFR 75.80(d), incorporated by reference in Section 225.140 by the applicable deadline in Section 225.240(b) ~~of this Subpart~~. In addition, whenever the owner or operator of an EGU installs a monitoring system to meet the requirements of this Subpart B in a location where no such monitoring system was previously installed, the owner or operator must successfully complete the initial certification requirements of 40 CFR 75.80(d).

2) Requirements for Recertification. Whenever the owner or operator of an EGU makes a replacement, modification, or change in any certified CEMS ~~continuous emission monitoring system~~, or an excepted monitoring system (sorbent trap monitoring system) ~~under~~ pursuant to 40 CFR 75.15, and required by Section 225.240(a)(1) ~~of this Subpart~~, 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 75.21 or Appendix B to 40 CFR 75, each incorporated by reference in Section 225.140, the owner or operator of an EGU must ~~shall~~ recertify the monitoring system in accordance with 40 CFR 75.20(b), incorporated by reference in Section 225.140. Furthermore, whenever the owner or operator of an EGU makes a replacement, modification, or change to the flue gas handling system or the EGU's operation that may significantly change the stack flow or concentration profile, the owner or operator must ~~shall~~ recertify each CEMS ~~continuous emission monitoring system~~, and each excepted monitoring system (sorbent trap monitoring system) ~~under~~ pursuant to 40 CFR 75.15, whose accuracy is potentially affected by the change, all in accordance with 40 CFR 75.20(b). Examples of changes to a CEMS ~~continuous emission monitoring system~~ that require recertification include, but are not limited to, replacement of the analyzer, complete replacement of an existing CEMS ~~continuous emission monitoring system~~, or change in location or orientation of the sampling probe or site.

3) Approval Process for Initial Certification and Recertification. Subsections (a)(3)(A) through (a)(3)(D) of this Section apply to both initial certification and recertification of a CEMS ~~continuous emission monitoring system~~ required by Section 225.240(a)(1) ~~of this Subpart~~. For recertifications, ~~replace~~ the words "certification" and "initial certification" ~~with~~ are to be read as the word "recertification", ~~replace~~ the word "certified" ~~with~~ is to be read as the word "recertified", and ~~follow~~ the procedures set forth in 40 CFR 75.20(b)(5) are to be followed in lieu of the procedures set forth in subsection (a)(3)(E) of this Section.

A) Notification of Certification. The owner or operator must ~~shall~~ submit to the Agency, USEPA Region 5, and the Administrator of the USEPA written notice of the dates of certification testing, in accordance with Section 225.270 ~~of this Subpart~~.

B) Certification Application. The owner or operator must ~~shall~~ submit to the Agency a certification application for each monitoring system. A complete certification application must ~~shall~~ include the information specified in 40 CFR 75.63, incorporated by reference in Section 225.140.

C) Provisional Certification Date. The provisional certification date for a monitoring system must ~~shall~~ be determined in accordance with 40 CFR 75.20(a)(3), incorporated by reference in Section 225.140. A provisionally certified monitoring system may be used ~~under~~ pursuant to this Subpart B for a period not to exceed 120 days after receipt by the Agency of the complete certification application for the monitoring system ~~under~~ pursuant to subsection (a)(3)(B) of this Section. Data measured and recorded by the provisionally certified monitoring system, in accordance with the requirements of 40 CFR 75, will be considered valid quality-assured data (retroactive to the date and time of provisional certification), provided that the Agency does not invalidate the provisional certification by issuing a notice of disapproval within 120 days after the date of receipt by the Agency of the complete certification application.

D) Certification Application Approval Process. The Agency ~~will~~ must issue a written notice of approval or disapproval of the certification application to the owner or operator within 120 days after receipt of the complete certification application required by subsection (a)(3)(B) of this Section. In the event the Agency does not issue ~~such~~ a written notice of approval or disapproval within the 120-day period, each monitoring system that meets the applicable performance requirements of 40 CFR 75 and which is

included in the certification application will be deemed certified for use ~~under~~ pursuant to this Subpart B.

i) Approval Notice. If the certification application is complete and shows that each monitoring system meets the applicable performance requirements of 40 CFR 75, then the Agency ~~will~~ must issue a written notice of approval of the certification application within 120 days after receipt.

ii) Incomplete Application Notice. If the certification application is not complete, then the Agency ~~will~~ must issue a written notice of incompleteness that sets a reasonable date by which the owner or operator must submit the additional information required to complete the certification application. If the owner or operator does not comply with the notice of incompleteness by the specified date, then the Agency may issue a notice of disapproval ~~under~~ pursuant to subsection (a)(3)(D)(iii) of this Section. The 120-day review period ~~must shall~~ will not begin before receipt of a complete certification application.

iii) Disapproval Notice. If the certification application shows that any monitoring system does not meet the performance requirements of 40 CFR 75, or if the certification application is incomplete and the requirement for disapproval ~~under~~ pursuant to subsection (a)(3)(D)(ii) of this Section is met, ~~then~~ the Agency ~~will~~ must issue a written notice of disapproval of the certification application. Upon issuance of such notice of disapproval, the provisional certification is invalidated ~~by the Agency~~, and the data measured and recorded by each uncertified monitoring system ~~must shall~~ will not be considered valid quality-assured data beginning with the date and hour of provisional certification (as defined ~~under~~ pursuant to 40 CFR 75.20(a)(3)). The owner or operator must ~~shall~~ follow the procedures for loss of certification set forth in subsection (a)(3)(E) of this Section for each monitoring system that is disapproved for initial certification.

iv) Audit Decertification. The Agency may issue a notice of disapproval of the certification status of a monitor in accordance with Section 225.260(b) ~~of this Subpart~~.

E) Procedures for Loss of Certification. If the Agency issues a notice of disapproval of a certification application ~~under~~ pursuant to subsection (a)(3)(D)(iii) of this Section or a notice of disapproval

of certification status ~~under~~ pursuant to subsection (a)(3)(D)(iv) of this Section, ~~then~~ the owner or operator must fulfill the following requirements:

i) The owner or operator must ~~shall~~ substitute the following values~~,~~ for each disapproved monitoring system~~,~~ and for each hour of EGU operation during the period of invalid data specified ~~under~~ pursuant to 40 CFR 75.20(a)(4)(iii) or 75.21(e), ~~and~~ continuing until the applicable date and hour specified ~~under~~ pursuant to 40 CFR 75.20(a)(5)(i), each incorporated by reference in Section 225.140. 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 2.1.7.1 and 2.1.4.1 of Appendix A to 40 CFR 75, incorporated by reference in Section 225.140. For a disapproved moisture monitoring system and disapproved diluent gas monitoring system, respectively, the minimum potential moisture percentage and either the maximum potential CO_2 concentration or the minimum potential O_2 concentration (as applicable), as defined in Sections 2.1.5, 2.1.3.1, and 2.1.3.2 of Appendix A to 40 CFR 75, incorporated by reference in Section 225.140. For a disapproved excepted monitoring system (sorbent trap monitoring system) ~~under~~ pursuant to 40 CFR 75.15 and disapproved flow monitor, respectively, the maximum potential concentration of mercury and maximum potential flow rate, as defined in Sections 2.1.7.1 and 2.1.4.1 of Appendix A to 40 CFR ~~Part~~ 75, incorporated by reference in Section 225.140.

ii) The owner or operator must ~~shall~~ submit a notification of certification retest dates and a new certification application in accordance with subsections (a)(3)(A) and (B) of this Section.

iii) The owner or operator must ~~shall~~ repeat all certification tests or other requirements that were failed by the monitoring system, as indicated in the Agency's notice of disapproval, no later than 30 unit operating days after the date of issuance of the notice of disapproval.

b) Exemption.

1) If an emissions monitoring system has been previously certified in accordance with 40 CFR 75 and the applicable quality assurance and

quality control requirements of 40 CFR 75.21 and Appendix B to 40 CFR 75 are fully met, the monitoring system ~~must shall~~ will be exempt from the initial certification requirements of this Section.

2) The recertification provisions of this Section ~~must shall~~ apply to an emissions monitoring system required by Section 225.240(a)(1) ~~of this Subpart~~ exempt from initial certification requirements ~~under~~ pursuant to subsection (a)(1) of this Section.

c) Initial certification and recertification procedures for EGUs using the mercury low mass emissions excepted methodology ~~under~~ pursuant to 40 CFR 75.81(b). The owner or operator ~~of an~~ that has elected to use the mercury-low-mass-emissions-excepted methodology for a qualified EGU ~~qualified to use, and who has elected to use, the mercury low mass emissions excepted methodology under~~ pursuant to 40 CFR 75.81(b) must ~~shall~~ meet the applicable certification and recertification requirements in 40 CFR 75.81(c) through (f), incorporated by reference in Section 225.140.

d) Certification Applications. The owner or operator of an EGU must ~~shall~~ submit an application to the Agency within 45 days after completing all initial certification or recertification tests required ~~under~~ pursuant to this Section, including the information required ~~under~~ pursuant to 40 CFR 75.63.

Section 225.260 Out of Control Periods for Emission Monitors

a) Whenever any emissions monitoring system fails to meet the quality-assurance and quality-control requirements or data validation requirements of 40 CFR ~~Part~~ 75, incorporated by reference in Section 225.140, data must ~~shall~~ be substituted using the applicable missing data procedures in Subparts D and I of 40 CFR 75, each incorporated by reference in Section 225.140.

b) Audit Decertification. Whenever both an audit of an emissions monitoring system and a review of the initial certification or recertification application reveal that any emissions monitoring system should not have been certified or recertified because it did not meet a particular performance specification or other requirement ~~under~~ pursuant to Section 225.250 ~~of this Subpart~~ or the applicable provisions of 40 CFR 75, both at the time of the initial certification or recertification application submission and at the time of the audit, the Agency ~~will~~ must issue a notice of disapproval of the certification status of such monitoring system. For the purposes of this subsection (b), an audit must ~~shall~~ be either a field audit or an audit of any information submitted to the Agency. By issuing the notice of disapproval, the Agency revokes prospectively the certification status of the emissions monitoring system. The data measured and recorded by the monitoring system must ~~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. The owner or operator must ~~shall~~ follow the applicable initial certification or recertification procedures in Section 225.250 ~~of this Subpart~~ for each disapproved monitoring system.

Section 225.261 Additional Requirements to Provide Heat Input Data

The owner or operator of an EGU that monitors and reports mercury mass emissions using a mercury concentration monitoring system and a flow monitoring system must ~~shall~~ also monitor and report the heat input rate at the EGU level using the procedures set forth in 40 CFR 75, incorporated by reference in Section 225.140.

Section 225.263 Monitoring of Gross Electrical Output

The owner or operator of an EGU complying with this Subpart B by means of Section 225.230(a)(1) or using electrical output ~~(O_i)~~ (O_i) and complying by means of Section 225.230(b) or (d) or Section 225.232 ~~of this Subpart~~ must ~~shall~~ monitor gross electrical output of the associated generator(s) in MWh on an hourly basis.

Section 225.265 Coal Analysis for Input Mercury Levels

a) The owner or operator of an EGU complying with this Subpart B by means of Section 225.230(a)(2) or using input mercury levels ~~(I_i)~~ (I_i) and complying by means of Section 225.230(b) or (d) or Section 225.232 ~~of this Subpart~~ must ~~shall~~ fulfill the following requirements:

1) Perform daily sampling of the coal combusted in the EGU for mercury content. The owner or operator of such EGU must ~~shall~~ collect a minimum of one 2-lb grab sample per day of operation from the belt feeders anywhere between the crusher house or breaker building and the boiler. ~~Such~~ The sample must ~~shall~~ be taken in ~~such~~ a manner ~~so as to provide~~ that provides a representative mercury content for the coal burned on that day.

2) Analyze the grab coal sample for the following:

A) Determine the heat content using ASTM D5865-04 or an equivalent method approved in writing by the Agency.

B) Determine the moisture content using ASTM D3173-03 or an equivalent method approved in writing by the Agency.

C) Measure the mercury content using ASTM D6414-01, ASTM D3684-01, or an equivalent method approved in writing by the Agency.

3) The owner or operator of multiple EGUs at the same source using the same crusher house or breaker building may take one sample per crusher house or breaker building, rather than one per EGU.

4) The owner or operator of an EGU must ~~shall~~ use the data analyzed ~~under~~ pursuant to subsection (b) of this Section to determine the mercury content in terms of lbs/trillion Btu.

b) The owner or operator of an EGU that must conduct sampling and analysis of coal pursuant to subsection (a) of this Section must ~~shall~~ begin such activity by the following date:

1) If the EGU is in daily service, at least 30 days before the start of the month for which such activity will be required.

2) If the EGU is not in daily service, on the day that the EGU resumes operation.

Section 225.270 Notifications

The owner or operator of a source with one or more EGUs must ~~shall~~ submit written notice to the Agency according to the provisions in 40 CFR 75.61, incorporated by reference in Section 225.140 (as a segment of 40 CFR 75) for each EGU or group of EGUs monitored at a common stack and each non-EGU monitored ~~under~~ pursuant to 40 CFR 75.82(b)(2)(ii), incorporated by reference in Section 225.140.

Section 225.290 Recordkeeping and Reporting

a) General Provisions

1) The owner or operator of an EGU and its designated representative must ~~shall~~ comply with all applicable recordkeeping and reporting requirements in this Section and with all applicable recordkeeping and reporting requirements of 40 CFR 75.84, incorporated by reference in Section 225.140.

2) The owner or operator of an EGU must ~~shall~~ maintain records for each month identifying the emission standard in Section 225.230(a) or 225.237(a) of this Section with which it is complying or that is applicable for the EGU and the following records related to the emissions of mercury that the EGU is allowed to emit:

A) For an EGU for which the owner or operator is complying with this Subpart B by means of Section 225.230(a)(2) or 225.237(a)(1)(B) or using input mercury levels to determine the allowable emissions of the EGU, records of the daily mercury

content of coal used (lbs/trillion Btu) and the daily and monthly input mercury (lbs), which must ~~shall~~ be kept in the file ~~required under~~ pursuant to 40 CFR 75.84(a).

B) For an EGU for which the owner or operator of an EGU complying with this Subpart B by means of Section 225.230(a)(1) or 225.237(a)(1)(A) or using electrical output to determine the allowable emissions of the EGU, records of the daily and monthly gross electrical output (GWh), which must ~~shall~~ be kept in the file required under 40 CFR 75.84(a).

3) The owner or operator of an EGU must ~~shall~~ maintain records of the following data for each EGU:

A) Monthly emissions of mercury from the EGU.

B) For an EGU for which the owner or operator is complying by means of Section 225.230(b) or (d) of this Subpart B, records of the monthly allowable emissions of mercury from the EGU.

4) The owner or operator of an EGU that is participating in an Averaging Demonstration pursuant to Section 225.232 of this Subpart B must ~~shall~~ maintain records identifying all sources and EGUs covered by the Demonstration for each month and, within 60 days after the end of each calendar month, calculate and record the actual and allowable mercury emissions of the EGU for the month and the applicable 12-month rolling period.

5) The owner or operator of an EGU must ~~shall~~ maintain the following records related to quality assurance activities conducted for emissions monitoring systems:

A) The results of quarterly assessments conducted ~~under~~ pursuant to Section 2.2 of Appendix B of 40 CFR 75, incorporated by reference in Section 225.140; and

B) Daily/weekly system integrity checks ~~under~~ pursuant to Section 2.6 of Appendix B of 40 CFR 75, incorporated by reference in Section 225.140.

6) The owner or operator of an EGU must ~~shall~~ maintain an electronic copy of all electronic submittals to the USEPA ~~under~~ pursuant to 40 CFR 75.84(f), incorporated by reference in Section 225.140.

7) The owner or operator of an EGU must ~~shall~~ retain all records required by this Section at the source unless otherwise provided in the CAAPP permit

issued for the source and must ~~shall~~ make a copy of any record available to the Agency upon request.

b) Quarterly Reports. The owner or operator of a source with one or more EGUs must ~~shall~~ submit quarterly reports to the Agency as follows:

1) These reports must ~~shall~~ include the following information for operation of the EGUs during the quarter:

A) The total operating hours of each EGU and the mercury CEMS, as also reported in accordance with 40 CFR 75~~.~~, incorporated by reference in Section 225.140.

B) A discussion of any significant changes in the measures used to control emissions of mercury from the EGUs or the coal supply to the EGUs, including changes in the source of coal.

C) Summary information on the performance of the mercury CEMS. When the mercury CEMS was not inoperative, repaired, or adjusted, except for routine zero and span checks, this must ~~shall~~ be stated in the report.

D) If the CEMS downtime was more than 5.0 percent of the total operating time for the EGU: the date and time identifying each period during which the CEMS was inoperative, except for routine zero and span checks; the nature of CEMS repairs or adjustments and a summary of quality assurance data consistent with 40 CFR ~~Part~~ 75, i.e., the dates and results of the Linearity Test(s) and any RATAs ~~Relative Accuracy Test Audit(s)~~ during the quarter; a listing of any days when a required daily calibration was not performed; and the date and duration of any periods when the CEMS was out-of-control as addressed by Section 225.260 ~~of this Subpart~~.

2) The owner or operator must ~~shall~~ submit each quarterly report to the Agency within 45 days following the end of the calendar quarter covered by the report.

c) Compliance Certification. The owner or operator of a source with one or more EGUs must ~~shall~~ submit to the Agency a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the EGUs' emissions are correctly and fully monitored. The certification must ~~shall~~ state:

1) That the monitoring data submitted were recorded in accordance with the applicable requirements of this Section, Sections 225.240 through 225.270

and Section 225.290 of this Subpart B, and 40 CFR 75, including the quality assurance procedures and specifications; and

2) For an EGU with add-on mercury emission controls, a flue gas desulfurization system, a selective catalytic reduction system, or a compact hybrid particulate collector system and for all hours where mercury data are substituted in accordance with 40 CFR 75.34(a)(1):

~~(~~A) That:

~~(~~i) The mercury add-on emission controls, flue gas desulfurization system, selective catalytic reduction system, or compact hybrid particulate collector system was operating within the range of parameters listed in the quality assurance/quality control program ~~under~~ pursuant to Appendix B to 40 CFR 75; or

ii) With regard to a flue gas desulfurization system or a selective catalytic reduction system, quality-assured SO_2 emission data recorded in accordance with 40 CFR ~~Part~~ 75 document that the flue gas desulfurization system was operating properly, or quality-assured NO_X emission data recorded in accordance with 40 CFR ~~Part~~ 75 document that the selective catalytic reduction system was operating properly, as applicable; and

B) The substitute data values do not systematically underestimate mercury emissions.

d) Annual Certification of Compliance

1) The owner or operator of a source with one or more EGUs subject to this Subpart B must ~~shall~~ submit to the Agency an Annual Certification of Compliance with this Subpart B no later than May 1 of each year and must ~~shall~~ address compliance for the previous calendar year. Such certification must ~~shall~~ be submitted to the Agency, Air Compliance and Enforcement Section, and the Air Regional Field Office.

2) Annual Certifications of Compliance must ~~shall~~ indicate whether compliance existed for each EGU for each month in the year covered by the Certification and ~~certification~~ it must certify to that effect. In addition, for each EGU, the owner or operator must ~~shall~~ provide the following appropriate data as set forth in subsections (d)(2)(A) through (d)(2)(E) of this Section, together with the data set forth in subsection (d)(2)(F) of this Section:

A) If complying with this Subpart B by means of Section 225.230(a)(1)(A) or 225.237(a)(1)(A):

i) Actual emissions rate, in lb/GWh, for each 12-month rolling period ending in the year covered by the Certification;

ii) Actual emissions, in lbs, and gross electrical output, in GWh, for each 12-month rolling period ending in the year covered by the Certification; and

iii) Actual emissions, in lbs, and gross electrical output, in GWh, for each month in the year covered by the Certification and in the previous year.

B) If complying with this Subpart B by means of Section 225.230(a)(1)(B) or 225.237(a)(1)(B):

i) Actual control efficiency for emissions for each 12-month rolling period ending in the year covered by the Certification, expressed as a percent;

ii) Actual emissions, in lbs, and mercury content in the fuel fired in such EGU, in lbs, for each 12-month rolling period ending in the year covered by the Certification; and

iii) Actual emissions, in lbs, and mercury content in the fuel fired in such EGU, in lbs, for each month in the year covered by the Certification and in the previous year.

C) If complying with this Subpart B by means of Section 225.230(b):

i) Actual emissions and allowable emissions for each 12-month rolling period ending in the year covered by the Certification; and

ii) Actual emissions and allowable emissions, and which standard of compliance the owner or operator was utilizing for each month in the year covered by the Certification and in the previous year.

D) If complying with this Subpart B by means of Section 225.230(d):

i) Actual emissions and allowable emissions for all EGUs at the source for each 12-month rolling period ending in the year covered by the Certification; and

ii) Actual emissions and allowable emissions, and which standard of compliance the owner or operator was utilizing for each month in the year covered by the Certification and in the previous year.

E) If complying with this Subpart B by means of Section 225.232:

i) Actual emissions and allowable emissions for all EGUs at the source in an Averaging Demonstration for each 12-month rolling period ending in the year covered by the Certification; and

ii) Actual emissions and allowable emissions, with the standard of compliance the owner or operator was utilizing for each EGU at the source in an Averaging Demonstration for each month for all EGUs at the source in an Averaging Demonstration in the year covered by the Certification and in the previous year.

F) Any deviations, data substitutions, or exceptions each month and discussion of the reasons for such deviations, data substitutions, or exceptions.

3) All Annual Certifications of Compliance required to be submitted must ~~shall~~ include the following certification by a responsible official:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

4) The owner or operator of an EGU must ~~shall~~ submit its first Annual Certification of Compliance to address calendar year 2009 or the calendar year in which the EGU commences commercial operation, whichever is later. Notwithstanding subsection (d)(2) of this Section, in the Annual Certifications of Compliance that are required to be submitted by May 1, 2010, and May 1, 2011, to address calendar years 2009 and 2010, respectively, the owner or operator is not required to provide 12-month rolling data for any period that ends before June 30, 2010.

e) Deviation Reports. For each EGU, the owner or operator must ~~shall~~ promptly notify the Agency of deviations from requirements of this Subpart B. At a minimum, these notifications must ~~shall~~ include a description of such deviations within 30 days after discovery of the deviations, and a discussion of the possible cause of such deviations, any corrective actions, and any preventative measures taken.

f) Quality Assurance RATA Reports. The owner or operator of an EGU must ~~shall~~ submit to the Agency, Air Compliance and Enforcement Section, the quality assurance RATA report for each EGU or group of EGUs monitored at a common stack and each non-EGU ~~under~~ pursuant to 40 CFR 75.82(b)(2)(ii), incorporated by reference in Section 225.140, within 45 days after completing a quality assurance RATA.

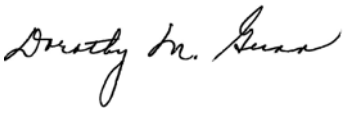
Section 225.295 Treatment of Mercury Allowances

Any mercury allowances allocated to the Agency by the USEPA must ~~shall~~ be treated as follows:

a) No such allowances ~~must shall~~ may be allocated to any owner or operator of an EGU or other sources of mercury emissions into the atmosphere or discharges into the waters of the State.

b) The Agency must ~~shall~~ hold all allowances allocated by the USEPA to the State. At the end of each calendar year, the Agency must ~~shall~~ instruct the USEPA to retire permanently all such allowances.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on November 2, 2006, by a vote of 4-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

APPENDIX TO THE OPINION AND ORDER

R06-25 – Acronyms/Abbreviations

ACI	activated carbon injection
APA	Administrative Procedure Act
ASTM	American Society for Testing and Materials
CAA	Clean Air Act
CAAPP	Clean Air Act Permit Program
CAIR	Clean Air Interstate Rule
CAMR	Clean Air Mercury Rule
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality
CWLP	City Water, Light & Power
DCEO	Department of Commerce and Economic Opportunity
DOE	United States Department of Energy
EGU	Electric Generating Unit
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ESP	electrostatic precipitator
FCMP	Fish Contaminant Monitoring Program
FGD	flue gas desulfurization scrubber
GWh	gigawatt hour
HAP	hazardous air pollutant
HCI	halogenated carbon injection
Hg^0	elemental mercury
Hg^{2+}	reactive gaseous mercury
Hg_p	particulate mercury
IERG	Illinois Environmental Regulatory Group
MACT	maximum achievable control technology
Mmacf	million actual cubic feet
MPS	Multi-Pollutant Standard
MW	megawatt
MWC	municipal waste combuster
Mwe	megawatt electrical
MWh	megawatt hour
NAAQS	National Ambient Air Quality Standards
NHANES	National Health and Nutrition Examination Survey
NO_x	nitrogen oxides
NRC	National Research Council
PAC	powdered activated carbon
PCB	polychlorinated biphenyls
PM	particulate matter

$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PPM	parts per million
PRB	Powder River Basin
PSD	prevention of significant deterioration
RATA	relative accuracy test audit
RfD	reference dose
RGM	reactive gaseous mercury
SCA	specific collection area
SCR	selective catalytic reduction
SIP	State Implementation Plan
SIPC	Southern Illinois Power Cooperative
SNCR	selective non- catalytic reduction
SO_2	sulfur dioxide
SO_3	sulfur trioxide
TEAM	Trace Element Analysis Model
TSD	Technical Support Document
TTBS	Temporary Technology Based Standard
USEPA	United States Environmental Protection Agency