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January 3, 2005

Secretary 717-787-2814

Docket ID No. OAR-2002-0056
EPA Docket Center (Air Docket)
Clean Air Mercury Rule
U.S. Environmental Protection Agency
Mail Code: 6102T
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Sir or Madam:

The Pennsylvania Department of Environmental Protection (Department) appreciates the opportunity to submit comments on the U.S. Environmental Protection Agency's (EPA) Notice of Data Availability (NODA) published in the *Federal Register* on December 1, 2004 (69 *Fed. Reg.* 69864). The NODA pertains to EPA's "Proposed National Emission Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units" published in the *Federal Register* on January 30, 2004 (69 *Fed. Reg*. 4652) and the "Supplemental Notice of Proposed Rulemaking" published on March 16, 2004 (69 *Fed. Reg*. 12398).

The Department has reservations about EPA's proposal to control mercury emissions through the establishment of a cap-and-trade program that would allow the trading of hazardous mercury emissions. We believe that the implementation of a market-based trading approach would significantly delay the control of mercury emissions from the utility sector and would also create 'hot spots' of mercury exposure that could be very detrimental to public health and the environment. Therefore, the Department urges EPA to abandon the proposed mercury emissions cap-and-trade program to ensure that legal challenges of such a program would not impact the integrity of existing trading programs.

Information provided in the NODA buttresses the Department's position that there are available control technologies that are appropriate for regulating mercury emissions. The Integrated Planning Model (IPM) simulations, which were used to predict how the utility sector responds to regulatory conditions, should take into account all available control technologies to generate more realistic modeling results. EPA's average speciation values, given the variable nature of mercury emissions, are not appropriate for characterizing mercury emissions. The current availability of proven mercury control technologies, such as activated carbon injection, demonstrates that mercury control is less costly, and more feasible, than originally believed.

One of the most troublesome aspects of EPA's proposed mercury control options is the unfairly disproportionate burden on eastern coal. Through the use of bromated activated carbon injection (B-ACI), mercury control with all coal-types is achievable. Establishment of maximum achievable control technology (MACT) standards based on this proven technology eliminates this regional disparity and achieves greater mercury reductions.

The Commonwealth of Pennsylvania continues to have a general, statewide health advisory which limits the consumption of "recreationally caught sport fish". Since the NODA was published, the State of West Virginia has released a statewide fish consumption advisory. Their advisory is based on a two-year study which found wide-spread mercury contamination of their waterways and excessive mercury fish tissue concentrations in several species of fish. The West Virginia report supports the Department's position that mercury needs to be controlled effectively and promptly.

I. Introduction

Mercury is a leading concern among the air toxic metals addressed in the Clean Air Act (CAA) Amendments of 1990 because of its volatility, persistence, and bioaccumulation as methylmercury in the environment and its neurological health impacts. Coal-fired utility units are now identified as the largest source of mercury in the United States, releasing approximately 50 tons of mercury annually or about one-third of the total anthropogenic emissions. The data collected by the EPA Information Collection Request (ICR) to coal-fired utilities indicates that there was 75 tons of mercury in the 900 million tons of coal used in U.S. power plants during 1999. On average, about 40% of the mercury entering a coal-fired power plant is captured and 60% is emitted to the atmosphere.

The Department is concerned that EPA has now alternatively proposed to revise its December 2000 finding that it is "appropriate and necessary" to regulate utility hazardous air emissions using Section 112 of the CAA which requires the owners and operators of electric utility steam generating units to install MACT to reduce the emission of hazardous air pollutants. Alternatively, EPA has proposed a rulemaking to reduce mercury emissions from electric generating facilities by establishing mercury control requirements for new and existing coal-fired utility units under Section 111 of the CAA. (42 U.S.C. §7411). This proposal utilizes a cap-and-trade program for reducing mercury emissions as the means to achieve what is characterized as a higher level of control of mercury. One of a number of problems with the Section 111 proposal is the much longer timeframe proposed for mercury control compared to the timeframe for demonstrating compliance with MACT requirements within three (3) years from the effective date of the final MACT rule, as prescribed by the CAA. Pennsylvania does not believe that Section 111 should be substituted for the mercury emission controls that would be achieved under the MACT provisions in Section 112 of the CAA. The Department submitted a detailed set of comments on the proposed rule on June 29, 2004.

II. Comments on issues raised in the EPA Notice of data availability related to the Clean Air Mercury Rule Proposal.

The Department is concerned that the NODA focuses undue attention on the IPM power sector modeling which emphasized the relationship between levels of control and cost. The discussions about cost distract from the fundamental issue: the CAA clearly calls for emissions of hazardous air pollution from electric utilities to be regulated under Section 112, which requires EPA to establish a MACT standard that reflects at least "the average emission limitation achieved by the best performing 12 percent of the existing sources" or "the emission control that is achieved in practice by the best controlled similar source." By definition, the consideration of cost is inappropriate for hazardous air pollutants in the determination of the MACT floor. The only scenarios for which information should be gleaned from the modeling are with respect to beyond-the-floor calculations. Therefore, the cost calculations articulated in the NODA should not be part of the determination of the MACT floor for electric utilities.

One aspect of the IPM modeling, which the Department recommends be modified, is with respect to using additional control options. Additional control options (e.g., retrofit of fabric filters and electrostatic precipitators, brominated activated carbon injection) should be considered in EPA's power sector modeling. The current approach, which only takes into account selective catalytic reduction (SCR), flue gas desulfurization (FGD), and activated carbon injection (ACI), underestimates the benefits achieved by other technologies. Consideration of additional controls in the modeling would yield more realistic results.

Under Part II, Sub-Part C of the NODA, EPA indicates that they received comments related to the speciation of mercury. Speciation is fundamentally important since the ability of control devices to remove mercury is directly related to the form of mercury in the flue gas. The three species of mercury that exist in plant emissions are elemental, ionic/oxidized, and particulate. Oxidized and particulate are known to be the more easily captured forms of mercury. Average mercury speciation data from the 81 power plants that were the basis of the MACT floor calculations, is set forth on page 69871 of the NODA. The calculated averages of the speciated mercury forms across all coal types were: elemental – 54%, oxidized – 43%, and particulate – 3%.

The Department objects to the notion of using an average speciation profile to predict the characteristics of mercury emissions from coal fired utilities. The percentages of the three forms of mercury emissions can vary widely from facility to facility, even in the same coal category. For example, it has been determined that within a given coal category the proportion of oxidized mercury emitted is proportional to the chlorine content of the coal. The Hubbard Brook Research Foundation's comments noted that average speciation for electric utilities range between 10% and 90% for the oxidized form. The Brookhaven National Laboratory's May 2003 study utilized data from the Bruce Mansfield Plant in Shippingport, PA and the Monticello Power Plant in Monticello, TX. The fraction of the oxidized form of mercury between these two plants varied between 19.7% and 60.4%, respectively. Given the disparate speciation data that exists for mercury emissions, the Department recommends that a sensitivity analysis be performed to evaluate the effect that the range of values for the oxidized form of mercury has on the proposed rule.

As indicated in EPA's rulemaking, the oxidized form of mercury tends to deposit close to the emission site. Thus, utilities that emit a higher percentage of oxidized mercury impact their local environments to a greater degree than those that emit a higher percentage of elemental mercury. This could potentially either create, or exacerbate, 'hotspots' of mercury.

The EPA defines mercury 'hot spot' as "a mercury deposition point dominated by utility plant contributions whose removal would result in fish tissue levels dropping from above to below the Fish Tissue Criterion of 0.3 ppm." We find this definition to be self-limiting, implying no significant mercury impact on the environment when, in fact, the emitting facility may cause a mercury problem without including background mercury emissions. This is an absurd notion since it would allow for any increment of mercury emissions from a specific facility providing the background fish tissue mercury concentration is not below 0.3 ppm. For example, if the mercury fish tissue level for fish found near a utility plant is 1.0 ppm, yet the fish tissue mercury content from background emission sources would still be 0.35 ppm after removal of the mercury from the nearby utility plant, this area would not be considered a 'hotspot' since the fish would still remain over the 0.3 ppm concentration. Besides arbitrarily limiting the identification of local mercury impacts, this type of definition fails to take into account the substantial risk that could be posed by designating significantly elevated mercury concentrations as acceptable.

The inability to quantify a facility's mercury speciation percentages on an on-going basis supports the Department's concern that a cap-and-trade approach may be inappropriate compared to the standard MACT approach. The actual 'hotspots' that could be allowed to continue to exist as a result of a cap-and-trade approach may present unacceptable health risks to some of the citizens of Pennsylvania.

The utility of using ACI as a control method was discussed in the NODA. The acting principle of ACI is that by injecting carbon additional mercury is captured in the existing particulate control device in a manner similar to how the particulate form of mercury in the gas stream is already being captured. The Department is in favor of the use of this approach for significantly reducing mercury emissions. This technology has been used to successfully reduce mercury emissions at several coal-fired utilities across all coal types.

Brominated activated carbon injection, a form of ACI where the carbon is combined with bromine before injection, has demonstrated 95% mercury removal at Great River Energy's Stanton 10 Plant. Injecting brominated activated carbon tends to convert a higher portion of the elemental mercury to the oxidized form. This is analogous to the effect naturally occurring chlorine in coal has on mercury emissions. Achieving 95% removal at the Stanton 10 Plant is significant since it burns lignite coal, which is generally recognized as the most difficult to control. Lignite is difficult to control, in part, because lignite's chlorine content is typically low. It does not appear that EPA has considered the impacts of the recent improvements to the ACI technology in the proposed MACT rule.

The mercury emission reductions realized with B-ACI were similar regardless of coal type. Thus, a uniform reduction standard across all coal types could be applied. Unlike the

current proposal, which places an unfair burden on bituminous coal producers, a uniform reduction proposal would be equitable to coal producers nationwide. This approach would eliminate concerns about 'coal-switching' and the inequities this could create between regions of the country.

Highly effective mercury control technologies are available and cost effective. Two companies that supply B-ACI for utility power plants offer removal rate guarantees. The ACI industry reports that there is a sufficient supply of activated carbon to supply the anticipated demand for mercury control by the regulated industry. More than 800,000 tons of activated carbon are currently produced worldwide annually. The technology has proven to be more cost effective than initially thought by EPA. The cost of ACI has been reported to be ranging between $2,000 and $20,000 per pound of mercury removed, much less than the control cost of $50,000/lb that was considered in the proposed rule. The B-ACI technique has reduced the amount of activated carbon necessary to create the same effect. By reducing the amount of activated carbon needed the B-ACI technology will have a significant impact on the results of IPM modeling included in the proposed rule. The impact from the use of B-ACI will serve to positively enhance the economic viability of mercury control under MACT. It also addresses any potential concerns regarding sufficient availability of activated carbon.

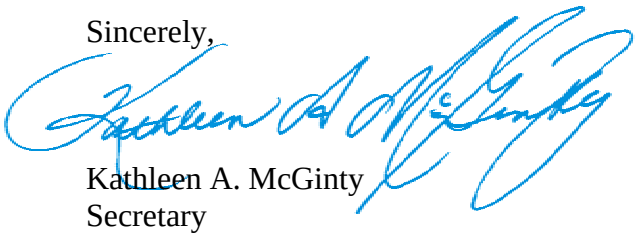
It was mentioned that EPA may rely on information gleaned from reports that were not available for public review prior to the end of the comment period. The Department recommends that any reports, or studies, relied upon in making determinations relevant to the mercury rule be made available for public review.

III. Conclusion

The available data does not support a decision by EPA to reverse its original December 2000 "appropriate and necessary" finding based upon a newly developed legal interpretation, which ignores the enormous adverse impact that mercury emissions from coal-fired units have on public health and the environment. The information related to speciation and the proven activated carbon injection technology in the NODA supports the Department's position that MACT is the appropriate regulatory approach for controlling mercury emissions. We request that EPA retain its December 2000 "appropriate and necessary" regulatory finding. EPA should also develop and promulgate mercury emission reductions based on a newly calculated MACT floor that considers all available data, as previously discussed in this comment letter, which will adequately protect public health and environmental resources including air and water quality as intended under Section 112(d) of the federal CAA.

Please contact Thomas K. Fidler, Deputy Secretary for Air, Recycling and Radiation Protection, at 717-772-2724 or by email at tfidler@state.pa.us if you have questions or need additonal information. Joyce E. Epps, Director of the Bureau of Air Quality, may also be contacted at 717-787-9702 or by email at jeepps@state.pa.us should you have any questions concerning these comments.

Sincerely,



Kathleen A. McGinty
Secretary