ENVIRONMENTAL PROTECTION

ENVIRONMENTAL REGULATION

DIVISION OF AIR QUALITY

AIR QUALITY PERMITTING ELEMENT

Air Pollution Control

Control and Prohibition of Mercury Emissions

Adopted Amendments: N.J.A.C. 7:27-27.7 and 7:27A-3.10

Proposed: August 1, 2005 at 37 N.J.R. 2783(a).

Adopted: July 14, 2006 by Lisa P. Jackson, Commissioner, Department of Environmental Protection.

Filed: August 1, 2006 as R.2006 d. , **without change**.

Authority: N.J.S.A. 13:1B-3(e), 13:1D-9 and 26:2C-1 et seq., in particular 26:2C-8 and 26:2C-9.2

DEP Docket Number: 06-05-03/502

Proposal Number: PRN 2005-143

Effective Date: September 5, 2006

Operative Date: September 14, 2006

Expiration Date: Exempt, N.J.A.C. 7:27; April 21, 2010, N.J.A.C. 7:27A

The New Jersey Department of Environmental Protection (Department) is adopting

amendments to the standards and procedures for the control and prohibition of mercury from coal-fired boilers. These amendments would modify rules adopted on December 6, 2004, which establish requirements for the coal-fired boilers in the State and for certain other sources of mercury emissions to the air. The 2004 rule required the seven coal-fired facilities with 10 coal-fired electric steam-generating units in the State to comply with the mercury emission limits by December 15, 2007, or by December 15, 2012, for up to half of a company's New Jersey coal-fired capacity, if a company commits to effectively control emissions of nitrogen oxides, sulfur dioxide, and particulates, along with mercury, on its entire New Jersey fleet.

It is possible for a facility to apply its best efforts to timely install and operate air pollution controls, but still need some additional time to adjust and optimize the controls to consistently meet the emission standards in the rules. Therefore, through the within amendment, the Department is authorizing, in certain circumstances, extensions the compliance deadline for one year. If the applicable deadline were December 15, 2007, the authorization would expire on December 15, 2008. If the applicable deadline were December 15, 2012, the authorization would expire on December 15, 2013.

Also, the Department is amending the existing penalty provisions at N.J.A.C. 7:27A-3.10(m)27 to include penalties for any owner or operator of a source subject to the amendments to N.J.A.C. 7:27-27.2 who fails to comply with an approved facility-specific mercury control plan for a coal-fired boiler.

The proposal of the within amendments was published on August 1, 2005, at 37 NJR 2783(a). The Department accepted public comment up to and including September 30, 2005.

Summary of Hearing Officer's Recommendation and Agency Responses:

The Department held a public hearing regarding the rule proposal at the Department, 401 E. State Street, Hearing Room, First Floor, East Wing, Trenton, New Jersey on September 30, 2005. William O'Sullivan, PE, Director of the Department's Division Office of Air Quality, served as the hearing officer. The comment period for the proposal closed on September 30, 2005. The comments received by the Department are summarized and addressed below. The hearing officer recommended that the Department adopt the proposed amendments and new rules, without changes as discussed in the Response to Comments and the Summary of Agency-Initiated Changes sections below. The Department has accepted the hearing officer's recommendations. A record of the public hearing is available for inspection in accordance with applicable law by contacting:

Department of Environmental Protection

Office of Legal Affairs

ATTN: Docket No. 06-05-03/502

401 East State Street

PO Box 402

Trenton, New Jersey 08625-0402

Summary of Public Comments and Agency Responses:

The Department received oral and/or written comments from the following persons:

1. Michael L. Pisauro, Jr., New Jersey Environmental Lobby
2. Barbara Sachau
3. John G. Valeri, Jr., Public Services Corporation on behalf of PSEG Fossil LLC
4. Daniel Cunningham, Environmental Policy Manager, Public Services Corporation on behalf of PSEG Fossil LLC

The number(s) in parentheses after each comment corresponds to the commenter numbers above and indicate(s) the person(s) who submitted the comment.

1. COMMENT: The Department should not promulgate this rule. The rule provides an escape from compliance and is not in the best interest of the residents and environment of New Jersey. Any delay in the removal of mercury from the environment will be too costly, given the significant health risks associated with continued emission of mercury. The costs to the society and to the environment demand that the one-year extension not apply to facilities operating under N.J.A.C. 7:27-27.7(d). (1)

Mercury emissions kill children and injure all and are a deadly threat to America. There should be absolutely no extension from the deadline date of December 15, 2007. The timeline should never extend to 2013. (2)

RESPONSE: The Department is maintaining the December 15, 2007 compliance date at N.J.A.C. 7:27-27.7(a) and the December 15, 2012 compliance date at N.J.A.C. 7:27-27.7(d) for installation of mercury air pollution control. Owners or operators of coal-fired boilers would need to first install mercury controls by these existing deadlines in order to comply with the mercury standards at N.J.A.C. 7:27-27.7(a) prior to obtaining the Department's approval of the one-year compliance deadline extension. The extension is provided where a facility applies its best efforts to timely install and operate air pollution controls, but still needs some additional time to adjust and optimize the controls to consistently meet the emission standards in the rules. Therefore, through operation of the within adopted amendment, the Department may allow up to one year for the facility to adjust and optimize the installed mercury controls after thorough evaluation of mercury control plans. Because the facility must install controls to comply with N.J.A.C. 7:27-27.2(a), mercury emissions will at least partially be reduced by the deadline in the existing rules, thereby benefiting the residents and environment of the State. Additional reductions to attain the limits are required by the end of the extension allowed by the within adopted rule.

2. COMMENT: Under the proposed rule there would appear to be several loop holes that would allow a facility to gain extension without demonstrating any real need. The Department has outlined

only a very general and non-delineated standard for granting extensions. An extension is based upon "reasonableness," but the Department did not provide any objective standards for the term. The Department also did not define the term "sufficient time" to have installed the equipment to meet compliance requirement. The facility may wait until the deadline and request an extension, and there is nothing in the proposed regulation that would prohibit such a scenario. The facility would gain an additional year without penalty. Further, there is no provision for the extension to expire upon the completion of the additional work. (1)

RESPONSE: The owners or operators of coal-fired boilers would need to first install mercury controls in order to comply with the mercury standards at N.J.A.C. 7:27-27.7(a). The Department will provide an extension of the compliance deadline only after a thorough evaluation to determine whether the company made good faith effort to install mercury controls and begin operation by the December 15, 2007 (or December 15, 2012, as appropriate) compliance date.

As set forth in the rule adoption at N.J.A.C.7:27-27.7(k)3, the Department will review the following information prior to providing an extension:

i. A list of all air pollution control technologies and measures that have been installed and are operating to control emissions of air contaminants from each coal-fired boiler;

ii. For each of the technologies and measures listed in i above, the date of installation and commencement of operation;

iii. For each of the technologies and measures listed in i above, an explanation of how the technology and measure was installed properly and is being operated properly;

iv. A list of any air pollution control technologies or measures not listed in i above that the owner or operator proposes to install and operate to control emissions of air contaminants from the coal-fired boiler(s);

v. A summary of how the coal-fired boiler is expected to be operated and maintained during the term of the Department's approval of the mercury control plan, including any associated air pollution control equipment and measures, which are designed to maintain compliance with all applicable air pollution control requirements which are designed and operated to minimize emissions of mercury to the extent practicable;

vi. A summary of additional efforts that are to be undertaken to achieve compliance with the mercury standards before the expiration of the Department's approval of the mercury control plan;

vii. The results of each mercury stack test and other emissions measurements for the coal-fired boiler following the installation and commencement of operation of the air pollution control technologies and measures listed in i above.

The Department considers one year to be sufficient time to optimize and adjust the mercury control.

3. COMMENT: A much better approach would be to work with the industry proactively to help implement the technologies sufficiently ahead of schedule, so that any issues or difficulties can be addressed prior to the deadline for compliance. This approach will likely result in increased

reductions by encouraging facilities to implement emission reductions earlier to insure compliance; and it may not cost the Department any more than dealing with non-compliance afterwards. (1)

RESPONSE: The Department is already working proactively with industry on implementing this rule. For example, the Department has reviewed a report dated September 12, 2005, on testing of an Activated Carbon Injection (ACI) system at Unit No. 2 of PSEG Fossil LLC ("PSEG Fossil") Mercer generating station. Mercury emission levels close to the State's mercury rule limit of 3 mg/MWh have been achieved at that facility. The Department has provided comments on the report to the operator of the facility, with some recommendations with respect to addressing technical issues prior to the deadline for compliance. PSEG Fossil has advised the Department it will conduct further tests this year for a longer period of time. These additional tests could show compliance or cause PSEG Fossil to modify its air pollution control system to achieve compliance. Similarly, the Department will work with other facilities, as they plan to achieve appropriate reductions in mercury emissions. The Department expects that other operators will provide similar pilot test reports prior to the compliance deadline, although neither the existing rules nor the within amendments require this. Mercury air pollution control system must be optimized for each unit. The Department is adopting the amendments to provide a limited extension in the compliance deadline only if a facility needs additional time to adjust and optimize the controls to consistently meet the emission standards in the rules.

4. COMMENT: The proposal falls short in providing the necessary flexibility to allow companies to comply with provisions of the existing rules, such as timing to meet rule deadlines and demonstrated

reliable continuous reductions. In sum, the technologies for the reduction and measurement of mercury are in the development stage for coal-fired power plants, and have not been fully proven. The existing rules and the proposed rule continue to place an extraordinary burden on the regulated community, and the deadlines are likely to be unachievable. (3) (4)

RESPONSE: The New Jersey mercury emission standards have been shown to be achievable as stated in the response to Comment 3 above, as well as stated in the response to comment 54 at 36 N.J.R. 5419, the adoption of the existing mercury rules. Also, as discussed in Chapter 4: Status of Mercury Pollution Control Technology in State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO) (STAPPA/ALAPCO) Mercury Model Rule, at http://www.4cleanair.org/FinalMercuryModelRule-111405.pdf, ACI remains the leading option among control technologies specifically for mercury. ACI is a mature mercury emission control technology, currently deployed on scores of municipal waste combustors across the country, with mercury removal rates of more than 90 percent.

According to a paper by Sid Nelson Jr., Ronald Landreth, Qunhui, and Jon Miller of Sorbent Technologies “Accumulated Power-Plant Mercury –Removal Experience with Brominated PAC Injection”, We Energies’ Valley Station plant burning low sulfur bituminous coal achieved 94 percent mercury control, and Great River Energy’s Stanton Station Unit 10 in North Dakota achieved 95 percent control. Also, the Babcock and Wicox full-scale mercury control test at Mount Storm Power Station Grant County West VA reported 95 percent mercury control with SCR, ESP,

and wet FGD. Sunflower Electric cooperative Holcomb plant in Holcomb Kensas injected DARCO Hg –LH brominated ACI and achieved greater than 90 percent mercury control. Meramec plant in Arnold, Missouri with DARCO Hg –LH ACI achieved greater than 95 percent mercury control.

ACI entails injecting a powdered sorbent that binds to mercury in the flue gas and then collecting the powder with a particulate control device. Activated carbon (carbon that has been treated to alter its surface properties) is the most commonly used sorbent. As mentioned above, large-scale field tests of ACI on coal-fired electric generating units have demonstrated removal rates of 90 percent and higher.

Also, some plants have achieved over 90 percent control without activated carbon injection. Four bituminous coal-fired power plants with dry scrubber and baghouse (Mecklenberg plant VA, Dwayen Collier Battle plant in NC, Logan plant in NJ, and SEI Birchwood VA) each captured more than 95 percent mercury (NESCAUM 10/2003 report). More recent testing (August 25, 2005) at the Logan Plant in NJ showed less than 3 mg/MWhr with dry scrubber and baghouse, without carbon injection.

The Department's adopted rule provided reasonable timeframes for installing, testing, and making modifications to air pollution control systems to control mercury. The original timeframes of three years is sufficient for testing carbon injection and adding improved particulate control if necessary to increase mercury control. The additional one-year provides additional flexibility to optimize such

control system.

5. COMMENT: Greater flexibility must be included within the rule in order to recognize the currently limited technologies, as well as support companies that are installing technologies as pilot projects to further the science of reducing and monitoring mercury emissions. The Department should reconsider its position to reject the concept of alternative emissions limits (AELs), as set forth in the proposal at 37 N.J.R. 2783. An AEL could be considered by the Department if the owner or operator of an affected unit properly installs and operates control technologies designed to achieve mercury emissions rate requirements, but the technology fails to achieve the required emission rate. The Department would then consider an AEL based upon the optimized performance of properly installed and operated control technologies. AELs are necessary to ensure that coal-fired power plants are not penalized for advancing the science of mercury emission control by installing untested technology. The language in the proposal should be deleted and N.J.A.C. 7:27-27.7(d)(4) should be replaced by "If the owner or operator of a coal-fired boiler installs and operates the air pollution control systems required pursuant to an enforceable agreement, and those systems can not achieve the emissions rate specified in (a)(1) or (a)(2) above for that coal-fired boiler, then such owner shall notify the Department within 180 days of commencing operations of said air pollution control systems. If the enforceable agreement establishes methodologies by which an owner or operator shall achieve reduction in mercury emissions, then the Department shall establish an alternative emission limit based upon said methodologies. If the enforceable agreement does not establish methodologies for achieving mercury reduction, then the Department shall establish an

alternative emission limit based upon the operation and maintenance of air pollution control systems required to be installed pursuant to the enforceable agreement in a manner consistent with good air pollution control practices for maximizing reductions of mercury emissions. During the period beginning on the deadline for compliance with the mercury emissions standards for a coal-fired power plant, as required pursuant to paragraph (d), above, and ending on the date of the issuance of an alternative emissions limit, the owner or operator may demonstrate compliance with this section by operating and maintaining air pollution control systems currently installed at the coal-fired power plant in a manner consistent with good air pollution control practices for maximizing reductions of mercury emissions." (3) (4)

RESPONSE: The Department does not believe that an AEL is appropriate, given the fact that mercury control technology is available and has been demonstrated for more than a decade. Currently available mercury control technologies have successfully achieved more than 90 percent mercury control. See response to Comment 4 above. However, the Department does recognize that additional time for adjustment and optimization may be needed in some cases before the boiler is able to consistently meet the emission standards in the existing rules, even when the appropriate technology is installed well in advance of the compliance deadline. Accordingly, the Department is adopting the within amendment that would allow, in certain circumstances, a temporary facility specific mercury control plan for a coal-fired boiler.

The Department is also concerned that the recommended change to the rule would allow the installation of less effective mercury control. The Department expects that some units with

electrostatic precipitators (ESP) particulate controls will not be able to achieve the New Jersey mercury limits even with activated carbon injection. In those cases the Department expects the installation of fabric filtration or other measures in order to improve the capture of mercury. The wording suggested by the commenter could have allowed the installation of activated carbon injection on an ESP without the installation of a fabric filter or other measures, even if the emission limits were not attained.

6. COMMENT: The Department should extend the proposed one-year extension to three years if the Department will not reconsider the concept of AELs. A three-year extension would recognize the need to fully optimize and test technologies that have been installed, but that may not immediately meet the limits required in the rules. Further, the commenter suggests the Department should allow for a subsequent extension of up to an additional three years, should technologies still not be available, or if more time is needed to test and optimize any technologies installed during the initial extension. (3) (4)

RESPONSE: The Department proposed the December 15, 2007 compliance deadline based on the settlement agreement between the United States Environmental Protection Agency (USEPA) and the Natural Resources Defense Council (NRDC) for regulating mercury emission limits from coal-fired boilers. The settlement agreement required the USEPA to propose rules by December 15, 2003, and promulgate final rules by December 15, 2004, with the Clean Air Act then requiring compliance by December 15, 2007. See 42 U.S.C.A. §7412(i). The federal settlement agreement was modified after

the proposal of the within amendment to extend the deadline for promulgating Federal rules until March 15, 2005, resulting in an extended Clean Air Act compliance deadline of March 15, 2008.

The Department provided an extension of the December 15, 2007 compliance deadline to December 15, 2012, for any company that by December 15, 2007 has entered into an enforceable agreement with the Department to install and operate nitrogen oxides, sulfur dioxide, and particulate air pollution control systems on their entire New Jersey fleet. The extension of the compliance deadline is available for half of the New Jersey coal-fired capacity of the company. The other half of the coal-fired capacity must achieve the mercury emission limits by December 15, 2007, unless extended for one year pursuant to these amendments. The 2012 compliance deadline is provided for approximately 50 percent of the capacity of the company located in New Jersey in order to accommodate construction schedules of the air pollution control equipment for the control of nitrogen oxides, sulfur dioxide and particulates. The installation schedule of other air pollution control equipment is consistent with the consent decree among the State, the United States, and PSEG Fossil LLC, filed with in the United States District Court for the District of New Jersey, Newark Division, on January 24, 2002. Compliance with all four-emission limits by December 15, 2012, is achievable with currently available air pollution control technology.

The multi-pollutant control flexibility in the previously adopted rule was included at the recommendation of PSEG Fossil and in light of the Consent Decree. We understand that the pending PSEG Fossil merger with Exelon could result in changes in ownership of PSEG Fossil units, and

PSEG Fossil currently desires additional flexibility. Providing an additional three years to control mercury emissions for this reason is not appropriate. Nor does the Department believe that a three year extension and a subsequent extension of up to an additional three years are needed.

7. COMMENT: The offense penalty fines are much too low. The penalties should be:

First offense - $50,000

Second offense - $150,000

Third offense - $500,000

Subsequent offense $1,000,000 plus seizure and loss of owning the present business polluting and never being allowed to own or run a business in New Jersey again. (2)

RESPONSE: The New Jersey Air Pollution Control Act (APCA), N.J.A.C. 2C-1 et seq., includes a statutory limit on the dollar amount of penalties that the Department can assess for violations of any air pollution rule, regulation or permit issued by the Department. The APCA limits can be found at N.J.S.A. 26:2C-19.b, which authorizes the Department to issue "a civil administrative penalty of not more than $10,000 for the first offense, not more than $25,000 for the second offense, and not more than $50,000 for the third and each subsequent offense." The penalties included in the proposal for first and third offense are at the maximum allowed by the APCA. The proposal included $20,000 for the second offence, which is below the authorized maximum of $25,000. This is consistent with the structure of the rest of the penalty matrix in N.J.A.C. 7:27A-3.10(m), where the second offense is twice the penalty amount for the first offense. Therefore, to ensure consistency with the rest of the

penalty provisions included in N.J.A.C.7:27A, and to conform with the statutory maximas, the Department does not plan to increase the penalties as suggested. Since each day of a violation is a separate and distinct offense, any violation that continues for more than one day is subject to a new penalty for each and every day that the violations continues, which should be sufficient to encourage compliance with the proposed emission limits. In addition, the Department may revoke the certificate to operate and operating permit for violation of the adopted standard.

8. COMMENT: There should be a higher standard than 90 percent mercury control. (2)

RESPONSE: New Jersey's Air Pollution Control Act gives the Department broad authority to control air pollution. The law defines "air pollution" to include the presence of air contaminants in the outside air that is or tends to be injurious to human health or welfare. The Department's goal is to virtually eliminate mercury emissions wherever possible and reasonable. This is consistent with the recommendation of the Department's 1998 Mercury Task Force and the Mercury Action Plan of New England Governors/Eastern Canadian Premiers (NEG/ECP). The Department believes that 90 percent mercury control is achievable and appropriate limit based on the test results available.

The existing rules at N.J.A.C. 7:27-27.8(d) require the owner or operator of any coal-fired boiler to conduct optimization tests for mercury emissions control apparatus to determine the optimized reagent feed rate at which emissions of mercury are reasonably minimized below the applicable limits within one year after the compliance date. Accordingly, the 3 mg/MWhr or 90 percent mercury control is the minimum standard. Through optimization of reagent feed rates, it is possible

that facilities will achieve greater than 90 percent control.

The recommendation for a higher standard than 90 percent mercury control is beyond the scope of this rule making, which is limited to the extension of the compliance deadline for one year in certain limited circumstances.

Federal Standards Analysis

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c.65) require State agencies that adopt, readopt or amend State regulations that exceed any Federal standards or requirements to include in the rulemaking document a Federal standard analysis.

The United States Environmental Protection Agency (USEPA) adopted a mercury emission-trading rule for Electric Utility Steam Generating Units (EUSGU) on March 15, 2005, pursuant to section 111(d) of the Clean Air Act (CAA) (42 U.S.C. § 7412(d)). New Jersey disagrees that regulation of hazardous air pollutants, including mercury, under this part of the CAA is appropriate. The Department believes that the adopted New Jersey rules, published on December 6, 2004 (see 36 N.J.R. 5406(a)), are consistent with the intent of the CAA to require Maximum Achievable Control Technology (MACT) under section 112 of the CAA.

The New Jersey standard of 3.0 milligram per megawatt hour or 90 percent control, which was adopted when there was no Federal rule governing mercury emissions from EUSGU, is more stringent than the newly adopted Federal rule for EUSGU of nine milligram per megawatt hour (20 X 10^{-6} pound per megawatt hour for new bituminous coal units). The New Jersey mercury

emissions limitation also is more stringent for existing units than the USEPA's emission-trading rule that sets caps for year 2010 and 2018, at levels well above the New Jersey performance standards for each facility.

The adopted New Jersey rules, published in December 2004, required compliance by either December 15, 2007, or December 15, 2012, for multi-pollutant control systems. USEPA adopted an emission-trading rule with emission caps for 2010 and 2018. USEPA claims its 2010 cap will not require the installation of mercury-specific air pollution control, and that the cap will be met by mercury emission reductions that would occur as co-benefits from the control of sulfur dioxide and nitrogen oxide from some facilities pursuant to the Clean Air Interstate Rule adopted on March 10, 2005.

The within adopted amendment allowing one additional year for New Jersey coal-burning electric utilities to optimize mercury air pollution control systems would bring New Jersey's final compliance date to December 15, 2013, which is earlier than the 2018 deadline for the final cap under the Federal rules. Hence, the New Jersey rules remain more stringent than the Federal rule, as was intended by the recently-adopted (December 6, 2004) New Jersey rules.

Under section 112 of the CAA (42 U.S.C. § 7412), which New Jersey believes should be the basis for Federal mercury rules for EUSGUs, there is a provision for a one-year administrative extension of compliance dates. Although this one-year administrative extension is not identical to the one-year extension being adopted by New Jersey, there is a general correlation. The Federal one-year extension is for compliance with section 112(d) of the CAA (42 U.S.C. § 7411), as

amended in 1990, if additional time is necessary for the installation of controls. New Jersey's adopted one-year extension recognizes the possibility that, despite the timely installation and operation of air pollution controls, the installed controls may need to be modified to comply with the New Jersey rules, i.e. additional time for adjustment, optimization, and alternative reagent evaluation might be necessary to enable a boiler to consistently meet the emission standards. To the extent that Federal and New Jersey extensions are for the same time period the within adopted rule is consistent with the Federal CAA.

The more expeditious compliance dates in the adopted New Jersey mercury rules, and the limited extension that the within adopted rule would allow, are appropriate given the hazardous nature of mercury and the benefits of regulating mercury, as explained in the proposal and adoption of the New Jersey mercury rules. (See 36 N.J.R. 123(a), and 36 N.J.R. 5406(a)).

Full text of the adoption follows:

(No change from proposal.)