

MEMORANDUM

To: Robert P. Haynes

Through: Ali Mirzakhali, P.E.
Ronald A. Amirikian

From: Mark A. Prettyman

Subject: **AQM Response Document to Comments Submitted on the Proposed Adoption of Regulation No. 1148**

Date: June 14, 2007

The following are Air Quality Management's (AQM) responses to the written comments received on the proposed Regulation No. 1148, "Control of Stationary Combustion Turbine Electric Generating Unit Emissions."

Commenter: Stuart Widom; Conectiv Delmarva Generation; April 26, 2007

Comment 1: The Department should establish seasonal nitrogen oxides (NO_x) emission limitations with temporal requirements consistent with other existing Department and federal air regulatory programs, and define the "Ozone Season" as the period of time between May 1st and September 30th.

Response 1: The Department agrees, and had defined "ozone season" with the intent of being consistent with the definitions of ozone season in other Delaware regulations and Federal programs. The definition of "ozone season" in the proposed regulation corresponds to the federal definition that requires Delaware's ozone monitoring to begin in April and end in October (40 CFR Part 58, Appendix D). The proposed definition is also comparable to the ozone season defined within Regulation No. 12, "Control of Nitrogen Oxides Emissions." However, the Department agrees that there are other time periods specified in State and Federal rules that define ozone season differently. The Department agrees with Conectiv, and will revise the definition of "ozone season" within the proposed regulation in order to be consistent with the seasonal control of NO_x within other State and Federal regulations, which is typically from May 1 through September 30. Additionally, the proposed regulation's compliance date within paragraphs 4.1 and 4.2 shall be revised accordingly.

"Ozone season" means the months of [~~April through October~~May through September].

“4.1 Beginning [~~April~~May] 1, 2009, no *existing stationary combustion turbine electric generating unit* subject to this regulation shall exceed the NO_x emissions limitations shown in Table I of this regulation during the *ozone season*, inclusive of any year.”

“4.2 The owner or operator of an *existing stationary combustion turbine electric generating unit* shall, no later than [~~April~~May] 1, 2009, either demonstrate to the satisfaction of the Department...”

Comment 2: Contemporaneous to the establishment of Regulation No. 1148, the Department should modify Regulation No. 12 “Control of Nitrogen Oxides Emissions” to harmonize the existing Regulation No. 12 with propose Regulation No. 1148 as it applies to combustion turbine electric generating units.

Response 2: First, the Department would like to point out that this comment is not applicable for the public record related to the proposed regulation’s adoption. This comment is requesting and/or recommending a revision to another regulation, which is beyond the boundaries of this specific rulemaking process. If the Department agreed to “harmonize” the proposed regulation and the existing Regulation No. 12 (by exempting existing combustion turbines from RACT under Regulation No. 12, if they were to comply with the proposed regulation), it would require an amendment to Regulation No. 12 to state this. Such a substantive change is outside of the proposed rulemaking as it was advertised in the May 1, 2007 Delaware Register of Regulations.

Regardless, the Department will respond to this comment for completeness. The Department believes that no such revision is necessary in order to “harmonize” Regulation No. 12 with the proposed regulation. Regulation No. 12 and the proposed regulation are separate regulations and are only related in that the method of compliance with Regulation No. 12 affects the applicability of the proposed regulation. If an existing combustion turbine were complying with Regulation No. 12 by meeting the NO_x emissions standards within Table II of paragraph 3.5, it would be exempt from the proposed regulation, as it is explicitly stated within paragraph 2.2 of the proposed regulation. However, compliance with the requirements of the proposed regulation does not equate to compliance with Regulation No. 12. The NO_x standards within Regulation No. 12 to meet “RACT” (Reasonable Achievable Control Technology) are all annual requirements, except for the allowance to perform ozone season fuel switching, which is based on EPA policy. The NO_x standards within the proposed regulation would only be applicable from May 1 through September 30. Although the numerical NO_x emissions limits are the same between the two regulations, an existing combustion turbine complying

with the proposed regulation would not automatically be compliant with Regulation No. 12 and be meeting RACT. The existing combustion turbine would have to voluntarily meet the proposed regulation's NOx emission limits year round in order for it to be considered RACT. The existing combustion turbines which are subject to the proposed regulation are currently exempt from the RACT requirements of Regulation No. 12 by meeting a 5% ozone season capacity factor. If an existing combustion turbine were to voluntarily meet the proposed regulation's NOx emissions standards year round, Regulation No. 12 would allow it to show to the Department that it would then be complying with the RACT requirements, which would effectively exempt it from the applicability of the proposed regulation. Additionally, the proposed regulation provides a mechanism for allowing higher NOx emissions limits, if requested, based upon supporting documentation. If a higher NOx emissions limit is granted for an existing combustion turbine, it would still not be compliant with the RACT requirements of Regulation No. 12 unless a separate alternate or equivalent RACT proposal was submitted per Section 5 of Regulation No. 12. Thus, it is the Department's decision that no revision to the proposed regulation is necessary due to this comment, since each regulation incorporates its own provisions to address applicability and compliance, and neither regulation hinders or impedes the other.

Comment 3: The Department should remove the burdensome and redundant requirements for the annual submittal of routine monitoring data and allow the existing provisions of the source's Title V operating permit to establish the necessary reporting provisions to demonstrate compliance with all applicable requirements.

Response 3: The basis for some of the monitoring and recordkeeping requirements for the existing combustion turbines subject to the proposed regulation is Regulation No. 39, "Nitrogen Oxides Budget Trading Program." This regulation establishes Delaware's participation in the NOx Budget Trading Program, which is a multi-state NOx emissions cap and trade program, established pursuant to Title 40, Part 96 of the Code of Federal Regulations (40 CFR Part 96) and 40 CFR Part 51.121 (i.e., the NOx SIP Call). However, the EPA will no longer operate the NOx SIP Call trading program after the 2008 ozone season, which will effectively nullify Regulation No. 39 and its requirements. Without a regulatory basis for the monitoring and recordkeeping requirements, those provisions could be removed from the Title V operating permits of the existing combustion turbines subject to the proposed regulation. Under the proposed regulation, the monitoring and recordkeeping information would not be required to be submitted until after 2009, a full year after the NOx SIP call goes away, at which point there will be no redundant requirements. Thus, it is the Department's decision not to revise the proposed regulation's requirements regarding the submittal of monitoring and recorded data.

However, the Department recognizes that the monitoring and recordkeeping requirements are unclear as to the period to which they apply. Thus, the Department shall revise paragraphs 5.4.3, 5.4.4, and 5.6 to clarify that those requirements apply only during the ozone season.

Comment 4: The Department should revise the Monitoring and Reporting Provisions (Section 5.1) of the proposed regulation to require compliance emissions testing for low capacity factor units on a prescribed five year schedule following initial compliance testing.

Comment 4, Part 1: *Conectiv requests that low-capacity factor units be allowed to test on 5-year intervals rather than during the calendar year preceding the renewal year of the Title V permit (5-year frequency) to avoid potential less-than 5-year frequency testing requirements for units whose Title V permit renewal is required in less than 5 years.*

Response 4, Part 1: It is not the Department's intent for paragraph 5.1 of the proposed regulation to require existing combustion turbines which have low capacity factors to conduct emissions tests at a frequency of less than 5 years. However, as Conectiv's comments suggest, it seems that paragraph 5.1 would indeed cause this to occur for an existing combustion turbine covered by a Title V permit which has recently been renewed, or is about to be renewed. Thus, the Department agrees to clarify the 5 year emissions testing requirement for low capacity factor existing combustion turbines by revising paragraph 5.1 of the proposed regulation as follows:

“5.1 ...compliance emissions testing acceptable to the *Department* shall be conducted by the owner or operator in the calendar ~~[year before each calendar year for which the operating permit expires~~ years representing successive 5-year intervals from the calendar year in which the initial compliance test was conducted in accordance with **paragraph 4.3.3 of this regulation].”**

Comment 2, Part 2: *Conectiv recommends that higher capacity factor units be allowed to test on 2-year intervals from the conduct of the initial compliance test rather than on 2-year intervals from the effective date of the regulation, potentially avoiding the need to conduct the first two tests in consecutive years. Conectiv further requests that a provision be added to allow reduced frequency testing in the event that a subject unit's ozone season capacity factor falls to less than 10%.*

Response 4, Part 2: It is not the Department's intent for paragraph 5.2 of the proposed regulation to require existing combustion turbines which have high capacity factors to conduct emissions tests at a frequency of less than 2

years. Due to the timing between when the proposed regulation may become effective and an existing combustion turbine's initial compliance testing, paragraph 5.1 could inadvertently require this to occur for an existing combustion turbine covered by a Title V permit which has recently been renewed, or is about to be renewed. Additionally, the Department agrees that existing combustion turbines whose operation has changed such that they have demonstrated a recent history of low ozone season capacity factors should not be required to conduct compliance testing at the same frequency as those that maintain higher capacity factors. Thus, the Department agrees to clarify the emissions testing requirement for high capacity factor existing combustion turbines by revising paragraph 5.2 of the proposed regulation as follows:

“5.2 For existing combustion turbine electric generating units with an ozone season capacity factor greater than 10% for any of the five calendar years preceding ~~[[insert the effective date of this regulation],~~ compliance emissions testing acceptable to the Department shall be conducted by the owner or operator every two years, starting in the second calendar year after ~~[[insert the effective date of this regulation]]:~~

5.2.1 Compliance emissions testing acceptable to the Department shall be conducted by the owner or operator every two years following the calendar year in which the initial compliance test was conducted in accordance with paragraph 4.3.3 of this regulation.

5.2.2 If an existing combustion turbine electric generating unit's ozone season capacity factor drops below 10% for 5 consecutive years, the owner or operator may petition the Department to reduce the compliance testing frequency to 5 years.]”

Comment 5: The Department should revise the Applicability Section to specifically state that existing gas turbine facilities that have been subject to New Source Review for NOx emissions under the Department's Regulation No. 25 are not subject to proposed Regulation No. 1148.

Comment 5, Part 1: *Conectiv comments that Section 2.2 of the regulation could be made more clear by adding to the reference to the emissions limits of Table II of Regulation 12 “which are contained in Section 3.5”.*

Response 5, Part 1: The Department agrees to clarify the applicability of the proposed regulation in paragraph 2.2, to specifically state that Table II is contained within paragraph 3.5 of Regulation No. 12, as follows:

“2.2 This regulation is not applicable to existing stationary combustion turbine electric generating units that are subject to Regulation No. 12, “Control of Nitrogen Oxides Emissions,” and meet the NOx emissions limitations identified in Table II [of **paragraph 3.5**] of Regulation No. 12, and are not otherwise exempt from the NOx emissions limitations of Table II of Regulation No. 12.”

Comment 5, Part 2: *Conectiv comments that Section 2 should be revised to explicitly state that units that have gone through New Source Review are not subject to Regulation 1148.*

Response 5, Part 2: Paragraph 2.2 of the proposed regulation implicitly exempts existing combustion turbines which are subject to specific NOx limitations due New Source Review. However, the Department agrees to clarify the applicability of the proposed regulation, and explicitly exempt such units from the applicability of the proposed regulation, by adding a new paragraph 2.3, which will state:

“2.3 [This regulation is not applicable to existing stationary combustion turbine electric generating units that have undergone New Source Review in accordance with Regulation No. 1125, “Requirements for Preconstruction Review,” and are covered by a permit which imposes NOx emissions limitations established to meet Best Available Control Technology and/or Lowest Achievable Emission Rate technology standards.]”

Comment 6: The proposed regulation is ambiguous with respect to the Department’s planned treatment of start up and shutdown.

Response 6: It is not the Department’s intent to require existing combustion turbines to comply with the proposed regulation’s NOx emissions limitations during startup and shutdown. However, if controls are installed which make NOx control feasible during startup or shutdown periods, the Department would establish permit limits which would apply to those periods as well, in order to maximize NOx reductions. The Department agrees that emissions limitations for periods of startup and shutdown would be considered only on a case by case basis, considering unit design, control capabilities, etc. Thus, the Department shall clarify the proposed regulation by revising paragraphs 4.3, 4.3.1.8, and 4.4 as follows:

“4.3 ...to control NOx emissions across the anticipated operating load range of the combustion turbine electric generating unit, including[, if technically feasible,] periods of startup, shutdown, and reduced load

operation[~~insofar as technically feasible~~].”

“**4.3.1.8** Technical description of proposed emissions control technology and equipment designed to minimize NO_x emissions across the entire operating range of the existing stationary combustion turbine electric generating unit (~~insofar as technically feasible including, if technically feasible, periods of start-up, shutdown, and reduced load operation~~), predicted NO_x emissions levels following controls installation, and supporting documentation.~~[The proposed operating range of the control technology may be utilized by the Department in establishing permit limitations for startup and shutdown for the subject unit.]~~”

“**4.4** ... whenever combusting fuel during the *ozone season*, inclusive of any year~~[, except during periods of start-up or shutdown:]~~”

4.4.1 except during periods of *start-up* or *shutdown*, if the control of NO_x emissions during these periods is shown not to be technically feasible in the emissions control plan submitted in accordance with paragraph 4.3.1 of this regulation; or

4.4.2 including periods of *start-up* and *shutdown*, if the control of NO_x emissions during these periods is shown to be technically feasible in the emissions control plan submitted in accordance with paragraph 4.3.1 of this regulation.]”

Comment 7: The Department should modify the data submittal listing requested in Section 4.3.1 to reflect more data specificity, the actual needs of the Department, and sensitivity to business confidential information.

Comment 7, Part 1: *Conectiv comments that that they can see no need for submittal of a fuel analysis when submitting the required compliance plan, and that the Department could request fuel samples as part of any compliance testing.*

Response 7, Part 1: The Department agrees that the submittal of a fuel analysis with the compliance plan is not necessary, since each of the existing combustion turbines subject to the proposed regulation combust only distillate fuel oils. If a fuel analysis is warranted, the Department may request one as part of any compliance testing. Thus, the Department shall revise paragraph 4.3.1.3 as follows:

“**4.3.1.4** Primary and secondary (where applicable) fuel type(s)~~[and typical fuel(s) analysis]~~.”

Comment 7, Part 2: *Conectiv comments that emissions test data from the previous 5*

years may not be available, and that if it is available it is unnecessary. Conectiv comments that if the Department wants this data to assess non-ozone season NOx emissions, then the Department can request testing without controls during initial compliance testing.

Response 7, Part 2: Typically, the results of tests conducted in compliance with permit conditions or regulatory requirements are required to be maintained by the source for a period of at least five years. The Department would expect that any such test data would be available. The Department also anticipated that sources would prefer to submit historic test data rather than incur the expense of additional testing. However, to allow a source the flexibility of submitting historic test data or conducting additional testing, Section 4.3.1.6 shall be revised as follows:

“4.3.1.6 ~~[Results of any previous NOx emissions testing conducted in the five calendar years prior to [insert the effective date of this regulation].~~ Documentation of the combustion turbine electric generating unit’s NOx emissions rate, without NOx emissions controls installed in compliance with this regulation. The documents may include:

4.3.1.6.1 Results of any previous NOx emissions testing conducted in the five calendar years prior to [insert the effective date of this regulation]; or

4.3.1.6.2 A plan to conduct NOx emissions testing, as part of the initial compliance testing conducted in accordance with paragraph 4.3.3 of this regulation, with the NOx emissions controls (installed in compliance with this regulation) turned off.]”

Comment 7, Part 3: *Conectiv objects to the requirement to submit anticipated operating schedules (Section 4.3.1.7), stating it is hard to ascertain and is considered proprietary and confidential. Conectiv requests that this requirement be removed from the regulation.*

Response 7, Part 3: The Department recognizes the commenter’s concern related to the confidential nature of the data requested for the emissions control plan. Thus, the Department shall revise the proposed regulation by deleting the requirement from paragraph 4.3.1.7 and replacing it with “[Reserved]”, as follows:

“4.3.1.7 ~~[Anticipated future operating schedule (capacity factor), annual and seasonal.~~[Reserved]]”

Commenter: Leslie Witherspoon; Solar Turbines Incorporated; April 27, 2007

Comment 8: Solar suggests removing the definitions of “gaseous fuel” and “liquid fuel” and limiting the applicability of Table I to “Natural Gas” and “#2 Fuel Oil”.

Response 8: As it was stated at the public hearing on April 26, 2007, the Department knows that there are exactly six (6) existing combustion turbines in Delaware to which the proposed regulation will apply. There are an additional twelve (12) existing combustion turbines in Delaware to which the proposed regulation will not apply. These 18 combustion turbines use a variety of fuels, such as natural gas, distillate oil, kerosene, and process gas. Although the 6 existing combustion turbines which are subject to the proposed regulation are all fueled by distillate oil, they could be operated on other types of fuels. By not specifying a specific emission standard for a specific fuel, it allows the owners of the existing combustion turbines the flexibility in determining what fuel to use, and to still meet the same standard. By applying the emission standards in Table I to gaseous and liquid fuels, it simplifies the regulatory language, as opposed to having to list emission standards for all possible gaseous and liquid fuels (such as natural gas, propane, process gas, gasoline, distillate oil, etc.). Additionally, if for some reason one of the 12 non-subject existing combustion turbines fell under the applicability of the proposed regulation in the future, Table I easily states which standard the combustion turbine would have to meet, depending on if it was gaseous fueled or liquid fuel. If Table I were to only specify “Natural Gas” and “#2 Fuel Oil”, then the regulation would have to be amended in order to specify what the emission standard would be for a combustion turbine which is not fueled by one of these two fuels. Thus, it is the Department’s response that Table I of the proposed regulation should not be revised.

Comment 9: Solar also recommends providing an avenue for a case-by-case evaluation [of the applicable emission standard] if a non-natural gas gaseous fuel or an alternative liquid fuel is being utilized.

Response 9: Although the proposed regulation does not include language which allows for a “case-by-case evaluation” of an emission standard for non-natural gas or alternatively liquid fueled existing combustion turbines, it does contain a provision for alternative emission limitations to be requested. Within 4.3.4 of the proposed regulation, it states:
“If actual achievable NO_x emissions levels following completion of the approved emissions reduction plan are greater than those of Table I of this regulation, the owner or operator of the stationary combustion turbine electric generating unit may petition the Department for alternative

NOx emissions limitations no greater than the actual achievable NOx emissions levels determined in the post-emissions control installation testing”

Thus, if a non-natural gas fuel or an alternative liquid fuel, such as landfill gas, were to be utilized by an existing combustion turbine, it would be required to meet a 42 ppmv NOx emission limit, per Table I. However, if the combustion turbine was not able to meet the 42 ppmv NOx limit even after installing an approved control plan, 4.3.4 would allow the owner or operator to request a limit different than that in Table I. This request would be reviewed by the Department based upon the specific information and data supplied by the owner for the combustion turbine, in order to determine if an alternative limit is warranted. In effect, this process allows for a case-by-case evaluation of an existing combustion turbine operating on any alternative fuels. Thus, it is the Department’s response that no revision to the proposed regulation is necessary, since 4.3.4 of the proposed regulation effectively allows for a case-by-case determination of an alternative emission standard.