



STATE OF DELAWARE  
**DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL**  
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DOVER, DELAWARE 19901

Office of the  
Secretary

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**Secretary's Order No. 2007-A-0023**

**Re: Approval of Final Regulation, 7 DE Admin. Code 1148, "Control of Stationary Combustion Turbine Electric Generating Unit Emissions" in Delaware Regulations Governing Control of Air Pollution**

Date of Issuance: June 19, 2007

Effective Date: July 11, 2007

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") under *29 Del. C. §§8001 et seq.*, *29 Del. C. §§10111 et seq.* and *7 Del. C. §6010(a)*, the following findings, reasons and conclusions are entered as an Order of the Secretary in the above-referenced rulemaking proceeding.

On October 6, 2005, the Department opened a proposed rulemaking proceeding in Start Action Notice ("SAN") 2005-10, which was to develop a proposed regulation for the purpose of regulating and reducing the air emission of nitrogen oxides ("NOx") from certain larger stationary combustion turbines ("CT") used for electric generation. The Department identified the following six CTs as sources of air pollution emission of NOx as the subject of this regulation: units 11 and 14 at Conectiv Delmarva Generation's ("Conectiv") Christiana Generating Station in Wilmington, New Castle County, unit 10 at NRG's Indian River Generating Station near Millsboro, Sussex County, unit 10 at Conectiv's Delaware City Generation Station near Delaware City, New Castle County, unit 10 at Conectiv's Edgemoor Generating Station in Edge Moor, New Castle County,

and unit 10 at Conectiv's West Substation Generating Station in Wilmington, New Castle County.

The Department's experts with the Division of Air and Waste Management, Air Quality Management Section ("AQMS") identified these CTs as sources of air pollution, and that these sources could have significant reductions to their emission of NO<sub>x</sub> through the installation and use of emission controls, for example, water injection pollution control equipment. Moreover, the installation could occur reasonably economically and without any undue disruption to the electric system's reliability. These CTs operate to provide electricity only during periods when there is a high demand for electricity, which often coincides with hot, humid weather that also creates conditions suitable for the formation of ozone. Thus, reducing NO<sub>x</sub> emissions from the CTs is important because NO<sub>x</sub> is a harmful air pollutant and a precursor to the formation of ground-level ozone and fine particular matter. Ozone is a major cause of adverse human health consequences, particularly for the young, the elderly and anyone with impaired breathing ability. Ozone also adversely impacts agriculture.

The Department's regulatory action is taken in part to comply with federal air quality requirements, notably, the Environmental Protection Agency's ("EPA") 8 Hour Ozone National Ambient Air Quality Standard ("NAAQS"). Delaware is within the EPA's Philadelphia-Wilmington-Atlantic City ozone non-attainment area, which means that Delaware must take regulatory actions to improve air quality to meet the NAAQS by 2010. The Department published the proposed regulation on April 1, 2007 in the *Delaware Register of Regulations*, and held a public hearing on April 26, 2007 before the Department's hearing officer, Robert P. Haynes, who issued a report dated June 15, 2007

recommending approval of the proposed regulation as a final regulation. This report includes the Department's response to the public comments, as prepared by Mark Prettyman in the Division of Air and Waste Management, Air Quality Management Section ("AQMS"). Based upon the record developed by the Department, including all the public comments, I adopt the report and incorporate it into this order.

This Order and its approval of the proposed regulation as a final regulation will allow the Department and Delaware to fulfill certain federal regulatory responsibilities under the federal Clean Air Act, amended, and EPA's CAA regulations. The regulation is part of the Department's ozone State Implementation Plan ("SIP"), which is periodically revised and updated, to plan Delaware's regulatory steps and to demonstrate to the EPA that Delaware's regulatory actions will result in Delaware attaining the NAAQS by 2010. The Department supports the attainment of NAAQS as it will bring cleaner air and better health to Delaware's citizens and visitors. The regulation approved by this Order will result in significantly lower air emissions of harmful pollutants based upon the estimated 2.21 tons per day of NO<sub>x</sub> emitted from the CTs currently when they operate, which will be reduced by the installation of water injection technology by about 40% to approximately 1.33 tons per day. Thus, on the worst ozone days the Department projects that CTs will be operating and that when the CTs comply with this regulation they will emit significantly less of ozone causing air pollution NO<sub>x</sub> than they currently emit.

The regulation is supported by the considerable scientific evidence developed by the Department's experts and in a collaborative manner with interested participants. AQMS drafted the proposed regulation based upon reasonably available control

technology. At the hearing Conectiv Delmarva Generation submitted comments and the Department has adopted certain changes that the hearing officer determined not to be substantive as they allow the Department's regulations to be consistent with federal regulations. The Department's approval of the final regulation is made based upon careful consideration of all the comments, and the expert opinion that the proposed regulation provides a reasonable and well-supported basis to improve air quality and allow Delaware to attain cleaner air in order to meet the NAAQS by 2010. The Department compliments all the participants in the regulatory development process for their participation and cooperation, even if a regulation could not satisfy all the interests.

I find that the record developed during the public hearing process, including the Department's response, provides ample support for the Department to adopt this final regulation. The justification is that it will result in cleaner air quality though reasonably available air pollution controls. The regulation approved by this Order will result in the reduction of NO<sub>x</sub> from significant sources of such emissions, which have not installed emission controls under other air quality regulations.

In conclusion, the following findings and conclusions are entered:

1. The Department, acting through this Order of the Secretary and *29 Del C. §10118(d)*, hereby approved the final regulation in Appendix A to the Report,
2. The Department shall have this Order published in the *Delaware Register of Regulations* and in newspapers in the same manner as the notice of the proposed regulation;
3. The Department shall provide notice to the persons affected by the Order, as determined by the Department, including all those who submitted comments to the

Department, who otherwise participated in the public hearing, and who requested to receive notice of all actions on proposed regulations.

s/John A. Hughes  
John A. Hughes,  
Secretary

## HEARING OFFICER'S REPORT

TO: The Honorable John A. Hughes  
Secretary, Department of Natural Resources and Environmental Control

FROM: Robert P. Haynes, Esquire  
Senior Hearing Officer, Office of the Secretary  
Department of Natural Resources and Environmental Control

RE: Proposed Regulation, 7 DE Admin. Code 1148, "Control of  
Stationary Combustion Turbine Electric Generating Unit Emissions" in  
Delaware Regulations Governing Control of Air Pollution

DATE: June 15, 2007

### I. BACKGROUND AND PROCEDURAL HISTORY

This report considers a proposed regulation entitled "Control of Stationary Combustion Turbine Electric Generating Unit Emissions," which is proposed to be added to the Department of Natural Resources and Environmental Control's ("Department") *Regulations Governing Control of Air Pollution*.

The Department opened the regulation development process with Start Action Notice ("SAN") 2005-10 on October 10, 2005, and indicated that the proposed regulation would reduce the air emissions of nitrogen oxides ("NO<sub>x</sub>") from large stationary combustion turbines ("CT"). The CTs are used to generate electricity and generally are high cost units to operate. Consequently, these units normally only operate during peak periods of demand for electricity.

The Department's experts in the Division of Air and Waste Management, Air Quality Management Section ("AQMS") identified CTs as significant contributors to the release of NO<sub>x</sub>, which is a hazardous air pollutant. NO<sub>x</sub> is a precursor to the formation of ground-level ozone, and ozone poses a significant threat to human health. Ground-level ozone is formed when excessive NO<sub>x</sub> levels are excessive combined with high temperatures and humidity weather conditions. The health risk for humans is that ozone harms the lungs and consequently inhaling ozone is particularly harmful to the young, the elderly or anyone with an impaired ability to

breathe. Excessive levels of ozone also adversely impacts agriculture. There is considerable scientific study on the adverse impact from ozone.

AQMS developed a proposed regulation to address the NO<sub>x</sub> emissions from CTs, which normally operate at peak times for the demand for electricity. The peak demand for electricity in Delaware is during the summer and coincides with hot and humid weather conditions. The purpose of the proposed regulation was to reduce NO<sub>x</sub> emissions from the larger CTs, which in turn will improve Delaware's air quality and to reduce the likelihood that Delaware's ozone levels would exceed the limits established by federal regulations.

Federal regulations established by the United States Environmental Protection Agency ("EPA") include the 8-Hour Ozone National Ambient Air Quality Standard ("NAAQS"). EPA has classified Delaware as within the Philadelphia-Wilmington-Atlantic City ozone non-attainment area. This classification was based on air quality conditions and the presence of ground-level ozone. The classification also means that Delaware must take regulatory actions to improve air quality to meet the NAAQS by 2010. The proposed regulation is one of many regulatory actions the Department has undertaken in recent years as part of its State Implementation Plan ("SIP"), which is a federal requirement to show that Delaware's air quality will attain compliance with NAAQS by 2010.

The Department published the proposed regulation on April 1, 2007 in the *Delaware Register of Regulations*, and held a public hearing on April 26, 2007. The public comment period for participants at the public hearing was extended until May 9, 2007. The proposed regulation will reduce NO<sub>x</sub> emissions from the CTs by approximately 40%. This reduction was based upon the installation of known and proven pollution control technology and equipment.

## **II. SUMMARY OF THE PUBLIC HEARING RECORD**

The public hearing record contains a verbatim transcript of the April 26, 2007, public hearing, and documents, marked as Exhibits (“Ex”). AQMS supported the newly proposed regulation. The Department’s expert, Mark Prettyman, introduced for the record hearing exhibits identified as DNREC Ex. Nos. 1-53.

Stuart Widom, senior environmental consultant with Conectiv Energy, spoke at the hearing and submitted by letter dated May, 9, 2007 that suggested changes to the proposed regulation.

At my request, AQMS’ experts provided technical response to the public comments, which is attached hereto as Appendix B. This response provides an excellent and detailed analysis of the public comments and the Department’s technical response thereto. The technical response offers revised language to the proposed regulation, and adopts some of the changes requested by Conectiv.

## **III. DISCUSSION AND REASONS**

The proposed regulation is directed at six CTs as specific large sources of NOx air pollution. These CTs operate without any NOx pollution control equipment, although they are subject to regulations designed to control NOx emissions. The Department’s experts determined that the six sources could achieve significantly reductions in their NOx emissions through the use of water injection pollution control equipment.<sup>1</sup> Consequently, the proposed regulation’s NOx limits applied what the NOx emissions would be if water injection pollution control equipment were installed, and developed a 42 ppmv standard for NOx emissions standards of 42 ppmv for CTs that burn gaseous fuel and 88ppmv for CTs that burn liquid fuel. Thus, once the equipment is installed there should be a 40% reduction in NOx emissions from these sources.

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<sup>1</sup> EPA has recognized this equipment and technology as reasonably available control technology (“RACT”).

The Department's experts relied upon a variety of scientific studies, including EPA's 1993 study, and experience in other states, such as New Jersey, to develop the proposed NOx limits for the six units. The Department relied upon water injection as the specific technology to use to achieve the NOx limits in the proposed regulation. Water injection is a proven, feasible technology that has been used in other states to reduce NOx emissions. Moreover, the Department determined that the installation of water injection equipment could occur without any undue disruption to the electric system's reliability.

The CTs normally operate to provide electricity only during periods when there is a high demand for electricity. The peak demand for electricity often coincides with hot, humid weather that is conducive to the formation of ozone. Consequently, the proposed regulation will reduce NOx emissions from the CTs during the ozone season, and reduce the likelihood that Delaware's air quality will exceed the federal standards for ozone. The Department already has implemented other regulations to improve air quality, particularly during the ozone season. For example, the Department periodically declares ozone alerts in order to trigger the maximum voluntary and involuntary effort to improve air quality. Thus, reducing NOx emissions from the CTs during times when ozone is most likely to be formed will be an important part of the Department's regulatory actions to lower ground-level ozone in order to bring Delaware into compliance with the NAAQS for ground-level ozone and fine particular matter limits.

The Department established a NOx limit for CTs with an installed capacity of 1 megawatt. In Delaware, the following six CTs would be subject to the proposed regulation: units 11 and 14 at Conectiv Delmarva Generation; LLC's ("Conectiv") Christiana Generating Station in Wilmington, New Castle County; unit 10 at NRG's Indian River Generating Station near Millsboro, Sussex County; unit 10 at Conectiv's Delaware City Generation Station near Delaware City, New Castle County; unit 10 at Conectiv's Edgemoor Generating Station in Edge

Moor, New Castle County; and unit 10 at Conectiv's West Substation Generating Station in Wilmington, New Castle County. Together, these units emitted 2.21 tons of NOx per day in 2002, which is the most recent year for Delaware's emissions inventory as determined by the NAAQS' procedures.

The Department's experts determined that the use of water injection technology would reduce NOx emissions by approximately 40%, or by 0.88 tons per day from the six CTs. This level of reduction is comparable to the level experienced in other states that adopted similar regulations. In addition, the Department has considered the comments received during the formal hearing process and made some minor changes to the proposed regulatory language to refine the regulation in response to public comments and the Department's review of the comments. One change was to have the defined ozone season conform to the federal regulations that establish the season as May through September 30, as opposed to April through October. This revision reflects federal regulations and consequently can be made as an exemption to the hearing process.

Conectiv also sought to have Regulation 12 amended to "harmonize" the proposed regulation with the existing regulation. As explained in the AQMS' response document, the proposed regulation is different than the existing Regulation 12 in several significant ways. Moreover, undertaking a revision of Regulation 12 as part of this proposed regulation would be procedurally improper.

Conectiv commented that certain reporting and monitoring requirements should be eliminated in the proposed regulation because they would be redundant. AQMS pointed out in its response that the information requested would not be redundant, but AQMS recommended revising Sections 5.4.3, 5.4.4 and 5.6 in order to clarify the intent of the reporting requirements.

I find these revisions are appropriate and not substantive in nature in that they clarify the intent of the proposed regulation and reduce the possibility of confusion.

Conectiv's fourth comment was the unit testing and reporting requirement in proposed Sections 5.1 and 5.2. Conectiv contends that such testing after the initial testing should be based upon a five year interval for Title V permitted units. AQMS agrees that the proposed Section 5.1 and 5.2 could be interpreted to require calendar year testing and reporting, but that was not what was intended. Consequently, AQMS recommends that proposed Sections 5.1 and 5.2 be clarified so that they are consistent with the intent to require testing intervals that are consistent with Title V permits and not an additional testing requirement. I find this revision reasonable and appropriate as a non-substantive change to improve the understanding of the proposed regulation.

Conectiv's fifth comment was on the language in proposed Section 2.2 that may be interpreted as allowing units subject to new source review permit under Regulation 1125 (former Regulation 25) to remain subject to the proposed regulation 1148. AQMS indicates in its response that the intent was to not apply proposed regulation 1148 to any unit that was subject to the new source review requirements of Regulation 25. AQMS recommends a minor modification to clarify this intent and I find the recommended revision reasonable and appropriate to avoid confusion and to clarify the intent of the proposed regulation in proposed Section 2.3.

Conectiv's sixth comment requested clarification that shutdowns and start up of the units would be controlled to the extent technically capable and feasible. AQMS agreed that certain language changes would improve the clarity of the intent, which was to impose limits that were achievable under a technically feasible standard. This standard will allow sufficient flexibility during the shutdown and startup conditions. I find the proposed revision is reasonable and

appropriate and not a substantive change. It is consistent with the original intent to allow some discretion to emit NO<sub>x</sub> levels in excess of the normal limits when the units are shutdown or start up because during these times the pollution control equipment is not technically capable to control the emissions.

Conectiv's seventh comment concerned the information required in proposed section 4.3.1 on fuel analysis and the reporting of emissions data from the past five years. AQMS determined that the fuel analysis was not required in light of the distillate fuel used in the CTs, and, accordingly, recommended that a fuel analysis was not needed. Similarly, AQMS recommends that either test results in the past five years or a new test result without the pollution control equipment operating may be submitted in order to determine non-ozone season levels of emissions.

Solar Turbines Incorporated submitted comments that sought to revise the proposed regulation by removing the definition of 'gaseous fuel' and 'liquid fuel' and limiting the applicability of Table 1's limits to natural gas and No. 2 fuel oil. AQMS recommended rejecting this change because of the presence of an additional twelve CTs in Delaware that are not subject to the regulation because they are already controlled under different regulations and also use a variety of different fuels. All of the CTs to be regulated by the proposed regulation and those not regulated are capable of operating with other fuels. The use of the terms 'gaseous' and 'liquid' will provide the regulatory basis for regulating any of the non-regulated units should these units become subject of the proposed regulation in the future. Moreover, imposing fuel specific standards would not achieve the goal of improving air quality if the standards were less stringent than in the proposed regulation. Consequently, I agree that the two standards are appropriate and that new limits for each fuel type should not be established.

Solar also requested that the proposed regulations be amended to allow case-by-case decisions when newly installed pollution control equipment fails to perform to its design capability. AQMS pointed out that proposed regulation 4.3.4 allows a procedure to seek relief under such circumstances. I agree that no change to the proposed regulation is needed, and that the proposed regulation contemplates a petition procedure to allow the Department to determine if a specific unit should receive a less stringent limit than the limits proposed in Table 1, which applies to all the CTs that are subject to the proposed regulation.

Based upon my review of the record, which provides considerable support for the proposed regulation, I find and recommend that the Department adopt the revised proposed regulation, as set forth in appendix A, as a final regulation. The proposed regulation is reasonable, well-supported and is consistent with the Department's purposes to protect the environment. The proposed regulation will significantly improve air quality, particularly on days when CTs normally operate, namely, hot, humid summer days. The proposed regulation is based upon proven pollution control technology in the water injection method and is technically feasible to install. The proposed regulation, if approved, will likely cause the six CTs to install water injection equipment. Indeed, similar CTs in New Jersey, some owned by the same or affiliated owners of five of the six Delaware CTs, already installed water injection technology in response to New Jersey's regulations that are similar to the proposed regulation.

I find that the Department's proposed regulations have sound scientific support for significantly reducing the release of NO<sub>x</sub> from the six CTs. Moreover, the reduction in NO<sub>x</sub> emissions will coincide with the weather conditions that are conducive to forming ground-level ozone. The Department properly relied on considerable scientific evidence, which demonstrates the reasons why the proposed regulation is appropriate and necessary to improve the air quality in Delaware. The Department's experts provided extensive documentation of the underlying

studies, which show that the proposed regulation will improve the air quality as one of many regulatory steps taken to meet the NAAQS. The proposed regulations are the proper exercise of this Department's power to issue regulations to protect the environment and public health. The proposed regulation will produce significant positive results in cleaner air, less ozone and improve the health of Delaware's citizens and visitors, but particularly the most vulnerable to poor air quality, namely, the elderly and children. The exercise of the regulatory authority is based upon the reasoned expert judgment and is amply supported by science and facts. Consequently, I recommend the adoption of the proposed regulation, as amended by minor, non-substantive changes, as a final regulation.

#### **IV. RECOMMENDED FINDINGS AND CONCLUSIONS**

Based on the record developed, I find and conclude that the record supports approval of the proposed regulation, as set forth in Appendix A hereto, as a final regulation. In conclusion, I recommend the Secretary adopt the following findings and conclusions:

- 1.) The Department has jurisdiction under its statutory authority to make a determination in this proceeding;
- 2.) The Department provided adequate public notice of the proceeding and the public hearing in a manner required by the law and regulations;
- 3.) The Department held a public hearing in a manner required by the law and regulations;
- 4.) The Department considered all timely and relevant public comments in making its determination;
- 5.) The Department's proposed regulations establishing air emission regulations to regulate and reduce the release of NO<sub>x</sub> from the six CTs, as set forth in Appendix A hereto, is adequately supported in the record, establishes reasonable standards, limits and reporting

requirements that will reduce pollution and improve public health, and is consistent with the applicable laws and regulations. Consequently, the proposed regulation should be approved as a final regulation, and be allowed to go into effect ten days after publication in the next available issue of the *Delaware Register of Regulations*; and that

6.) The Department shall submit the proposed regulation as final regulation to the *Delaware Register of Regulations* for publication in its next available issue, and shall provide written notice to the persons affected by this Order, as determined by the Department, but which will include service on participants in the Department's regulatory development and public hearing process.

*s/Robert P. Haynes*  
Robert P. Haynes, Esquire  
Senior Hearing Officer

## Regulation No. 1148

### Control of Stationary Combustion Turbine Electric Generating Unit Emissions

07/11/2007

**1.0 Purpose.** The purpose of this regulation is to control the emissions of nitrogen oxides (NO<sub>x</sub>) from *stationary combustion turbine electric generating units* in the State of Delaware to reduce the impact on public health, safety, and welfare. This regulation will also reduce NO<sub>x</sub> emissions in the State of Delaware from the subject units during high electric demand days (HEDD). This will meet Delaware's obligation to support the regional HEDD NO<sub>x</sub> reduction initiative for the units subject to this regulation.

07/11/2007

**2.0 Applicability.**

**2.1** This regulation applies to *existing, stationary combustion turbine electric generating units* located in Delaware with a *base-load nameplate capacity* of 1 MW or greater.

**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 NO<sub>x</sub> emissions limitations identified in Table II of paragraph 3.5 of Regulation No. 12, and are not otherwise exempt from the NO<sub>x</sub> emissions limitations of Table II of Regulation No. 12.

**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 NO<sub>x</sub> emissions limitations established to meet Best Available Control Technology and/or Lowest Achievable Emission Rate technology standards.

07/11/2007

**3.0 Definitions.** The following words and terms, when used in this regulation, shall have the following meanings:

*"Annual capacity factor"* means the ratio of the megawatt-hours produced in a calendar year by a *stationary combustion turbine electric generating unit* to the maximum possible annual electric generation determined on the *base-load nameplate capacity* of the *stationary combustion turbine electric generating unit*.

*"Base-load nameplate capacity"* means, starting from the initial installation of a *combustion turbine electric generating unit*, the maximum electrical generating

output (in MWe) that the *combustion turbine electric generating unit* is capable of producing on a steady basis during continuous operation at rated ambient temperature and atmospheric pressure as specified by the manufacturer of the *combustion turbine electric generating unit* or, starting from the completion of a physical change in the *combustion turbine electric generating unit* resulting in an increase in the maximum electrical generating output (in MWe) that the *combustion turbine electric generating unit* is capable of producing on a steady state basis and during continuous operation, such increased maximum output as specified by the person conducting the physical change.

“*Combustion turbine*” means a combustion engine consisting of a compressor, combustor(s) and power turbine used to provide rotary motion to an output shaft. The combustion turbine may be fueled by gaseous and/or liquid fuels.

“*Combustion turbine electric generating unit*” means a *combustion turbine* used to drive an *electric generator*.

“*Department*” means the State of Delaware Department of Natural Resources and Environmental Control as defined in 29 Del. C., Chapter 80, as amended.

“*Electric generator*” means a device that utilizes rotary motion from an input shaft to create electrical energy.

“*Existing*” means the unit has been synchronized to the grid before July 11, 2007.

“*Gaseous fuel*” means any non-solid or non-liquid fuel, including natural gas, digester gas, landfill gas, process gas, or any gas stored as a liquid at high pressure such as liquefied petroleum gas.

“*Liquid fuel*” means any non-solid or non-gaseous fuel, including kerosene, jet fuel, distillate fuel oil, bio-fuels, and methanol.

“*Ozone season*” means the months of May through September.

“*Ozone season capacity factor*” means the ratio of the megawatt-hours produced during the *ozone season*, as defined within this regulation, by a *stationary combustion turbine electric generating unit* to the maximum possible *ozone season* electric generation determined on the *base-load nameplate capacity* of the *stationary combustion turbine electric generating unit*

“*Peak-load nameplate capacity*” means, starting from the initial installation of a *combustion turbine electric generating unit*, the maximum electrical generating output (in MWe) that the *combustion turbine electric generating unit* is capable of producing for limited durations at rated ambient temperature and atmospheric pressure as specified by the manufacturer of the *combustion turbine electric generating unit* or, starting from the completion of a physical change in the

*combustion turbine electric generating unit* resulting in an increase in the maximum electrical generating output (in MWe) that the *combustion turbine electric generating unit* is capable of producing for limited durations, such increased maximum output as specified by the person conducting the physical change.

“PPMV” means gaseous concentration in parts per million by volume, corrected to 15 percent O<sub>2</sub> dry basis.

“Shutdown” means the period of time between a *combustion turbine generating unit* being brought from an operating condition to fuel shut off. This period of time may be begun at either opening the generator breaker or disconnecting the *combustion turbine* from the *electric generator*, and is concluded when the fuel is completely shut off to the combustion turbine.

“Simple cycle” means a *combustion turbine electric generating unit* which does not recover heat from the *combustion turbine electric generating unit* exhaust gases to preheat the inlet combustion air to the *combustion turbine electric generating unit*, to heat water, or to generate steam.

“Start-up” means the period during which a combustion turbine generating unit is brought from a *shutdown* status to rated speed and generator breaker closure.

“Stationary” means a unit that is not self-propelled or intended to be propelled while performing its design function.

**07/11/2007**

**4.0 NOx Emissions Limitations.**

**4.1** Beginning May 1, 2009, no *existing stationary combustion turbine electric generating unit* subject to this regulation shall exceed the NOx emissions limitations shown in Table I of this regulation during the *ozone season*, inclusive of any year:

**Table I**

<b>Fuel Type</b>	<b>NOx Emissions Limit (ppmv)</b>
<i>Gaseous Fuel</i>	<b>42</b>
<i>Liquid Fuel</i>	<b>88</b>

**4.2** The owner or operator of an *existing stationary combustion turbine electric generating unit* shall, no later than May 1, 2009, either demonstrate to the satisfaction of the Department, through source testing approved by the Department, that the existing stationary combustion turbine generating unit meets the NOx emissions limitations of Table I of this regulation or install NOx emission controls designed to meet the NOx

emissions limitation of Table I of this regulation in accordance with the requirements of paragraph 4.3 of this regulation.

**4.3** The owner or operator of an *existing stationary combustion turbine electric generating unit* installing NOx emissions reduction controls in accordance with the requirements of paragraph 4.2 of this regulation shall install the NOx emissions reduction controls and implement operating procedures with the goal of achieving the NOx emissions limits of Table I of this regulation, and shall be designed and operated 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.

**4.3.1** The owner or operator of an *existing stationary combustion turbine electric generating unit* installing NOx emissions reduction controls in accordance with paragraph 4.3 of this regulation, shall submit to the *Department* for approval an emissions control plan detailing all actions, including a schedule of increments of progress, which will be taken to comply with the requirements of paragraph 4.1 of this regulation and the emissions control limitations of Table I of this regulation. The plan shall contain, as a minimum, the following information:

**4.3.1.1** Facility and unit identification

**4.3.1.2** *Combustion turbine electric generating unit* manufacturer and manufacturer's model number.

**4.3.1.3** *Combustion turbine electric generating unit* manufacturer's *base* and *peak* (when applicable) *load nameplate ratings* and rating conditions (atmospheric temperature and pressure, fuel type, etc).

**4.3.1.4** Primary and secondary (where applicable) fuel type(s).

**4.3.1.5** Hours of operation and electrical output for the previous five years.

**4.3.1.6** 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 July 11, 2007; or

**4.3.1.6.2** A plan to conduct NO<sub>x</sub> emissions testing, as part of the initial compliance testing conducted in accordance with paragraph 4.3.3 of this regulation, with the NO<sub>x</sub> emissions controls (installed in compliance with this regulation) turned off.

**4.3.1.7 [Reserved]**

**4.3.1.8** Technical description of proposed emissions control technology and equipment designed to minimize NO<sub>x</sub> emissions across the entire operating range of the existing stationary combustion turbine electric generating unit (including, if technically feasible, periods of *start-up*, *shutdown*, and reduced load operation), predicted NO<sub>x</sub> emissions levels following controls installation, and supporting documentation.

**4.3.1.9** Compliance schedule including compliance emissions testing conducted representative of anticipated normal load range, including base load and peak load (if applicable), and anticipated monitoring plan submittal.

**4.3.1.10** Any other information requested by the *Department*.

**4.3.2** The owner or operator of an *existing stationary combustion turbine electric generating unit* submitting an emissions control plan in accordance with paragraph 4.3.1 of this regulation shall submit the plan to the *Department* for approval no later than April 11, 2008.

**4.3.3** Following completion of the approved NO<sub>x</sub> emissions control installation described in paragraphs 4.3.1 and 4.3.2 of this regulation, emissions testing approved by the *Department* shall be conducted to determine compliance with the NO<sub>x</sub> emissions requirements of paragraph 4.1 and the Table I of this regulation. Testing results shall be submitted to the *Department* no later than 60 days following the completion of the testing.

**4.3.4** If actual achievable NO<sub>x</sub> 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 NO<sub>x</sub> emissions limitations no greater than the actual achievable NO<sub>x</sub> emissions levels determined in the post-emissions control installation testing.

- 4.4** The NOx emissions limitations of paragraph 4.1 and Table I of this regulation, or alternate NOx emissions limitations approved by the *Department* in accordance with paragraph 4.3.4 of this regulation, are applicable to *existing stationary combustion turbine electric generating units* subject to this regulation whenever combusting fuel during the *ozone season*, inclusive of any year:
- 4.4.1** except during periods of *start-up* or *shutdown*, if the control of NOx 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 NOx 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.
- 4.5** Compliance with the NOx emissions limitations of paragraph 4.1 and Table I of this regulation, or alternate NOx emissions limitations approved by the *Department* in accordance with paragraph 4.3.4 of this regulation, are based on one hour averaging periods.

**07/11/2007**

**5.0 Monitoring and Reporting.**

- 5.1** For *existing stationary combustion turbine electric generating units* with an *ozone season capacity factor* of 10% or less for each of the five calendar years preceding July 11, 2007, compliance emissions testing acceptable to the *Department* shall be conducted by the owner or operator in the calendar 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.
- 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 July 11, 2007:
- 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.

- 5.3** For *existing combustion turbine electric generating units* in compliance with paragraph 5.1 of this regulation but which have an *ozone season capacity factor* of greater than 10% for any year subsequent to July 11, 2007, compliance emissions testing acceptable to the *Department* shall be conducted by the owner or operator every two years, starting in the calendar year after the year that the 10% *ozone season capacity factor* was exceeded.
- 5.4** The owner or operator of an *existing combustion turbine electric generating unit* shall submit to the *Department*, for approval, a monitoring plan containing monitoring information correlating control system parameters or other operating characteristic indications with NO<sub>x</sub> emissions output.
- 5.4.1** The correlations may be developed using actual emissions test data and parameters and characteristics recommended by the *combustion turbine electric generating unit* manufacturer, emission control equipment supplier, or other operating experience. The correlations shall address the entire anticipated operating load range of the *combustion turbine electric generating unit*.
- 5.4.2** This information may be used by the *Department* to monitor compliance with this regulation.
- 5.4.3** Representative data shall be continuously collected and recorded while the *combustion turbine electric generating unit* combusts any fuel during the *ozone season*.
- 5.4.4** The approved monitoring information shall be annually submitted to the *Department* no later than February 1 of the year following the calendar year for which the data is collected, and shall also include detailed explanations for any periods during the *ozone season* where the monitored operating parameters were outside acceptable margins and include descriptions of corrective actions taken.
- 5.5** The provisions of paragraphs 5.1, 5.2, 5.3 and 5.4 of this regulation are not applicable to *existing stationary combustion turbine electric generating units* which are otherwise required to install, test, operate, and maintain NO<sub>x</sub> continuous emissions monitoring system in accordance with *Department* or EPA requirements for continuous emissions monitoring

systems meeting all applicable requirements of 40 CFR Part 60 or 40 CFR Part 75 (July 1, 2006 edition).

- 5.6** The owner or operator of an *existing stationary combustion turbine electric generating unit* shall maintain an operating log during the *ozone season* that includes, on a daily basis, actual start-up and shutdown times, total hours of operation, gross electrical megawatt-hours generated, fuel consumption, type of fuel(s), identification of any periods operating outside the monitoring parameters identified in paragraph 5.4 of this regulation (where applicable), identification of any periods of non-compliance with the requirements of this regulation, cumulative-to-date hours of operation and gross electrical megawatt-hours generated, and any other information requested by the *Department*. This data shall be submitted annually to the *Department* no later than February 1 of the year following the calendar year for which the data is collected.

**07/11/2007**

- 6.0 Recordkeeping.** The owner or operator of a *stationary combustion turbine electric generating unit* subject to this regulation shall maintain, for a period of at least five years, copies of all measurements, tests, reports, operating logs, and other information required by this regulation. This information shall be provided to the *Department* upon request at any time.

**07/11/2007**

- 7.0 Penalties.** The *Department* may enforce all of the provisions of this regulation under 7 Del C., Chapter 60.

## 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 X, 2007

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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<sub>x</sub>) 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 1<sup>st</sup> and September 30<sup>th</sup>.

**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<sub>x</sub> 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 NOx 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:** Cotemporaneous 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 NOx 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 NOx 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 NOx standards within the proposed regulation would only be applicable from May 1 through September 30. Although the numerical NOx 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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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 the 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 NOx 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.