



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.: 2018-A-0055**

**RE: *Approving Final Revisions to Delaware's  
State Implementation Plan ("SIP"): Revision to Address Section 110 Infrastructure  
Requirements of the Clean Air Act for the 2015 National Ambient Air Quality  
Standards ("NAAQS") for Ground-Level Ozone***

**Date of Issuance: October 8, 2018**

**Effective Date of the Amendment: October 8, 2018**

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") pursuant to 7 *Del.C.* §§6006, 6010, and all other statutory authority, the following findings of fact based on the record, reasons and conclusions are entered as an Order of the Secretary in the above-referenced promulgation.

**Background, Procedural History and Findings of Fact**

This Order relates to the proposed revisions to the Delaware State Implementation Plan ("SIP"), specifically, to address the Section 110 Infrastructure Requirements of the Clean Air Act ("CAA") for the 2015 National Ambient Air Quality Standards ("NAAQS") for Ground-Level Ozone. Delaware is required by Section 110 of the federal Clean Air Act to submit to the U.S. Environmental Protection Agency ("EPA") a SIP that provides for the implementation, maintenance, and enforcement of the NAAQS as established by EPA.

A SIP is a state plan that identifies how that state will attain and maintain air quality that conforms to each primary and secondary NAAQS. The SIP is a complex, fluid document containing regulations, source-specific requirements, and non-regulatory items such as plans and inventories. Delaware submitted its initial SIP to EPA in 1972. Delaware periodically submits revisions to the SIP as required by the CAA to address air quality non-attainment and maintenance issues. The CAA requires that any proposed SIP revision be made available for public comment, and presented at a public hearing prior to submitting to EPA for adoption.

On October 1, 2015, the EPA promulgated a revised NAAQS for ground-level ozone at a level of 0.070 parts per million. The proposed SIP revisions fulfill the infrastructure requirement relative to the 2015 Ozone NAAQS, and demonstrate how Delaware's SIP satisfies the CAA's "Good Neighbor" provision, as set forth in Section 110(a)(2)(D)(i)(I). In particular, the Good Neighbor provision requires each state to demonstrate that emissions from sources within that state do not contribute significantly to non-attainment in, or interfere with maintenance by, any other state with respect to a particular NAAQS. With the proposed SIP document, Delaware will show it satisfies the Good Neighbor provision for the 2015 Ozone NAAQS by showing that all non-trivial sources of emissions of nitrogen oxides and volatile organic compounds in Delaware are well controlled.

The Department has the statutory basis and legal authority to act with regard to the proposed SIP revisions as referenced above, pursuant to 7 *Del.C.* Chapter 60. The Department published the General Notice of the proposed SIP revisions, and of the August 22, 2018 public hearing held in this matter, in the August 1, 2018 *Delaware Register of Regulations*. One member of the public attended that hearing, but no formal public comment was received by the Department with regard to this matter. It should also be noted that all proper notification and noticing requirements concerning this matter were met by the Department. Proper notice of the hearing was provided as required by law.

The Department's presiding hearing officer, Lisa A. Vest, prepared a Hearing Officer's Report dated September 21, 2018 ("Report"). The Report documents the proper completion of the required SIP revision process, establishes the record, and recommends the adoption of the proposed SIP revisions as attached to the Report as Appendix "A."

### **Reasons and Conclusions**

Based on the record developed by the Department's experts and established by the Hearing Officer's Report, I find that the proposed Delaware SIP document is well-supported. I further find that the Department's experts in the Division of Air Quality fully developed the record to support adoption of the SIP document. Therefore, the recommendations of the Hearing Officer are hereby adopted, and I direct that the same be promulgated as final.

The following reasons and conclusions are hereby entered:

1. The Department has the statutory basis and legal authority to act with regard to its proposed SIP document, pursuant to *7 Del.C. Ch. 60*;
2. The Department has jurisdiction under its statutory authority, pursuant to *7 Del.C. Ch. 60*, to issue an Order adopting this proposed SIP document as final;
3. The Department provided adequate public notice of the proposed SIP document, and all proceedings associated with the same, in a manner required by the law and regulations. The Department provided the public with an adequate opportunity to comment on the proposed SIP document, including at the time of the public hearing held on August 22, 2018, and held the record open through close of business on September 6, 2018, consistent with *29 Del.C. §10118(a)*, in order to consider public comment on the same before making any final decision;
4. The Department's Hearing Officer's Report, including its established record and the aforementioned recommended proposed SIP document as set forth in Appendix "A," is hereby adopted to provide additional reasons and findings for this Order;

5. Promulgation of this proposed SIP document will enable the Department to provide certification to EPA that (1) Delaware meets all of the necessary implementation, maintenance, and enforcement measures for the 2015 Ozone NAAQS, as set forth in Section 110(a)(2) of the Clean Air Act; and (2) Delaware satisfies the Good Neighbor provision for the 2015 Ozone NAAQS, as specifically set forth in Section 110(a)(2)(D)(i)(I) of the Clean Air Act, by showing that all non-trivial sources of emissions of nitrogen oxides and volatile organic compounds in Delaware are well controlled;

6. The Department's proposed SIP document, as published in the August 1, 2018 *Delaware Register of Regulations*, and as set forth in Appendix "A" as noted above, is adequately supported, is not arbitrary or capricious, and is consistent with the applicable laws and regulations. Consequently, it is approved as a final SIP document, which shall become effective immediately upon the signing of this Order; and

7. The Department shall submit this Order approving as final the proposed Delaware SIP document to the *Delaware Register of Regulations* for publication in its next available issue, and provide such other notice as the law and regulation require and the Department determines is appropriate.



Shawn M. Garvin  
Secretary

## HEARING OFFICER'S REPORT

**TO:** The Honorable Shawn M. Garvin  
Cabinet Secretary, Department of Natural Resources and Environmental Control

**FROM:** Lisa A. Vest   
Public Hearing Officer, Office of the Secretary  
Department of Natural Resources and Environmental Control

**RE:** Proposed Revisions to the Delaware State Implementation Plan ("SIP"):  
*Revisions to Address Section 110 Infrastructure Requirements of the Clean Air Act for the 2015 National Ambient Air Quality Standards ("NAAQS") for Ground-Level Ozone*

**DATE:** September 21, 2018

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### **I. BACKGROUND AND PROCEDURAL HISTORY:**

A public hearing was held on Wednesday, August 22, 2018, at 6:00 p.m. at the Department of Natural Resources and Environmental Control ("DNREC", "Department"), State Street Commons, 100 W. Water Street, Suite 6A, Dover, Delaware to receive comment on the proposed revisions to Delaware's State Implementation Plan ("SIP"), specifically, to address the Section 110 Infrastructure Requirements of the Clean Air Act ("CAA") for the 2015 National Ambient Air Quality Standards ("NAAQS") for Ground-Level Ozone. Delaware is required by Section 110 of the federal Clean Air Act to submit to the U.S. Environmental Protection Agency ("EPA") a SIP that provides for the implementation, maintenance, and enforcement of the NAAQS established by EPA.

A SIP is a state plan that identifies how that state will attain and maintain air quality that conforms to each primary and secondary NAAQS. The SIP is a complex, fluid document containing regulations, source-specific requirements, and non-regulatory items such as plans and inventories. Delaware submitted its initial SIP to EPA in 1972. Delaware periodically submits revisions to the SIP as required by the CAA to address air quality non-attainment and

maintenance issues. The CAA requires that any proposed SIP revision be made available for public comment, and presented at a public hearing prior to submitting to EPA for adoption.

On October 1, 2015, the EPA promulgated a revised NAAQS for ground-level ozone at a level of 0.070 parts per million. The proposed SIP revisions fulfill this requirement relative to the 2015 Ozone NAAQS, and demonstrate how Delaware's SIP satisfies CAA's "Good Neighbor" provision, as set forth in Section 110(a)(2)(D)(i)(I). In particular, the Good Neighbor provision requires each state to demonstrate that emissions from sources within that state do not contribute significantly to non-attainment in, or interfere with maintenance by, any other state with respect to a particular NAAQS. With the proposed SIP revisions, Delaware will show it satisfies the Good Neighbor provision for the 2015 Ozone NAAQS by showing that all non-trivial sources of emissions of nitrogen oxides and volatile organic compounds in Delaware are well controlled.

The Department has the statutory basis and legal authority to act with regard to the proposed SIP revisions described herein, pursuant to 7 *Del.C.* Chapter 60. The Department published the General Notice of the proposed SIP revisions, and of the August 22, 2018 public hearing held in this matter, in the August 1, 2018 *Delaware Register of Regulations*. One member of the public attended that hearing, but no formal public comment was received by the Department with regard to this matter. It should also be noted that all proper notification and noticing requirements concerning this matter were met by the Department. Proper notice of the hearing was provided as required by law.

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

The public hearing record consists of the following documents: (1) a verbatim transcript; and (2) six exhibits introduced by responsible Department staff at the public hearing held on August 22, 2018, and marked by this Hearing Officer accordingly as “Department Exhibits 1-6”. The Department’s person primarily responsible for the drafting and overall promulgation of these proposed Amendments, Mark Prettyman, Environmental Scientist, Division of Air Quality, developed the record with the relevant documents in the Department’s files.

As noted previously, the aforementioned proposed SIP revisions were presented and thoroughly vetted by the Department at the public hearing on August 22, 2018. No formal comment was received by members of the public at that time. Pursuant to Delaware law, the record remained open for fifteen (15) additional days subsequent to the date of the public hearing for the purpose of allowing additional public comment to be received regarding this matter. The hearing record closed for comment in this matter on September 6 2018, with no public comment having been received by the Department regarding this matter.

For the Secretary’s review, a copy of the Department’s draft SIP document with proposed revisions as presented at the August 22, 2018 public hearing is attached hereto as Appendix “A”. Again, all proper notification and noticing requirements concerning this proposed promulgation were met by the Department in this matter.

## **III. RECOMMENDED FINDINGS AND CONCLUSIONS:**

Based on the record developed, I find and conclude that the Department has provided appropriate reasoning regarding the need for its proposed SIP revisions. Accordingly, I recommend promulgation of the same in the customary manner provided by law.

Further, I recommend the Secretary adopt the following findings and conclusions:

1. The Department has the statutory basis and legal authority to act with regard to its proposed SIP revisions, pursuant to 7 *Del.C.* Ch. 60;

2. The Department has jurisdiction under its statutory authority, pursuant to 7 *Del.C.* Ch. 60, to issue an Order adopting this proposed SIP document as final;

3. The Department provided adequate public notice of the proposed SIP revisions, and all proceedings associated with the same, in a manner required by the law and regulations. The Department provided the public with an adequate opportunity to comment on the proposed SIP revisions, including at the time of the public hearing held on August 22, 2018, and held the record open through close of business on September 6, 2018, consistent with 29 *Del.C.*

§10118(a), in order to consider public comment on the same before making any final decision;

4. Promulgation of the proposed SIP revisions will enable the Department to provide certification to EPA that Delaware satisfies the Good Neighbor provision for the 2015 Ozone NAAQS, as set forth in Section 110(a)(2)(D)(i)(I) of the Clean Air Act, by showing that all non-trivial sources of emissions of nitrogen oxides and volatile organic compounds in Delaware are well controlled;

5. The Department's proposed SIP document, as set forth in Appendix "A" hereto, is adequately supported, is not arbitrary or capricious, and is consistent with the applicable laws and regulations. Consequently, it should be approved as a final SIP document, which shall go into effect ten days after its publication in the next available issue of the *Delaware Register of Regulations*; and

6. The Department shall submit the proposed SIP document as a final SIP revision to the *Delaware Register of Regulations* for publication in its next available issue, and provide such other notice as the law and regulation require and the Department determines is appropriate.



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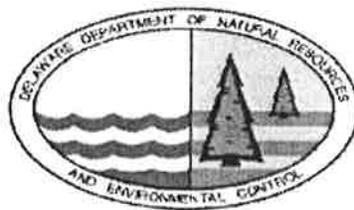
LISA A. VEST  
Public Hearing Officer



## **APPENDIX "A"**



**Implementation, Maintenance,  
And Enforcement of  
National Ambient Air Quality  
Standards (NAAQS)**



**State Implementation Plan Revision to address  
the Clean Air Act Section 110 Infrastructure  
Elements For the  
2015 Ozone NAAQS**

**October 1, 2018**

**DRAFT**

**Delaware Department of Natural Resources and Environmental  
Control, Division of Air Quality**

*Proposed*

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## **1.0 Background**

On October 1, 2015, the Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard (NAAQS) for ground-level ozone at a level of 0.070 parts per million (ppm).<sup>1</sup> Pursuant to sections 110(a)(1) and 110(a)(2) of the Clean Air Act (CAA), each state is required to submit to the EPA a State Implementation Plan (SIP) to provide for the implementation, maintenance, and enforcement of a newly promulgated or revised NAAQS.<sup>2</sup> This SIP revision fulfills this requirement relative to the 2015 ozone NAAQS.

A SIP is a state plan that identifies how that state will attain and maintain air quality that conforms to each primary and secondary NAAQS. The SIP is a complex, fluid document containing regulations, source-specific requirements, and non-regulatory items such as plans and emission inventories.

Delaware's initial SIP was approved by the EPA on May 31, 1972. Since this initial approval, the Delaware SIP has been revised numerous times to address air quality nonattainment and maintenance issues. This has been done by updating plans and inventories, and adding new and revised regulatory control requirements. Delaware's SIP is compiled in the Code of Federal Regulations (CFR) at 40 CFR Part 52, Subpart I.

Section 2.0 of this document is a revision to Delaware's SIP. The purpose of this SIP revision is to detail how Delaware meets all of the necessary implementation, maintenance, and enforcement measures required by the CAA, specifically, CAA §110(a)(2), relative to the 2015 ozone NAAQS. Under the heading "Delaware's Plan" in Section 2.0 of this document Delaware provides a revision to its SIP to address those requirements of Section 110(a)(2)(A)-(M) of the CAA. It is a compilation of certain elements that describe how the 2015 ozone NAAQS is being implemented, maintained, and enforced. The elements of this SIP revision, once approved by EPA, will provide a federally enforceable written confirmation that Delaware will continue to comply with the Section 110(a)(1) and (2) requirements of the CAA.

Legislative authority for the Delaware air quality program relating to the responsibilities in the CAA is codified in Title 7 "Conservation" of the Delaware Code, Chapter 60 – Delaware's comprehensive water and air resources conservation law<sup>3</sup>, which gives the Delaware Department of Natural Resources and Environmental Control (DNREC) the power and duty to implement the provisions of the CAA in the State of Delaware.

Many of the miscellaneous requirements of Section 110(a)(2)(A)-(M) of the CAA relevant to the 2015 ozone NAAQS are already contained in Delaware's SIP. The following table identifies those SIP provisions. The table also identifies those infrastructure requirements which are not applicable to Delaware.

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<sup>1</sup> 80 FR 65292, October 26, 2015

<sup>2</sup> SIPs meeting CAA §110(a)(1) and (2) are also known as "infrastructure" SIPs.

<sup>3</sup> Referred to in this document as "7 Del. C." followed by the specific section citation (e.g., §6005).

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**Table 1-1 110(a)(2)(A)-(M) Requirements in the Current State of Delaware SIP**

Section 110(a) element	Summary of element	Provisions in the Current Delaware SIP or recent SIP revisions Submittals	Where Codified or approved by EPA
§110(a)(2)(A)	Include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance as may be necessary or appropriate to meet the applicable requirements of this Act.	<p>For the 2015 ozone NAAQS, the following emission limitations and schedules contained in the regulations in Delaware’s approved SIP.</p> <ul style="list-style-type: none"> <li>▪ 7 DE Admin. Code 1101, Definitions And Administrative Principles<sup>4</sup></li> <li>▪ 7 DE Admin. Code 1108, Sulfur Dioxide Emissions From Fuel Burning Equipment</li> <li>▪ 7 DE Admin. Code 1112, Control of Nitrogen Oxides Emissions</li> <li>▪ 7 DE Admin. Code 1113, Open Burning Regulation</li> <li>▪ 7 DE Admin. Code 1124, Control of Volatile Organic Compound Emissions</li> <li>▪ DE Admin. Code 1126, Motor Vehicle Emissions Inspection Program</li> <li>▪ 7 DE Admin. Code 1131, Low Enhanced Inspection And Maintenance Program</li> <li>▪ 7 DE Admin. Code 1140, National Low Emission Vehicle Program</li> <li>▪ 7 DE Admin. Code 1141, Limiting Emissions Of Volatile Organic Compounds From Consumer And Commercial Products</li> <li>▪ 7 DE Admin. Code 1142, Specific Emission Control Requirements</li> <li>▪ 7 DE Admin. Code 1144, Control of Stationary Generator Emissions</li> <li>▪ 7 DE Admin. Code 1145, Excessive Idling Of Heavy Duty Vehicles,</li> <li>▪ 7 DE Admin. Code 1146 Electric Generating Unit (EGU) Multi-Pollutant Regulation</li> <li>▪ 7 DE Admin. Code 1148, Combustion Turbine Generator Emissions</li> </ul>	40 CFR 52.420(c)

<sup>4</sup> Delaware’s air quality regulations are codified in Delaware’s administrative code, - Title 7 Natural Resources and Environmental Control, 1100 Air Quality Management Section. Citations are expressed in this document as “7 DE Admin. Code” followed by the specific subpart of 1100. All portions of the DE Admin. Code referred to in this document are already included in Delaware’s SIP.

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Section 110(a) element	Summary of element	Provisions in the Current Delaware SIP or recent SIP revisions Submittals	Where Codified or approved by EPA
§110(a)(2)(B)	Provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to - (i) monitor, compile, and analyze data on ambient air quality, and (ii) upon request, make such data available to the Administrator.	7 DE Admin. Code 1117 Source Monitoring, Record Keeping And Reporting and 7 DE Admin. Code 1103, Ambient Air Quality Standards, provide for the establishment and operation of procedures necessary to monitor, compile and analyze data related to ambient air quality.	40 CFR 52.420(c)
§110(a)(2)(C)	Include a program to provide for the enforcement of the measures described in subparagraph (A) and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D;	<p>Delaware implements its Construction and Operation Permit Program requirements under 7 DE Admin. Code 1102 and 1125. These existing permitting programs ensure that the construction and modification of both major and minor stationary sources do not cause or contribute to a violation of the ozone NAAQS.</p> <p>7 DE Admin. Code 1125 fulfills parts C and D of Title I of the CAA; governing preconstruction review and permitting of any new or modified major stationary sources of air pollutants. 1125 is approved in the Delaware SIP. Under 1125 any major source or modification that results in a net significant increase of ozone precursor pollutants must apply Best Available Control Technology (BACT) to reduce the emissions from those pollutants.</p> <p>7 DE Admin. Code 1102 provides for the evaluation and necessary regulation of any stationary source that emits equal to or greater than 0.2 lb of any air contaminant, including the precursor pollutants to ozone, in any one day.</p> <p>In addition, the measures described in CAA 110(a)(2)(A) are enforced, in part, through permits issued pursuant to 7 DE Admin. Codes 1102 and 1125.</p>	40 CFR 52.420(c)

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Section 110(a) element	Summary of element	Provisions in the Current Delaware SIP or recent SIP revisions Submittals	Where Codified or approved by EPA
§110(a)(2)(E)(iii)	(iii) necessary assurances that, where the state has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the state has responsibility for ensuring adequate implementation of such plan provision;	The requirements of § 110(a)(2)(E)(iii) are not applicable because Delaware does not rely on localities for specific SIP implementation.	
§110(a)(2)(F)	<p>Require, as may be prescribed by the Administrator—</p> <p>(i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps by owners or operators of stationary sources to monitor emissions from such sources,</p> <p>(ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and</p> <p>(iii) correlation of such reports by the state agency with any emission limitations or standards established pursuant to this Act, which reports shall be available at reasonable times for public inspection;</p>	<p>§110(a)(2)(F)(i): Specific monitoring requirements are found throughout the State of Delaware Regulations Governing the Control of Air Pollution, to include 7 <b>DE Admin. Codes</b> 1117 and 1103. These requirements are included in Delaware’s SIP, as necessary.</p> <p>§110(a)(2)(F)(ii): Specific emission reporting requirements are found throughout the State of Delaware Regulations Governing the Control of Air Pollution, to include 7 <b>DE Admin. Code</b> 1117. These requirements are included in Delaware’s SIP.</p> <p>The regulations in Delaware’s approved SIP that are listed in 40 CFR 52.420(c) also apply to the 2015 ozone NAAQS.</p>	40 CFR 52.420(c)
§110(a)(2)(G)	Provide for authority comparable to that in section 303 and adequate contingency plans to implement such authority;	7 <b>DE Admin. Code</b> 1115, Air Pollution Alert and Emergency Plan, contains emergency episode plan provisions that are currently approved in Delaware’s SIP.	40 CFR 52.420(c)

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<b>Section 110(a) element</b>	<b>Summary of element</b>	<b>Provisions in the Current Delaware SIP or recent SIP revisions Submittals</b>	<b>Where Codified or approved by EPA</b>
§110(a)(2)(I)	In the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D (relating to nonattainment areas);	<p>Part D pertains to general requirements for nonattainment areas. New Castle County is in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE nonattainment area.</p> <p>The regulations in Delaware's approved SIP that are listed in 40 CFR Part 52, Subpart I related to nonattainment areas will continue to comply with Subpart D requirements and which could not have been approved if they had not met Subpart D requirements.</p>	
§110(a)(2)(J) (PSD)	Meet the applicable requirements of part C (relating to prevention of significant deterioration of air quality and visibility protection);	Delaware's Prevention of Significant Deterioration (PSD) requirements are promulgated in 7 <b>DE Admin. Code</b> 1125, Preconstruction Review.	

## 2.0 SIP Revision

This SIP revision addresses those requirements of Section 110(a)(2)(A)-(M) of the Clean Air Act (CAA) which have not been addressed in other SIP revisions for the 2015 ozone NAAQS. Each of the requirements of §110(a)(2) of the CAA (Subparagraphs A–M) is presented below, along with a discussion of Delaware’s plan revision to meet the requirement.

- (A) **§110(a)(2)(A) Requirement:** Include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this Act.

**Delaware’s Plan:** Delaware has established laws and regulations that include enforceable emissions limitations and other control measures, means or techniques, as well as schedules and timetables for compliance to meet the applicable requirements of the CAA, to include the requirements associated with the 2015 and prior ozone NAAQS. See Table 1-1 under section 110(a)(2)(A). On June 12, 2015 (80 FR 33840), EPA finalized the Startup, Shutdown and Malfunction (SSM) SIP Call which identifies several provisions from many states which EPA asserts are substantially inadequate for CAA sections 302 and 110 purposes. Some provisions are inadequate for inappropriate emission exemptions, some for affirmative defenses, and some for director discretion. One of the state SIPs which contains these identified provisions is Delaware’s SIP. In 2016, Delaware revised 7 **DE Admin. Code** 1124 and 1142, with a State effective date of January 11, 2017, to remove the provisions identified in EPA’s SSM SIP Call as being substantially inadequate and inconsistent with the CAA. Subsequently, on November 21, 2016, Delaware submitted a SIP revision to address EPA’s SSM SIP Call for six of the seven Delaware regulations mentioned in the SSM SIP Call. Per EPA’s December 8, 2017 approval of Delaware’s Reasonably Available Control Technology (RACT) SIP under the 2008 ozone NAAQS, Delaware’s November 21, 2016 SSM SIP revision will be dealt with in a separate rulemaking action.<sup>5</sup>

At present, Delaware’s statutory authority is set out in Title 7 “Conservation” of the Delaware Code, Chapter 60 – Delaware’s comprehensive water and air resources conservation law. Legislative authority giving the Secretary of the Delaware Department of Natural Resources and Environmental Control the authority to promulgate Regulations is codified at 7 Del. C., Chapter 60. This authority is applicable to the 2015 ozone NAAQS.

- (B) **§110(a)(2)(B) Requirement:** Provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality, and (ii) upon request, make such data available to the Administrator.

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**Delaware's Plan:** Delaware has established and currently operates appropriate devices, methods, systems and procedures necessary to monitor, compile and analyze data on ambient air quality, and upon request, makes such data available to the Administrator. Delaware will continue to operate devices, methods, systems and procedures and may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation. At present, Delaware does this as follows for the 2015 ozone NAAQS:

- Delaware maintains and operates a multi-station network of ambient monitors throughout the State to measure ambient air quality levels within Delaware for comparison to each NAAQS as required by 40 CFR Part 58. Delaware currently measures and reports ground-level ozone concentrations from monitoring sites located in Wilmington, Brandywine, Bellefonte, Lums Pond, Killens Pond, Seaford, and Lewes.
- All data is measured using the U.S. EPA approved methods as either Reference or Equivalent monitors; all monitors are subjected to the quality assurance requirements of 40 CFR Part 58; Appendix A; and all samplers are located at sites that have met the minimum siting requirements of Part 58, Appendix E. The data is submitted to the EPA's Air Quality System (AQS) system, in a timely manner in accordance to the schedule prescribed by the U.S. EPA in 40 CFR Part 58.
- In order to keep EPA informed of changes to the sampling network, Delaware provides EPA Region III with prior notification of any planned changes to the network. As needed, details of these changes and anticipated approvals of the changes are communicated to EPA. On an annual basis, Delaware sends EPA a monitoring network plan as required by 40 CFR Part 58 Section 10: Annual monitoring network plan and periodic network assessment. This plan contains all required information including site and monitor description, analysis methods, operating schedule, monitoring objectives and scale of representativeness, as well as information on any planned changes. Delaware submits data to the AQS system, in a timely manner, pursuant to the schedule prescribed by the EPA in 40 CFR Part 58.
- Delaware has and will continue to submit data to EPA's AQS in a timely manner in accordance to the schedule prescribed by the U.S. EPA in 40 CFR Part 58.

(C) **§110(a)(2)(C) Requirement:** Include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D.

**Delaware's Plan:** Delaware has established and currently operates a program to provide for the enforcement of the enforceable emission limitations and other control measures, means, or techniques, as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of the CAA and to regulate the modification and construction of any stationary source within areas

*Proposed*

covered by its SIP as necessary to assure the NAAQS are achieved, including permit programs required in parts C and D. At present, Delaware, through its Division of Air Quality (DAQ), exercises its programmatic authority to utilize the enforcement powers set out in 7 Del. C. §6005 entitled “Enforcement; civil and administrative penalties; expenses”; 7 Del. C. §6013 entitled “Criminal penalties”; and 7 Del. C. §6018 entitled “Cease and desist order.” Delaware will continue to operate this program and may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation.

- (D) **§110(a)(2)(D) Requirement:** Contain adequate provisions – (i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will - (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility, and (ii) insuring compliance with the applicable requirements of sections 126<sup>6</sup> and 115<sup>7</sup> (relating to interstate and international pollution abatement).

- 
- 6 §126(a) - Each plan shall (1) require each major proposed new or modified source (A) subject to Part C or D which may significantly contribute to pollution in excess of the NAAQS in any AQCR outside the State in which such source intends to locate or modify, to provide written notice to all nearby States the pollution levels of which may be affected by such source 60 days prior to the date on which commencement of construction is to be permitted by the State, and (2) identify all major existing stationary sources which may have the impact described in (1) with respect to new or modified sources and provide notice to all nearby States of the identity of such sources. (b) Any State may petition EPA for a finding that any major source or group of stationary sources emits or would emit any pollutant in violation of the prohibition of §110(a)(2)(D)(ii) or this section. (c) Notwithstanding any permit which may have been granted by the State, it shall be a violation of this section and the plan - (1) for any major proposed new or modified source with respect to which a finding has been made under subsection (b) to be constructed or to operate in violation of this section and the prohibition of §110(a)(2)(D)(ii) or this section, or (2) for any major existing source to operate more than 3 months after such finding has been made. EPA may permit the continued operation of a source beyond the expiration of the 3-month period if the source complies with the emission limitations and compliance schedules as may be provided by EPA to bring about compliance with the requirements of §110(a)(2)(D)(ii). Nothing shall be construed to preclude any such source from being eligible for an enforcement order under §113(d) after the expiration of such period during which EPA has permitted continuous operation.
- 7 §115(a) - Whenever EPA, upon receipt of reports, surveys or studies from any duly constituted international agency has reason to believe that any pollutants emitted in the US cause or contribute to pollution which may reasonably be anticipated to endanger public health or welfare in a foreign country or whenever the Secretary of State requests it to do so, EPA shall give formal notification to the Governor of the State in which such emissions originate. (b) The EPA notice shall be deemed to be a finding under §110(a)(2)(H)(ii) which requires a plan revision with respect to so much of the applicable plan as is inadequate to prevent or eliminate the endangerment. Any foreign country so affected by such emission of pollutants shall be invited to appear at any public hearing associated with any revision of the appropriate portion of the applicable plan. (c) This section shall apply only to a foreign country which EPA determines has given the US the same rights with respect to the prevention or control of air pollution occurring in that country. (d) Recommendations issued following any abatement conference conducted prior to CAA 1977 shall remain in effect with respect to any pollutant for which no NAAQS has been established under § 109 unless EPA, after consultation with all agencies, which were party to the conference, rescinds any such recommendation.

*Proposed*

**Delaware's Plan:** Delaware's SIP presently contains adequate provisions prohibiting sources from emitting air pollutants in amounts which will contribute significantly to nonattainment, or interfere with maintenance, of any NAAQS, to include the 2015 ozone NAAQS. Delaware's SIP also presently contains adequate provisions to prevent interference with measures by any other state to prevent significant deterioration of air quality or to protect visibility. Delaware may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation. At present, Delaware's legal authority is contained in the following:

- Delaware Code Title 7, Chapter 60 § 6010(c). Rules and regulations; plans. The Secretary may formulate, amend, adopt and implement, after public hearing, a statewide air resources management plan to achieve the purpose of this chapter and comply with applicable federal laws and regulations. Since 110(a)(2)(D) is in the CAA, and thus a law, Delaware has the legal authority to regulate sources of interstate transport to areas in nonattainment, or to those areas maintaining the NAAQS if they were previously nonattainment.
  - 110(a)(2)(D)(i)(I): See Section 3.0 below, for how Delaware's SIP satisfies CAA §110(a)(2)(D)(i)(I).
  - 110(a)(2)(D)(i)(II): The requirements of CAA 110(a)(2)(D)(i)(II) are met by new major sources and major modifications in Delaware being subject to Prevention of Significant Deterioration (PSD) requirements which are contained in Section 3.0 of 7 **DE Admin. Code** 1125, Preconstruction Review. The requirements of 1125, implemented through Delaware's Title V permitting program, ensure no new or modified NOx or VOC emitting source will cause or contribute to nonattainment within Delaware or any other state.
  - The visibility prong of §110(a)(2)(D)(i)(II) has been met through two approved regional haze SIPs. Delaware's initial regional haze SIP was approved on July 19, 2011 (76 FR 42557). Delaware's "5-Year Progress" regional haze SIP was approved on May 5, 2014 (79 FR 25506).
  - 110(a)(2)(D)(ii): Nothing in Delaware's statutory or regulatory authority prohibits or otherwise interferes with Delaware's ability to exercise sections 126 and 115 of the CAA. No source or sources within the Delaware are the subject of an active finding under Section 126 of the CAA with respect to the particular NAAQS at issue. There are no final findings under section 115 of the CAA against Delaware with respect to the particular NAAQS at issue.
- (E) **§110(a)(2)(E) Requirement:** Provide (i) necessary assurances that the state (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the state or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under state (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any provision of federal or state law from carrying out such

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implementation plan or portion thereof), (ii) requirements that the State comply with the requirements respecting State boards under section 128,<sup>8</sup> and (iii) necessary assurances that, where the state has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the state has responsibility for ensuring adequate implementation of such plan provision.

The elements of §110(a)(2)(E) (iii) are not applicable to Delaware as discussed in Section 1.0 of this document.

**Delaware's Plan:** For §110(a)(2)(E)(i), Delaware has adequate authority under state law pursuant to 7 Del. C. Chapter 60 to carry out its SIP obligations with respect to the 2015 ozone NAAQS. DNREC does not believe that there is any prohibition in any federal or state law that would prevent it from carrying out its SIP or any portion thereof. Further, DNREC assures EPA that it has, through the State of Delaware General Fund and through the Title V fee program, and will continue to have, funding to carry out its SIP obligations. Further, DNREC believes its funding sources are sufficient to provide adequate personnel for those purposes; however, Delaware may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation.

At present Delaware fulfills this obligation by virtue of having adequate personnel and funding through the CAA §105 grant process (federal grant funds), the State of Delaware general fund (state tax revenues), and appropriated special funds collected by the State of Delaware from application fees, permit fees, renewal fees, and civil or administrative penalties or fines under 7 Del. C. Chapter 60. The Division of Air Quality is responsible for developing, implementing, and enforcing the SIP. Delaware does not anticipate the need for additional resources beyond those to be appropriated in the above manner to carry out its SIP requirements.

For § 110(a)(2)(E)(ii), Delaware finalized a SIP document that satisfies CAA §110(a)(2)(E)(ii) and § 128 by including in the SIP applicable requirements of 29 Del. C., Ch. 58, "Laws Regulating the Conduct of Officers and Employees of the State." This final document was submitted to the EPA as a SIP revision on January 11, 2013 and was approved and published in the Federal Register (FR) on April 17, 2013 (78 FR 22785).

- (F) **§110(a)(2)(F) Requirement:** Require, as may be prescribed by the Administrator - (i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and (iii) correlation of such reports by the State

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<sup>8</sup> §128 (a) each plan shall contain requirements that - (1) any board or body which approves permits or enforcement orders shall have at least a majority of members who represent the public interest and do not derive any significant portion of their income from persons subject to permits or enforcement orders, and (2) any potential conflicts of interest by members of such board or body or the head of an executive agency with similar powers be disclosed. A State may adopt any requirements respecting conflicts of interest for such boards or bodies or heads of executive agencies, or any other entities which are more stringent than the requirements of (1) and (2).

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agency with any emission limitations or standards established pursuant to this Act, which reports shall be available at reasonable times for public inspection.

**Delaware's Plan:** Delaware requires that owners or operators of stationary sources monitor and submit periodic reports on the nature and amounts of NOx and VOC emissions and emissions related-data from the sources. This may include the installation, maintenance and replacement of equipment, where appropriate. This information submitted to DNREC is available to the public at reasonable times for public inspection pursuant to Delaware law. Delaware will continue to require reporting of emissions but may makes changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation.

Except as specifically exempted by the Delaware Freedom of Information Act, 29 Del. C. Chapter 100, Delaware makes all records, reports or information obtained by the Department or referred to at public hearings available to the public pursuant to the provisions of the Delaware Freedom of Information Act, 29 Del. C. Chapter 100.

- (G) **§110(a)(2)(G) Requirement:** Provide for authority comparable to that in section 303 and adequate contingency plans to implement such authority;<sup>9</sup>

**Delaware's Plan:** Delaware has authority comparable to that in section 303 and adequate contingency plans to implement such authority, but may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation.

7 Del. C. § 6003(a)(1) requires a permit from the DNREC Secretary prior to discharging any air contaminant. 7 Del. C. § 6002(2) defines air contaminant essentially as any substance other than uncombined water. 7 Del. C. § 6005 allows the Secretary to seek a preliminary or permanent injunction or temporary restraining order for any discharge of an air contaminant without a permit, and issue cease and desist orders for violations (7 Del. C. § 6018). Thus, it necessarily follows that any discharge of an air contaminant, to include precursor pollutants to ozone, that would cause imminent & substantial endangerment to the health, safety and welfare of the people of the State of Delaware or

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<sup>9</sup> Sec. 303- Notwithstanding any other provisions of this Act, the Administrator upon receipt of evidence that a pollution source or combination of sources (including moving sources) is presenting an imminent and substantial endangerment to public health or welfare, or the environment, may bring suit on behalf of the United States in the appropriate United States District court to immediately restrain any person causing or contributing to the alleged pollution to stop the emission of air pollutants causing or contributing to such pollution or to take such other action as may be necessary. If it is not practicable to assure prompt protection of public health or welfare or the environment by commencement of such a civil action, the Administrator may issue such orders as may be necessary to protect public health or welfare or the environment. Prior to taking any action under this section, the Administrator shall consult with appropriate State and local authorities and attempt to confirm the accuracy of the information on which the action proposed to be taken is based. Any order issued by the Administrator under this section shall be effective upon issuance and shall remain in effect for a period of not more than 60 days, unless the Administrator brings an action pursuant to the first sentence of this section before the expiration of that period. Whenever the Administrator brings such an action within the 60-day period, such order shall remain in effect for an additional 14 days or for such longer period as may be authorized by the court in which such action is brought.

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the environment would constitute a violation and thus a sufficient basis for the Secretary to seek an injunction or temporary restraining order to halt the violation.

- (H) §110(a)(2)(H) Requirement:** Provide for revision of such plan - (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements established under this Act.

**Delaware's Plan:** Delaware will review and revise its SIP from time to time as may be necessary to take account of revisions of such primary or secondary NAAQS or the availability of improved or more expeditious methods of attaining such standard and whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the NAAQS which it implements or to otherwise comply with any additional requirements established under the CAA.

- (I) §110(a)(2)(I) Requirement:** In the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D (relating to non-attainment areas).

**Delaware's Plan:** According to the EPA's interpretation of the CAA this element does not need to be addressed in the context of an infrastructure SIP submission. Regardless, for the 2015 ozone NAAQS, Delaware's SIP or recent SIP revisions already contain elements addressing applicable part D requirements as discussed in Table 1-1 of Section 1.0 of this document.

- (J) §110(a)(2)(J) Requirement:** Meet the applicable requirements of section 121 (relating to consultation), section 127 (relating to public notification), and part C (relating to prevention of significant deterioration of air quality and visibility protection).<sup>10</sup>

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<sup>10</sup> §121. - In carrying out requirements for plans to contain - (1) any transportation controls, air quality maintenance plan requirements or preconstruction review of direct sources of pollution, or (2) any measure referred to - (A) in part D), or (B) in part C, and in carrying out the requirements of §113(d), the State shall provide a satisfactory process of consultation with general purpose local governments, designated organizations of elected officials of local governments and any FLM having authority over Federal land to which the State plan applies. Such process shall be in accordance with regulations promulgated by EPA. Only a general purpose unit of local government, regional agency, or council of governments adversely affected by action of EPA approving any portion of a plan may petition for judicial review.

§127. (a) - Each plan shall contain measures to regularly notify the public of when any NAAQS is exceeded or was exceeded during the preceding year, to advise the public of health hazards associated with such pollution, and to enhance awareness of measures which can be taken to prevent the standards from being exceeded and ways in which the public can participate in regulatory and other efforts to improve air quality.

*Proposed*

**Delaware's Plan:** Delaware's SIP presently contains adequate provisions to meet the applicable requirements of section 121 (relating to consultation), section 127 (relating to public notification), and part C (relating to prevention of significant deterioration of air quality and visibility protection) as it relates to the 2015 ozone NAAQS; but may makes changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation. At present, Delaware does so utilizing the following:

- **7 DE Admin. Code 1132**, Transportation Conformity, provides a legal platform for the various consultation procedures that have been developed between DNREC, the Delaware Department of Transportation (DELDOT), and the Metropolitan Planning Organizations (MPOs). The MPOs provide a forum for consultation with local governments. Delaware's MPOs are: the Wilmington Area Planning Council (WILMAPCO), Kent County MPO, and the Salisbury-Wicomico MPO. Regional planning organizations provide the forum for inter-state consultations.
- All SIP revisions and new/amended regulations undergo public notice and hearing, pursuant to 7 Del. C. Chapters 29 and 60, which include publication in the newspapers and in the Delaware Register, and which have allowed for comment by both the public and local political subdivisions. Delaware believes the public notice and hearing processes also fulfill the section 121 consultation process. The submitted attainment plans and regulations in the approved Delaware SIP specify the organizations responsible for implementing and enforcing the plans.
- DNREC makes real-time and historical air quality information available on its website. All relevant SIPs and plans to achieve the NAAQS contain public notification provisions related to air monitoring levels such as Ozone Action Days, Air Quality Action Days, and DNREC's website. DNREC provides extended range air quality forecasts, which give the public advanced notice of air quality events. This advance notice allows the public to limit their exposure to unhealthy air and enact a plan to reduce pollution at home and at work. DNREC forecasts daily ozone and particle levels and issues e-mails to the public, businesses and the media via e-mail forecasts and notifications are free to the public.
- PSD requirements necessary to implement the 2015 ozone NAAQS are already SIP approved and implemented through the requirements of 7 **DE Admin. Code 1125**, Preconstruction Review.

**(K) §110(a)(2)(K) Requirement:** Provide for - (i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and (ii) the submission, upon request, of data related to such air quality modeling to the Administrator.

**Delaware's Plan:** Delaware has the authority and capability to conduct air quality

**Proposed**

modeling in order to assess the effect on ambient air quality of relevant pollutant emissions, and will continue to perform modeling as necessary, but may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation. Delaware will continue to submit to the EPA air quality modeling data as part of Delaware's relevant SIP submissions, permit actions,<sup>11</sup> and through federal grant commitments or in other ways that EPA may request.

- (L) §110(a)(2)(L) Requirement:** Require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this Act, a fee sufficient to cover - (i) the reasonable costs of reviewing and acting upon any application for such a permit, and (ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until such fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under Title V.

**Delaware's Plan:** In a manner consistent with Delaware law, Delaware will continue to require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this Act, a fee sufficient to cover (i) the reasonable costs of reviewing and acting upon any application for such a permit, and (ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until such fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under Title V pursuant to Delaware law. Delaware currently fulfills this requirement under the enabling authority of 7 Del. C. §S 6095 to 6099 and Title V fee legislation that currently is renewed every three years. Delaware has a fully approved Title V operating permits program. See paragraphs (b) and (c) under "*Delaware*" in Appendix A to 40 CFR Part 70—Approval Status of State and Local Operating Permits Programs. Delaware may make changes that it believes in its discretion are appropriate, while continuing to fulfill this obligation.

- (M) §110(a)(2)(M) Requirement:** Provide for consultation and participation by local political subdivisions affected by the plan.

**Delaware's Plan:** Delaware will continue to provide for consultation and participation by local political subdivisions affected by the SIP pursuant to the public notice laws found in 7 Del. C. § 6006 and 6010 and 29 Del. C. Chapters 10003, 10004 and 10115, as applicable. Furthermore, all SIP revisions undergo public notice and hearing which have allowed for comment by the public which includes local political subdivisions. The public notice and hearing processes fulfill the requirements for consultation with local political subdivisions affected by the SIP.

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<sup>11</sup> Permit modeling requirements are specified in Section 3.0 of 7 **DE Admin. Code** 1125, Requirements for Preconstruction Review, as approved by EPA on October 2, 2012 (77 FR 60053).

### 3.0 Demonstration of Adequate Provisions in SIP to Address Transport

Delaware has been nonattainment for the pollutant ozone since a standard was first established in 1971. Over the past 45 years, Delaware has learned that transport is very significant relative to ozone, and that the only way to reduce the elevated ambient ozone concentrations is to reduce the nitrogen oxides (NO<sub>x</sub>) and volatile organic compound (VOC) emissions that are causing them. Over the last 27 years Delaware has adopted and implemented SIP provisions that cover all NO<sub>x</sub> and VOC emitting sources and source categories, and all such emissions in Delaware are now well-controlled. These SIP provisions have eliminated Delaware's significant contribution to both its own unhealthy air quality, and the air quality of all downwind areas.

CAA §110(a)(2)(D) requires Delaware's SIP to "*Contain adequate provisions – (i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will - (I) contribute significantly to non-attainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility, (ii) insuring compliance with the applicable requirements of sections 126 and 115 (relating to interstate and international pollution abatement).*"

Based upon EPA's transport memorandum released in March 2018,<sup>12</sup> and the flexibilities for states in developing their "good neighbor SIPs" discussed therein, the provisions in Delaware's SIP are demonstrated to be adequate provisions which satisfy the CAA §110(a)(2)(D)(i)(I) relative to the 0.070 ppm ozone NAAQS. This SIP revision further demonstrates how Delaware's SIP satisfies CAA §110(a)(2)(D)(i)(I).

#### 3.1 Delaware's SIP includes measures that cover its entire emissions inventory

A national emissions inventory (NEI) is a comprehensive emissions inventory that quantifies the NO<sub>x</sub> and VOC emissions from every source or other type of emitting activity within each state in the United States. Periodic Emission Inventories (PEI) are developed every three years, with 2014 being Delaware's most recently completed inventory. Delaware's emissions inventory encompasses all emissions that could violate CAA §110(a)(2)(D)(i)(I) with respect to the ozone NAAQS. EPA's 2014 NEI V2 NO<sub>x</sub> and VOC emissions for Delaware<sup>13</sup> were sorted from the highest to lowest facility/source category, and are summarized in Chart 3-1 and Chart 3-2 below.

Appendix A provides details NO<sub>x</sub> and VOC emissions from Delaware in the 2014 NEI V2 inventory. Included in Appendix A is every Delaware stationary facility/source category with

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12 Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I), March 27, 2018. <https://www.epa.gov/airmarkets/march-2018-memo-and-supplemental-information-regarding-interstate-transport-sips-2015>

13 [ftp://newftp.epa.gov/air/nei/2014/data\\_summaries/2014v2/](ftp://newftp.epa.gov/air/nei/2014/data_summaries/2014v2/)

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emissions equal to or greater than 25 tons per year (tpy) of either NOx or VOC, and which altogether made up the top 99% of Delaware's 2014 NOx and VOC inventory. Appendix A is generally sorted from the largest facility/source category, to the smallest, based on the 2014 NEI V2 emissions for Delaware. For each source or source category in Appendix A the current applicable Delaware control measures are discussed, along with any identified additional measures that could be adopted into Delaware's SIP. The information in Appendix A demonstrates that Delaware's SIP includes measures that cover all non-trivial NOx and VOC sources in the State.

**Chart 3-1: Delaware 2014 NEI V2 NOx Emissions**

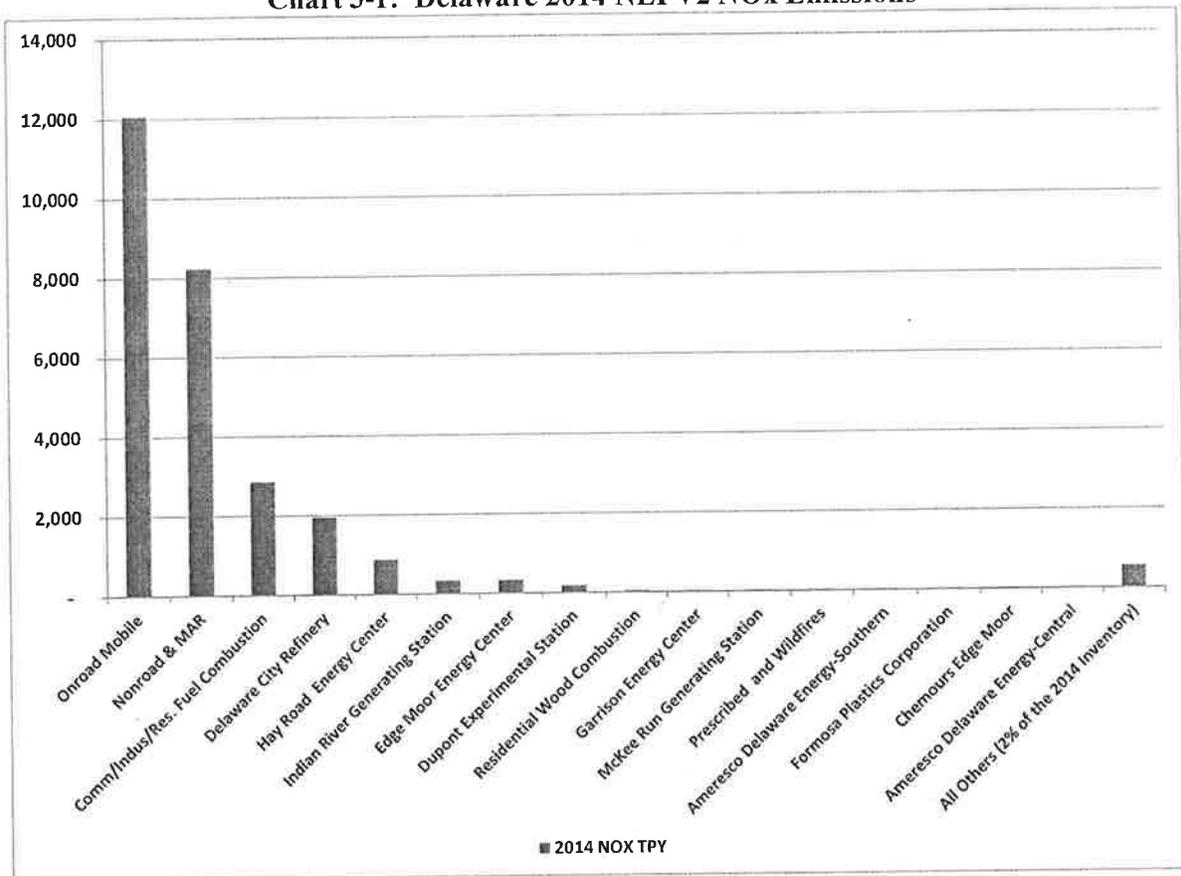
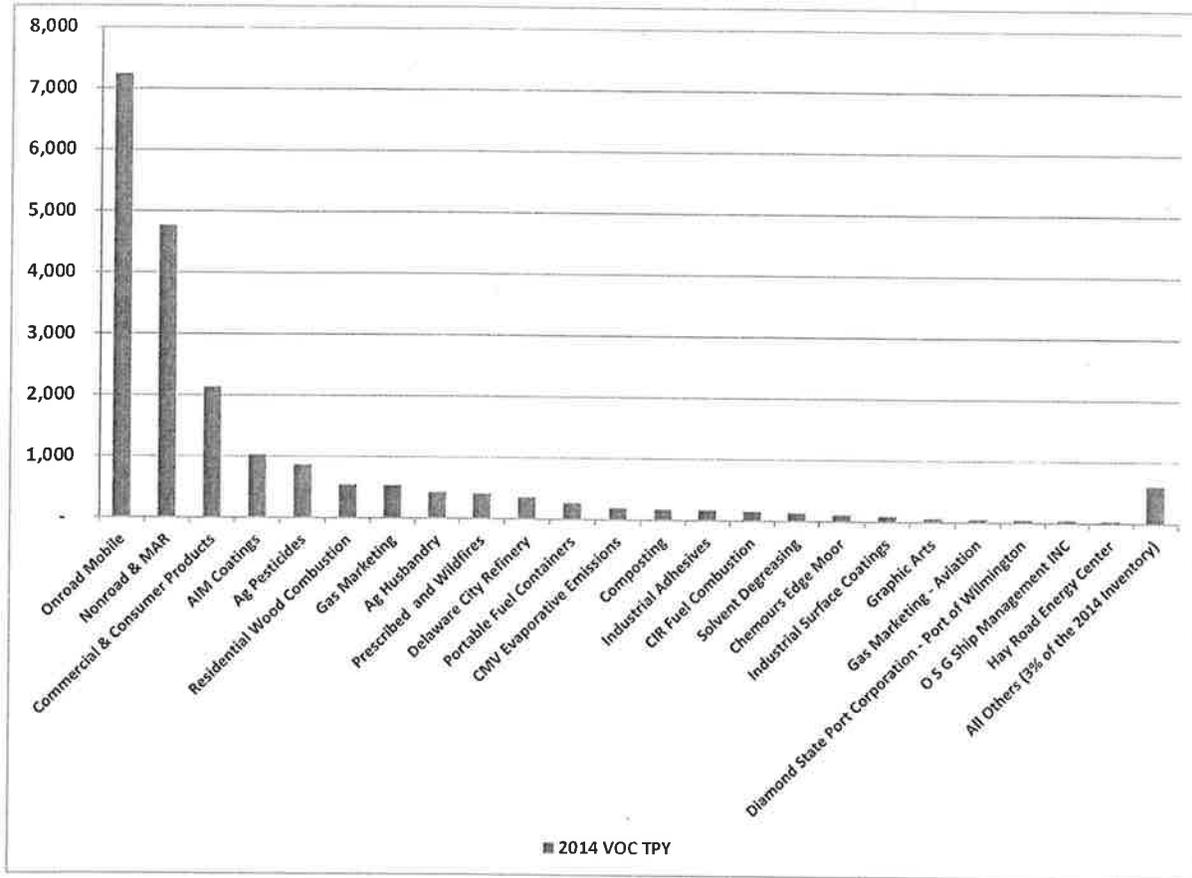


Chart 3-2: Delaware 2014 NEI V2 VOC Emissions



**3.2 Implementation of the measures in Delaware’s SIP has been effective, and has resulted in significant emissions reductions.**

Delaware’s adjusted<sup>14</sup> 1990 base year SIP inventory emissions totaled 95,203 tpy, and 82,718 tpy for NOx and VOC, respectively. Delaware’s 2005 PEI demonstrates that emissions were reduced to 45,250 tpy and 30,626 tpy, for NOx and VOC, respectively.<sup>15</sup> This reduction (i.e., a 52% reduction in NOx emissions and a 63% reduction in VOC emissions) was largely attributable to Delaware’s implementation of 7 **DE Admin. Code 1125 (NSR)**, 7 **DE Admin. Code 1112 (NOx RACT)**, 7 **DE Admin. Code 1124 (VOC RACT)**, and 7 **DE Admin. Code 1126 and 1131 (vehicle I/M) control measures**. Delaware’s 2008 NOx and VOC emissions were further reduced to 44,760 tpy and 26,897 tpy, respectively, and are most recently estimated to be 27,721 tpy NOx and 20,566 tpy VOC in 2014, as shown in Table 3-1 and Chart 3-3.

<sup>14</sup> Delaware’s actual 1990 base year SIP inventory emissions totaled 77,281 tpy and 52,493 tpy for NOx and VOC, respectively. To enable direct comparison to Delaware’s 2005 PEI, the on-road and non-road categories were adjusted using EPA’s MOBILE6.2 and 2004 non-road models.

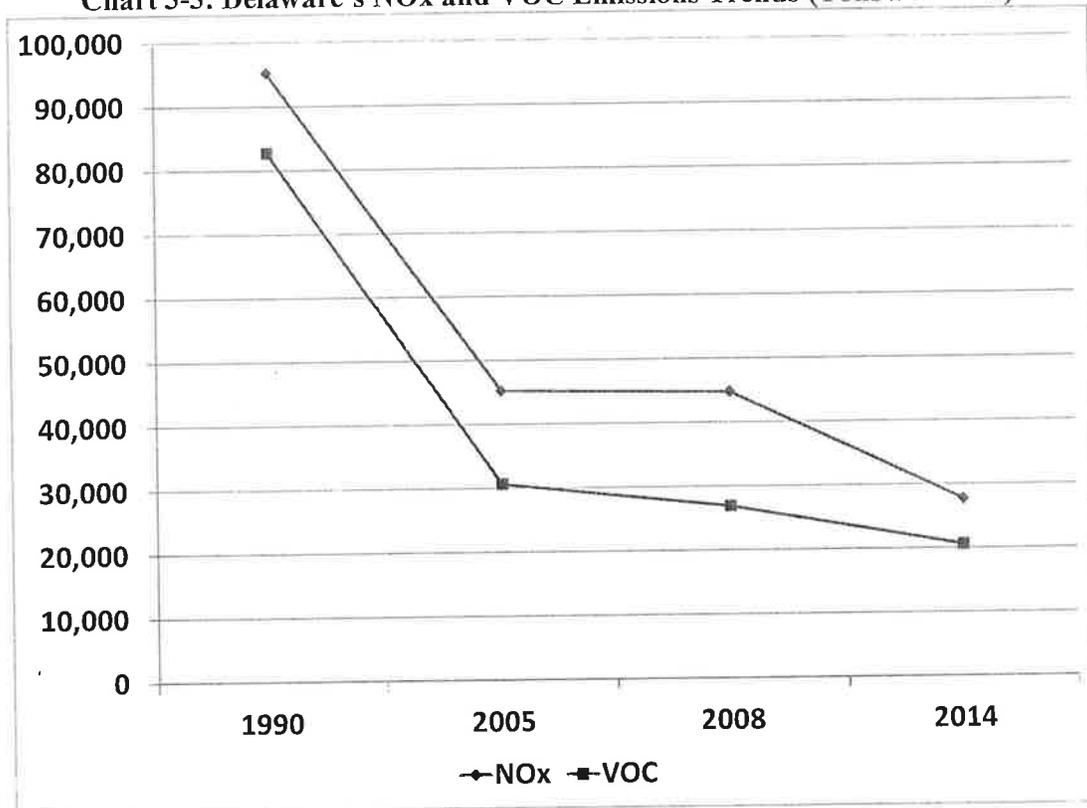
<sup>15</sup> These NOx and VOC reductions helped to reduce ozone concentrations under the 1-hour ozone standard. Delaware attained the 1-hour ozone NAAQS in 2005.

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**Table 3-1: Delaware's NOx and VOC Emissions Trends (Tons Per Year)**

	1990	2005	2008	2014
NOx	95,203	45,250	44,760	27,721
VOC	82,718	30,626	26,897	20,566

**Chart 3-3: Delaware's NOx and VOC Emissions Trends (Tons Per Year)**



This data clearly demonstrates that Delaware's current SIP measures are very effective at reducing emissions that contribute to ozone formation. By extension, Delaware's SIP measures have reduced the impact of Delaware emissions on the attainment and maintenance of air quality standards in both Delaware and downwind states.

### **3.3 Measures in Delaware's SIP Which Cover EGUs**

The EPA has defined emissions that contribute significantly under CAA §110(a)(2)(D)(i)(I) in various ways, all of which have substantially limited such emissions to EGUs. In historic NOx budget trading programs EPA's methodology defined significant contribution as those emissions that could be removed with the use of "highly cost effective" EGU controls. Under the Cross-State Air Pollution Rule (CSAPR) Update, EPA determined that the emissions contributing significantly to nonattainment or interfering with maintenance were those that could be controlled with \$1,400/ton cost on EGUs, based on an analysis that accounted for both cost and air quality improvement. Under any cost threshold, EGU's in Delaware are well controlled,

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represent BACT, and looking solely at EGUs Delaware has satisfied §110(a)(2)(D)(i)(I).

Delaware has measures in its SIP that control each of its EGUs (i.e., 7 DE Admin. Code 1112, 1146, and 1148). Pertinent characteristics of these measures are that they apply on a stack-by-stack basis (i.e., trading is not allowed), they require compliance on a short-term basis (i.e., generally a 24-hour or shorter rolling average), and they require controls on all EGUs, including those with high daily emissions despite having small annual mass emissions (e.g., peaking units). In addition, Delaware has measures in its SIP to prevent smaller stationary reciprocating engine driven generators from operating as EGUs without controls (i.e., 7 DE Admin. Code 1144). Detail on Delaware's current EGU control measures is presented in the SIP revisions associated with the adoption of 7 DE Admin. Code 1112, 1144, 1146, and 1148.

Appendix A indicates that Delaware could achieve, in the aggregate, an additional estimated 841 tpy reduction in NO<sub>x</sub> from installing additional EGU controls, as described below:

- At about \$7,800/ton Delaware could reduce NO<sub>x</sub> emissions by 562 tpy
- At \$18,000/ton by an additional 113 tpy
- At over \$25,000/ton, by an additional 166 tpy

This high cost of additional EGU control in Delaware is consistent with, if not more severe than, the EPA CSAPR Update analysis. It can be seen that additional reductions will not be realized from Delaware EGU's until the control cost exceeds about \$7,200/ton, at which time gas fired combined cycle units in Delaware would install selective catalytic reduction (SCR) control technology.

Delaware concludes that because the cost is very high, the potential air quality benefit is low (i.e., the potential to further reduce significant mass emissions from Delaware's EGUs is low), and because each of Delaware's EGUs are already well controlled, these additional reductions beyond Delaware's current SIP measures are not feasible in the context of this SIP, and are not required under §110(a)(2)(D)(i)(I).

### **3.4 Measures in Delaware's SIP Which Cover Non-EGUs**

§110(a)(2)(D)(i)(I) covers a scope broader than EGUs. CAA §110(a)(2)(D)(i)(I) requires a SIP to "Contain adequate provisions prohibiting...any source or other type of emissions activity...from emitting any air pollutant in amounts which will contribute significantly..." Ozone and ozone precursors are transported and can contribute to ozone concentrations in downwind areas regardless of their source. To satisfy §110(a)(2)(D) a SIP must contain provisions that cover VOC and NO<sub>x</sub> emissions from any source or type of activity within the state. A state has not satisfied §110(a)(2)(D) until 1) the total emissions from the state no longer impact any other nonattainment or maintenance area by more than one percent of the NAAQS, or 2) there are adequate provisions in the SIP that cover sources or type of activities in the State.

Appendix A demonstrates that Delaware has measures in its SIP that cover all nontrivial VOC and NO<sub>x</sub> emitting activities. Section 3.2 above demonstrates that these measures are effective. In Appendix A Delaware has identified non-EGU measures that could achieve further reductions,

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but at great costs. For example, the cost of additional control for non-EGU boilers in Delaware is estimated:

- At \$25,000/ton, Delaware could reduce NOx by an additional 183 tpy.
- At over \$25,000/ton, Delaware could reduce NOx by an additional 32 tpy.

While revising Delaware's RACT regulation to lower the size thresholds would result in further emissions reductions, the cost of NOx control would be over \$30,000/ton. Delaware concludes that because the cost is very high, the potential air quality benefit is low (i.e., the potential to reduce significant mass emission is low), and because each of these non-EGU sources/source categories are already well-controlled, these additional reductions beyond Delaware's current SIP measures are not feasible in the context of this SIP, and are not required under §110(a)(2)(D)(i)(I).

## 4.0 Conclusion

This SIP revision demonstrates that 1) the Delaware SIP contains measures that cover every non-trivial VOC and NO<sub>x</sub> emitting source and source category in the State, and 2) implementation of these measures has resulted in significant emission reductions in Delaware. The analysis in Section 3.2 above shows that DE has reduced emissions by 67,482 tpy NO<sub>x</sub> and 62,152 tpy VOC between 1990 and 2014. Delaware concludes that the Delaware emissions that would significantly contribute to nonattainment and maintenance in downwind areas are those VOC and NO<sub>x</sub> emissions that are reduced by the following adequate measures in Delaware's SIP:

- Centralized Vehicle Inspections and Maintenance (I/M) requirements to include testing of older, high emitting vehicles, to significantly reduce on-road mobile emissions (7 **DE Admin. Code** 1126 and 1131, which will soon be expanded statewide)
- Stringent Reasonable Available Control Technology (RACT) on all major nitrogen oxides (NO<sub>x</sub>) and volatile organic compound (VOC) stationary sources, which establishes a baseline level of control and achieves large, cost effective reductions (7 **DE Admin. Code** 1112 and 1124)
- Best Available Control Technology (BACT) has been required on all existing coal and residual oil fired EGUs, and large industrial boilers, which ensure the largest emitters are well controlled (7 **DE Admin. Code** 1142 and 1146)
- BACT on all sources with high daily emissions, despite their low annual emissions, which ensure all emissions on ozone days are controlled (7 **DE Admin. Code** 1144 and 1148).
- Adoption of regional measures to reduce emissions from large non-point source categories that have been recommended by the Ozone Transport Commission (7 **DE Admin. Code** 1141, Sections 1, 2 and 4)
- Major and minor new source review, with minor source thresholds set at 5 tpy for ozone precursor emission, which ensures new units are well-controlled (7 **DE Admin. Code** 1125)

Additional opportunities for further controlling emissions are either outside of Delaware's regulatory authority, impractical as a Delaware-only initiative, or carry an additional incremental cost in excess of \$5,000 per ton. We are recommending this cost threshold to the EPA as criteria for evaluating all transport SIPs. Additional control measures from Delaware should not be required under CAA §110(a)(2)(D)(i)(I).

Based on the information provided, Delaware fully complies with the requirements of §110(a)(2)(A) through §110(a)(2)(M) for the 2015 ozone NAAQS.



## Appendix A

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
<p>Onroad Mobile</p> <p>43% of 2014 NOX Inventory</p> <p>35% of 2014 VOC Inventory</p>	12,066.04	7,248.99	<p>New vehicles must meet California vehicle emission standards (CA LEV III, except zero emission vehicles) under 7 DE Admin. Code 1140.</p> <p>New and existing vehicles must be maintained under Delaware's vehicle Inspection and Maintenance program, 7 DE Admin. Code 1126 and 1131.</p> <p>Extended idling of heavy duty vehicles is prohibited under 7 DE Admin Code 1145.</p> <p>Overall on-road mobile emissions are capped in each of Delaware's three counties by ozone SIP budgets, which are managed under 7 DE Admin. Code 1132, transportation conformity.</p>	<p>Delaware has no authority under the CAA to further regulate tailpipe emissions.</p> <p>Delaware is in the process of upgrading Sussex County's Basic I/M program to an Enhanced I/M program, to include amending the Enhanced I/M programs in Kent and New Castle Counties so as to have a consistent statewide program. The result will be a net decrease of 49 tpy NOx and 20 tpy VOC emissions by 2023.</p> <p>Aside from I/M program upgrades, all other identified measures are in the form of transportation control measures (TCMs), which generally gain small incremental reductions (i.e., on the order of tons per year, not hundreds of tons per year), and that have a \$/ton cost of \$50,000 to over \$1 million.</p>
<p>Nonroad and Marine/Air/Rail</p> <p>30% of 2014 NOX Inventory</p> <p>23% of 2014 VOC Inventory</p>	8,240.93	4,774.72	<p>These categories are subject to applicable federal measures only.</p>	<p>Delaware has limited authority under the CAA to regulate off-road mobile sources.</p> <p>Delaware, as part of the Ozone Transport Commission (OTC), is currently evaluating the feasibility of an off-road anti-idling regulation.</p> <p>Other potential measures include programs such as lawn-mower trade-in programs which generally gain small incremental reductions (i.e., on the order of tenths of a ton to several tons per year), and that have a \$/ton cost of \$50,000 to over \$1 million.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
<p>Commercial, Industrial, and Residential Fuel Combustion</p> <p>10% of 2014 NOX Inventory</p> <p>1% of 2014 VOC Inventory</p>	2,867.23	159.47	<p>The commercial/institutional fuel combustion category includes small boilers, furnaces, heaters, and other heating units too small to be considered point sources.</p> <p>The commercial/institutional sector includes wholesale and retail businesses; health institutions; social and educational institutions; and federal, state, and local governments (i.e., prisons, office buildings) and are defined by SIC codes 50-99. The fuel types included in this source category are coal (SCC 2103002000), distillate oil (SCC 2103004000), residual oil (SCC 2103005000), natural gas (SCC 2103006000), and liquefied petroleum gas (LPG) (SCC 2103007000). Uses of natural gas and LPG in this sector include space heating, water heating, and cooking. Uses of distillate oil and kerosene include space and water heating.</p> <p>Emissions in this category are from many small units throughout the State, where facility-wide VOC and NOx emissions are generally less 5 TPY and 25 TPY, respectively (i.e., those not covered in the point source inventory).</p> <p>7 DE Admin Code 1112 requires the control of NOx emissions from fuel burning equipment. Under 1112, units with maximum rated heat input capacities equal to or larger than 50 MMBtu/hr must be controlled by installation of either low excess air and low NOx burner technology or flue gas recirculation technology. Units between 15 and 50 MMBtu/hr must receive an annual tune up performed by qualified personnel to minimize NOx emissions.</p> <p>Most commercial/institutional combustion units are subject to the annual tune-up requirements, or are less than 15MMBtu/hr and are exempt from the requirements of 1112.</p>	<p>Additional control measures for this category are possible. 7 DE Admin Code 1112 could be revised to achieve some additional NOx reductions:</p> <ul style="list-style-type: none"> <li>• 1112 could be revised such that it is applicable to combustion units at facilities with the potential to emit less than major thresholds; and the low-end exemption of 1112 could be revised from 15MMBTU/hr to 5MMBTU/hr. Covered units would be predominately small units subject to annual tune-ups, and a NOx reduction of about 5% from each subject unit. Conservatively assuming that all emissions in this category would be impacted by the new requirement, this measure is estimated to have the potential to reduce 2014 emissions by about NOx emissions at a cost of over \$39,500/ton.</li> <li>• 1112 could be revised to require boilers in the 25 MMBTU/hr – 50 MMBTU/hr size range to install either low excess air and low NOx burner technology or flue gas recirculation technology. This would reduce NOx by up to 50% for each subject unit. Conservatively assuming that all emissions in this category would be impacted, this measure has the potential to reduce NOx emissions at a cost of more than \$32,910/ton.</li> </ul> <p>Other measures could likely be identified at similar reductions and cost effectiveness.</p> <p>Given the high control costs, and the large number of very small sources in this category, this category is best regulated through turnover of equipment.</p> <p>Note that section 4.0 of 7 DE Admin. Code 1125 requires BACT for any new source that emits greater than 5 TPY of NOx. (1)</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
<p>Delaware City Refinery</p> <p>7% of 2014 NOX Inventory</p> <p>2% of 2014 VOC Inventory</p>	1,967.66	356.37	<p>The Delaware City Refinery is a petroleum refinery. NOx emissions are controlled under 7 DE Admin Code 1112 (NOx RACT), and also under a NOx cap established pursuant to Section 2.0 of 7 DE Admin Code 1142 and 1125. The NOx cap began in 2011 at 2,525 TPY (i.e., actual 2008 emission levels), and decreased to 1,650 TPY beginning 2015. VOC emissions are subject to 7 DE Admin Code 1124 (VOC RACT). In addition, numerous sources at the facility are subject to emission limits established under 7 DEAdmin. Code 1125 (LAER plus offsets).</p>	<p>Delaware's March 15, 2011 SIP revision, "Demonstration that Amendments to Section 2.0 of 7 DE Admin Code 1142, Control of NOx Emissions from Industrial Boilers and Process Heaters at Petroleum Refineries Do not Interfere with Any Applicable Requirement of the Clean Air Act" provides a detailed discussion of the facility-wide NOx cap. The following information demonstrates the stringency of the facility-wide NOx cap:</p> <ul style="list-style-type: none"> <li>Thirteen of the refineries industrial boilers were subject to the EPA NOx SIP Call, which was implemented in Delaware under 7 DE Admin Code 1139.</li> <li>The initial 2,525 NOx cap is significantly less than annualized NOx SIP Call cap, 3,333, which indicates that implementation of RACT and NSR at the refinery have resulted in the implementation of NOx controls at the refinery.</li> <li>The 1,650 TPY NOx cap represents a 35% reduction beyond RACT limits (i.e., actual 2008 levels), and more than an additional 50% reduction below NOx SIP Call levels. In addition, all future growth at the refinery must occur under this NOx cap.</li> </ul> <p>Delaware concludes that it is not necessary to lower the NOx cap at this time, and that additional NOx emissions cannot be significantly reduced from the refinery in the context of this SIP. In addition, no additional VOC reduction measures have been identified.</p>
<p>Commercial &amp; Consumer Products</p> <p>10% of 2014 VOC Inventory</p>		2,135.59	<p>Commercial and consumer products are defined as non-industrial products used around the home, office, institution, or similar settings. Included are hundreds of individual products, including personal care products (SCC 2460100000), household products (SCC 2460200000), automotive aftermarket products (SCC 2460400000), coatings and related products (SCC 2460500000), adhesives and sealants (SCC 2460600000), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) related products (SCC 2460800000), and other miscellaneous products (SCC 2460900000). The VOCs in these products may act either as the carriers for the active product ingredients or as the active ingredients themselves.</p>	<p>Delaware does not have the authority to directly regulate manufacturers outside of the boundaries of the State of Delaware. Because of this, the only means available to Delaware to regulate emission in this category is to regulate the allowable VOC content of products sold in Delaware.</p> <p>Delaware represents a very small market share to these manufacturers and any attempt by Delaware to further reduce allowable VOC content on our own would result in the manufacturers not selling in Delaware, rather than having the desired effect of reformulation to lower VOC emitting products. In other words, Delaware's market share alone is not large enough for manufacturers to justify the expense of reformulating their products. Separate from a national or regional rule, it is not feasible for Delaware to regulate this category further.</p> <p>Although Delaware has adopted more stringent requirements for commercial and consumer products, those amendments and emissions reductions are not currently incorporated into Delaware's SIP, so that those emissions reductions may be banked for future use.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
<p>AIM Coatings</p> <p>5% of 2014 VOC Inventory</p>		1,031.73	<p>Architectural surface coating operations consist of applying a thin layer of coating such as paint, primer, varnish, or lacquer to architectural surfaces, and the use of solvents as thinners and for cleanup. Surface coatings include either a water-based or solvent-based liquid carrier that generally evaporates in the curing process. Architectural surface coatings are applied to protect the substrate and/or to increase the aesthetic value of a structure.</p> <p>Industrial maintenance coatings include primers, sealers, undercoats, and intermediate and topcoats formulated for and applied to substrates in industrial, commercial, coastal, or institutional situations that are exposed to extreme environmental and physical conditions. These conditions include immersion in water, chemical solutions and corrosives, and exposures to high temperatures.</p> <p>AIM coatings are regulated under Section 1 of 7 DE Admin. Code 1141. This regulation is based on an Ozone Transport Commission (OTC) model rule (which was based on California regulations), and which is much more stringent than the current federal rule. The compliance date of this regulation was 1/1/2005, and was updated in February 2016.</p>	<p>Delaware's SIP currently contains the most stringent provisions feasible at this point (i.e., those of the most recent OTC model rule adopted by any state).</p> <p>Delaware does not have the authority to directly regulate manufacturers outside of the boundaries of the State of Delaware. Because of this, the only means available to Delaware to regulate emission in this category is to regulate the allowable VOC content of products sold in Delaware.</p> <p>Delaware represents a very small market share to these manufacturers and any attempt by Delaware to further reduce allowable VOC content on our own would result in the manufacturers not selling in Delaware, rather than having the desired effect of reformulation to lower VOC emitting products. In other words, Delaware's market share alone is not large enough for manufacturers to justify the expense of reformulating their products. Separate from a national or regional rule, it is not feasible for Delaware to regulate this category further.</p> <p>Although Delaware has adopted more stringent requirements for architectural and industrial maintenance coatings, those amendments and emissions reductions are not currently incorporated into Delaware's SIP, so that those emissions reductions may be banked for future use.</p> <p>SCR is the most effective commercially available NOx emission control technology commercially available for combustion turbine and combined cycle electric generating units such as those installed at Hay Road.</p> <p>Hay Road units 5, 6 and 7 already incorporate SCR.</p> <p>It is technically feasible to retrofit SCR on the Hay Road units 1, 2, and 3 that do not presently incorporate SCR. Assuming a 10-year life and using the 2014 annual heat input, it is estimated that the incremental cost of reducing NOx for Hay Road units 1, 2, and 3 collectively is at least \$7,162 per incremental ton of NOx reduced. This would reduce NOx mass emissions by approximately 72% (562 TPY based on actual 2014 data). (1)</p>
<p>Hay Road Energy Center</p> <p>3% of 2014 NOX Inventory</p>	886.40	38.03	<p>This facility is a power plant that consists of six combined cycle gas fired (oil backup) EGU's.</p> <p>Units 1-3 are subject to 7 DE Admin Code 1112 (NOx RACT) limits of 25 to 88 ppm, 1-hour average, depending on fuel and firing mode. Units 5-7 are subject to 7 DE Admin. Code 1112, plus they are controlled by SCR as required by 7 DE Admin. Code 1125 (NOx LAER plus offsets).</p>	
<p>Ag Pesticides</p> <p>4% of 2014 VOC Inventory</p>		876.62	None	<p>Regulation of this category is not feasible by the State of Delaware.</p> <p>The only identified potential control measure for this source category is to reduce the VOC content of the herbicide/pesticide. Delaware does not command sufficient market share for this to be feasible. This category is best regulated by the EPA under a national rule.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Residential Wood Combustion	50.62	548.89	Delaware does not regulate this category in its SIP.	Given Delaware's climate this activity generally occurs outside the ozone season, so additional control beyond the federal NSPS is not warranted.
3% of 2014 VOC Inventory Gas Marketing		541.11	Stage I emissions (i.e., tank truck refilling of storage tanks) are controlled by vapor balancing under Section 26 of 7 DE Admin. Code 1124 (VOC RACT). Stage II emissions (i.e., refueling of vehicles) are controlled by vapor balancing under Section 36 of 7 DE Admin. Code 1124 (VOC RACT). Gasoline tank breathing emissions are subject to annual leak testing and permitting requirements under Section 36 of 7 DE Admin. Code 1124 (VOC RACT). Gasoline tank truck emissions are subject to annual leak testing and permitting requirements under Section 27 of 7 DE Admin. Code 1124 (VOC RACT).	Delaware recognizes that ORVR incompatibility with Stage II is such that decommissioning of Stage II and implementation of improved Stage I controls (by requiring CA EYR Stage I systems) will soon result in less emissions, and that Delaware is actively pursuing this course of action. This could further reduce Delaware VOC emissions, but at a cost of approximately \$5,460/ton.
Prescribed And Wildfires	37.52	413.38	Prescribed fires are regulated under 7 DE Admin. Code 1113. Wildfires are unable to be regulated.	Further regulation of this category is not feasible by the State of Delaware
2% of 2014 VOC Inventory Ag Husbandry		435.80	None	Regulation of this category is not feasible by the State of Delaware.
2% of 2014 VOC Inventory				

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
<p>Edge Moor Energy Center</p> <p><i>1% of 2014 NOX Inventory</i></p>	334.46	26.79	<p>This facility is a power plant that consists of three gas/oil fired EGUs. (i.e., 86 MW, 174 MW, and 450 MW).</p> <p>NOx emissions are regulated under 7 DE Admin Code 1112 (NOx RACT), and 7 DE Admin Code 1146 (NOx, SO2 and Hg BACT).</p> <p>1146 requirements are phased in between 2009 and 2012. 1146 includes both a unit specific annual NOx cap, and a 0.125 lb/MMBTU emission limitation, demonstrated on a rolling 24-hour average basis.</p> <p>All units complied with 1112 through the installation of low NOx burners. As a result of Delaware's 7 DE Admin Code 1146 and a related Consent Decree, Calpine's (formerly Connectiv) Edge Moor Energy Center was required to take actions that have significantly reduced the NOx emissions rate from the electric generating units at that site. Units 3 and 4 have both been modified with additional NOx emissions controls: low-NOx burners, overfire air, and SNCR. Unit 5's primary fuel is residual fuel oil, and incorporates low-NOx burners, overfire air, and SNCR for NOx emissions rate reduction. As of January 1, 2012, each unit has a NOx emissions rate limit of 0.125 lb/MMBTU, calculated on a rolling 24-hr basis.</p>	<p>SCR is the most effective commercially available NOx emissions control technology available for a gas/oil fired steam generating units such as these at the Edge Moor facility. Additional control is possible by replacing the existing SNCR technology with SCR technology on each of the three EGUs</p> <ul style="list-style-type: none"> <li>Unit 3: The estimated incremental cost of reducing the NOx emission rate lower than the unit's 2014 annual average value (assuming a 10 year life, using the 2014 annual heat input, and using a 0.02 lb/MMBTU attainable NOx emissions rate base) is \$15,096 per incremental ton of NOx reduced. This would reduce mass emissions by 52 TPY based on actual 2014 data.</li> <li>Unit 4: The estimated incremental cost of reducing the NOx emission rate lower than the unit's 2014 annual average value (assuming a 10 year life, using the 2014 annual heat input, and using a 0.02 lb/MMBTU attainable NOx emissions rate base) is \$17,682 per incremental ton of NOx reduced. This would reduce mass emissions by 62 TPY based on actual 2014 data.</li> <li>Unit 5: The estimated incremental cost of reducing the NOx emission rate lower than the unit's 2014 annual average value (assuming a 10 year life, using the 2014 annual heat input, and using a 0.02 lb/MMBTU attainable NOx emissions rate base) is \$25,394 per incremental ton of NOx reduced. This would reduce mass emissions by 119 TPY based on actual 2014 data (1)</li> </ul>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Indian River Generating Station  <i>1% of 2014 NOX Inventory</i>	335.66	12.37	<p>Emissions are from four coal fired electric generating units (EGUs). Each of the four units installed low NOx burners under 7 DE Admin Code 1112 (NOx RACT).</p> <p>Units 1-3 are required to shutdown by consent order.</p> <ul style="list-style-type: none"> <li>• Unit 2 was shutdown 5/2010</li> <li>• Unit 1 was shutdown 5/2011</li> <li>• Unit 3 was shutdown in 12/2013.</li> </ul> <p>Unit 4 has installed SCR technology and is subject to a NOx limitation of 0.1 lb/mmBTU, 24-hour average, under 7 DE Admin Code 1146 and an associated consent order. Unit 4 will be the only remaining coal fired unit in Delaware upon full implementation of the control measures currently being implemented.</p>	<p>Pipeline natural gas is not available as a generation fuel at this facility, and none of the units have natural gas firing capability in their current configuration.</p> <p>As Units 1, 2, and 3 have already been shut down, there are no actions that could be taken to further reduce the NOx emissions from these three units.</p> <p>An SCR system has already been installed on Unit 4 that, in conjunction with its existing low- NOx burners and turbo-furnace design, has allowed Unit to demonstrate compliance with the unit's 0.1 lb/MMBTU, 24-hour average NOx emissions rate limit. No commercially available NOx emission controls have been demonstrated to achieve NOx emission rate reductions beyond those achievable utilizing SCR. Therefore there are no additional NOx emissions rate reduction capabilities available for this unit.</p> <p>Delaware concludes that there are no additional economically and technologically feasible means of reducing the NOx emissions rate from these units.</p> <p>No control measures to further reduce emission from this category have been identified.</p>
Portable Fuel Containers  <i>1% of 2014 VOC Inventory</i>	197.79	269.46	<p>Portable fuel containers are regulated nationally by the EPA under 40 CFR Part 59, Subpart F.</p>	<p>SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil fired boilers.</p> <ul style="list-style-type: none"> <li>• The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$2,230 per incremental ton of NOx reduction to \$7,830 per incremental ton of NOx reduction to achieve an overall reduction of 40% in NOx emissions.</li> <li>• The estimated cost effectiveness for retrofit of SCR on these boilers ranges from \$5,690 per incremental ton of NOx reduction to \$7,450 per incremental ton of NOx reduction to achieve an overall reduction of 70% in NOx emissions. (1)</li> </ul> <p>No control measures to reduce emission from this category have been identified.</p>
Dupont Experimental Station  <i>1% of 2014 NOX Inventory</i>	11.40	197.56	<p>NOx emissions are substantially from four oil fired 96 mmbTU/hr boilers.</p> <p>Each boiler is equipped with low NOx burner and low excess air technology under 7 DE Admin Code 1112 (NOx RACT).</p>	<p>Regulation of this category is not feasible by the State of Delaware.</p>
CMV Evaporative Emissions  <i>1% of 2014 VOC Inventory</i>	None	182.30	<p>Not regulated beyond any applicable federal measures.</p>	<p>Regulation of this category is not feasible by the State of Delaware.</p>
<i>1% of 2014 VOC Inventory</i>	None	None	<p>None</p>	<p>Regulation of this category is not feasible by the State of Delaware.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Industrial Adhesives  <i>1% of 2014 VOC Inventory</i>		177.99	Regulated under Section 4.0 of 7 DE Admin. Code 1141. 1141 is much more stringent than the most recent EPA CTG, and has broader coverage than the CTG (i.e., it covers field applied roofing adhesives and sealants not covered by the CTG). These requirements took effect on 4/11/2009.	Delaware's SIP represents the current level of technology for this source category.  Additional regulation of this category is not feasible at this time.
Chemours Edge Moor  <i>1% of 2014 VOC Inventory</i>	32.77	114.34	NOx emissions are from small (<50 mmBTU/hr) combustion units, which were subject to annual tune-up requirements to minimize NOx under 7 DE Admin Code 1112 (NOx RACT).  VOC emissions were subject to an 81% reduction under Section 50 of 7 DE Admin Code 1124 (VOC RACT).	The facility is now shut down.
Solvent Degreasing  <i>1% of 2014 VOC Inventory</i>		139.29	Solvent cleaning is the process of using organic solvents to remove grease, fats, oils, wax or soil from various metal, glass, or plastic items. Non-aqueous solvents such as petroleum distillates, chlorinated hydrocarbons, ketones, and alcohols have been used historically; however, the use of aqueous cleaning systems for some applications has recently gained acceptance. The types of equipment used in this method are categorized as cold cleaners, open top vapor degreasers, or conveyORIZED degreasers.  Degreasing is regulated under Section 33 of 7 DE Admin. Code 1124. This category has undergone two rounds of regulation in Delaware (i.e., 1st CTG RACT, then OTC Model Rule 1 in 2002). This category is regulated much more stringently than required by the CTG.	A new OTC model rule was approved at the May 2012 OTC spring meeting. Delaware is evaluating for adoption as it may have the potential to further reduce VOC emissions from this category in the future.
Industrial Surface Coatings		96.99	This source category is covered under Section 1 of 7 DE Admin. Code 1141 and several sections of 7 DE Admin Code 1124.	Delaware's SIP represents the current level of technology for this source category.  Additional regulation of this category is not feasible at this time.

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Graphic Arts		65.63	<p>Printing operations are a source of VOC emissions due to the volatile organic content of inks and thinners used in the industry. It is estimated that, on average, half of the graphic arts establishments are in-house printing services in non-printing industries. The remaining establishments are located at businesses whose main function is printing or graphic arts. Large printing operations with VOC emissions of 10 TPY or more are included in the point source inventory.</p> <p>All sources with maximum theoretical emissions equal to or greater than 7.7 TPY are subject to the CTG based requirements in Section 37 of 7 DE Admin Code 1124 (VOC RACT).</p> <p>Offset lithographic and letterpress emission sources with maximum theoretical emissions equal to or greater than 15 pounds per day are subject to the CTG based requirements in Section 47 of 7 DE Admin Code 1124 (VOC RACT).</p> <p>This is a plastics material and resin manufacturing facility.</p> <p>NOx emissions are from a 30 and a 40 mmBTU/hr boiler, subject to annual tune-up requirements to minimize NOx emissions under 7 DE Admin Code 1112 (NOx RACT).</p> <p>VOC emissions are from various storage tanks and reactors that are controlled by primary and secondary thermal oxidizers, with scrubbers under 7 DE Admin Code 1124 (VOC RACT) and federal NESHAP requirements.</p>	<p>Delaware's SIP currently contains the most stringent identified provisions feasible at this point (i.e., those of the most recent EPA CTGs).</p>
Formosa Plastics Corporation	33.19	32.37		<p>SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil and gas fired boilers.</p> <ul style="list-style-type: none"> <li>The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$5,960 per incremental ton of NOx reduction to \$20,940 per incremental ton of NOx reduction to achieve an overall reduction of 40% in NOx emissions.</li> <li>The estimated cost effectiveness for retrofit of SCR on these boilers ranges from \$13,020 per incremental ton of NOx reduction to \$17,110 per incremental ton of NOx reduction to achieve an overall reduction of 80% in NOx emissions.</li> </ul> <p>No control measures to further reduce VOC emissions from this facility have been identified(1)</p> <p>No control measures to further reduce emission from this category have been identified.</p> <p>No feasible control measures to further reduce emission from this facility have been identified.</p>
Gas Marketing - Aviation		53.35	<p>Stage I emissions are controlled by vapor balancing under Section 26 of 7 DE Admin. Code 1124 (VOC RACT).</p>	
Diamond State Port Corporation - Port Of Wilmington		50.97	<p>This facility is a commercial and industrial port.</p> <p>The VOC emissions come from the use of methylene bromide, which is used as a fumigant on produce brought into the port.</p>	
Ameresco Delaware Energy-Southern	35.39	14.70	<p>Emissions come from five 1 MW landfill-gas fired RICE-powered, non-emergency generators. The generators are subject to 7 DE Admin Code 1144 and 40CFR60, Subpart JJJJ.</p>	<p>No control measures to further reduce emission from this facility have been identified.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Ameresco Delaware Energy-Central	32.66	13.98	Emissions come from five 1 MW landfill-gas fired RICE-powered, non-emergency generators. The generators are subject to 7 DE Admin Code 1114 and 40CFR60, Subpart JJJ.	No control measures to further reduce emission from this facility have been identified.
Dover Air Force Base	23.23	22.57	This facility is a U.S. Air Force Base. NOx and VOC emissions are from natural gas boilers or the testing of numerous diesel-fired emergency generators (7 DE Admin. Code 1112 NOx RACT, and 7 DE Admin, Code 1144 for stationary generators).	SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil and gas fired boilers.  The estimated cost effectiveness for retrofit of SNCR or SCR on these boilers ranges from \$44,890 per incremental ton of NOx reduction to \$59,470 per incremental ton of NOx reduction to achieve an overall reduction between 18% to 59% in NOx emissions. (about 1.0 to 3.4 tpy NOx reduced)  SCR is a technically feasible post-combustion NOx reduction technology applicable to stationary generators. The cost to control NOX for an emergency generator varies between \$128,100 to \$205,000 per ton of NOx reduced. (2) (3)
O S G Ship Management Inc	0.07	43.97	This "facility" is a lightering operation which operates in the middle of the Delaware Bay, for the transfer of various petroleum products from one ship to another.  The VOC emissions are controlled via a vapor lock balance recovery system during the lightering operation, and is subject to 7 DE Admin. Code 1124, Section 46.	No control measures to further reduce emission from this facility have been identified.

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
McKee Run Generating Station	42.12	1.54	<p>This facility is a power plant that consists of three gas/oil fired EGUs.</p> <p>These three units are controlled with low NOx burners installed pursuant to 7 DE Admin. Code 1112 (NOx RACT), with Unit 3 (the largest unit) also being controlled with overfire air. These units each have a permit required short term NOx emission rate limits with a 24-hr averaging period, and collectively have a 24-hour mass emission limit.</p> <p>As a result of 7 DE Admin. Code 1146, all three McKee Run units were converted from residual oil primary fuel to natural gas primary fuel with No. 2 oil backup</p>	<p>SCR is the most effective commercially available NOx reduction technology commercially available for oil and gas fired electric generating unit boilers such as the three units at McKee Run.</p> <p>For Unit 1 the estimated cost effectiveness is \$135,950 per incremental ton of NOx reduction, for Unit 2 the estimated cost effectiveness is \$161,560 per incremental ton of NOx reduction, and for Unit 3 the estimated cost effectiveness is \$41,870 per incremental ton of NOx reduction. For each of these units, the retrofit of SCR would be expected to achieve an 80% reduction in NOx emissions (34 TPY based on actual 2014 data).</p> <p>SNCR is another commercially available, technically feasible retrofit NOx reduction technology for oil and gas fired boilers such as the three units at the McKee Run facility. For Unit 1 the estimated cost effectiveness is \$82,340 per incremental ton of NOx reduction, for Unit 2 the estimated cost effectiveness is \$99,890 per incremental ton of NOx reduction, and for Unit 3 the estimated cost effectiveness is \$26,800 per incremental ton of NOx reduction. For each of the three units, the retrofit of SNCR would be expected to achieve a 40% reduction in NOx emissions (17 TPY based on actual 2014 data).(1)</p> <p>Further regulation of this category is not feasible by the State of Delaware.</p>
Other Combustion	19.95	22.17	<p>Other combustion includes emissions from crematories, fire fighting training, motor vehicle fires, residential grilling, and structure fires. Crematory emissions are regulated 7 DE Admin Code 1107, while fire fighting training to burn structures is regulated by 7 DE Admin Code 1113.</p> <p>The other sources of combustion are not regulated in Delaware's SIP.</p>	
Garrison Energy Center	*40.30	*1.54	<p>This facility is a power plant that consists of one combined cycle gas fired (oil backup) EGU, which began operation in 2015.</p> <p>The EGU is subject to 7 DE Admin. Code 1125 (NOx LAER plus offsets) and 40CFR60, Subpart KKK, is controlled via SCR, and has NOx limits of 2 to 6ppm, 1-hour average, depending on fuel and firing mode.</p>	<p>SCR is the most effective commercially available NOx emission control technology commercially available for combustion turbine and combined cycle electric generating units such as that installed at the Garrison Energy Center.</p>
Commercial Cooking		33.76	<p>Not regulated in Delaware's SIP.</p>	<p>The only identified VOC controls in place with regards to commercial cooking are those affecting chain-driven charbroilers. Delaware estimates emissions from chain-driven charbroilers to be less than 5% its total commercial cooking VOC, i.e. a maximum of 1 tpy of controllable VOCs. A report by the Bay Area Air Quality Management District (April, 2007) says that costs for controls would be \$5,193/ton of VOC reduced.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Auto Refinishing		33.22	<p>Auto refinishing is the repairing of worn or damaged automobiles, light trucks, and other vehicles, and refers to any coating applications that occur subsequent to those at original equipment manufacturer (OEM) assembly plants (i.e., coating of new cars is not included in this category). The majority of these operations occur at small body shops that repair and refinish automobiles. This category covers solvent emissions from the refinishing of automobiles, including paint solvents, thinning solvents, and solvents used for surface preparation and cleanup.</p> <p>Autobody refinishing is regulated under Section 11 of 7 DE Admin Code 1124. This source category has undergone three rounds of regulation in Delaware since 1990 (i.e., 1st CTG RACT, then OTC Model Rule 1 in 2002, and now OTC Model Rule 2 which had a compliance date of 10/11/2010).</p> <p>This facility is an on-site acid regeneration plant that supports the DE City Refinery's sulfuric acid regeneration needs. It also recovers part of the refinery's acid gas production as sulfuric acid.</p> <p>The NOX emissions come from the sulfuric acid regeneration plant and a 49mmBTU/hr process heater.</p>	<p>Delaware's SIP represents the current level of technology for this source category.</p>
Veolia - Red Lion Plant	30.88	2.18	<p>This facility is a university.</p> <p>The facilities NOx emissions come from multiple boilers, those between 50 and 100 mmBTU/hr are subject to 7 DE Admin. Code 1112 (NOx RACT) and are controlled with low NOx burners, and/or flue gas recirculation, while those less than 50 mmBTU/hr are subject to 7 DE Admin. Code 1112 (NOx RACT) and are subject to annual tune-up requirements. The facility also has multiple diesel-fired and natural-gas fired emergency generators, which are subject to 7 DE Admin. Code 1144, and 40CFR60, Subpart IIII or Subpart JJJ, respectively.</p>	<p>No feasible control measures to further reduce emission from this facility have been identified.</p>
University Of Delaware Newark	30.28	2.49	<p>This facility is a tank farm which stores fuel, but does not manufacture or sell the fuel.</p> <p>VOC emissions are regulated under 7 DE Admin Code 1112 (VOC RACT), 7 DE Admin. Code 1124 Section 31, and 40 CFR Part 60 Subpart Kb, and are supplementally controlled via a vapor recovery unit.</p>	<p>SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil and gas fired boilers.</p> <p>The estimated cost effectiveness for retrofit of SNCR or SCR on these boilers ranges from \$6,820 per incremental ton of NOx reduction to \$688,340 per incremental ton of NOx reduction to achieve an overall reduction between 41% to 88% in NOx emissions (about 0.19 to 4.0 tpy NOx reduced).</p> <p>SCR is a technically feasible post-combustion NOx reduction technology applicable to stationary generators. The cost to control NOx for an emergency generator varies between \$128,100 to \$205,000 per ton of NOx reduced. (2) (3)</p>
Magellan Terminals Holdings, L.P.	1.81	30.25		<p>No feasible control measures to further reduce emission from this source have been identified.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Croda Inc.	25.38	6.27	<p>NOx emissions are from a 75mmBTU/hr and a 115mmBTU/hr boiler, both equipped with low NOx burners/low excess air technology pursuant to 7 DE Admin. Code 1112 (NOx RACT).</p> <p>NOx emissions also come from two 1 MW landfill-gas fired RICE-powered, non-emergency generators, and an 84 mmBTU/hr boiler, primarily fired on landfill gas. The generators are subject to 7 DE Admin Code 1144 and 40CFR60, Subpart JJJJ, while the boiler is also controlled by 7 DE Admin. Code 1112 (NOx RACT).</p> <p>In addition, NOx from this facility are covered under a NSR PAL.</p>	<p>SNCR and SCR are technically <b>feasible</b> post-combustion NOx reduction technologies applicable to gas and oil fired boilers.</p> <ul style="list-style-type: none"> <li>The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$74,480 per incremental ton of NOx reduction to \$111,940 per incremental ton of NOx reduction to achieve an overall reduction of 40% in NOx emissions.</li> <li>The estimated cost effectiveness for retrofit of SCR on these boilers ranges from \$402,890 per incremental ton of NOx reduction to \$599,540 per incremental ton of NOx reduction to achieve an overall reduction of 70% in NOx emissions.</li> </ul> <p>Given that these units are already controlled, and that emissions are projected to be low in the future, additional control beyond RACT is not warranted in the context of CAA 110(a)(2)(D)(i)(I)(1).</p> <p>No control measures to further reduce emission from this facility have been identified.</p>
FMC Health And Nutrition	27.15	4.14	<p>NOx emissions from two 25 mmBTU/hr boilers and three small spray dryers.</p> <p>Annual tune-ups to minimize NOx emissions on all NOx emitting units is required by 7 DE Admin. Code 1112 (NOx RACT).</p> <p>This facility is a chemical manufacturing company.</p>	<p>No control measures to further reduce emission from this facility have been identified, as they are already meeting very stringent NOx limits.</p>
BASF Colors & Effects, Newport	10.31	20.53	<p>NOx emissions are from two 123 mmBTU/hr boilers subject to RACT under 7 DE Admin Code 1112 (NOx RACT), and are each subject to 0.015 lb./MM Btu, 24-hour rolling NOx average permit limits.</p> <p>VOC emissions are from numerous chemical manufacturing processes which are subject to 40CFR63, Subpart FFFF, and are controlled via a thermal oxidizer.</p>	<p>No control measures to further reduce emission from this facility have been identified.</p>
Printpack Inc	2.77	26.32	<p>The emissions from the facility are from seven flexographic printing presses, a photopolymer plate making system, and automatic parts washer, and a waste solvent tank. Emissions are controlled by a regenerative thermal oxidizer operated pursuant to 7 DE Admin. Code 1124 (VOC RACT).</p>	<p>No control measures to further reduce emission from this facility have been identified.</p>
Open Burning	7.81	19.21	<p>Open burning is restricted under 7 DE Admin. Code 1113.</p>	<p>The limited burning allowed under 1113 is substantially limited to outside the ozone season. Additional controls are not feasible.</p>

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
NRG Energy Center Dover	21.98	4.16	The coal fired cogeneration boiler was shut down in 2015 and replaced with a heat recovery boiler. The two turbines are still on site, although one has been converted to combined cycle operation.  All units are subject to RACT under 7 DE Admin Code 1112 (NOX RACT), and PTE limits under 7 DE Admin. Code 1125. The combustion turbines are subject to NSPS under 7 DE Admin Code 1120 and 40 CFR Part 60 Subpart GG, and a NOx limit of 2.5 ppmvd for the repowered combined cycle unit.	SCR is a technically feasible post-combustion NOx reduction technology applicable to oil and gas fired combustion turbines.  The estimated cost effectiveness for retrofit SCR for the one combustion turbine is approximately \$39,551 per incremental ton of NOx reduction achieve an overall reduction of about 88% in NOx emissions. (about 8.8 tpy NOx reduced)  Additional controls are not feasible for the combined cycle combustion turbine as SCR is the most effective commercially available NOx emission control technology commercially available for combustion turbines and combined cycle electric generating units. (4)  The combustion turbines' NOx emissions are controlled via SCR. The combustion turbines' VOC emissions are uncontrolled, but are erroneously high in the 2014 NEI due to incorrect emissions factors used by the facility (20 times higher than AP-42 values). If not for this mistake, the facility would not be included in the top 99% of VOC emitters in DE.  Additional controls are not feasible as SCR is the most effective commercially available NOx emission control technology commercially available for combustion turbine.
Warren F Beasley Power Station	3.71	21.65	Emissions are from two combustion turbines.  All units are subject to RACT under 7 DE Admin Code 1112 (NOX RACT), and PTE limits under 7 DE Admin. Code 1125. The combustion turbines are subject to NSPS under 7 DE Admin Code 1120 and 40 CFR Part 60 Subpart GG.	No control measures to further reduce emission from this facility have been identified.
Hirsh Industries	1.84	22.75	Subject to Section 19 of 7 DE Admin. Code 1124, which is based on the most recent EPA CTG.	No feasible control measures to further reduce emission from this facility have been identified.
Delaware City Sales Terminal	0.07	21.90	VOC emissions are regulated under 7 DE Admin Code 24 (VOC RACT).	The facility is now shutdown.
Sunoco Logistics Marcus Hook Industrial Complex	6.03	13.96	This facility was subject to 7 DE Admin. Code 1112 (NOX RACT) and 1124 (VOC RACT). It was subject to beyond-RACT NOx control under Section 1 of 7 DE Admin. Code 1142.	No feasible control measures to further reduce emission from this source have been identified.
Medal A Division Of Air Liquide	1.06	18.32	The facility is a synthetic fibers manufacturing company.  Its VOC emissions come from the manufacturing of the fibers, and are regulated under 7 DE Code 1124, Section 50, and are controlled via the use of a thermal oxidizer.	This category is currently regulated at the level of <b>demonstrated technology</b> .  This facility is shutting down operation as of June 2018.
Traffic Markings		17.78	Traffic Marking coatings are regulated under Section 1 of 7 DE Admin. Code 1141.	
Perdue-Agriecycle LLC	15.06	0.11	This facility processes poultry manure into fertilizer pellets.  The NOX emissions are emitted from the the drying process of the manure.	

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
PS-5 LLC	14.20	0.81	This facility is a school/educational building. The facility's NOx emissions come from two 12.6 mmBTU/hr natural gas fired boilers.	SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil and gas fired boilers. The estimated cost effectiveness for retrofit of SNCR or SCR on these boilers ranges from \$12,220 per incremental ton of NOx reduction to \$35,690 per incremental ton of NOx reduction to achieve an overall reduction between 59% to 79% in NOx emissions. (about 3.2 to 4.3 tpy NOx reduced). (3)
Christiana Care Health Services - Christiana Hospital	13.82	0.78	This facility is a hospital, whose emissions come from a boiler and multiple diesel fired emergency generators.  The NOx emissions come from a 49mmBTU/hr natural gas fired boiler, which is subject to tuneup requirements of 7 DE Admin. Code 1112 (NOX RACT) and PTE limits under 7 DE Admin. Code 1125. The emergency generators are controlled by 7 DE Admin. Code 1144 and 40CFR60, Subpart III.	SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil and gas fired boilers.  • The estimated cost effectiveness for retrofit of SNCR or SCR on these boilers ranges from \$12,240 per incremental ton of NOx reduction to \$14,740 per incremental ton of NOx reduction to achieve an overall reduction between 59% to 79% in NOx emissions. (about 7.7 to 10.4 tpy NOx reduced)  SCR is a technically feasible post-combustion NOx reduction technology applicable to stationary generators.
Dupont Chestnut Run	11.08	3.34	48 mmbtu/hr boiler subject to annual tune-up to minimize NOx emission under 7 DE Admin Code 1112 (NOx RACT). 96 mmbtu/hr boiler equipped with low NOx burner and low excess air technology under 7 DE Admin Code 1112 (NOx RACT).  Vapor degreaser and other VOC emission points subject to 7 DE Admin Code 1124 (VOC RACT).	The cost to control NOX for an emergency generator varies between \$128,100 to \$205,000 per ton of NOx reduced. (2) (3)  SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil fired boilers.  • The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$3,470 per incremental ton of NOx reduction to \$7890 per incremental ton of NOx reduction to achieve an overall reduction of 40% in NOx emissions. • The estimated cost effectiveness for retrofit of SCR on these boilers ranges from \$11,360 per incremental ton of NOx reduction to \$16,770 per incremental ton of NOx reduction to achieve an overall reduction of 70% in NOx emissions.  Given that these units are already controlled, and that emissions are projected to be low in the future, additional control beyond RACT is not warranted in the context of CAA 110(a)(2)(D)(i)(I),(1)

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Alfred I. Dupont Hospital For Children	12.86	0.68	This facility is a hospital, whose emissions come from multiple boilers and diesel fired emergency generators.  The facility includes two 37 mmBtu/hr boilers and two 49 mmBtu/hr boilers, each of which are controlled via Low Nox Burners and Flue Gas Recirculation, and are subject to 7 DE Admin. Code 1112 (NOx Ract).  The multiple diesel fired emergency generators are subject to 7 DE Admin. Code 1144 and 40CFR60, Subpart IIII.	SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil and gas fired boilers.  The estimated cost effectiveness for retrofit of SNCR or SCR on these boilers ranges from \$38,080 per incremental ton of NOx reduction to \$113,740 per incremental ton of NOx reduction to achieve an overall reduction between 59% to 79% in NOx emissions (about 0.7 to 2.9 tpy NOx reduced)  SCR is a technically feasible post-combustion NOx reduction technology applicable to stationary generators.  The cost to control NOX for an emergency generator varies between \$128,100 to \$205,000 per ton of NOx reduced. (2) (3)
Eastern Shore Natural Gas - Bridgeville	10.36	0.73	This facility is a natural gas compressor station.  The facility's NOx emissions come from two 600hp, natural-gas fired reciprocating internal combustion engines, and are controlled with NSCR. The engines are subject to 40CFR60, Subpart JJJJ.	No control measures to further reduce emission from this facility have been identified.
JP Morgan Chase – Bear Christiana Road	9.79	0.52	This facility is a data center. Its NOx emissions are from 12 emergency generators, four of which have their emissions controlled by SCR. The generators are subject to 7 DE Admin. Code 1144 and 40CFR60, Subpart IIIII.	SCR is a technically feasible post-combustion NOx reduction technology applicable to stationary generators.  The cost to control NOX for an emergency generator varies between \$128,100 to \$205,000 per ton of NOx reduced. (2)
JP Morgan Chase - 4001 Gov Printz Blvd	8.90	0.47	This facility is a data center. Its NOx emissions are from 8 emergency generators. The generators are subject to 7 DE Admin. Code 1144 and 40CFR60, Subpart IIIII.	SCR is a technically feasible post-combustion NOx reduction technology applicable to stationary generators.  The cost to control NOX for an emergency generator varies between \$128,100 to \$205,000 per ton of NOx reduced. (2)
<b>Total - categories covering all 2014 NEI sources which emit more than 25 TPY of either NOX or VOC and which total the top 99% of DE's overall 2014 Anthropogenic Emissions</b>	<b>27,511.13</b>	<b>20,418.30</b>		

Category	2014 NOX	2014 VOC	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Total of the 98 other 2014 NEI facilities and source categories not included above	250.52	149.21	Many of these small sources are also controlled under the adequate measures in Delaware's SIP. This includes small sources covered by CTG and non-CTG RACT. This also includes many combustion turbines and diesel generators with very low TPY emissions, but with very high TPD emissions on days conducive to ozone formation. These units are regulated under 7 DE Admin. Code 1144 and 1148. Control of all units with significant emissions on days conducive to the formation of ozone is critical to compliance with CAA 110(a)(2)(D)(i)(I).	
<b>TOTAL DELAWARE ANTHROPOGENIC EMISSIONS</b>	<b>27,761.65</b>	<b>20,567.50</b>		

\* Garrison Energy Center did not come online until mid-2015. 2014 emissions are actually 2016 emissions, which is the first full year of emissions for the power plant.

- (1) Bureau of Labor Statistics Inflation Calculator ([https://www.bls.gov/data/inflation\\_calculator.htm](https://www.bls.gov/data/inflation_calculator.htm)) used to grow previous control costs from 2013 to 2018 US dollars.
- (2) Control costs for emergency generators obtained from CARB "Analysis of the Technical Feasibility and Costs of After-Treatment Controls on New Emergency Standby Engines" [https://www.arb.ca.gov/regact/2010/atcm/2010\\_atcmappb.pdf](https://www.arb.ca.gov/regact/2010/atcm/2010_atcmappb.pdf)
- (3) Control costs for boilers obtained from Bay Area Air Quality Management District's BACT/TBACT Workbook <http://www.baaqmd.gov/~media/Files/engineering/bact-tbact-workshop/appendix/cost-effectiveness-calculations-nov.pdf?la=en> and Jim Staudt's Presentation on "Cost of Emissions Control Technologies" [http://www.ladco.org/about/general/Emissions\\_Meeting/Staudt\\_032410.pdf](http://www.ladco.org/about/general/Emissions_Meeting/Staudt_032410.pdf)
- (4) Control costs for combustion turbines obtained from US Department of Energy "Cost Analysis of NOx Control Alternatives for Stationary Gas Turbines" [https://www.energy.gov/sites/prod/files/2013/11/f4/eas\\_turbines\\_nox\\_cost\\_analysis.pdf](https://www.energy.gov/sites/prod/files/2013/11/f4/eas_turbines_nox_cost_analysis.pdf)

