



STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL**

OFFICE OF THE
SECRETARY

89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: (302) 739-9000
FAX: (302) 739-6242

Secretary's Order No.: 2013-A-0006

RE: Approving Final Revision to Delaware's State Implementation Plan (SIP) for the Implementation, Maintenance and Enforcement of the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS), Pursuant to the Requirements of Section 110(a)(2)(A)-(M) of the Federal Clean Air Act (CAA)

Date of Issuance: March 7, 2013

Effective Date of the Amendment: April 11, 2013

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") the following findings, reasons and conclusions are entered as an Order of the Secretary in the above-referenced rulemaking proceeding.

Background and Procedural History

This Order considers the proposed revision to the Delaware State Implementation Plan (SIP) that addresses the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS). On March 12, 2008, the U.S. Environmental Protection Agency (EPA) revised the NAAQS for the pollutant ozone, at that time reducing the NAAQS from 0.08 parts per million (ppm) to 0.075 ppm. The federal CAA requires each State to submit to

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the EPA a SIP that provides for the implementation, maintenance, and enforcement of a newly promulgated or revised NAAQS.

The Department published its initial proposed revision to the aforementioned Delaware SIP in the July 1, 2012 *Delaware Register of Regulations*, and held a public hearing on August 2, 2012. Written comments on the proposed SIP were submitted to the public record by both the EPA and the State of New Jersey on August 2, 2012. The Department's Division of Air Quality (DAQ) responded fully to those written comments from EPA by adding some additional clarifying language to its initial proposed revision. DAQ provided the Hearing Officer with its Technical Response Document concerning its responses to EPA's comments, as well as providing the reasoning for the same, on January 22, 2013. Proper notice of the hearing was provided as required by law.

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 that initial approval, the Delaware SIP has been revised numerous times to address air quality non-attainment and maintenance issues. This was done by updating plans and inventories, and by adding new and revised regulatory control requirements. Delaware's SIP is compiled in the code of Federal Regulations at 40 C.F.R. Part 52, Subpart 1.

This EPA action is the revision of a NAAQS that has been in existence for many years. Because of this, Delaware's SIP already addresses the requirements of CAA, Section 110(a)(2) relative to ozone. In addition, Delaware has repeatedly regulated its

sources under the non-attainment provision of the CAA, and they are now well controlled. It is the Department's position that all of the CAA 100 requirements are already clearly addressed in Delaware's SIP.

The Department's presiding hearing officer, Lisa A. Vest, prepared a Hearing Officer's Report dated February 11, 2013 (Report). The Report recommends certain findings and the adoption of the proposed revision to Delaware's State Implementation Plan, which addresses the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS), as attached to the Report as Appendix A.

Findings and Discussion

I find that the proposed revision to Delaware's aforementioned SIP is well-supported by the record developed by the Department, and I adopt the Report to the extent it is consistent with this Order. The Department's experts developed the record and drafted the proposed SIP revision.

I find that the Department's experts in the Division of Air Quality fully developed the record to support adoption of the proposed revision to the Delaware State Implementation Plan (SIP) that addresses the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS). With the adoption of this Order, Delaware will once again demonstrate that the contingency requirements of the Clean Air Act (CAA) are met.

In conclusion, the following findings and conclusions are entered:

- 1.) The Department has jurisdiction under its statutory authority to issue an Order adopting this proposed SIP revision as final;

2.) The Department provided adequate public notice of the proposed SIP revision, and provided the public with an adequate opportunity to comment on the proposed SIP revision, including at the public hearing held on August 2, 2012;

3.) The Department held a public hearing on August 2, 2012, in order to consider public comment before making any final decision;

4.) The Department's Hearing Officer's Report, including its recommended record and the recommended SIP revision, as set forth in Appendix A, is adopted to provide additional reasons and findings for this Order;

5.) The recommended revision to Delaware's State Implementation Plan (SIP) which addresses the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour National Ambient Air Quality Standard (NAAQS) should be adopted as final, thereby enabling Delaware to (1) demonstrate that the contingency requirements of the Clean Air Act (CAA) are met; and (2) because the revision is well supported by documents in the record;

6.) The Department shall submit this Order approving the final revision to Delaware's State Implementation Plan (SIP) that addresses the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS) 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.



Collin P. O'Mara
Secretary

MEMORANDUM

TO: The Honorable Collin P. O'Mara
Cabinet Secretary, Dept. 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 Amendments to the Delaware State Implementation Plan (SIP) for the Implementation, Maintenance and Enforcement of the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS), Pursuant to the Requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA)

DATE: February 11, 2013

I. Background:

A public hearing was held on Thursday, August 2, 2012, at 6:00 p.m. at the Department of Natural Resources and Environmental Control ("DNREC", "Department"), 89 Kings Highway, Dover, Delaware to receive comment on proposed revisions to the Delaware State Implementation Plan (SIP) that addresses the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS). On March 12, 2008, the U.S. Environmental Protection Agency (EPA) revised the NAAQS for the pollutant ozone, at that time reducing the NAAQS from 0.08 parts per million (ppm) to 0.075 ppm. The federal CAA requires each State to submit to the EPA a SIP that provides for the implementation, maintenance, and enforcement of a newly promulgated or revised 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 that initial approval, the Delaware SIP has been revised numerous times to address air quality non-attainment and maintenance issues. This was done by updating plans and inventories, and by adding new and revised regulatory control requirements. Delaware's SIP is compiled in the code of Federal Regulations at 40 C.F.R. Part 52, Subpart 1.

This EPA action is the revision of a NAAQS that has been in existence for many years. Because of this, Delaware's SIP already addresses the requirements of CAA, Section 110(a)(2) relative to ozone. In addition, Delaware has repeatedly regulated its sources under the non-attainment provision of the CAA, and they are now well controlled. It is the Department's position that all of the CAA 100 requirements are already clearly addressed in Delaware's SIP.

The Department published its initial proposed revision to the aforementioned Delaware SIP in the July 1, 2012 *Delaware Register of Regulations*, and held a public hearing on August 2, 2012. Written comments on the proposed SIP were submitted to the public record by both the EPA and the State of New Jersey on August 2, 2012. The Department's Division of Air Quality (DAQ) responded fully to those written comments from EPA by adding some additional clarifying language to its initial proposed revision. DAQ provided the Hearing Officer with its Technical Response Document concerning its responses to EPA's comments, as well as providing the reasoning for the same, on January 22, 2013. Proper notice of the hearing was provided as required by law.

II. Summary of Hearing Record:

At the time of the hearing on August 2, 2012, Ron Amirikian, Planning Branch Manager of the Department's Division of Air Quality ("DAQ") offered the Department's eight (8) exhibits pertaining to these proposed amendments, and this Hearing Officer entered them into the formal hearing record developed in this matter. Included within those Departmental exhibits were copies of the legal notices regarding the holding of the aforementioned public hearing, a copy of the Register Notice as it appeared in Delaware's *Register of Regulations* on August 1, 2012, a copy of the EPA's Final Rule lowering the 8-Hour Ozone NAAQS from 0.08ppm to 0.075 ppm, and copies of the actual proposed amendments to the affected sections of Delaware's State Implementation Plan (SIP) for the requirements of Section 110(a)(2)(A)-(M) of the federal Clean Air Act (CAA) for the 2008 8-Hour National Ambient Air Quality Standard (NAAQS).

Mr. Amirikian then gave a brief summary of the history behind this proposed revision. On January 17, 2012, Delaware submitted to the EPA a letter which constituted Delaware's determination and justification that it has complied with the requirements of Section 110(a)(2) of the CAA with respect to the 0.075 ppm ozone NAAQS. This letter indicated that:

Delaware has reviewed its SIP and determined that all elements required in CAA §110(a)(2) for the 0.075 ppm ozone NAAQS have been met through earlier SIP submissions in connection with previous ozone standards. Discussion of each CAA §110(a)(2) element was specifically addressed in formal submittals to the EPA dated December 13, 2007, and September 16, 2009. These prior submittals addressed the §110(a)(2) requirements for the 1997 8-Hour NAAQS, and Delaware believes that no changes are needed for Delaware to implement and enforce the revised 2008 ozone NAAQS. This letter confirms and certifies that Delaware's current SIP is adequate to address all applicable CAA §110(a)(2) requirements for the 0.075 ppm ozone NAAQS.

On March 29, 2012, the EPA returned Delaware's January 17, 2012 letter as "incomplete" for two reasons. First, EPA noted that Delaware's submittal did not include documentation to show that it had gone through the notice and hearing requirements of 40 CFR Part 51, Appendix V. Second, EPA indicated that the submittal was incomplete regarding a "negative declaration" related to 110(a)(2)(D)(i)(I) because "EPA would expect a demonstration that contains information supporting a claim that a state does not significantly contribute or interfere with maintenance of the 2008 Ozone NAAQS in other states".

The purpose of this proposed SIP revision is to fulfill the requirements of CAA 110(a)(2) relative to the 2008 Ozone NAAQS, and to address the two EPA comments identified above, to wit: (1) that Delaware must provide for public notice, pursuant to 40 CFR Part 51, Appendix V; and (2) that EPA would expect a demonstration that contains information supporting a claim that a state does not significantly contribute or interfere with maintenance of the 2007 ozone NAAQS in other states. Delaware is making this submission in absence of any published EPA guidance, and is therefore relying upon existing guidance and past practices, as well as what Delaware believes to be a rational approach. The Department notes that, while it has determined that emissions occurring from within Delaware are now well controlled and do not significantly contribute or interfere with maintenance of the 2008 ozone NAAQS in any other state. Conversely, Delaware and EPA agree that Delaware's ozone air quality problems are primarily caused by emissions from outside of Delaware. Delaware encourages EPA to use this proposed SIP document as a template when formulating its guidance and require other states to submit similar analysis.

On the date of the aforementioned public hearing regarding the Department's proposed SIP revision, written comments were received by DNREC from both the EPA (i.e., the August 2, 2012 letter signed by Diana Esher) and from the State of New Jersey (i.e., the August 2, 2012 letter signed by William O'Sullivan). After an exhaustive review of these written comments, the Department's Division of Air Quality (DAQ) provided this Hearing Officer with a Technical Response Memorandum dated January 22, 2013, which offered thorough and complete responses to said written comments. DAQ's Response Document encompasses the full range of comment contained in the record, including those from both the EPA and from the State of New Jersey. Each comment was provided a thorough and rational discussion of the issue based on the record, and was accompanied by the DAQ's recommendation as to how each of these issues should be resolved. In response to some of the comments received, minor amendments were made to the initial proposed SIP revision, to reflect existing realities and/or to clarify wording contained within the SIP document. None of the changes were deemed sufficient to require another hearing.

DAQ's Technical Response Memorandum ("TRM") does an excellent job of identifying all of the relevant issues and discussing them in a thorough and balanced manner, accurately reflecting the information contained in the record. Therefore, for the Secretary's review, and in order for the Secretary to gain a thorough understanding of this proposed promulgation, copies of the above-referenced *amended* proposed revisions to Delaware's State Implementation Plan (SIP) for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS) are hereby expressly incorporated into this Hearing Officer's Report and attached hereto as Appendix "A" for that purpose.

Additionally, a copy of DAQ's above-referenced TRM is attached hereto as Appendix "B", and the same is expressly incorporated into this Hearing Officer's Report as well.

It should be noted that the Department adhered to all appropriate Delaware statutes and the regulatory development process in this matter, and that the Department has met the required public notice obligations regarding these proposed amendments. It should also be noted that the Department has reviewed this proposed amendment in the light of the Regulatory Flexibility Act, and believes the same to be lawful, feasible and desirable, and that the recommendations as proposed should be applicable to all Delaware citizens equally.

III. Conclusions and Recommendations:

Based on the record developed in this matter, I conclude that the Department has provided appropriate reasoning regarding the need for this proposed revision to Delaware's State Implementation Plan. Accordingly, I recommend promulgation of these proposed *revised* amendments in the customary manner provided by law.

Further, I recommend the following findings:

1. The Department has jurisdiction under its statutory authority, 7 Del.C., Chapter 60, to make a determination in this proceeding;
2. The Department provided adequate public notice of the proceeding and the public hearing in a manner required by the law and regulations;
3. The Department held a public hearing in a manner required by the law and regulations;
4. The Department has reviewed the aforementioned proposed amendments in the light of the Regulatory Flexibility Act, and believes the same to be lawful,

feasible and desirable, and that the recommendations as proposed should be applicable to all Delaware citizens equally;

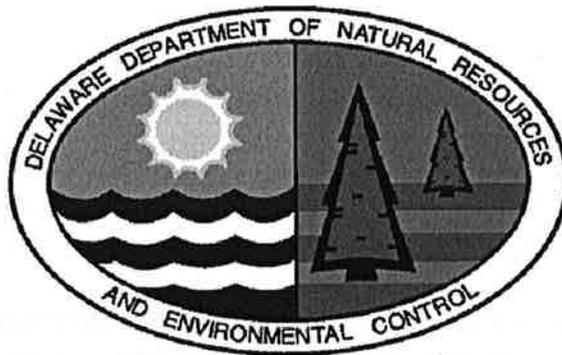
5. The aforementioned proposed amendments to Delaware's SIP for the 2008 8-Hour Ozone National Ambient Air Quality Standard (NAAQS) will enable Delaware to demonstrate that the contingency requirements Section 110(a)(2)(A)-(M) of the Clean Air Act (CAA) are met;
6. The Department has an adequate record for its decision, and no further public hearing is appropriate or necessary;
7. The Department's revisions to proposed amendments to Delaware's aforementioned SIP, as published in the July 1, 2012 *Delaware Register of Regulations* and set forth within Appendix "A" hereto, are adequately supported, not arbitrary or capricious, and are consistent with the applicable laws and regulations. Consequently, they should be approved as a final regulation, which shall go into effect ten days after their publication in the next available issue of the *Delaware Register of Regulations*; and
8. The Department shall submit the proposed regulation amendments as final to the *Delaware Register of Regulations* for publication in its next available issue, and shall provide written notice to the persons affected by the Order.



LISA A. VEST
Public Hearing Officer

APPENDIX "A"

Implementation, Maintenance,
And Enforcement of
National Ambient Air Quality Standards



Revision to
State Implementation Plan for Ozone

~~June 12~~ January 22, 2013

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

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Attachment A January 17, 2012 letter from Collin O'Mara to Shawn Garvin, certifying that Delaware has met all CAA § 110(a)(2)

Attachment B March 29, 2012 letter from Diana Esher to Ali Mirzakhali, returning Delaware's January 17, 2012 letter as incomplete

Attachment C Delaware's December 13, 2007 SIP Revision, "***State Implementation Plan Revision for Ozone, Fine Particulate Matter (PM_{2.5}), and Visibility, December 13, 2007***"

Attachment D Delaware's September 16, 2009 SIP Revision, "***Amendment to the State Implementation Plan Revision for Ozone, Fine Particulate Matter (PM_{2.5}) NAAQS and Visibility (as submitted on December, 2007), August 28, 2009***"

1.0 Introduction and Background

A State Implementation Plan (“SIP”) is a state plan that identifies how that state will attain and maintain air quality that conforms to each primary and secondary National Ambient Air Quality Standard (“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 US Environmental Protection Agency (EPA) on May 31, 1972. Since this initial approval the Delaware SIP has been revised numerous times to address air quality non-attainment and maintenance issues. The revisions consisted of updated plans and inventories, and new and revised regulatory control requirements. Delaware’s SIP is compiled at 40 C.F.R. Part 52 Subpart I.

Clean Air Act (CAA) § 110(a)(1) and (2) requires states to submit to the EPA SIP revisions that provide for the implementation, maintenance, and enforcement of any new or revised NAAQS within three years following the promulgation of such NAAQS. On March 27, 2008, EPA promulgated a new NAAQS for the pollutant ozone. The level of the NAAQS was lowered from 0.08 parts per million (ppm) to 0.075 ppm, based on 8-hour average concentrations.¹

On January 17, 2012 Delaware submitted to the EPA a letter which constituted Delaware’s determination and justification that it has complied with the requirements of § 110 (a)(2) of the CAA with respect to the 0.075 ppm ozone NAAQS. This letter is incorporated here as Attachment A. This letter indicted that:

“Delaware has reviewed its SIP and determined that all elements required in CAA § 110(a)(2) for the 0.075 ppm ozone NAAQS have been met through earlier SIP submissions in connection with previous ozone standards. Discussion of each CAA § 110(a)(2) element was specifically addressed in formal submittals to the EPA dated December 13, 2007, and September 16, 2009. These prior submittals addressed the § 110(a)(2) requirements for the 1997 8-hour ozone NAAQS, and Delaware believes that no changes are needed for Delaware to implement and enforce the revised 2008 ozone NAAQS. This letter confirms and certifies that Delaware’s current SIP is adequate to address all applicable CAA§ 110(a)(2) requirements for the 0.075 ppm ozone NAAQS.”

This January 17, 2012 letter was based on an October 2, 2007 EPA document, “*Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 1997 8-hour Ozone and PM2.5 National Ambient Air Quality Standards.*” On March 29, 2012 the EPA returned Delaware’s January 17, 2012 letter as incomplete for two reasons. First, EPA noted that Delaware’s submittal did not include documentation to show that it had gone through the notice and hearing requirements of 40 CFR Part 51, Appendix V.² Second, EPA indicated that the submittal was

¹ 73 FR 16436, March 27, 2008. National Ambient Air Quality Standards for Ozone, Final Rule

² EPA has apparently abandoned their 2007 guidance, and is now requiring all submissions, including those where the current SIP is reviewed and certified as being adequate without change, be subject to the SIP revision requirements of 40 CFR Part 51, Appendix V.

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incomplete regarding a “negative declaration”³ related to 110(a)(2)(D)(i)(I) because “EPA would expect a demonstration that contains information supporting a claim that a state does not significantly contribute or interfere with maintenance of the 2008 ozone NAAQS in other states.” This letter is incorporated here as Attachment B.

This document is a revision to Delaware’s SIP. The purpose of this SIP revision is to address the two EPA comments identified above: 1) that Delaware must provide for public notice pursuant to 40 CFR Part 51, Appendix V, and 2) that EPA would expect a demonstration that contains information supporting a claim that a state does not significantly contribute or interfere with maintenance of the 2008 ozone NAAQS in other states.

Delaware is making this submission in absence of any published EPA guidance and is therefore relying on existing guidance and past practices as well as what Delaware believes to be a rational approach. Delaware encourages EPA to use this document as a template when formulating its guidance and require other states to submit similar analysis.

2.0 Certification that all CAA § 110(a)(2) Elements Have Been Met

Delaware has reviewed its SIP and determined that, except as noted below, all elements required in CAA § 110(a)(2) for the 0.075 ppm ozone NAAQS have been met through earlier SIP submissions in connection with previous ozone standards. Discussion of each CAA § 110(a)(2) element was specifically addressed in formal submittals to the EPA dated December 13, 2007, and September 16, 2009. These prior submittals addressed the § 110(a)(2) requirements for the 1997 8-hour ozone NAAQS, and Delaware believes that, except as noted below, no changes are needed for Delaware to implement and enforce the revised 2008 ozone NAAQS. Those documents are incorporated here again and submitted as attachments C and D. This SIP revision confirms and certifies that Delaware’s current SIP is adequate to address all applicable CAA § 110(a)(2) requirements for the 0.075 ppm ozone NAAQS.

- Delaware confirms that the visibility prong of 110(a)(2)(D)(i)(II) is met through Delaware’s fully approved visibility SIP. Delaware submitted this visibility SIP to the EPA on September 25, 2008 and it was fully approved by the EPA effective August 15, 2011 (reference 76 FR 42557, July 19, 2011).
- Clean Air Act (CAA) § 110(a)(2)(E)(ii) requires the SIP to provide “requirements that the State comply with the requirements respecting State boards under section 128 of this title.” CAA § 128, “State Boards,” requires any potential conflicts of interest by the head of an executive agency which approves permits or enforcement orders to be adequately disclosed. Delaware Secretary’s order 2012-A-0043, effective December 14, 2012, finalized a SIP document that satisfies CAA § 128 by including in the SIP applicable requirements of 29 Del. C., Ch. 58, “Laws Regulating the Conduct of Officers and

³ The term “negative declaration” is a term the EPA used in their March 29, 2012 letter. Delaware agrees that under no circumstances is a negative declaration appropriate relative to 110(a)(2)(D)(i)(I). For clarity, Delaware has, and is, basing its confirmation and certification that it has complied with 110(a)(2)(D)(i)(I) on the adequate provisions in its SIP.

Employees of the State.” This final document was submitted to the EPA as a SIP revision on January 11, 2013.

3.0 Demonstration of Adequate Provisions in SIP (CAA § 110(a)(2)(D)(i)(I))

Delaware has been non-attainment for the pollutant ozone since a standard was first established in 1971. Over the past 40 years Delaware has learned that transport is very significant relative to ozone, and that the only way to reduce ozone concentrations is to reduce the volatile organic compound (VOC) and nitrogen oxides (NO_x) emissions that are causing them. Over the last twenty years Delaware has adopted and implemented SIP provisions that cover all VOC and NO_x 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.⁴

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 on EPA’s Cross State Air Pollution Rule (CSAPR) modeling,⁵ the provisions in Delaware’s SIP were demonstrated by the EPA to be adequate provisions that satisfy CAA § 110(a)(2)(D)(i)(I) relative to the 0.08ppm ozone NAAQS. This SIP revision demonstrates that these same provisions in Delaware’s SIP also satisfy CAA § 110(a)(2)(D)(i)(I) for the 0.075 ppm ozone NAAQS. This demonstration was specifically requested by the EPA in its March 29, 2012 letter.

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

A periodic emissions inventory (PEI) is a comprehensive emissions inventory that quantifies the VOC and NO_x emission from every source or other type emitting activity within a State. PEIs are developed every three years, and 2008 is the year of Delaware’s most current (PEI). Delaware’s PEI encompasses all emissions that could violate CAA § 110(a)(2)(D)(i)(I) with respect to the ozone NAAQS.

Year 2008 NO_x emissions and VOC emissions were sorted from highest to lowest, and are summarized in Chart 1 and Chart 2. Many of Delaware’s VOC and NO_x control measures were not fully in effect in 2008. In order to demonstrate the effectiveness of Delaware’s control measures Chart 1 and Chart 2 also include corresponding 2014 projected NO_x and VOC

⁴ Delaware’s air quality remains unhealthy because other upwind States have not done the same.

⁵ 76 FR 48208, August 8, 2011. The Cross-State Air Pollution Rule, Final Rule

emissions from EPA's Cross State Air Pollution Rule (CSAPR) 2014 base case modeling inventory.⁶

Table 3-1 below details VOC and NOx emissions from Delaware's 2008 PEI and EPA's 2014 base case CSAPR inventory. Included in Table 3-1 is every Delaware stationary source/source category that emitted equal to or greater than 25 tons per year (TPY) of either VOC or NOx, and that made up the top 99% of Delaware's VOC and NOx inventory. Table 3-1 is generally sorted from the largest Delaware source/source category, to the smallest, based on the 2008 PEI. For each source or source category in Table 3-1 the current applicable Delaware control measures are discussed, along with any identified additional measures that could be adopted into Delaware's SIP.

Chart 3-1: Delaware 2008 PEI vs CSAPR 2014 NOx Emissions

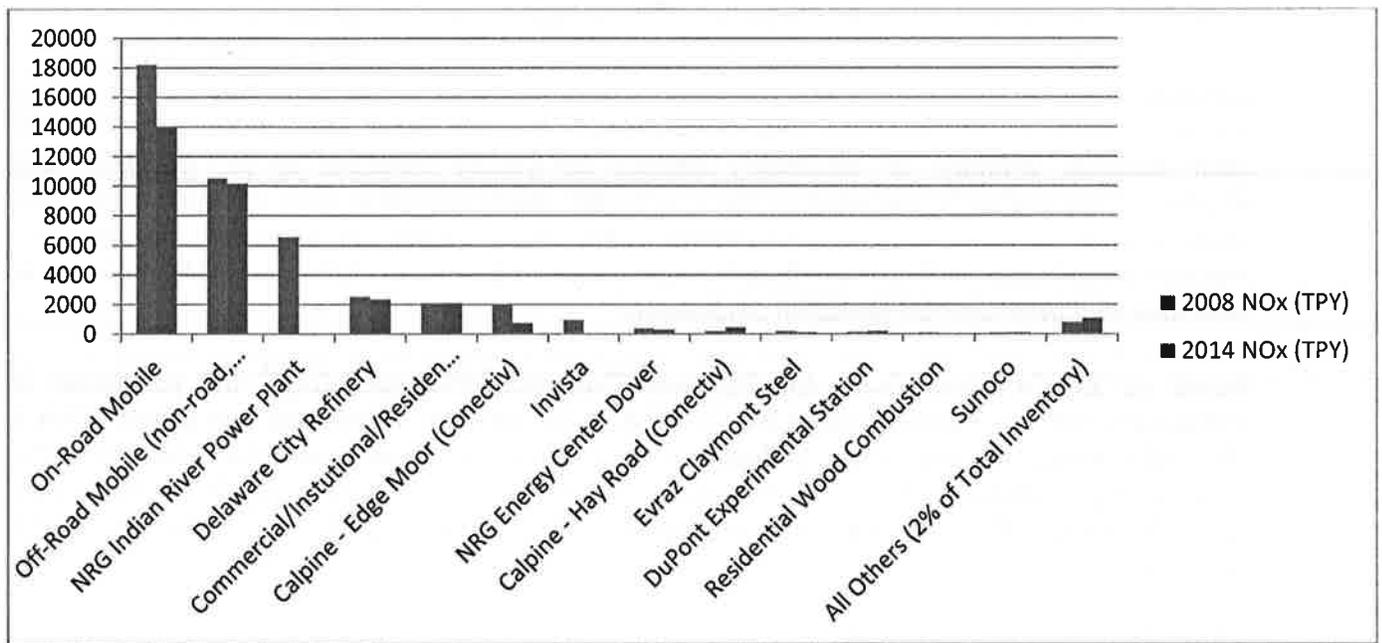


Chart 3-2: Delaware 2008 PEI vs CSAPR 2014 VOC Emissions

⁶ ftp://ftp.epa.gov/EmisInventory/2005v4_2/2014emis/

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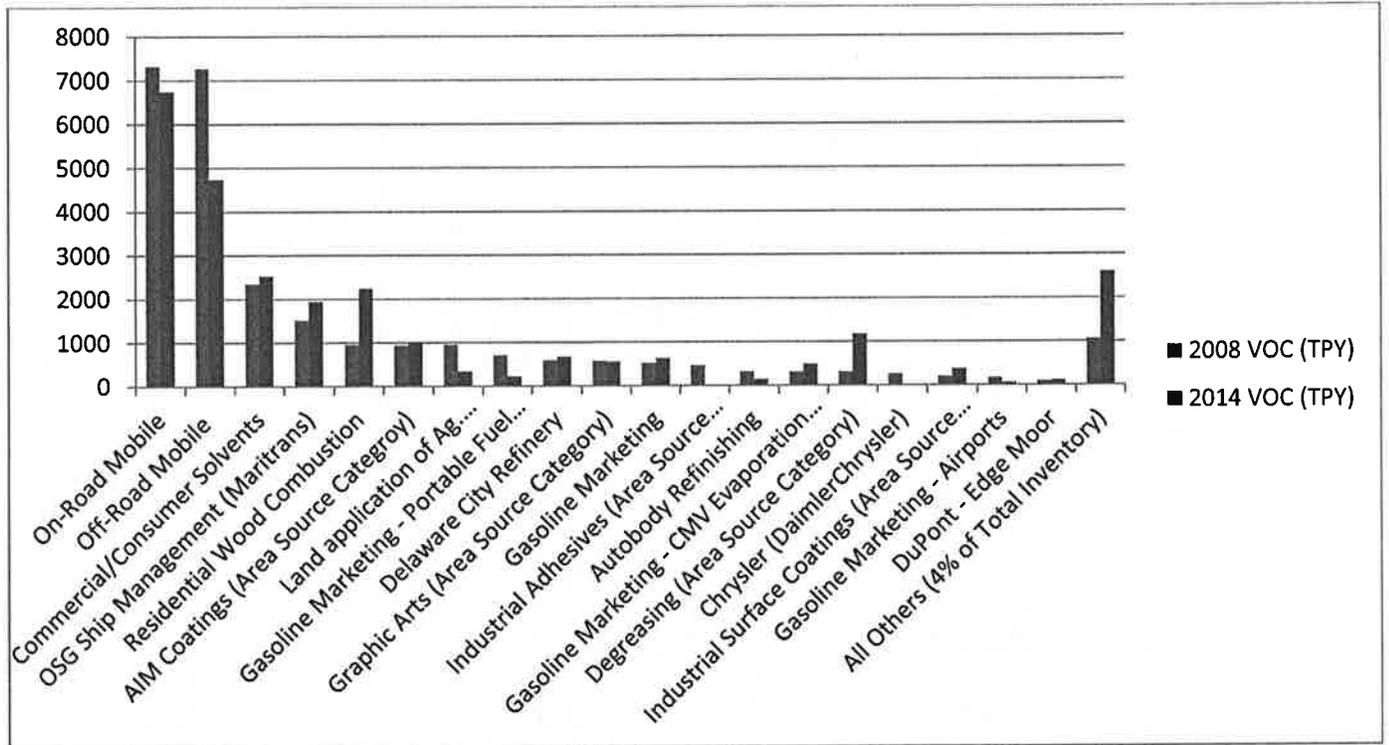


Table 3-1

FACILITY NAME/ Source Category	2008 DE Periodic Emission Inventory		2014 CSAPR Base Case Inventory		Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
	NOx (TPY)	VOC (TPY)	NOx (TPY)	VOC (TPY)		
On-Road Mobile 41% of 2008 NOx Inventory 27% of 2008 VOC Inventory	18206	7322	13959	6744	New vehicles must meet California vehicle emission standards (CA LEV 2) under 7 DE Admin. Code 1140. New and existing vehicles must be maintained under Delaware's vehicle Inspection and Maintenance program, 7 DE Admin. Code 1126 and 1131. Extended idling of heavy duty vehicles is prohibited under 7 DE Admin Code 1145. 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.	Delaware has no authority under the CAA to further regulate tailpipe emissions. The next level of control would be to upgrade Sussex County's Basic I/M program to the Low Enhanced I/M program that is implemented in Kent and New Castle County. Delaware estimates this could reduce NOx emission by up to 292 TPY and VOC by up to 255 TPY, at a cost of 5,317 \$/ton. 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.
Off-Road Mobile (non-road, commercial marine, aircraft, locomotive) 23% of 2008 NOx Inventory	10518	7268	10177	4738	These categories are subject to applicable federal measures only.	Delaware has limited authority under the CAA to regulate off-road mobile sources. Delaware, as part of the Ozone Transport Commission (OTC), is currently

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FACILITY NAME / Source Category	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures evaluating the feasibility of an off-road anti-idling regulation.
27% of 2008 VOC Inventory				<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>
<p>NRG Indian River Power Plant</p> <p>15% of 2008 NOx Inventory</p>	6579	0 ⁷	<p>Emissions are from four coal fired electric generating units (EGUs).</p> <p>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"> • Unit 2 was shutdown 5/2010 • Unit 1 was shutdown 5/2011 • Unit 3 is required to be shutdown in 12/2013, and in the interim has been controlled by installation of an SNCR system to supplement the existing low-NOx burners. <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.</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> <ul style="list-style-type: none"> • As Units 1 and 2 have already been shut down, there are no actions that could be taken to further reduce the NOx emissions from these two units. • With regards to Indian River Unit 3, SCR is the only commercially available technology capable of attaining additional NOx emission rate reductions beyond the capabilities of the currently installed NOx reduction technologies (low-NOx burners and SNCR). However, the amount of time involved in the engineering, procurement, installation, and startup of an SCR system for Unit 3 would exceed the

⁷ Emissions from this facility are low, but are anticipated to generally be greater than zero.

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<u>FACILITY NAME/ Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
			<p>Unit 4 will be the only remaining coal fired unit in Delaware upon full implementation of the control measures currently being implemented.</p>	<p>time available before the scheduled shutdown of the unit (18 month through December 2013). Therefore there are no additional NOx emission rate controls available to reduce the NOx emissions rate from this unit between the current date and the unit's scheduled shutdown.</p> <ul style="list-style-type: none"> 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>Delaware concludes that there are no additional economically and technologically feasible means of reducing the NOx emissions rate from these units.</p>

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<p>Delaware City Refinery</p> <p>6% of 2008 NOx Inventory</p> <p>2% of 2008 VOC Inventory</p>	<p>2525</p> <p>597</p>	<p>665</p> <p>2367⁸</p>	<p>The Delaware City Refinery is a petroleum refinery.</p> <p>NOx emissions are controlled under 7 DE Admin Code 1112 (NOx RACT), and also under a NOx cap/PAL 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 decreases to 1,650 TPY beginning 2015.</p> <p>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 DE Admin. 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 NO_x 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.</p> <p>The following information demonstrates the stringency of the facility-wide NOx cap:</p> <ul style="list-style-type: none"> • 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. • The initial 2,525 NOx cap is significantly less than annualized NOx SIP Call cap⁹, 3,333, which indicates that implementation of RACT and NSR at the refinery have resulted in the implementation of NOx controls at the refinery. • The 1,650 TPY NOx cap represents a 35% reduction beyond RACT limits (i.e., actual 2008 levels), and more

⁸ Note that the 2014 CSAPR projection is inflated because it exceeds the allowable refinery NOx CAP.

⁹ The referenced SIP revision includes a demonstration that the refinery emissions are uniform across the year, and regulation on a TPY basis and not on an ozone season basis is acceptable. Based on this the 1139 budgets were annualized by multiplying by 12/5.

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Commercial/Consumer	0	2345	Commercial and consumer products are	<p>than an additional 50% reduction below NOx SIP Call levels. In addition, all future growth at the refinery must occur under this NOx cap.</p> <p>Delaware concludes that it is not feasible to lower the NOx cap at this time, and that NOx emission 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><u>Delaware is a signatory state to a June 3, 2010 Memorandum of Understanding (MOU) that covers the evaluation and adoption of an Ozone Transport Commission (OTC) model rule that is designed to reduce VOC emissions from large above ground storage tanks. The agreed upon date in the MOU for signatory states to take action is January 1, 2014, or as soon as practicable thereafter.</u></p> <p><u>Delaware is now evaluating this OTC model rule and will propose to adopt any requirements that would significantly reduce VOC emissions from storage tanks by January 1, 2014.</u></p>
	0	2531	Commercial and consumer products are	Delaware's SIP currently contains the

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<p>Products</p> <p>9% of 2008 VOC Inventory</p>			<p>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>This category has undergone three rounds of regulation in Delaware. First under a 1998 National Rule (63 FR 48819), then under a more stringent 2002 Delaware regulation (Section 2.0 of 7 DE Admin. Code 1141) which was based on a OTC model rule, and finally, under an update to Section 2.0 of 7 DE Admin. Code 1141 which was based on a 2006 revised OTC model rule, and which had a 2009</p>	<p>most stringent provisions feasible at this point (i.e., those of the most recent OTC model rule adopted by any state).¹⁰</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.¹¹</p>

¹⁰ The OTC commissioners approved an updated consumer products model rule in May 2012. Delaware plans to propose an update to its regulations based on this model rule in the future

¹¹ Note that the OTR states are currently considering an update to their model rule. This is based on CARB 2006 amendments, plus potential increased benefit by adding paint thinner and multi-purpose solvents, and has the potential to reduce Delaware VOC emissions by 365 TPY.

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FACILITY NAME / Source Category	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
<p>Commercial/Institutional/ Residential Fuel Combustion (Area Source Category)</p> <p>5% of 2008 NOx Inventory</p>	<p>2113 95</p>	<p>105</p>	<p>The commercial/institutional fuel combustion category includes small boilers, furnaces, heaters, and other heating units too small to be considered point sources. 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</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"> 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 2012 NOx emissions by up to 60 TPY, at a cost of over \$36,701/ton. 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

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
<p>Calpine - Edge Moor (Connectiv) 4% of 2008 NOx Inventory</p>	<p>1980</p>	<p>752</p>	<p>excess air and low NO_x 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. 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>measure has the potential to reduce 2012 NOx emissions by up to 600 TPY, at a cost of more than \$30,577/ton.</p> <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.¹²</p>
	<p>180</p>	<p>16</p>	<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</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 Calpine-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"> Unit 3: .The estimated incremental cost of reducing the NOx emission rate lower than the unit's 2011 annual average value (assuming a 10 year life, using the 2011 annual heat input, and using a 0.04 lb/MMBTU attainable NOx emissions rate basement) is \$26,348 per incremental ton of NOx reduced. This would reduce mass emissions by 32% (37

¹² 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.

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
			<p>(formerly Conectiv) Edge Moor Electric Generating Station 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. Each of these units in 2011 had an average annual NOx emissions rate of less than 0.1 lb/MMBTU.</p> <p>Note that implementation of regulation 1146 is not reflected in the 2008 inventory, but appears to be reflected in the EPA CSAPR 2014 inventory.</p>	<p>TPY based on actual 2011 data).</p> <ul style="list-style-type: none"> Unit 4: The estimated incremental cost of reducing the NOx emission rate lower than the unit's 2011 annual average value (assuming a 10 year life, using the 2011 annual heat input, and using a 0.04 lb/MMBTU attainable NOx emissions rate basement) is \$10,145 per incremental ton of NOx reduced. This would reduce mass emissions by 57% (80 TPY based on actual 2011 data). Unit 5: The estimated incremental cost of reducing the NOx emission rate lower than the unit's 2011 annual average value (assuming a 10 year life, using the 2011 annual heat input, and using a 0.04 lb/MMBTU attainable NOx emissions rate basement) is \$37,277 per incremental ton of NOx reduced. This would reduce mass emissions by 57% (50 TPY based on actual 2011 data).
<p>OSG Ship Management <i>6% of 2008 VOC Inventory</i></p>	<p>0</p>	<p>1522</p>	<p>Lightering emissions are controlled by vapor balancing under Section 46 of 7 DE Admin. Code 1124. Emission limitations are phased in between 2008 and 2012. In 2012 and beyond, lightering emissions are capped (i.e., all crude oil lightering emissions plus growth) at 43% of actual 2005 levels.</p>	<p>Feasible control technology was determined to be limited to vapor balance due to operation in the marine environment.</p> <p>Additional controls beyond vapor balancing are not feasible.</p>

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
Residential Wood Combustion <i>4% of 2008 VOC Inventory</i>	88	73	Lightering restricted on ozone action days. Vapor balance required on all transfers capable of vapor balancing. 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.
Invista <i>2% of 2008 NOx Inventory</i>	941	18	The Invista-Seafood facility includes two steam boilers. The first is a 94 MMBTU/hr package boiler firing pipeline natural gas or #2 fuel oil, utilizes flue gas recirculation for NOx control in compliance with 7 DE Admin Code 1112 and operates in compliance with its permitted NOx mass emissions limit of 39 tons/year and a permitted NOx emissions rate of 0.10 lb/MMBTU when firing natural gas and 0.11 lb/MMBTU when firing #2 fuel oil. The second is a 220 MMBTU/hr boiler firing pipeline natural gas or #2 fuel oil, utilizes layered NOx reduction technologies to meet the requirements of 7 DE Admin Code 1112 and 40 CFR Part 60 Subpart Db. The NOx reduction technologies utilized on this boiler are low NOx burners, flue gas recirculation, and SCR. with a permitted NOx mass emissions limit of 118	For the 94 MMBTU/hr package boiler, SCR is the most effective commercially available NOx reduction technology applicable to oil/gas fired boilers. The estimated incremental cost of reducing NOx emissions rate below the permitted NOx emissions rate of 0.10 lb/MMBTU (assuming 10 year life, permitted NOx annual mass emissions limit of 39 tons/year, permitted NOx emissions rate of 0.10 lb/MMBTU, and using a 0.04 lb/MMBTU attainable NOx emissions rate basement) is \$10,900 per ton of NOx reduced. For the 220 MMBTU/hr boiler SCR is the most effective NOx reduction technology applicable to oil/gas fired boilers. As this unit already incorporates SCR technology, there are no more effective NOx reduction technologies

¹³ Delaware cannot explain why this emission is projected to be so high in CSAPR inventories. 2014 emissions should remain on-par with 2008 levels.

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<p>Architectural and Industrial Maintenance (AIM) Coatings (Area Source Category)</p> <p>3% of 2008 VOC Inventory</p>	<p>0</p> <p>938</p>	<p>0</p> <p>1006</p>	<p>tons per year firing #2 fuel oil and 12 tons per year firing natural gas, and a permitted NCx emissions rate of 0.20 lb/MMBTU calculated on a 30 day rolling average</p> <p>Architectural surface coating operations consist of applying a thin layer of coating such as paint, 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</p>	<p>commercially available to further reduce the NOx emissions rate from this boiler</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)¹⁴.</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</p>

14 An update AIM model rule was approved by the OTC on June 3, 2010, which has not yet been adopted by any state. Delaware plans to propose an update to its regulations based on this model rule in the future.

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
			federal rule. The compliance date of this regulation was 1/1/2005.	Delaware to regulate this category further.
Land application of Ag. Herbicides/pesticides <i>3% of 2008 VOC Inventory</i>	0 853	0 343 ¹⁵	None.	Regulation of this category is not feasible by the State of Delaware. 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.
Gasoline Marketing - Portable Fuel Containers <i>3% of 2008 VOC Inventory</i>	0 712	0 224	Portable fuel containers are regulated nationally by the EPA under 40 CFR Part 59, Subpart F.	No control measures to further reduce emission from this category have been identified.
Graphic Arts (Area Source Category) <i>2% of 2008 VOC Inventory</i>	0 575	0 559	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	Delaware's SIP currently contains the most stringent identified provisions feasible at this point (i.e., those of the most recent EPA CTGs).

¹⁵ Delaware cannot explain why this emission is projected to be so low in CSAPR inventories. 2014 emissions should remain on-par with 2008 levels.

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FACILITY NAME / Source Category	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
			<p>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>Retail Gasoline Marketing</p> <ul style="list-style-type: none"> • Stage I Vapor Recovery • Stage II Vapor Recovery • Tank Breathing • Trucks in Transit 	<p>0</p>	<p>633</p>	<p>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).</p> <p>Stage II emissions (i.e., refueling of vehicles) are controlled by vapor balancing under Section 36 of 7 DE Admin. Code 1124 (VOC RACT).</p> <p>Gasoline tank breathing emissions are subject to annual leak testing and permitting requirements under Section 36 of 7 DE Admin. Code 1124 (VOC RACT)</p> <p>Gasoline tank truck emissions are subject to annual leak testing and permitting requirements under Section 27 of 7 DE Admin. Code 1124 (VOC RACT).</p>	<p>No control measures to further reduce emission from Tank Breathing, and trucks in transit have been identified.</p> <p>Additional reductions could be achieved by revising Stage I and Stage II requirements to California EVR requirements. This could reduce Delaware VOC emissions by up to 400 TPY, at a cost of \$7,640/ton.</p>

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Industrial Adhesives (Area Source Category) 2% of 2008 VOC Inventory	0	0	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 5/1/2009.	Delaware's SIP represents the current level of technology for this source category. Additional regulation of this category is not feasible at this time.
NRG Energy Center Dover	358	293	Emissions are from one cogeneration unit, and 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.	The owner operator has applied for a permit to repower the existing coal fired cogeneration boiler with a heat recovery boiler and convert one combustion turbine to combined cycle operation. When the first combustion turbine is converted to combined cycle, the unit will be subject to NSPS under 7 DE Admin Code 1120 and 40 CFR Part 60 Subpart Db. The owner operator has requested a permit NOx emissions limit of 2.5 ppmvd for the repowered, combined cycle unit.
Auto body Refinishing 1% of 2008 VOC Inventory	0	0	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	Additional controls are not feasible. Delaware's SIP represents the current level of technology for this source category.

16 Section 5 of 7 DE Admin. Code 1141 reduces VOC emission from this category by about 50%. It is not clear where the emissions from this category are reflected in the CSAPR inventory.

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Gasoline Marketing - CMV Evaporation Losses	0	0	<p>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 1/1/2012).</p> <p>Note that implementation of Delaware's 1/1/2012 regulation is not reflected in the 2008 inventory, but appears to be reflected in the EPA CSAPR 2014 inventory.</p> <p>Not regulated beyond any applicable federal measures.</p>	<p>No control measures to reduce emission from this category have been identified.</p>
Degreasing (Area Source Category) 1% of 2008 VOC Inventory	0	0	<p>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</p>	<p>A new OTC model rule was approved at the May 2012 OTC spring meeting. No state has yet adopted this rule. Delaware is evaluating for adoption as it may have the potential to further reduce VOC emissions from this category in the future.</p>

¹⁷ Delaware cannot explain why this emission is projected to be so high in CSAPR inventories. 2014 emissions should remain on-par with 2008 levels.

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FACILITY NAME / Source Category	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
			<p>vapor degreasers, or conveyORIZED degreasers.</p> <p>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.</p>	
<p>Chrysler (DaimlerChrysler) 1% of 2008 VOC Inventory</p>	<p>34</p>	<p>0</p>	<p>This facility was an automobile assembly plant.</p> <p>NOx and VOC emissions were subject to 7 DE Admin Code 1112 (NOx RACT) and 1124 (VOC RACT), and the facility was covered under a VOC/NOx PAL issued pursuant to 7 DE Admin Code 1125.</p>	<p>This facility is now shut-down.</p>
<p>Evraz Claymont Steel</p>	<p>190</p>	<p>133</p>	<p>This facility is now shutdown.</p> <p>This facility is a 500,000 TPY steel plate manufacture, with the main emission source being an electric arc furnace.</p> <p>NOx emissions from the EAF are limited by proper operation of the EAF (SIP approved alternate NOx RACT). VOC emissions are exempted from RACT.</p> <p>NOx emissions from the reheat furnace limited to 0.25 lb/mmBtu under 7 DE Admin Code 1112 (alternate NOx RACT).</p>	<p>No control measures to further reduce NOx or VOC emissions from an EAF have been identified.</p>
<p>Calpine - Hay Road (Connectiv) 1% of 2008 NOx</p>	<p>202</p>	<p>467</p>	<p>This facility is a power plant that consists of six combined cycle gas fired (oil backup) EGU's.</p>	<p>SCR is the most effective commercially available NOx emission control technology commercially available for combustion turbine and combined cycle</p>

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FACILITY NAME/ Source Category <i>Inventory</i>	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
			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).	electric generating units such as those installed at Hay Road. Hay Road units 5, 6 and 7 already incorporate SCR. 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 2011 annual heat input, it is estimated that the incremental cost of reducing NOx for Hay Road units 1, 2, and 3 collectively is approximately \$8,800 per incremental ton of NOx reduced. This would reduce NOx mass emissions by approximately 72% (354 TPY based on actual 2011 data).
Industrial Surface Coatings (Area Source Category) <i>(1% of 2008 VOC Inventory)</i>	0	0	This source category is covered under Section 1 of 7 DE Admin. Code 1141 and several sections of CTG based 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.
Sunoco	83	108	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.	The facility is now shutdown.
Gasoline Marketing – Airports and Marinas	0	0	Stage I emissions are controlled by vapor balancing under Section 26 of 7 DE Admin.	No control measures to further reduce emission from this category have been

¹⁸ Because of 7 DE Admin Code 1141 and CTG based updates to 7 DE Admin Code 1124 that took effect post-2008, we would expect 2014 emissions to be lower than 2008 emissions for this category.

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
			Code 1124 (VOC RACT).	identified.
DuPont Experimental Station	156	184	NOx emissions are substantially from four oil fired 96 mmBTU/hr boilers. Each boiler is equipped with low NOx burner and low excess air technology under 7 DE Admin Code 1112 (NOx RACT).	<p>SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil fired boilers.</p> <ul style="list-style-type: none"> The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$2,070 per incremental ton of NOx reduction to \$7,270 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 \$5,290 per incremental ton of NOx reduction to \$6,925 per incremental ton of NOx reduction to achieve an overall reduction of 70% in NOx emissions.
DuPont - Edge Moor	32	35	NOx emissions are from small (<50 mmBTU/hr) combustion units, which are subject to annual tune-up requirements to minimize NOx under 7 DE Admin Code 1112 (NOx RACT). VOC emissions are subject to an 81% reduction under Section 50 of 7 DE Admin Code 1124 (VOC RACT).	No control measures to further reduce emission from this facility have been identified.
General Motors	25	56	This facility was an automobile assembly plant.	The facility is now shut down.

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FACILITY NAME / Source Category	2008 DE Periodic Emission Inventory		2014 CSAPR Base Case Inventory		Description of Control Measures in Delaware's SIP	Potential Additional Control Measures
Dover Air Force Base	39	31	48	67	<p>This facility was subject to 7 DE Admin. Code 1112 (NOx RACT) and 1124 (VOC RACT).</p> <p>This facility is a U.S. Air Force Base.</p> <p>VOC emissions from the facility have been reduce by more than 81% since 1990 under 7 DE Admin Code 1124 (VOC RACT). NOx emissions are primarily from four gas fired central heat plant boilers, which are controlled by low NOx burners installed pursuant to 7 DE Admin. Code 1112 (NOx RACT).</p>	<p>No feasible control measures to further reduce emission from this facility have been identified.</p>
Formosa Plastics	25	42	34	58	<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>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"> The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$5,540 per incremental ton of NOx reduction to \$19,450 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 \$12,100 per incremental ton of NOx reduction to \$15,900 per incremental ton of NOx reduction to achieve an overall reduction of 80% in NOx emissions. <p>No control measures to further reduce VOC emissions from this facility have</p>

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u> been identified
DSWA Southern Landfill	38	8	Landfill emissions are controlled by a gas collection system and flare pursuant to 40 CFR Part 62, Subpart I and Part 63, Subpart AAAA.	No control measures to further reduce emission from this facility have been identified.
Croda	49	2	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). In addition, NOx from this facility are covered under a NSR PAL.	<p>SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to gas and oil fired boilers.</p> <ul style="list-style-type: none"> The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$69,200 per incremental ton of NOx reduction to \$104,000 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 \$374,300 per incremental ton of NOx reduction to \$557,000 per incremental ton of NOx reduction to achieve an overall reduction of 70% in NOx emissions. <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).</p>

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>		<u>2014 CSAPR Base Case Inventory</u>		<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
Prescribed Fires	16	35	5	51	Open burning is restricted under 7 DE Admin. Code 1113.	The limited burning allowed under 1113 is substantially limited to outside the ozone season. Additional controls are not feasible.
Traffic Markings (Area Source Category)		48	0	100 ¹⁹	Section 1 of 7 DE Admin. Code 1141	This category is currently regulated at the level of demonstrated technology.
DuPont - Chestnut Run	45	2	51	3	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).	<p>SNCR and SCR are technically feasible post-combustion NOx reduction technologies applicable to oil fired boilers.</p> <ul style="list-style-type: none"> The estimated cost effectiveness for retrofit of SNCR on these boilers ranges from \$3220 per incremental ton of NOx reduction to \$7330 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 \$10,550 per incremental ton of NOx reduction to \$15,580 per incremental ton of NOx reduction to achieve an overall reduction of 70% in NOx emissions. <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).</p>
Printpack	2	42	6	104	The emissions from the facility are from	No control measures to further reduce

¹⁹ Delaware cannot explain why this emission is projected to increase in the CSAPR inventory. 2014 emissions should remain on-par with 2008 levels

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>	<u>2014 CSAPR Base Case Inventory</u>	<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
			<p>seven flexographic printing presses, a photopolymer plate making system, and automatic parts washer, and a waste solvent tank.</p> <p>Emissions are controlled by a regenerative thermal oxidizer operated pursuant to 7 DE Admin. Code 1124 (VOC RACT).</p> <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 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>emission from this facility have been identified.</p>
<p>City of Dover - McKee Run</p>	<p>33</p>	<p>0²⁰</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. For Unit 1 the estimated cost effectiveness is \$126,600 per incremental ton of NOx reduction, for Unit 2 the estimated cost effectiveness is \$150,100 per incremental ton of NOx reduction, and for Unit 3 the estimated cost effectiveness is \$38,900 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 (28 TPY based on actual 2011 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 \$76,500 per incremental ton of NOx reduction, for</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. For Unit 1 the estimated cost effectiveness is \$126,600 per incremental ton of NOx reduction, for Unit 2 the estimated cost effectiveness is \$150,100 per incremental ton of NOx reduction, and for Unit 3 the estimated cost effectiveness is \$38,900 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 (28 TPY based on actual 2011 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 \$76,500 per incremental ton of NOx reduction, for</p>

²⁰ Emissions from this facility are expected to be very low, but to generally be greater than zero.

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FACILITY NAME / Source Category	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP	Potential Additional Control Measures	
				Unit 2 the estimated cost effectiveness is \$92,800 per incremental ton of NOx reduction, and for Unit 3 the estimated cost effectiveness is \$24,900 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 (15 TPY based on actual 2011 data).	
Delaware City Terminal	0	33	VOC emissions are regulated under 7 DE Admin Code 1124 (VOC RACT).	No feasible control measures to further reduce emission from this source have been identified.	
Mountaire Farms - Millsboro	33	0	15	0.35	No control measures to further reduce emission from this facility have been identified.
Commercial Cooking (Area Source Category)	0	32	30		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.
FMC	30	1	0.003	0.042	No control measures to further reduce emission from this facility have been identified.

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<u>FACILITY NAME / Source Category</u>	<u>2008 DE Periodic Emission Inventory</u>		<u>2014 CSAPR Base Case Inventory</u>		<u>Description of Control Measures in Delaware's SIP</u>	<u>Potential Additional Control Measures</u>
Hirsh Industries	1	26	2	24	Subject to Section 19 of 7 DE Admin. Code 1124, which is based on the most recent EPA CTG.	No control measures to further reduce emission from this facility have been identified.
DSWA Cherry Island Landfill	1	24	4	57	Landfill emissions are controlled by a gas collection system and flare pursuant to 40 CFR Part 62, Subpart I and Part 63, Subpart AAA.	No control measures to further reduce emission from this facility have been identified.
Total - categories covering all 2008 PEI sources that emit more than 25 TPY of either VOC or NOx, and which total the top 99% of DE's overall 2008 Anthropogenic Emissions	44342	26550	30906	24899		
Total - all other 150+ 2008 PEI facilities and source categories not included above	418	347	823	1692	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	

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FACILITY NAME/ Source Category	2008 DE Periodic Emission Inventory	2014 CSAPR Base Case Inventory	Description of Control Measures in Delaware's SIP critical to compliance with CAA 110(a)(2)(D)(i)(D).	Potential Additional Control Measures
Total Anthropogenic Emissions (TPY)	44760	26897	31729	26591

The information in the Table 3-1 above demonstrates that Delaware's SIP includes measures that cover all non-trivial NOx and VOC sources in the State.

3.2 Implementation of the measures in Delaware's SIP have been effective, and have resulted in significant emissions reductions.

Delaware's adjusted²¹ 1990 base year SIP inventory emissions totaled 82,718 TPY, and 95,203 TPY for VOC and NOx, respectively. Delaware's 2005 PEI demonstrates that emissions were reduced to 30,626 TPY, and 45,250 TPY for VOC and NOx, respectively²². This reduction (i.e., a 63% reduction in VOC and 52% reduction in NOx) was largely attributable to Delaware's implementation of 7 DE Admin. Code 1125 (NSR), 7 DE Admin. Code 1112 (NOx RACT), and 7 DE Admin. Code 1124 (VOC RACT), 7 DE Admin. Code 1126 and 1136 (vehicle I/M) control measures.

Table 3-2

	1990 PEI	2005 PEI
NOx	95203	45250
VOC	82718	30626

While Delaware attained compliance with the 1-hour ozone NAAQS in 2005, it remained non-attainment for the 1997 8-hour ozone NAAQS. Between 2005 and 2009 Delaware adopted stringent control requirements applicable to its largest sources (e.g., EGUs, large ICI boilers, lightering). These control requirements generally incorporated phased-in compliance dates: a 2009 date to aid in attainment of the 1997 8-hour ozone NAAQS by the statutory deadline, and a later date, generally 2012/13, which was 1) looking forward to EPA finalization of a new 8-hour ozone NAAQS that was protective of public health²³, and 2) that resulted in each source/source category being well controlled. During this time period Delaware also updated its VOC RACT requirements and adopted regional measures to reduce emission from large area source categories (e.g., AIM, Consumer Products, etc.).

EPA's CSAPR projections give an indication of the effectiveness of Delaware's current SIP measures once fully implemented (i.e., after 2013). EPA developed base case projection inventories for 2012 and 2014 as part of the CSAPR. The 2014 CSAPR

21 Delaware's actual 1990 base year SIP inventory emissions totaled 52,493 TPY, and 77,281 TPY for VOC and NOx, 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.

22 These reductions were made to reduce ozone concentrations under the 1-hour ozone standard. Delaware attained the 1-hour ozone NAAQS in 2005.

23 EPA abandoned this effort

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inventory is detailed in Table 3-1, and both 2012 and 2014²⁴ CSAPR inventories are summarized in Table 3-3 below.

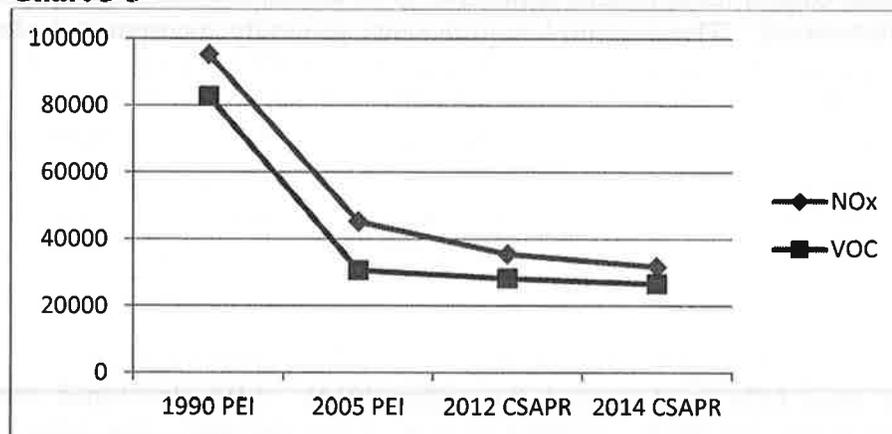
Table 3-3

	2012 CSAPR		2014 CSAPR	
	NOx	VOC	NOx	VOC
EGU	2639	75	1701	40
Non-EGU	3975	3858	3675	3861
Nonpoint	2255	11201	2194	11115
Nonroad	10365	5165	10177	4526
Onroad	16294	7599	13959	6744
Fires	23	305	23	305
Total	35549	28204	31729	26591

For 2014 EPA projects Delaware's overall emissions to be 26,591 TPY and 31,729 TPY for VOC and NOx, respectively. This represents a 13% reduction in state-wide VOC emissions, and a 30% reduction in state-wide NOx emissions since 2005; and a 68% reduction in VOC and a 67% reduction in NOx emission levels since 1990.

This inventory analysis is summarized in Chart 3-3 below.

Chart 3-3



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.

²⁴ ftp://ftp.epa.gov/EmisInventory/2005v4_2/2014emis/

3.3 Cost Effectiveness of the measures in Delaware’s SIP

The large emission reductions discussed in Section 3.2 above have required a correspondingly large economic investment by Delaware.²⁵ Table 3-4 below provides estimates of the cost to achieve the significant emission reductions discussed above:

Table 3-4

Regulation (7 DE Admin. Code)	Pollutant	Estimated Cost Effectiveness
1112 (NOx RACT)	NOx	\$400 - \$12,300 per ton
1124 (VOC RACT)	VOC	\$3,000 - \$29,000 per ton
1126 (Vehicle I/M)	VOC, NOx	\$1,000 - \$5,000 per ton
1136 (Vehicle I/M)	VOC, NOx	\$1,000 - \$5,000 per ton
1125 (non-attainment NSR)	VOC, NOx	\$39,700 to \$150,000 per ton
1142, Section 2.0 (NOx emissions from Petroleum Refineries)	NOx	\$10,000 - \$150,000 per ton
1141, Section 1.0 (AIM)	VOC	\$6,400 per ton
1141, Section 2.0 (Consumer Products)	VOC	\$800 per ton
1144 (Stationary Generators)	NOx	\$23,000 - \$90,000 ²⁶
1146 (EGU Multi-Pollutant Regulation)	NOx	\$1,200 - \$5000 per ton ²⁷
1148 (Combustion Turbines)	NOx	\$63,000 - \$78,000 per ton ²⁴

Delaware evaluated EPA’s final report “*Direct Cost Estimates for the Clean Air Act Second Section 812 Prospective Analysis*,” dated February 2011. This report estimates

²⁵ EPA studies have shown the benefits of clean air significantly outweigh the cost. This has not yet been realized in Delaware: the cost of cleaning up Delaware emission sources has been incurred, but the benefit attributable to clean air has not. Delaware’s air quality is unhealthy because of emissions that originate outside of the boundaries of Delaware.

²⁶ The \$/ton cost is very high because the subject units have low TPY emissions. These units were regulated not because they are high TPY emitters, but rather because they have high daily emissions. For example, a unit that emits 10 tons all on a day conducive to ozone formation, and a unit that emits 3,650 TPY, 10 tons each day, both contribute the same to ozone NAAQS attainment/maintenance problems.

²⁷ 7 DE Admin. Code 1146 is a multi-pollutant regulation that covers NOx, SO2 and Hg. This cost is for the NOx pollutant only.

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costs of “local controls” by each U.S. State. Delaware adjusted this cost data to account for state size by dividing by population from the 2010 census. Table 3-5 below compares the 2010 per capita cost invested in local controls by Delaware to the CSAPR covered states.

Table 3-5

State	\$ local controls/person
New Jersey	231.71
New York	169.77
Texas	136.90
Delaware	128.29
Maryland	87.73
West Virginia	63.90
Pennsylvania	63.15
Illinois	61.18
Indiana	40.12
Wisconsin	36.43
Michigan	22.82
Ohio	20.94
Alabama	14.62
Tennessee	10.87
Missouri	5.84
North Carolina	4.32
Kentucky	3.85
Georgia	3.69
Virginia	2.64
Arkansas	0
Iowa	0
Kansas	0
Minnesota	0
Florida	0
Louisiana	0
Mississippi	0
Nebraska	0
Oklahoma	0
South Carolina	0

This indicates that Delaware has incurred a local control cost beyond most of the CSAPR covered states to comply with the CAA.

3.4 Measures in Delaware's SIP that 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 the NO_x SIP Call and CAIR EPA's methodology defined significant contribution as those emissions that could be removed with the use of "highly cost effective" EGU controls. Under CSAPR, EPA determined that the emissions contributing significantly to nonattainment or interfere with maintenance were those that could be removed with \$500/ton cost on EGUs, based on an analysis that accounted for both cost and air quality improvement. Under any definition, EGU's in Delaware are well controlled, 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). Additional 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.

Table 3-1 and the inventory analysis in Section 3.2 above summarize the current level of control on Delaware EGUs. EPA's CSAPR base case inventories and CAIR budgets also demonstrate the effectiveness of the EGU measures in Delaware's SIP.

- Between 2012 and 2014 Delaware's EGU emissions are projected to decrease from 2,639 TPY (7.4% of Delaware's overall 2012 CSAPR NO_x inventory) to 1,701 TPY (5.4% of Delaware's overall 2014 CSAPR NO_x inventory). For comparison, prior to implementation of Delaware's EGU SIP measures (i.e., prior to 1990) Delaware's EGU emissions were 24,878 TPY (32% of Delaware's overall 1990 NO_x inventory). This represents a 93% reduction in NO_x emissions from this sector.
- Under CAIR Delaware's annual 2015 NO_x EGU budget was 3,472 tons, and Delaware's ozone season EGU budget was 1,855 tons. EPA's 2014 projection indicates that Delaware's annual EGU emissions are about 50% of the

corresponding 2015 CAIR budget – in fact, Delaware’s annual EGU emissions (i.e., 12-months) are less than its 2015 CAIR ozone season budget (5-months).²⁸

Table 3-1 indicates that Delaware could achieve, in the aggregate, an additional estimated 549 TPY reduction in NOx from installing additional EGU controls.

- At about \$8,800 /ton DE could reduce NOx emissions by 354 TPY
- At \$10,000/ton by an additional 80 TPY
- At over \$25,000/ton, by an additional 115 TPY

This high cost of additional EGU control is consistent with the EPA CSAPR analysis. Under CSAPR EPA determined that no additional EGU reductions would be achieved in Delaware for cost up to \$2,500/ton. In CSAPR the EPA evaluated ozone season and annual EGU NOx emissions at pollution control marginal costs per ton of reductions ranging from \$0 to \$2,500/ton, for 2012 and 2014 scenarios. In all cases Delaware NOx emissions increased with cost. This indicates that controls are being added to EGUs outside of Delaware as cost increases, which would increase the capacity factor of Delaware units by making them more competitive. Additional reductions will not be realized from Delaware EGU’s until the control cost exceeds about \$8,800/ton, at which time gas fired combined cycle units in Delaware would install SCR.

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).

3.5 Measures in Delaware’s SIP that cover non-EGUs

CAA § 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 NOx emissions from any source or other 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/maintenance area by more than 1% of the NAAQS, or 2) there are adequate provisions in the SIP that cover all sources or other type of activities in the State. If there are any sources not regulated, then 110(a)(2)(D) has not been satisfied.

²⁸ This does not imply that CAIR budgets are an adequate measure of compliance with CAA 110(a)(2)(D)(i)(I); rather it is an indication that Delaware’s EGU SIP measures effectively control emissions.

Section 3.1 above demonstrates that Delaware has measures in its SIP that cover all non-trivial VOC and NO_x emitting activities. Section 3.2 above demonstrates that these measures are effective. In Table 3-1 Delaware has identified non-EGU measures that could achieve, in the aggregate, an additional estimated 1,125 TPY reduction in NO_x and a 655 TPY reduction in VOC. These establish the level of control currently in effect in Delaware.

- At about \$5,000/ton DE could reduce NO_x emissions by about 375 TPY and VOC by 255 TPY
- At \$10,000/ton DE could reduce NO_x by an additional 50 TPY and VOC by an additional 400 TPY
- At over \$10,000/ton, DE could reduce NO_x by an additional 700 TPY

The analysis in Section 3.2 above shows that DE has reduced emissions by 56,127 TPY VOC and 63,474 TPY NO_x between 1990 and 2014. These potential additional reductions make up about 1% of the VOC reductions, and less than 2% of the NO_x reductions already made by Delaware's SIP measures. 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 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)(20)(D)(i)(I).

4.0 Conclusion

This SIP revision demonstrates 1) that the Delaware SIP contains measures that cover every non-trivial VOC and NO_x emitting source and source category in the State, and 2) that implementation of these measures has resulted in significant emission reductions in Delaware. Delaware concludes that the Delaware emissions that would significantly contribute to nonattainment and maintenance in downwind areas are those VOC and NO_x 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 1136)
- Stringent Reasonable Available Control Technology (RACT) on all major nitrogen oxides (NO_x) 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 1125)
- 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)

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- BACT on all sources with high daily emissions, despite 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 emission 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 controlling emissions are either outside of our 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 are not required under CAA § 110(a)(2)(D)(i)(I).

In the unlikely event that nonattainment or maintenance problems remain in downwind states impacted by Delaware once all states comply with CAA § 110(a)(2)(D)(i)(I), then the EPA should respond at that time with a SIP call under CAA § 110(k).

This and prior SIP revisions demonstrate that Delaware's SIP adequately addresses the requirements of CAA § 110(a)(2) for the 2008 ozone NAAQS.

APPENDIX "B"

MEMORANDUM

To: Lisa Vest

Through: Ali Mirzakhali

From: Ron Amirikian

Subject: August 2, 2012 Public Hearing - Response to Comments

Date: January 22, 2013

You presided over a public hearing on Thursday, August 2, 2012 beginning at 6:00 PM in DNREC's Richardson & Robbins Building Auditorium, 89 Kings Hwy, Dover, DE 19901. The subject of that public hearing was a proposed revision to Delaware's State Implementation Plan (SIP) to address the implementation, maintenance, and enforcement of the 2008 8-hour Ozone NAAQS. Written comments on the proposed SIP revision were submitted to the public record by the Environmental Protection Agency (EPA) (*August 2, 2012 letter signed by Diana Esher*), and the State of New Jersey (*August 2, 2012 letter signed by William O'Sullivan*). This memorandum provides Division of Air Quality (DAQ) responses to those written comments.

EPA Comment 1: Delaware should confirm that the regulations listed in its December 13, 2007 submittal are adequate to meet the more stringent 2008 ozone NAAQS. For example, are there excess emission reductions from those measures to meet requirements under the new standard?

DAQ Response: First, the DAQ understands that through the designation process the EPA has previously determined that no additional measures are needed for Delaware to meet the new 0.075 ppm ozone standard. This is because the EPA has designated areas of Delaware as attainment (Kent County) and marginal nonattainment (New Castle and Sussex County), with a 2015 attainment date. Based on the definition and concept behind a marginal nonattainment designation the EPA has effectively concluded that existing control measures are adequate to bring Delaware into attainment for the 2008 0.075 ppm NAAQS, and that no additional measures under the new standard are needed.

- DAQ agrees with this prior EPA determination with regard to the level of control of Delaware emission sources. DAQ has demonstrated in detail in Section 3.0 of the proposed SIP document that the regulations listed in its December 13, 2007 submittal (as amended by its August 28, 2009 submittal) cover every non-trivial VOC and NO_x emitting source and source category in the State, that implementation of these measures has resulted in a 68% reduction in VOC and a 67% reduction in NO_x emission levels since 1990, and that the incremental cost of any additional measures exceeds \$5000 per ton. Delaware believes that based on this demonstration it is reasonable to conclude that Delaware's SIP-approved emission control measures are adequate to mitigate Delaware's impact on both itself, and on all downwind areas.

- DAQ does not agree with the EPA that attainment will be reached by the 2015 attainment date with no additional measures. This is because upwind states have not adequately addressed their emissions, which are transported into Delaware and are the primary cause of unhealthy ozone concentrations in Delaware. Since these emissions are outside of the boundaries of the State of Delaware, Delaware does not have the authority to reduce these emissions. Delaware encourages the EPA to take action to ensure upwind emissions are reduced as necessary for Delaware to attain and maintain compliance with the new standard by its 2015 attainment date.

Second, Section 2.0 of the Delaware proposed SIP, Certification that all CAA § 110(a)(2) Elements Have Been Met, states, “Delaware has reviewed its SIP and determined that all elements required in CAA § 110(a)(2) for the 0.075 ppm ozone NAAQS have been met through earlier SIP submissions in connection with previous ozone standards. Discussion of each CAA § 110(a)(2) element was specifically addressed in formal submittals to the EPA dated December 13, 2007, and September 16, 2009. These prior submittals addressed the § 110(a)(2) requirements for the 1997 8-hour ozone NAAQS, and Delaware believes that no changes are needed for Delaware to implement and enforce the revised 2008 ozone NAAQS. Those documents are incorporated here again and submitted as attachments C and D. This SIP revision confirms and certifies that Delaware’s current SIP is adequate to address all applicable CAA§ 110(a)(2) requirements for the 0.075 ppm ozone NAAQS.” Delaware believes this certification in Section 2.0 of the proposed SIP is adequate to confirm that the regulations listed in its December 13, 2007 submittal are adequate to meet the more stringent 2008 ozone NAAQS.

Given the above discussion, DAQ recommends that no changes to the proposed SIP document be made in response to this comment

EPA Comment 2: EPA indicates that for CAA element 110(a)(2)(D)(i)(II), related to visibility, Delaware’s December 13, 2007 submittal cites the August 15, 2006 William Harnett Guidance Memorandum “*Guidance for State Implementation Plan (SIP) Submission to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the 8-Hour Ozone and PM_{2.5} NAAQS*,” which allows the visibility component of element D(i)(II) to be deferred until Delaware submits its regional haze SIP. EPA indicates that while this portion of 110(a)(2)D(i)(II) was approved for the 1997 ozone standard, since that approval, Delaware’s regional haze SIP was submitted to EPA and subsequently approved (see 76 FR 42557, July 19, 2011). The visibility prong of 110(a)(2)(D)(i)(II) may be met through a state’s confirmation in its infrastructure SIP submission that an approved regional haze SIP is in place. Therefore, the infrastructure SIP submittal for the 2008 ozone NAAQS should include a citation to Delaware’s approved regional haze SIP.

DAQ Response: Delaware agrees with the EPA.

- Delaware’s December 13, 2007 submittal relied on the 2006 Harnett guidance referenced above, because at that time Delaware had not completed its visibility SIP. Delaware submitted to the EPA its visibility SIP on September 25, 2008.

- Delaware’s August 28, 2009 submittal reflected that Delaware had submitted to the EPA its visibility SIP on September 25, 2008, and that Delaware’s Visibility SIP “*assessed and demonstrated that Delaware has met Best Available Retrofit Technology and Reasonable Further Progress (RFP) goals, and thus did not interfere with measures required to be included in the applicable implementation plan for any other State to protect visibility.*” At that time Delaware’s visibility SIP was submitted to the EPA, but not yet approved by the EPA.
- Now, Delaware’s visibility SIP has been both submitted to EPA and fully approved by the EPA effective August 15, 2011 (reference 76 FR 42557, July 19, 2011).

DAQ recommends that the Section 2.0 of the proposed SIP document be updated to clarify CAA element 110(a)(2)(D)(i)(II), consistent with the above discussion, as follows (changes shown as underline/strikeout text):

2.0 Certification that all CAA § 110(a)(2) Elements Have Been Met

Delaware has reviewed its SIP and determined that, except as noted below, all elements required in CAA § 110(a)(2) for the 0.075 ppm ozone NAAQS have been met through earlier SIP submissions in connection with previous ozone standards. Discussion of each CAA § 110(a)(2) element was specifically addressed in formal submittals to the EPA dated December 13, 2007, and September 16, 2009. These prior submittals addressed the § 110(a)(2) requirements for the 1997 8-hour ozone NAAQS, and Delaware believes that, except as noted below, no changes are needed for Delaware to implement and enforce the revised 2008 ozone NAAQS. Those documents are incorporated here again and submitted as attachments C and D. This SIP revision confirms and certifies that Delaware’s current SIP is adequate to address all applicable CAA§ 110(a)(2) requirements for the 0.075 ppm ozone NAAQS.

- *Delaware confirms that the visibility prong of 110(a)(2)(D)(i)(II) is met through Delaware’s fully approved visibility SIP. Delaware submitted this visibility SIP to the EPA on September 25, 2008 and it was fully approved by the EPA effective August 15, 2011 (reference 76 FR 42557, July 19, 2011).*

EPA Comment 3: EPA indicates that to meet CAA 128(a)(2) requirements, Delaware must amend its SIP to include any state laws or regulations that require disclosure of conflicts of interest by persons in Delaware who issue permits or enforcement orders under the CAA.

DAQ Response: Delaware agrees with this comment. Clean Air Act (CAA) § 110(a)(2)(E)(ii) requires the SIP to provide “*requirements that the State comply with the requirements respecting State boards under section 128 of this title.*” CAA § 128, “State Boards,” requires any potential conflicts of interest by the head of an executive agency which approves permits or enforcement orders to be adequately disclosed. Delaware Secretary’s order 2012-A-0043, effective December 14, 2012, finalized a SIP document that satisfies CAA § 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 a SIP revision on January 11, 2013.

Consistent with the above discussion DAQ recommends that Section 2.0 of the proposed SIP document be updated with the following additional language:

- Clean Air Act (CAA) § 110(a)(2)(E)(ii) requires the SIP to provide “requirements that the State comply with the requirements respecting State boards under section 128 of this title.” CAA § 128, “State Boards,” requires any potential conflicts of interest by the head of an executive agency which approves permits or enforcement orders to be adequately disclosed. Delaware Secretary’s order 2012-A-0043, effective December 14, 2012, finalized a SIP document that satisfies CAA § 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.

State of New Jersey Comment 1: New Jersey indicates that the VOC control measures in Delaware’s SIP alone may not be sufficient to mitigate the impacts from the State of Delaware upon the air quality in New Jersey, and that Delaware may wish to consider additional air pollution control requirements similar to New Jersey, such as:

- a) Reducing VOC emissions from large gasoline storage tanks,
- b) Continued implementation of the MANE-VU “asks,” including a low sulfur fuel oil strategy for residual and distillate fuels,
- c) Adoption of the California Zero Emission Vehicle Program to provide Delaware residents the opportunity to purchase the cleanest vehicles available for sale in the nation, and
- d) Restricting the use of emergency diesel engines for demand side management purposes by finalizing the proposed amendments to 7 DE Admin. Code 1144, Control of Stationary Generator Emissions (based on the OTC model rule).

DAQ Response 1(a) - Reducing VOC emission from large gasoline storage tanks. DAQ has reviewed its storage tank inventory and has determined that two facilities in Delaware are covered by this comment: Magellan and the Delaware City Refinery.

- Magellan. Delaware’s most current emissions inventory information (2011) indicates that VOC emissions from the Magellan gasoline storage tanks were 35.8 tons per year (TPY). Magellan’s gasoline storage tanks are equipped with cable supported internal floating roofs, mechanical shoe seals with rim mounted secondary seals, all hatches are bolted and gasketed, column wells and guide poles/sample wells are equipped with sliding covers, pole sleeves, and wipers. In addition, roof landing emissions are estimated at 3.33 TPY, and are included in an enforceable Title V permit cap. Tank degassing and cleaning is conducted about once every 10 years, and degassing emissions are vented uncontrolled to the atmosphere.

Except for degassing and cleaning emissions, Delaware believes that the gasoline tanks at the Magellan facility are substantially controlled to the level recommended by New Jersey.

- Delaware City Refinery (DCR). Delaware's most current emissions inventory information (2011) indicates that VOC emissions from DCR product storage tanks were 45.8 TPY. Product storage tanks at the DCR are currently regulated under a combination of 7 DE Admin. Code 1130, and 1131, 40 CFR Part 60 Subpart Ka, and Kb, and 40 CFR Part 63, Subpart CC. These requirements result in tanks at the refinery being controlled by a minimum of external floating roofs with primary and secondary seals, up to internal floating roofs equipped with primary and secondary seals, various roof opening gasket configurations, and inspection and maintenance requirements.

Controls recommended by New Jersey fall into five categories. Delaware believes that adoption of three of the categories would reduce emissions from the DCR tanks, and two would not.

- Deck fittings and seals (category 1), retrofit of external floating roof tanks with domes (category 2), and degassing and cleaning requirements (category 3) would likely reduce emissions from the DCR tanks.
- Control of roof landings (category 4) would not likely reduce emission because roof landings at the DCR are not routine. Delaware's emission inventory information indicates that 2011 emissions from all roof landings at the facility were 5.1 tons.
- Inspection and maintenance requirements (category 5) would not likely reduce emissions from the DCR tanks because tanks at the DCR are now subject to Delaware regulations and federal New Source Performance Standards (NSPS) that require routine inspections and maintenance. In addition, Delaware staff conducts periodic visual and FLIR inspections of the facility.

Delaware understands the largest reductions gained in New Jersey from implementation of their storage tank rule was from the control of roof landing emissions. In Delaware emissions from roof landings are already well controlled (Magellan Title V permit requirements) or small (DCR based on 2011 emission inventory information). Given this, and the above discussion, Delaware does not believe adoption of the New Jersey recommendation would likely result in significant VOC emission reductions in Delaware.

However, on June 3, 2010 ten of the thirteen OTC states, including Delaware, signed an Memorandum of Understanding (MOU) committing to the evaluation and adoption by January 1, 2014, or as soon as practicable thereafter, of an OTC model rule that covers storage tanks. This OTC model rule is based on the New Jersey storage tank regulations, which are likely the tightest in the nation. Delaware notes that the cost effectiveness is estimated by the OTC to be upwards of \$29,000/ton, which is greater than the \$5,000/ton level Delaware is recommending be applied under CAA 110(a)(2)(D). Delaware is now conducting a refined analysis of how the implementation of this OTC model rule in Delaware would impact emissions, and anticipates completion by the agreed upon schedule in the MOU.

In response to this comment the DAQ recommends that the text in the "Delaware City Refinery" row, "Potential Additional Control Measures" column of table 3-1 of the proposed SIP document be amended by adding the following paragraph to the end of the existing text:

Delaware is a signatory state to a June 3, 2010 Memorandum of Understanding (MOU)

that covers the evaluation and adoption of an Ozone Transport Commission (OTC) model rule that is designed to reduce VOC emissions from large above ground storage tanks. The agreed upon date in the MOU for signatory states to take action is January 1, 2014, or as soon as practicable thereafter. Delaware is now evaluating this OTC model rule and will propose to adopt any requirements that would significantly reduce VOC emissions from storage tanks by January 1, 2014.

DAQ Response 1(b) – Continued implementation of the MANE-VU “asks,” including a low sulfur fuel oil strategy for residual and distillate fuels. New Jersey has promulgated regulations that reduce the allowable sulfur content of residual oil to 0.5%, and distillate oil to 15ppm, beginning in 2016. New Jersey is recommending that Delaware do the same under the continued implementation of the MANE-VU “asks.”

First, DAQ notes that Delaware has met the MANE-VU ask by adopting other requirements in lieu of the low sulfur fuel strategy. Delaware’s strategy for meeting the MANE-VU ask is detailed in Delaware’s August 28, 2009 Visibility SIP. Second, Delaware has already substantially complied with the low sulfur residual oil strategy through permit actions, and through the implementation of the NSPS and 7 DE Admin. Code 1146 (i.e., EGU multi-pollutant regulation). For example, note that state-wide residual oil fuel usage between 2002 and 2011 dropped by more than 90% (i.e., from 114.9 to 10.2 million gallons). Currently, the only facilities in the State without a 0.5% residual oil sulfur limit are a few DuPont facilities that are undergoing a conversion to gas, and one chicken processing plant that is also converting to gas. Despite this, DAQ agrees with New Jersey that adoption of a low sulfur oil strategy is good air pollution policy. In fact, Delaware is now undergoing a rulemaking effort to revise its regulations (i.e., 7 DE Admin. Code 1108) to reflect a low sulfur fuel oil strategy for residual and distillate fuels.

However, Delaware believes that because the proposed SIP document that was the subject of this public hearing is related to the 2008 ozone standard, and while lower sulfur fuel will provide NO_x reductions as a co-benefit, low sulfur fuel is primarily a sulfur strategy related to the sulfur dioxide and particulate matter air quality standards, and visibility goals, and it is not needed for Delaware to satisfy its obligations under CAA 110(a)(2)(D)(i)(I) relative to ozone.

Given the above discussion, DAQ recommends that no changes to the proposed SIP document be made in response to this comment.

DAQ Response 1(c) – Adoption of the California Zero Emission Vehicle Program to provide Delaware residents the opportunity to purchase the cleanest vehicles available for sale in the nation.

Delaware currently has an effective vehicle inspection and maintenance program in its SIP, and Delaware manages overall mobile emissions through SIP approved mobile budgets under the transportation conformity program. Together these programs ensure that the emission controls on individual Delaware vehicles are maintained and functional, and that overall mobile emissions do not increase. In addition, Delaware adopted California Low Emission Vehicle II

(LEV II) requirements effective model year 2014 to ensure new vehicles sold in Delaware would be clean as possible. However, as New Jersey commented, Delaware did not adopt the zero emission vehicle component of the program.

The CA LEV II program ends with model year 2014 vehicles, and CA LEV III begins with model year 2015 vehicles. DAQ is currently in the process of adopting CA LEV III requirements, and agrees with New Jersey that the adoption of the zero emission vehicle component of the program would increase the opportunity for Delaware residents to purchase the cleanest vehicles available for sale in the nation. Because of this DAQ does intend to include the zero emission vehicle component in its proposed adoption of CA LEV III requirements.

The earliest Delaware can adopt the zero emission vehicle program would be for it to take effect beginning with model year 2015 vehicles. Adoption of this program will not impact emissions from the existing Delaware fleet, rather it would reduce emissions from future new vehicles (i.e., model year 2015 and newer vehicles). Despite the above discussion, because this measure is not capable of reducing emissions from existing vehicles (i.e., model year 2014 or older vehicles), Delaware does not believe adoption of the zero emissions vehicle program is a measure that could be adopted at this time to help satisfy Delaware's obligations under CAA 110(a)(2)(D)(i)(I).

Given the above discussion, DAQ recommends that no changes to the proposed SIP document be made in response to this comment.

DAQ Response 1(d) – Restricting the use of emergency diesel engines for demand side management purposes by finalizing the proposed amendments to 7 DE Admin. Code 1144, Control of Stationary Generator Emissions (based on the OTC model rule).

The Department agrees with New Jersey that restricting the use of uncontrolled diesel engines for demand side management purposes is a critical and necessary element for a State to have in its SIP in order to satisfy its obligations under CAA 110(a)(2)(D)(i)(I). 7 DE Admin. Code 1144, Control of Stationary Generator Emissions, as currently adopted, does not allow, without exception, uncontrolled diesel generators to participate in any type of demand side management program. 1144 specifically provides that uncontrolled diesel generators may operate only when there is no power available from the electric grid, and for necessary testing and maintenance operation. Regarding such operation, Delaware likely has the tightest regulation in the nation, and given the nature and magnitude of emissions from these units, adoption of regulations similar to Delaware's is needed in all areas that significantly impact another area relative to the pollutant ozone.

Regarding the specific New Jersey comment, the amendments to 7 DE Admin. Code 1144 that were proposed but not yet finalized would:

- Require Tier 2/3 instead of Tier 4 engines for “emergency only” units. This proposed change deals only with emergency engines, and not with those associated with demand side management.

- Lower the allowable diesel sulfur requirement from 500ppm to 15ppm. This proposed change is primarily an SO₂ measure. Note also that this reduction to 15ppm is now being made under the revisions to 7 DE Admin. Code 1108 discussed above.
- Revise recordkeeping and reporting requirements. This proposed change does not impact the operation or level of emission control of diesel engines; it only impact the records and reporting requirements they are subject to.

Given the discussion above, Delaware does not agree finalization of the proposed amendments to 7 DE Admin. Code 1144 is needed for Delaware to satisfy its obligations under CAA 110(a)(2)(D)(i)(I) because the amendments are not related to the operation of uncontrolled diesel engines participating in demand side management operations. DAQ recommends that no changes to the proposed SIP document be made in response to this comment

Based on the above discussion the DAQ recommends that as a result of public comment changes be made to Section 2.0 and table 3-1 of the proposed SIP document. Attached is the SIP document that was proposed at the August 2, 2012 public hearing, with the changes discussed above shown as underline/strikeout text. The DAQ recommends that this revised document be finalized and submitted to the EPA as a revision to the Delaware SIP.