

**Delaware
Reasonably Available Control Technology (RACT)
State Implementation Plan (SIP)
Under the 2015 8-Hour Ozone National Ambient Air
Quality Standard (NAAQS)**

~~[PROPOSED]~~[FINAL] REPORT

Submitted to:

U.S. Environmental Protection Agency

Region 3 – Philadelphia, PA

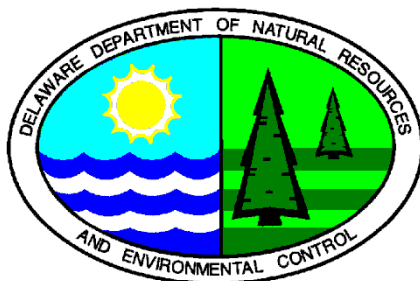
Prepared by:

Department of Natural Resources & Environmental Control

Division of Air Quality

Airshed Planning & Inventory Program

State Street Commons
100 W. Water Street, Suite 6A
Dover, DE 19904



~~[March]~~[August] 2020

Table of Contents

1.	Introduction.....	1
1.1.	Background and Requirements	1
1.2.	Responsibilities	5
2.	Determination of Compliance of VOC RACT Requirements	7
2.1.	Certification of VOC RACT Requirements.....	7
2.2.	Implementation of Non-CTG Specified VOC Controls.....	34
2.2.1.	Regulation 1141 Section 1.0 “Architectural and Industrial Maintenance (AIM) Coatings” (as approved as a SIP revision by EPA on August 11, 2010, 75 FR 48566).....	34
2.2.2.	Regulation 1141 Section 2.0 “Consumer Products” (as approved as a SIP revision by EPA on October 20, 2010, 75 FR 64673).....	34
2.2.3.	Regulation 1141 Section 4.0 “Adhesives and Sealants” (as approved as a SIP revision by EPA on December 22, 2011, 76 FR 79537).....	35
3.	Determination of Compliance of NO _x RACT Requirements	36
3.1.	Certification of NO _x RACT Requirements.....	36
3.2.	Implementation of Non-CTG Specified NO _x Controls	50
3.2.1.	Regulation 1142 Section 1.0 “Control of NO _x Emissions from Industrial Boilers”.....	50
3.2.2.	Regulation 1142 Section 2.0 “Control of NO _x Emissions from Industrial Boilers and Heat Processers at Petroleum Refineries”.....	51
3.2.3.	Regulation 1144 “Control of Stationary Generator Emissions”	51
3.2.4.	Regulation 1146 “Electric Generating Units (EGU) Multi-Pollutant Regulation”.....	52
3.2.5.	Regulation 1148 “Control of Stationary Combustion Turbine Electric Generating Unit (EGU) Emissions”	52
3.3.	Optimized Operation Limits as RACT Controls for Refinery Units	53
4.	Negative Declarations	54
5.	Documentation.....	55
5.1.	List of EPA’s Control Techniques Guidelines (CTG) documents, Alternative Control Techniques (ACT) documents, and Additional Reference Documents, cited in this RACT SIP revision.	55
5.2.	Delaware Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) under the 8-Hour Ozone National Ambient Air Quality Standard (NAAQS), September 2006. Approved by EPA in July 2008 (73 FR 42681).....	59
5.3.	Delaware Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) Under the 2008 Ozone National Ambient Air Quality Standard (NAAQS), August 2014. Approved by EPA in December 2018 (82 FR 57849).....	59
5.4.	Delaware VOC RACT Regulation.....	59
5.5.	Delaware NO _x RACT Regulation	59
5.6.	Other Delaware Regulations Included in This RACT SIP Document	59

1. INTRODUCTION

This document contains Delaware’s State Implementation Plan (SIP) revision for meeting the Reasonably Available Control Technology (RACT) requirements of the Clean Air Act (CAA) under the 8-hour ozone National Ambient Air Quality Standard (NAAQS) set forth by US Environmental Protection Agency (EPA) in 2015. The document is hereafter referred to as “Delaware’s 2015 8-hour ozone RACT SIP revision,” or simply as “the 2015 RACT SIP.”

1.1. Background and Requirements

Ground-level ozone, one of the principal components of “smog,” is a serious air pollutant that harms human health and the environment. High levels of ozone can damage the respiratory system and cause breathing problems, throat irritation, coughing, chest pains, and greater susceptibility to respiratory infection. High levels of ozone also cause serious damage to forests and agricultural crops, resulting in economic losses to logging and farming operations.

In October 2015, the EPA revised the 2008 8-hour ozone NAAQS of 0.075 parts per million (ppm) to 0.070 ppm (80 FR 65291). The 2015 8-hour ozone NAAQS of 0.070 ppm is expected to provide better protections of public health and environment. In a final rule dated June 4, 2018 (83 FR 25776), the EPA designated 51 areas in the country as nonattainment for the 2015 8-hour ozone NAAQS. New Castle County of Delaware was designated nonattainment as a part of the Philadelphia-Wilmington-Atlantic City Marginal Nonattainment Area (NAA) under the 2015 8-hour ozone NAAQS. Since this marginal NAA is centered by the City of Philadelphia, it is often referred to as “the Philadelphia NAA.” In the same final rule, Kent and Sussex Counties were designated as attainment (83 FR 25776). The EPA made the designations of these three counties based on their 2014-2016 design values,¹ and the effective date of the designations was August 3, 2018. Figure 1 provides a visual of Delaware’s three counties and New Castle County as part of the Philadelphia NAA.

Ozone is generally not directly emitted to the atmosphere. It is formed in the atmosphere by photochemical reactions among volatile organic compounds (VOC), oxides of nitrogen (NO_x), and carbon monoxide (CO) in the presence of sunlight. Consequently, in order to reduce ozone concentrations in the ambient air, the CAA requires all ozone nonattainment areas, and areas in the Ozone Transport Region (OTR) established pursuant to Section 184 of the CAA,² to implement relevant control measures on VOC and NO_x emission sources to achieve emission reductions.³

¹ The air quality design value at a monitoring site is defined as the 3-year average annual fourth-highest daily maximum 8-hour average ozone concentration is also the air quality design value for the site. (40 CFR Part 50, Appendix I, Interpretation of the 8-Hour Primary and Secondary National Ambient Air Quality Standards for Ozone)

² Congress established the Ozone Transport Region (OTR) in the federal Clean Air Act in order to address air pollution in downwind states that is caused by activities in upwind states. The OTR is essentially a single, 13-state ozone nonattainment area. The original member states of the OTR are: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, parts of Virginia, and the District of Columbia.

³ Since CO’s role in forming ozone is relatively insignificant, the CAA does not specify requirements on CO emission reductions regarding attainment of ozone standard.

Among effective control measures, the Reasonably Available Control Technology (RACT) controls are a major group for reducing VOC and NO_x emissions from stationary sources.

The EPA has defined the RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762). Section 182 of the CAA sets forth two separate RACT requirements for ozone nonattainment areas.

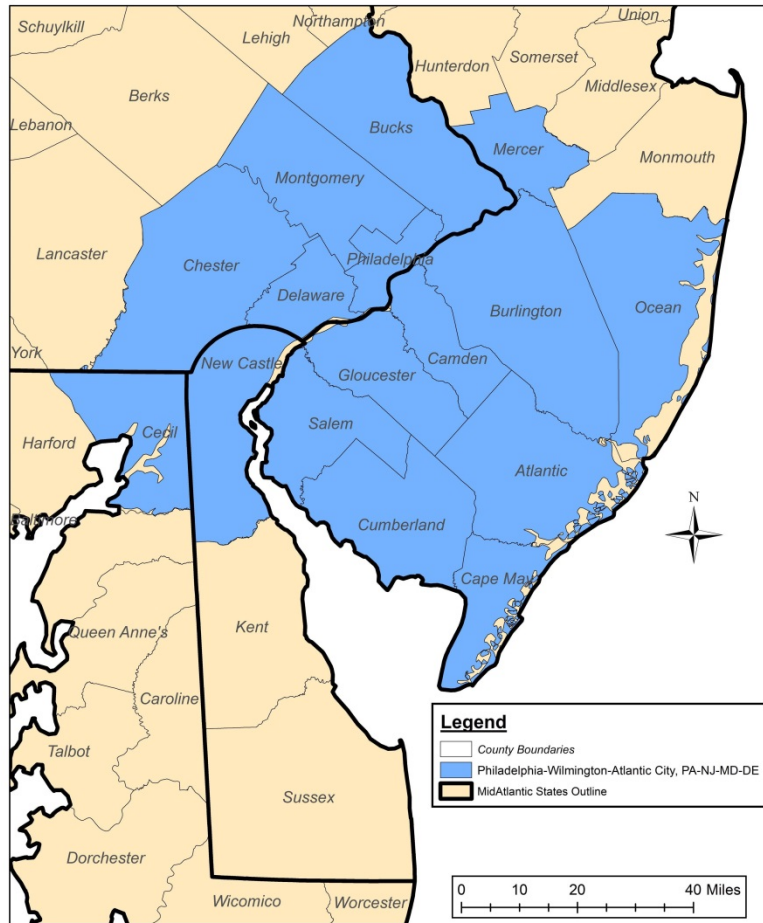


Figure 1. Map of the Philadelphia Nonattainment Area Under the 2015 8-hour ozone NAAQS.

The first requirement, contained in section 182(a)(2)(A) of the CAA, and referred to as RACT fix-up, requires the correction of RACT rules for which EPA identified deficiencies before the Act was amended in 1990. Delaware has no deficiencies to correct under this section of the CAA.

The second requirement, set forth in section 182(b)(2) of the CAA, applies to moderate or worse ozone nonattainment areas (NAAs) as well as to all areas within the OTR, including all of Delaware, and requires these areas to implement RACT controls on all major VOC and NO_x emission sources and on all sources and source categories covered by Control Technique Guidelines (CTGs) and Alternate Control Techniques (ACTs) issued by EPA.

Under section 183 of the CAA, EPA is required to develop and issue by certain timeframes relevant guidance documents for RACT controls that help states meet the requirements of Section 182(b)(2). This requirement upon EPA includes developing (1) CTGs for controls of VOC emissions from stationary sources, and (2) ACTs for controls of VOC and NO_x emissions from stationary sources. The controls in both CTG and ACT documents provide a basis for RACT determination.

Historically, the EPA has issued three groups of CTG documents, establishing a “presumptive norm” for RACT controls for various categories of VOC sources: Group I, issued before January 1978 including 15 CTGs; Group II, issued in 1978 including 9 CTGs; and Group III, issued in the early 1980s including 5 CTGs. Sources not covered by the issued CTGs are referred to as non-CTG sources. The EPA has also issued numerous ACTs for various categories of VOCs and NO_x sources. In addition, the EPA updated some CTGs in the 2006-2008 periods. All published CTG and ACT documents, along with other documentation, are listed in Section 5 of this document.

Section 182(b)(2) of the CAA requires states with ozone nonattainment areas classified as moderate or worse to implement RACT controls for all pre-enactment (i.e., pre-1990) CTG source categories, for all sources subject to post-enactment (i.e., post-1990) CTGs, and for all non-CTG major sources in their nonattainment areas. In addition, Section 184(b)(1) of the CAA requires states within the OTR to implement RACT controls with respect to all CTG-ACT sources, whether those sources are in nonattainment or attainment areas.

As a general guidance from EPA, a state should use current EPA CTG/ACT guidance and other information available in making RACT determination.⁴ The EPA also points out that while the CTGs and ACTs provide a starting point for the RACT control analysis, RACT level controls can change over time as new technology becomes available or the cost of existing technology adjusts, and states are encouraged to use the latest information available in other forms when making RACT determinations, whether that information is in CTGs, ACTs, or in other guidance or forms that are available, or through information submitted during the public review process.⁵

Under the 1-hour ozone NAAQS of 0.12 ppm,⁶ Kent County and New Castle County of Delaware were designated as a part of the Philadelphia severe ozone NAA, and Sussex County was designated as a marginal ozone nonattainment area within the OTR. Therefore, all three counties were subject to the RACT requirements under the 1-hour ozone NAAQS. Consequently, in the 1990s, Delaware implemented numerous RACT controls throughout the state to meet the CAA’s RACT requirements. These RACT controls were promulgated in Delaware’s Administrative Code under 7 **DE Admin. Code** 1124 for VOC sources and 7 **DE Admin. Code** 1112 for NO_x sources.

⁴ EPA’s current CTGs and ACTs are located at: <https://www.epa.gov/ground-level-ozone-pollution/control-techniques-guidelines-and-alternative-control-techniques>.

⁵ RACT Qs & As-Reasonably Available Control Technology (RACT): Questions and Answers. William T. Harnett, Director, Air Quality Policy Division, EPA, May 18, 2006.

⁶ EPA promulgated the 1-hour ozone NAAQS in 1979 (44 FR 8202).

The EPA revised the 1-hour ozone NAAQS to an 8-hour NAAQS of 0.08 ppm (62 FR 38856) in 1997, and again revised the ozone NAAQS to an 8-hour NAAQS of 0.075 ppm in 2008 (73 FR 16436). Under the 1997 8-hour ozone NAAQS, the entire state of Delaware was designated a part of the Philadelphia moderate NAA. Under the 2008 8-hour ozone NAAQS, New Castle County was designated a part of the Philadelphia marginal NAA, while Sussex County was designated a standalone marginal NAA. Therefore, Delaware continued to be subject to the CAA RACT requirements through the 1997 and 2008 ozone NAAQS due to its inclusion in nonattainment areas and its inclusion in the OTR.

Delaware promulgated and revised its RACT regulations, and again demonstrated that it completely complied with the CAA RACT requirements for all three counties in SIP revisions under each of the 1997 and 2008 8-hour ozone NAAQS.⁷ The EPA's approvals were based on thorough reviews of all Delaware's RACT-related regulations. Such approval indicated that Delaware fulfilled the CAA RACT requirements under the 1997 and 2008 8-hour ozone NAAQS.

As aforementioned, the EPA revised the 2008 8-hour ozone NAAQS to a new 0.070 ppm level in 2015 (80 FR 65291). Under the 2015 8-hour ozone NAAQS, only New Castle County is designated as (marginal) nonattainment, while Kent and Sussex Counties are designated as attainment. Since Delaware is located within the OTR, under Section 184(b)(1) of the CAA, all three counties of Delaware are subject to the RACT requirements set forth in the CAA Section 182(b)(2), regardless of which counties are classified as nonattainment.

The EPA requires that Delaware meets the RACT requirements for all three counties through (1) certifying that previously-adopted RACT controls in its SIP revisions approved by EPA under the 1997 and 2008 8-hour ozone NAAQS represent adequate RACT control levels for attainment purposes under the new 2015 8-hour ozone NAAQS, or (2) adopting new or updated more stringent regulations that represent adequate RACT control levels under the new 2015 8-hour ozone NAAQS.

Certification shall be accompanied by appropriate supporting information such as consideration of information received during the public comment period and consideration of new data, that may supplement existing RACT guidance documents that were developed for the 1997 and 2008 8-hour ozone NAAQS, such that the state SIPs accurately reflect RACT for the new 2015 8-hour ozone NAAQS based on the current availability of technically and economically feasible controls. Adoption of new RACT regulations shall occur when states have new stationary sources not covered by existing RACT regulations, or when new data or technical information indicates that a previously adopted RACT measure does not represent a newly-available RACT control level. Delaware has decided to use certification in this SIP revision to demonstrate its fulfillment of the CAA RACT requirements under the 2015 8-hour ozone NAAQS.

⁷ Delaware submitted its RACT SIP revision for the 1997 8-hour ozone NAAQS in 2006, which was approved by the EPA in July 2008 (73 FR 42681). Delaware submitted its RACT SIP revision for the 2008 8-hour ozone NAAQS in 2015, which was approved by the EPA in December 2017 (82 FR 57849).

For purposes of meeting the 2015 8-hour ozone NAAQS RACT requirement, a State's RACT analysis only needs to include an evaluation of RACT for CTG sources and for non-CTG major sources based on the area's 8-hour classification. However, under "anti-backsliding" requirements⁸ of the CAA and EPA's ozone implementation rule for the 2008 8-hour ozone NAAQS (80 FR 12264);⁹ a State may not remove RACT requirements for sources that were subject to RACT for the 1-hour ozone NAAQS, but would not have been subject to RACT based on the area's 8-hour classification.^{5, 10}

Under the 1-hour ozone NAAQS, Delaware's New Castle County and Kent County were designated as severe NAAs and adopted major source thresholds for VOC and NO_x of 25 tons per year (tpy), in accordance with Section 182(d) of the CAA. In contrast, according to Section 184(b)(2) of the CAA, the major source threshold is set at 50 tpy for non-CTG stationary VOC sources and 100 tpy for stationary NO_x sources, for states within the OTR.

Therefore, under the "anti-backsliding" requirements, sources between the 1-hour ozone NAAQS thresholds and 184(b)(2) CAA thresholds must remain subject to Delaware RACT. Therefore, 25-50 tpy VOC sources and 25-100 tpy NO_x sources remain subject to Delaware RACT rules for New Castle and Kent County in this document.

It should be noted that all of Delaware's RACT regulations apply state-wide. Under the 1-hour ozone NAAQS, major source thresholds for VOC and NO_x in Delaware's Sussex County were 50 tpy and 100 tpy, respectively, due to its inclusion in the OTR. Therefore, Sussex County is not affected by "anti-backsliding" requirements.

In summary, through this RACT SIP revision Delaware demonstrates that 1) its ozone-related SIP regulations meet the CAA's RACT requirements for the 50 tpy CTG and non-CTG major VOC sources and for all 100 tpy NO_x sources, and 2) that all CTG covered source categories are addressed at the emission thresholds set in the CTG or in the "Blue Book" (Reference 63) for those CTG categories for which the CTG set no emission threshold.

This demonstration is an analysis and certification that the control measures in Delaware SIP-approved regulations are based on currently available technically and economically feasible controls, and they represent RACT control levels adequate for implementing the 2015 8-hour ozone NAAQS.

1.2. Responsibilities

The agency with direct responsibility for developing and submitting this SIP document is Delaware Department of Natural Resources and Environmental Control (DNREC), Division of

⁸ Anti-backsliding measures ensure that certain emission controls remain in place and air quality in the nonattainment areas does not get worse after a prior ozone NAAQS is revoked.

⁹ The EPA has not revoked the 2008 ozone NAAQS, and therefore there are no new "anti-backsliding" provisions which are specific to EPA's implementation of the 2015 8-hour ozone NAAQS.

¹⁰ The anti-backsliding provisions may be found at 40 CFR 51.905 and 51.1105 and apply to all former 1-hour nonattainment areas.

Air Quality (DAQ), under the Division Director, David F. Fees, P.E.. The working responsibility for Delaware's air quality SIP planning falls within DAQ's Planning Section, with Acting Section Manager Valerie Gray. Renae Held, Airshed Planning and Inventory Program Manager is supervising this SIP revision development. Mark A. Prettyman, Environmental Scientist in the Airshed Planning and Inventory Program, is the project leader and principal author of this document.

2. DETERMINATION OF COMPLIANCE OF VOC RACT REQUIREMENTS

2.1. Certification of VOC RACT Requirements

Delaware's VOC RACT controls are contained in 7 **DE Admin. Code** 1124, "Control of Volatile Organic Compound Emissions" (hereafter in this document referred to as Regulation 1124). Various sections in Regulation 1124, covering corresponding VOC sources, were originally developed and implemented into Delaware SIP under the 1-hour ozone NAAQS or the 1997 8-hour ozone NAAQS, and have been periodically updated based on advancements in technology. All major sources in Delaware and all CTG/ACT covered sources with applicability cut-off levels consistent with the "Blue Book" (Reference 63) are covered by adequate RACT controls in the corresponding Regulation 1124 sections.

Identification and certification/adoption of Regulation 1124 VOC RACT controls for meeting the 2015 8-hour ozone NAAQS is provided in Table 1. Explanations for the columns of Table 1 are as follows:

Column 1: Identifies each section of Regulation 1124 that contains a Delaware VOC RACT rule. The effective date of each section is also provided in this column. In general, Regulation 1124 sections requires major VOC emitting sources to comply with the relevant deadlines specified in the CAA and EPA's implementation rules for the NAAQS.

Column 2: Identifies the underlying basis for each RACT control rule and its implementation.

Column 3: Identifies the date the RACT rule was approved into the Delaware SIP, along with the Federal Register citation.

Column 4: Explains briefly the RACT control applicability and requirements.

Column 5: Certifies that the rule represents the current RACT requirement under the 2015 8-hour ozone NAAQS.

Notes for Column 5:

- (1) Each section of Regulation 1124 was approved by the EPA as adequate under the 2008 8-hour ozone NAAQS.
- (2) When certifying that a current SIP-approved rule represents the RACT level under the ozone NAAQS, DAQ affirms that it is not aware of any significant change in the RACT control technology after the previous RACT SIP determination that would affect this RACT SIP compliance determination. In other words, the current SIP-approved rule still sets up the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

- (3) Any discussion on cost effectiveness is relative only to this RACT SIP, and is not relevant as to whether or not control of a particular source or source category is cost effective relative to Delaware's entire SIP.

It should be pointed out that Delaware's minor source permitting program under 7 **DE Admin. Code** 1102, "Permits" (hereafter in this RACT SIP referred to as Regulation 1102), requires a detailed administrative and technical review of Delaware sources that emit air contaminants at levels far below the major source threshold and CTG cut-offs. For example, permits are required for the emission of 10 pounds per day or more of "aggregate" air contaminants, and registrations for emissions between 0.2 and 10 lb/day of air contaminants. This permitting program gives additional confidence that all major and CTG covered sources are controlled by RACT or better controls.

Table 1. Delaware VOC RACT Control List and Determination of Compliance under the 2015 8-hour Ozone NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>Section 8.0 Handling, Storage, and Disposal of Volatile Organic Compounds (VOCs)</p> <p>03/11/2011</p>	<p>CTG for Industrial Cleaning Solvents. EPA 453/R-06-001, September 2006.</p>	<p>Final Rule Federal Register Date: 04/13/2012 77 FR 22224</p>	<p>This section applies to any facility subject to any of Sections 10.0 through 50.0 of Regulation 1124, with a few exceptions as specified in 8.3.1 of this section, when the facility deals with activities involving handling, storage and disposal of VOCs and VOC- containing solvents.</p> <p>The section establishes for the regulated facilities (1) work practice standards, (2) control requirements, (3) testing methods and procedures, and (4) recordkeeping requirements, to reinforce effective control of VOC emissions from using VOCs or VOC-containing solvents in the regulated facilities.</p>	<p>Yes.</p> <p>Section 8.0 was not included in Delaware’s RACT SIP under the 1997 ozone NAAQS. It was updated in 2011 to fully implement relevant RACT requirements regarding handling, storage and disposal of VOCs and VOC-containing solvents as specified in the 2006 CTG.</p> <p>The requirements set up the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 10.0 Aerospace Coatings</p> <p>08/11/2002</p>	<p>CTG for Control of Volatile Organic Compound Emissions from Coating Operations at Aerospace Manufacturing and Rework Operations. EPA-453/R-97-004, December 1997.</p>	<p>Final Rule Federal Register Date: 03/24/2004 69 FR 13737</p>	<p>This section applies to any aerospace manufacturing and rework facility</p> <p>In brief, this section establishes vapor pressure limits, VOC content limits, emission limits and/or work practice standards for: (a) hand- wipe, spray gun, or flush cleaning operations, (b) primer, topcoat, self- priming topcoat, and specialty coating operations, (c) chemical milling maskant application, (d)</p>	<p>Yes.</p> <p>This section was updated in 2002 to fully implement the RACT-level controls specified in the 1997 CTG.</p> <p>It was approved by the EPA as adequate under the 1997 ozone NAAQS. After EPA’s approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p>

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
			depainting of aerospace vehicles, and (e) handling and storing of VOC.	The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 11.0 Mobile Equipment Repair and Refinishing 10/11/2010	OTC Alternate Model Rule “Motor Vehicle Mobile Equipment Repair and Refinishing (MVMERR)”, adopted in September 2009 and based on (1) CTG for Miscellaneous Metal and Plastic Parts Coatings (MMPPC),” EPA-453/R-08-003, September 2008. (2) National Emission Standards for Hazardous Air Pollutants (NESHAP): Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources; Final Rule January 9, 2008 (73 FR 1738). Alternative Control Techniques (ACT) for Reduction of Volatile	Revision with effective date of 10/11/2010 expected to be submitted to EPA in March 2020.	This section applies to any person who applies coatings to mobile equipment for beautification or protection in the State of Delaware. It establishes: (a) Requirements for using improved transfer efficiency coating and application equipment; (b) requirements for enclosed spray gun cleaning techniques; and (c) minimum training standards in the proper use of equipment and materials.	Yes. The previous version of this section was revised in 2001 based on an OTC model rule to implement controls to mitigate Delaware’s attainment shortfall under the 1-hour ozone NAAQS. The control levels were more stringent than the then-ACT requirements. It was approved by EPA as adequate under the 1997 ozone NAAQS. In 2010, this section was updated to adopt more stringent limits set forth in EPA’s 2008 NESHAP rule and CTG. It also adopted some VOC limits from the California Air Resources Board (CARB) Suggested Control Measure (SCM) for Automotive Coatings, published October 2005, which are more stringent. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	Organic Compound Emissions from Automobile Refinishing, EPA-450/3-88-009, October 1988.			current technological and economic feasibility
Section 12.0 Surface Coating of Plastic Parts 10/11/2011	CTG for Miscellaneous Metal and Plastic Parts Coatings (MMPPC). EPA-453/R-08-003, September 2008 ACT for Surface Coating of Automotive/Transportation and Business Machine Plastic Parts EPA-453/R-94-017, February 1994.	Final Rule Federal Register Date: 09/25/2012 77 FR 58953	This section applies to any plastic part or product coating unit. It establishes VOC content limits of various coatings, sets up requirements for control devices, testing methods and compliance certification.	Yes. This section was revised in 2001 to fully implement the 1994 ACT control requirements. It was approved by EPA as adequate under the 1997 ozone NAAQS. In 2010, it was updated to expand the applicability scope and to adopt more stringent requirements set forth in EPA's 2008 CTG. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 13.0 Automobile and Light-Duty Truck Coating Operations 03/11/2011	CTG for Automobile and Light-Duty Truck Assembly Coatings. EPA 453/R-08-006, September 2008.	Final Rule Federal Register Date: 04/13/2012 77 FR 22224	This section applies to coating operations at automobile or light-duty truck assembly plants. It establishes VOC content limits in adhesives, sealing materials, primer, coating materials used in	Yes. This section was developed in 1993 to fully implement the 1977 CTG requirements in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS.

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	<p>Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations. EPA 453/R-08-002, September 2008.</p> <p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks. EPA-450/2-77-008, May 1977. (Group I)</p>		<p>automobile and light-duty truck coating operations, and requirements for control device, test methods, and recordkeeping for such operations.</p>	<p>In 2011, it was updated to implement the new VOC limits and operational requirements specified in the 2008 CTG.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility</p> <p>There are currently no automobile assembly plants in Delaware, at the time of this SIP submission.</p>
<p>Section 14.0 Can Coating</p> <p>Section 15.0 Coil Coating</p> <p>Section 17.0 Fabric Coating</p> <p>Section 18.0 Vinyl Coating</p>	<p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks.</p>	<p>Final Rule Federal Register Date: 05/03/1995 60 FR 21707</p>	<p>These sections apply to coating operations at any can, coil, paper, fabric, or vinyl coating unit.</p> <p>They establish various coating VOC content limits, depending on the particular coating and the substrate being coated, and operational requirements for relevant coating operations.</p>	<p>Yes.</p> <p>These sections were developed in 1993 for fully implementing the 1977 CTG specified controls the targeted sources or source categories in Delaware.</p> <p>They were approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
01/11/1993 for all above sections.	EPA-450/2-77-008, May 1977. (Group I)			in RACT control technology for these sections. The requirements are the lowest emission limitations that the covered sources are capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 16.0 Paper, Film, and Foil Coating 03/11/2011	CTG for Paper, Film, and Foil Coatings. EPA 453/R-07-003, September 2007. CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks. EPA-450/2-77-008, May 1977. (Group I)	Final Rule Federal Register Date: 04/13/2012 77 FR 22224	This section applies to paper, film, and foil surface coating operations. It establishes VOC limits in coating materials used in paper, film, and foil surface coating operations, and requirements for control device, test methods, and recordkeeping for such operations.	Yes. This section was developed in 1993 to fully implement the 1977 CTG specified VOC limits for paper coating materials in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS. In 2011, it was updated (1) to add film and foil coating operations, and (2) to implement the new VOC limits specified in the 2007 CTG. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility
Section 19.0 Coating of Metal Furniture	CTG for Metal Furniture Coatings.	Final Rule Federal Register Date: 09/25/2012	This section applies to the coating operation of metal furniture.	Yes.

~~[PROPOSED]~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
10/11/2011	<p>EPA 453/R-07-005, September 2007.</p> <p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume III: Surface Coating of Metal Furniture. EPA-450/2-77-032, December 1977. (Group I)</p>	77 FR 58953	It establishes VOC content limits in coating materials and other requirements such as control device, testing methods and recordkeeping, etc., for metal furniture coating operations.	<p>This section was developed in 1993 to fully implement the 1977 CTG specified requirements for metal furniture coating operation in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS.</p> <p>In 2011, it was updated to implement the new requirements specified in the 2007 CTG.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility</p>
<p>Section 20.0 Coating of Large Appliances</p> <p>10/11/2011</p>	<p>CTG for Large Appliance Coatings. EPA 453-07-004, September 2007.</p> <p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume V: Surface Coating of Large Appliances. EPA-450/2-77-034, December 1977. (Group I)</p>	<p>Final Rule Federal Register Date: 09/25/2012 77 FR 58953</p>	<p>This section applies to the coating operation of large appliances.</p> <p>It establishes VOC content limits in coating materials and other requirements such as control device, testing methods and recordkeeping, etc., for large appliance coating operations.</p>	<p>Yes.</p> <p>This section was developed in 1993 to fully implement the 1977 CTG specified requirements for large appliance coating operation in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS.</p> <p>In 2011, it was updated to implement the new requirements specified in the 2007 CTG.</p> <p>The requirements are the lowest emission limitations that the covered</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
<p>Section 21.0 Coating of Magnet Wire</p> <p>11/29/1994</p>	<p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume IV: Surface Coating of Insulation of Magnet Wire, EPA-450/2-77- 033, December 1977. (Group I)</p>	<p>Final Rule Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to the coating operation of magnet wire.</p> <p>It requires use of compliant coatings with a VOC content of less than 1.7 lb/gal, and sets up requirements on control device, test methods, and recordkeeping for coating operation of magnet wire.</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1977 CTG specified requirements in Delaware.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 22.0 Coating of Miscellaneous Metal Parts</p> <p>10/11/2011</p>	<p>CTG for Miscellaneous Metal and Plastic Parts Coatings (MMPPC). EPA-453/R-08-003, September 2008</p> <p>CTG for Control of Volatile Organic</p>	<p>Final Rule Federal Register Date: 09/25/2012 77 FR 58953</p>	<p>This section applies to any miscellaneous metal parts coating unit.</p> <p>It establishes VOC content limits in coating materials and other requirements such as control device, testing methods, compliance certification and recordkeeping, etc.,</p>	<p>Yes.</p> <p>This section was developed in 1993 to fully implement the 1978 CTG specified requirements for miscellaneous metal part coating operations in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	Emissions from Existing Stationary Sources, Volume VI: Surface Coating of Miscellaneous Metal Parts and Products. EPA-450/2-78-015, June 1978. (Group II)		for miscellaneous metal part coating operations.	<p>In 2011, it was updated to implement the new requirements specified in the 2008 CTG.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility</p>
<p>Section 23.0 Coating of Flat Wood Paneling</p> <p>03/11/11</p>	<p>CTG for Flat Wood Paneling Coatings. EPA 453/R-06-004, September 2006.</p> <p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VII: Factory Surface Coating of Flat Wood Paneling. EPA-450/2-78-032, June 1978. (Group II)</p>	<p>Final Rule Federal Register Date: 04/13/2012 77 FR 22224</p>	<p>The section applies to coating operations of flat wood paneling.</p> <p>It establishes VOC content limits in coatings, inks or adhesives used in coating operations for flat wood paneling, and sets up requirements of control device, test methods, and recordkeeping for such operations.</p>	<p>Yes.</p> <p>This section was developed in 1993 to fully implements the 1978 CTG specified requirements for coating operation of flat wood paneling in Delaware, and approved by EPA as adequate under the 1997 ozone NAAQS.</p> <p>In 2011, it was updated to implement the new requirements specified in the 2006 CTG.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
Section 24.0		Final Rule		Yes.

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
Bulk Gasoline Plants 01/11/1993	CTG for Control of Volatile Organic Emissions from Bulk Gasoline Plants. EPA-450/2-77-035, December 1977. (Group I)	Federal Register Date: 05/03/1995 60 FR 21707	This section applies to all unloading, loading, and storage operations at bulk gasoline plants and to any gasoline tank truck delivering or receiving gasoline at a bulk gasoline plant. It established requirements for the use of vapor balance, and set up various equipment and work practice standards for regulated operations.	This section was developed in 1993 to fully implement the 1977 CTG specified requirements in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 25.0 Bulk Gasoline Terminals 11/29/1994	CTG for Control of Volatile Organic Emissions from Bulk Gasoline Plants, EPA-450/2-77-035, December, 1977. (Group I)	Final Rule Federal Register Date: 01/26/1996 61 FR 2419	This section applies to the total of all the loading racks at any bulk gasoline terminal that deliver liquid product into gasoline tank trucks. It sets up requirements for control using a vapor collection and control system designed to collect and destroy the organic compound liquids or vapors displaced from gasoline tank trucks during product loading, and various other equipment and operational requirements.	Yes. This section was developed in 1994 to fully implement the 1977 CTG specified requirements in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section. The requirements are the lowest emission limitations that the covered source is capable of meeting by the

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				application of control technology that is reasonably available considering current technological and economic feasibility.
<p>Section 26.0 Gasoline Dispensing Facility Stage I Vapor Recovery</p> <p>01/11/2002</p>	<p>CTG for Design Criteria for Stage I Vapor Control Systems - Gasoline Service Stations, EPA- 450/R-75-102, November 1975. (Group I)</p>	<p>Final Rule Federal Register Date: 11/14/2003 68 FR 64540</p>	<p>It applies to stationary gasoline storage tanks at gasoline dispensing facilities (GDFs).</p> <p>It sets up requirements that include (1) loading gasoline with submerged fill method, and (2) installing vapor recovery system that returns the displaced vapors to the delivery vessels and then to the bulk plant or terminal.</p>	<p>Yes.</p> <p>This section was updated in 2002 to provide for better control of emissions from GDFs than the 1975 CTG specified level.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>This section is expected to be amended by June 2020 alongside amendments to Section 36.0 to account for ORVR incompatibility with Stage II vapor recovery. Together, the proposed amendments will require (1) any new gasoline dispensing facility (GDF) to install a Stage I Enhanced Vapor Recovery (EVR) system, instead of a Stage II vapor recovery system, at construction, and (2) any existing GDF to decommission its Stage II vapor recovery system by December 31, 2021 and to install a Stage I EVR system by December 31, 2025.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 27.0 Gasoline Tank Trucks 01/11/1993	CTG for Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals. EPA-450/2-77-026, December 1977. (Group I) CTG for Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems. EPA-450/2-78-051, December 1978. (Group II)	Final Rule Federal Register Date: 05/03/1995 60 FR 21707	This section applies to gasoline tank trucks equipped for gasoline vapor collection. It requires that the covered gasoline tank trucks must be vapor-tight. It also sets up requirements of test methods and recordkeeping for the regulated tank trucks.	Yes. This section was developed in 1993 to fully implement the 1977/1978 CTG specified control in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 28.0 Petroleum Refinery Sources 01/11/1993	CTG for Control of Refinery Vacuum Producing Systems, Wastewater Separators, and Process Unit Turnarounds.	Final Rule Federal Register Date: 05/03/1995 60 FR 21707	This section applies to vacuum-producing systems, wastewater separators and process unit turnaround at petroleum refineries. Its requirements include (1) no uncompressed VOC emission from	Yes. This section was developed in 1993 to fully implement the 1977 CTG specified requirements in Delaware.

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	EPA-450/2-77-025, October 1977. (Group I)		vacuum-producing systems, (2) covers, lids or seals for wastewater separators, and (3) depressurization of process unit or vessel to reduce its internal pressure to 136 kPa or less and then venting to vapor recovery system, flare or firebox.	<p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 29.0 Leaks from Petroleum Refinery Equipment</p> <p>11/29/1994</p>	<p>CTG for Control of Volatile Organic Compound Leaks from Petroleum Refinery Equipment. EPA-450/2-78-036, June 1978. (Group II)</p>	<p>Final Rule Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to equipment in VOC service in any process unit at petroleum refineries.</p> <p>The rule establishes standards for proper valve operations under various scenarios to prevent VOC leak emissions.</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1978 CTG specified requirements in Delaware.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

[PROPOSED][FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>Section 30.0 Petroleum Liquid Storage in External Floating Roof Tanks</p> <p>11/29/1994</p>	<p>CTG for Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks. EPA-450-2/78-047, December 1978. (Group II).</p>	<p>Final Rule Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to petroleum liquid storage tanks with external floating roofs and with capacity of 150,000 L or greater.</p> <p>It establishes sealing standards for a covered storage tank, including its openings, its connection structure between roof and tank wall, all seal closure devices, bleeder vents, rim vents, and emergency roof drains.</p>	<p>Yes.</p> <p>This section was developed in 1994 for fully implementing the 1978 CTG specified controls.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 31.0 Petroleum Liquid Storage in Fixed Roof Tanks</p> <p>11/29/1994</p>	<p>CTG for Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed Roof Tanks. EPA-450/2-77-036, December 1977. (Group I)</p>	<p>Final Rule Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to petroleum liquid storage tanks with fixed roofs and with capacity of 150,000 L or greater.</p> <p>It establishes sealing standards for a covered storage tank, including its openings, its connection structure between roof edge and tank wall, bleeder vents, and rim vents.</p>	<p>Yes.</p> <p>This section was developed in 1994 for fully implementing the 1977 CTG specified controls.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered</p>

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
<p>Section 32.0 Leaks from Natural Gas/Gasoline Processing Equipment</p> <p>11/29/1994</p>	<p>CTG for Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants. EPA-450/2-83-007, December 1983. (Group III)</p>	<p>Final Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to equipment in VOC service in any process unit at onshore natural gas/gasoline processing facilities.</p> <p>It establishes standards for proper valve operations under various scenarios to prevent VOC leak emissions from the covered equipment.</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1983 CTG specified requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 33.0 Solvent Cleaning and Drying</p> <p>11/11/2001</p>	<p>CTG for Industrial Cleaning Solvents: Final" EPA 453/R-06- 001 September 2006</p> <p>CTG for Control of Volatile Organic Emissions from</p>	<p>Final Rule Federal Register Date: 11/22/2002 67 FR 70315</p>	<p>This section applies to any solvent cleaning machine that contains more than 1 liter of solvent in which VOC is more than 5% by weight.</p> <p>This rule establishes standards for (1) batch cold cleaning machines, (2) batch vapor cleaning machines, (3) in-line cleaning machines, (4)</p>	<p>Yes.</p> <p>This section was updated in 2001 based on an OTC model to implement more stringent standards than the 1977 CTG and 1989ACT control levels. It was approved by EPA as adequate under the 1997 8-hour ozone NAAQS.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	<p>Solvent Metal Cleaning. EPA-450/2-77-022, November 1977. (Group I)</p> <p>ACT for Halogenated Solvent Cleaners. EPA-450/3-89-030, August 1989.</p>		<p>and cleaning machines without a solvent-air interface. It also specifies an alternative standard for (2) and (3) above.</p>	<p>DAQ is currently amending Section 33.0 based upon a 2012 “Phase II” model rule for solvent cleaning, by the OTC. DAQ expects the amendments to be effective no later than 12/11/2020, with a compliance date of one year after the effective date of the regulation.</p>
<p>Section 34.0 Cutback and Emulsified Asphalt 01/11/1993</p>	<p>CTG for Control of Volatile Organic Compounds from Use of Cutback Asphalt. EPA-450/2-77-037, December 1977. (Group I)</p>	<p>Final Federal Register Date: 05/03/1995 60 FR 21707</p>	<p>This section applies to manufacture, mixing, storage, use, and application of cutback and emulsified asphalts in Delaware.</p> <p>It prohibits all above activities for cutback asphalt during the ozone season without approval. It also prohibits all above activities during the ozone season for emulsified asphalt that contain any VOC.</p>	<p>Yes.</p> <p>This section was developed in 1993 to fully implement the 1977 CTG specified requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA’s approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 35.0 Manufacture of Synthesized</p>	<p>CTG for Control of Volatile Organic Emissions from</p>	<p>Final Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to 10 VOC sources at synthesized pharmaceutical manufacturing</p>	<p>Yes.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
Pharmaceutical Products 11/29/1994	Manufacture of Synthesized Pharmaceutical Products, EPA-450/2-78-029, December 1978. (Group II)		facilities, including reactors, distillation operations, crystallizers, centrifuges, vacuum dryers, air dryers, production equipment exhaust systems, rotary vacuum filters and other filters, in-process tanks, and leaks. It establishes standards for controlling and reducing VOC emissions from all covered sources.	This section was developed in 1994 to fully implement the 1978 CTG specified requirements. It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 36.0 Control of VOC Emissions- Stage II Vapor Recovery 01/11/2002 (04/2015)	Non-CTG RACT, CAA Section 182(b)(3).	Final Rule Federal Register Date: 11/14/2003 68 FR 64540	This section applies to any gasoline dispensing facility (GDF) with a monthly throughput greater than 10,000 gallons. It requires that all covered GDFs install approved Stage II vapor recovery system. It was updated in 2002 to (1) increase inspection frequency, and (2) provide for compliance tester certification.	Yes. This section was updated in 2002 to fully implement the CAA required VOC emission control on GDFs in Delaware. It was approved by EPA as adequate under the 1997 ozone NAAQS. Since 1998, the federally-enforced control (Onboard Refueling Vapor Recovery, i.e., ORVR) has been phased in that affects VOC emissions from this source. However, DAQ has determined that the Stage II requirements in Section 36.0 achieve significant emission reductions and

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				<p>remain the lowest emission limitations that the covered GDFs are capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p> <p>This section is expected to be amended by June 2020 alongside amendments to Section 26.0 to account for ORVR incompatibility with Stage II vapor recovery. Together, the proposed amendments will require (1) any new gasoline dispensing facility (GDF) to install a Stage I Enhanced Vapor Recovery (EVR) system, instead of a Stage II vapor recovery system, at construction, and (2) any existing GDF to decommission its Stage II vapor recovery system by December 31, 2021 and to install a Stage I EVR system by December 31, 2025.</p>
<p>Section 37.0 Graphic Arts Systems 03/11/2011</p>	<p>CTG for Flexible Package Printing, EPA 453/R-06-003, September 2006.</p> <p>CTG for Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VIII: Graphic Arts-Rotogravure and Flexography, EPA-</p>	<p>Final Rule Federal Register Date: 04/13/2012 77 FR 22224</p>	<p>This section allies to any packaging rotogravure, publication rotogravure, or flexographic printing process at a facility with potential uncontrolled VOC emission greater than 7.7 tons per year.</p> <p>It establishes the limits of VOC contents in coatings and inks used in the covered facilities, specifies standards for control devices for various printing processes, and set</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1978 CTG specified requirements for printing operations in graphic arts facilities. It was approved by EPA as adequate under the 1997 ozone NAAQS.</p> <p>In 2011, it was revised to implement the updated requirements specified in the 2006 CTG.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	450/2-78-033, December 1978. (Group II)		up requirements for testing and recordkeeping.	The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 38.0 Petroleum Solvent Dry Cleaners 01/11/1993	CTG for Control of Volatile Organic Compound Emissions from Large Petroleum Dry Cleaners. EPA-450/3-82-009, September 1982. (Group III)	Final Federal Register Date: 05/03/1995 60 FR 21707	This section applies to petroleum dry cleaning facilities that consume 123,000 L or more petroleum solvent per year. It establishes emission limits or reduction requirements for fugitive emissions, leak repairs, dryers, and filtration systems at covered facilities.	Yes. This section was developed in 1993 to fully implement the 1982 CTG specified requirements. It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility
Section 39.0 Reserved				
Section 40.0 Leaks from Synthetic Organic Chemical,	CTG for Control of Volatile Organic Compound Emissions	Final Rule Federal Register Date: 05/03/1995	This section applies to all equipment in VOC service in any process unit at a synthetic organic	Yes.

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>Polymer, and Resin Manufacturing Equipment</p> <p>01/11/1993</p>	<p>from Reactor Processes and Distillation Operations in SOCMIL. EPA-450/4-91-031, August 1993.</p> <p>CTG for Control of Volatile Organic Compound Fugitive Emissions from Synthetic Organic Chemical Polymer and Resin Manufacturing Equipment. EPA-450/3-83-006, March 1984 (Group III).</p>	<p>60 FR 21707</p>	<p>chemical, polymer, and resin production facility with an annual design production capacity equal to or greater than 1,000 mega grams of product.</p> <p>It establishes standards for proper valve operation, leak detection, repair, and reporting for synthetic organic chemical, polymer, and resin manufacturing equipment.</p>	<p>This section was developed in 1993 to fully implement the 1984/1993 CTG specified requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 41.0 Manufacture of High-Density Polyethylene, Polypropylene and Polystyrene Resins</p> <p>01/11/1993</p>	<p>CTG for Control of Volatile Organic Compound Emissions from Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins; EPA-450/3-83-008, November 1983. (Group III)</p>	<p>Final Rule Federal Register Date: 05/03/1995 60 FR 21707</p>	<p>This section applies to specific process sections (material recovery section, and production finishing section) at facilities engaged in manufacturing high-density polyethylene, polypropylene, and polystyrene.</p> <p>It establishes requirements for VOC emission limits, reductions and combustions for the covered process sections.</p>	<p>Yes.</p> <p>This section was developed in 1993 to fully implement the 1983 CTG specified requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				is reasonably available considering current technological and economic feasibility.
<p>Section 42.0 Air Oxidation Processes in the Synthetic Organic Chemical Manufacturing Industry</p> <p>01/11/1993</p>	<p>CTG for Control of Volatile Organic Compound Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry. EPA-450/3-84-015, December 1984. (Group III)</p>	<p>Final Rule Federal Register Date: 05/03/1995 60 FR 21707</p>	<p>This section applies to 3 special air oxidation processes in synthetic organic chemical manufacturing industry.</p> <p>The rule establishes requirements for VOC emission reduction and emission combustion for the covered processes.</p>	<p>Yes.</p> <p>This section was developed in 1993 to fully implement the 1984 CTG specified requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility</p>
<p>Section 43.0 Bulk Gasoline Marine Tank Vessel Loading Facilities</p> <p>08/08/1994</p>	<p>Non-CTG RACT control, based on CAA Section 183(f).</p>	<p>Final Rule Federal Register Date: 07/28/1995 60 FR 38710</p>	<p>This section applies to all loading berths at a bulk marine tank loading facility that (1) delivers gasoline into marine tank vessels, and (2) has an annual throughput equal to or greater than 15,000 gallons.</p> <p>It requires installation of a vapor collection system that is designed to collect all VOC vapors displaced from marine tank vessels during</p>	<p>Yes.</p> <p>This section was developed in 1994 to implement the CAA Section 183(f) requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no new CTG or significant change in RACT control technology for this section.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
			loading, ballasting, or housekeeping.	The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility
Section 44.0 Batch Processing Operations 11/29/1994	ACT for Control of Volatile Organic Compound Emissions from Batch Processes. EPA-453/R-93-017, February 1994.	Final Rule Federal Register Date: 01/26/1996 61 FR 2419	This section applies to process vents associated with batch processing operations in manufacturing facilities with Standard Industrial Classification (SIC) Codes of 2821, 2833, 2861, 2869, 2869, and 2879. It requires the affected sources to reduce VOC emissions by 90 percent by weight.	Yes. This section was developed in 1994 to implement the 1994 ACT specified requirements. It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section. The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.
Section 45.0 Control of VOC Emissions- Industrial Cleaning Solvents 03/11/2011	CTG for Industrial Cleaning Solvents. EPA 453/R-06-001, September 2006	Final Rule Federal Register Date: 04/13/2012 77 FR 22224	This section applies to all sources that use organic solvents for the purpose of cleaning. It establishes standards for the affected facilities to evaluate and	Yes. This section was developed in 1994 to implement the 1994 ACT specified requirements for using industrial cleaning solvents. It was approved by

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	ACT for Industrial Cleaning Solvents. EPA-453/R-94-015, February 1994.		test alternative cleaning solutions for the purpose of reducing VOC emissions.	<p>EPA as adequate under the 1997 ozone NAAQS.</p> <p>In 2011, it was revised for necessary corrections for meeting the 2006 CTG requirements reflected in the updated Section 8.0 (See Columns 4 and 5 of Section 8.0).</p> <p>Together, Section 45.0 and Section 8.0 require the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
Section 46.0 Crude Oil Lightering Operations 05/11/2007	Non-CTG RACT requirement, based on CAA Section 182(b)(2)(C).	Final Rule Federal Register Date: 09/13/2007 72 FR 52285	<p>This section applies to the owner or operator of a lightering service that carries out crude oil lightering operations in the waters of the State. The owner of the crude oil being lightered is also affected by certain provisions in this section.</p> <p>It establishes: (a) requirements for using submerged filling pipes, vapor-tight vessel, and vapor balancing between the marine vessels during the transfer of crude oil during lightering operations; (b) progressive schedule limits the annual volume of crude oil that can be lightered without vapor balancing; and (c) limitations on</p>	<p>Yes.</p> <p>This section was not in Delaware's RACT SIP under the 1997 ozone NAAQS. It was developed in 2007 to implement effective VOC emission controls over lightering processes to meet the requirements of CAA Section 182(b)(2)(C).</p> <p>It represents the current non-CTG RACT control levels and the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
			conducting uncontrolled lightering operations on Ozone Action Days.	
<p>Section 47.0 Offset Lithographic Printing and Letterpress Printing 04/11/2011</p>	<p>CTG for Offset Lithographic Printing and Letterpress Printing. EPA-453/R-06-002, September 2006.</p> <p>ACT for Offset Lithographic Printing- Supplemental Information Based on Public Comment on CTG Draft EPA- 453/D-95-001. EPA-453/R-94-054, June 1994.</p> <p>CTG for Control of Volatile Organic Compound Emissions from Offset Lithographic Printing (CTG Draft). EPA-453/D-95-001, September 1993.</p>	<p>Final Rule Federal Register Date: 11/25/2011 77 FR 72626</p>	<p>This section applies to any offset lithographic printing facility and letterpress printing facility, including any heatset and non-heatset web, non-heatset sheet-fed, and newspaper facility.</p> <p>It establishes VOC or alcohol content limits in fountain solutions, VOC limits in cleaning solutions, VOC control requirements for add-on control devices, and requirements for testing and recordkeeping, for the regulated facilities.</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1993 CTG (Draft) and 1994 ACT specified requirements for lithographic printing facilities. It was approved by EPA as adequate under the 1997 ozone NAAQS.</p> <p>In 2011, it was revised to implement the requirements specified in the 2006 CTG, by (1) adding letterpress printing facility, and (2) adopting more stringent control requirements.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 48.0 Reactor Processes and Distillation Operations in the Synthetic Organic Chemical</p>	<p>CTG for Control of Volatile Organic Compound Emissions from Reactor Processes and</p>	<p>Final Rule Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to any vent stream that originates from a process unit in which a reactor or distillation operation is located at a facility within the synthetic organic</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1993 CTG specified requirements.</p>

[PROPOSED][FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>Manufacturing Industry</p> <p>11/29/1994</p>	<p>Distillation Operations in SOCMIL.</p> <p>EPA-450/4-91-031, November 1993.</p>		<p>chemical manufacturing industry (SOCMI).</p> <p>It requires the affected sources to reduce VOC emissions by 98 weight-percent or to 20 ppmv on a dry basis corrected to 3% oxygen, via combustion device, flare, or process modification.</p>	<p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>Section 49.0 Control of VOC Emissions- Control of Volatile Organic Compound Emissions from Volatile Organic Liquid Storage Vessels</p> <p>11/29/1994</p>	<p>ACT for Volatile Organic Liquids Storage in Floating and Fixed Roof Tanks.</p> <p>EPA-453/R-94-001, February 1994.</p>	<p>Final Rule Federal Register Date: 01/26/1996 61 FR 2419</p>	<p>This section applies to each storage vessel with a capacity equal to or greater than 40,000 gallons that is used to store volatile organic liquids (VOLs).</p> <p>It establishes the venting and sealing standards for internal and external floating roofs, and specifies alternatives to installing internal or external floating roofs.</p>	<p>Yes.</p> <p>This section was developed in 1994 to fully implement the 1994 ACT specified requirements.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: Regulation 1124 Section	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Applicability and Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>Section 50.0 Control of VOC Emissions- Other Facilities that Emit Volatile Organic Compounds (VOCs)</p> <p>11/29/1994</p>	<p>Non-CTG RACT requirement, based on CAA Section 182(b)(2)(C).</p>	<p>Final Rule Federal Register Date: 03/12/1997 62 FR 11329</p>	<p>This section applies to any facility that is not covered by Section 10.0 through Section 49.0 of Regulation 1124.</p> <p>In brief, it requires an affected source to achieve an overall VOC emission reduction of at least 81 percent by weight. Facilities may also comply with Section 50.0 by submitting an alternative control plan that is subject to approval.</p>	<p>Yes.</p> <p>This section was developed in 1994 to require non-CTG major sources to implement RACT, thus implementing requirements of the CAA Section 182(b)(2)(C).</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no new CTG or significant change in RACT control technology for this section.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

2.2. Implementation of Non-CTG Specified VOC Controls

As indicated in Table 1 above, Delaware has certified that Regulation 1124 contains adequate VOC RACT controls under the 2015 8-hour ozone NAAQS. In addition to Table 1, Delaware has implemented numerous non-CTG-ACT specified VOC controls to achieve further VOC emission reductions for attainment and maintenance of the ozone NAAQS. In general, those non-specified controls are developed for meeting requirements of the CAA Section 182(b)(2)(C)¹¹ and related federal regulations, or for fulfilling Delaware's commitments for model rules agreed upon by regional state affiliations such as the Ozone Transport Commission (OTC), in which Delaware is a member state. Although those controls are not included in the current CTG-ACT documents, they are based on recent technical information available in other forms. DAQ believes that those additional or more stringent controls will help Delaware attain the ozone NAAQS as expeditiously as practicable.¹² In its December 2017 final rule approving Delaware's 2008 SIP revision as adequate under the 2008 8-hour ozone NAAQS (82 FR 57849), the EPA determined that these rules are "beyond RACT." The non-CTG specified VOC rules are discussed below.

2.2.1. Regulation 1141 Section 1.0 "Architectural and Industrial Maintenance (AIM) Coatings" (as approved as a SIP revision by EPA on August 11, 2010, 75 FR 48566)

- 1) This rule became effective on 03/11/2002 to control VOC emission from AIM coating activities;
- 2) This rule was developed to fulfill Delaware's commitment for the OTC 2002 Model Rule-Architectural and Industrial Maintenance (AIM) Coatings;
- 3) It applies to any person who supplies, sells, offers for sale, blends, repackages for sale, or manufactures any architectural coating for use in Delaware;
- 4) It establishes VOC content limits in various coating materials;
- 5) It sets up requirements for container labeling, recordkeeping, reporting and testing;
- 6) This rule is currently under evaluation for more stringent requirements.

2.2.2. Regulation 1141 Section 2.0 "Consumer Products" (as approved as a SIP revision by EPA on October 20, 2010, 75 FR 64673)

- 1) This rule became effective on 04/11/2009 to control VOC emissions from using consumer products;
- 2) This rule was developed to fulfill commitments for the OTC 2006 Model Rule-Consumer Products;

¹¹ Section 182(b)(2) states: "The State shall submit a revision to the applicable implementation plan to include provisions to require the implementation of reasonably available control technology under section 7502(c)(1) of this title with respect to each of the following: (A) Each category of VOC sources in the area covered by a CTG document issued by the Administrator between November 15, 1990, and the date of attainment. (B) All VOC sources in the area covered by any CTG issued before November 15, 1990. (C) All other major stationary sources of VOCs that are located in the area."

¹² In its proposed implementation rule for the 2008 8-hour ozone NAAQS (78 FR 34180, June 6, 2013), EPA indicates that states may require VOC and NO_x reductions that are even "beyond RACT" levels if such reductions are needed in order to provide for timely attainment of the ozone NAAQS.

- 3) It applies to any person who sells, supplies, offers for sale, or manufactures consumer products in Delaware;
- 4) It establishes VOC content limits for all covered consumer products;
- 5) It sets up requirements for container/package labeling, recordkeeping, reporting and testing, as well as for surplus reductions and trading;
- 6) This rule is currently under evaluation for more stringent requirements.

2.2.3. Regulation 1141 Section 4.0 “Adhesives and Sealants” (as approved as a SIP revision by EPA on December 22, 2011, 76 FR 79537)

- 1) This rule became effective on 04/11/2009 to control VOC emissions when using adhesives and sealants;
- 2) This rule was developed to fulfill commitments for the OTC 2006 Model Rule- Adhesives and Sealants (Note that this model rule was the basis for EPA’s 2008 updated CTG Miscellaneous Industrial Adhesives (EPA-453/R-08-005, September 2008));
- 3) It applies to any person who sells, supplies, offers for sale, or manufactures for sale adhesives, adhesive primers, sealants and sealant primers in Delaware;
- 4) It establishes VOC content limits in covered materials, and requirements for compliance and testing, as well as recordkeeping and reporting.

3. DETERMINATION OF COMPLIANCE OF NO_x RACT REQUIREMENTS

3.1. Certification of NO_x RACT Requirements

Delaware's NO_x RACT controls are applicable to specific groups of sources in 7 **DE Admin. Code** 1112, "Control of Nitrogen Oxides Emissions" (hereafter in this document referred to as Regulation 1112), which forms the basic NO_x RACT framework. Within this framework, other rules are developed and implemented for relevant subgroups, including:

- 7 **DE Admin. Code** 1144 "Control of Stationary Generator Emissions" (hereafter referred to as Regulation 1144);
- 7 **DE Admin. Code** 1146 "Electric Generating Units (EGUs) Multi-Pollutant Regulation" (hereafter referred to as Regulation 1146); and
- 7 **DE Admin. Code** 1148 "Control of Stationary Combustion Turbine Electric Generating Unit (EGU) Emissions" (hereafter referred to as Regulation 1148).

Sections in Regulation 1112 were first developed and implemented into Delaware SIP revisions under the 1-hour ozone NAAQS, and then included in Delaware's RACT SIP under the 1997 8-hour ozone NAAQS. All those sections were approved by EPA as adequate for meeting the RACT requirements under the 1997 8-hour ozone NAAQS (73 FR 42681, July 2008) and the 2008 8-hour ozone NAAQS (82 FR 57849, December 2017). Regulation 1144 was adopted in January 2006 to tighten the requirements covering internal combustion engines. Regulation 1146 was adopted in December 2006 to tighten the requirements covering EGUs. Regulation 1148 was adopted in July 2007 to tighten the requirements covering combustion turbines.

Certification of Delaware's NO_x RACT controls for meeting the 2015 8-hour ozone NAAQS is provided in Table 2, which is laid out by following the framework of source groups in Regulation 1112. Explanations for the columns of Table 2 are as follows:

Column 1: Identifies NO_x source groups being covered.

Regulation 1112, with an effective date of 11/24/1993, requires all major NO_x emission sources to comply with the relevant provisions by May 31, 1995. Regulations 1144, 1146 and 1148, covering relevant subgroups, have subsequent compliance dates (See Section 3.2 of this document).

Column 2: Identifies the underlying basis for the NO_x RACT control levels and compliance determination.

The fundamental basis of implementing NO_x RACT controls is CAA Sections 182(b)(2) and 182(f) (Citation of those CAA sections is not repeated in Column 2).

Column 3: Identifies the date the rule was approved by EPA into the Delaware SIP, along with the Federal Register citation.

Regulation 1112 was first implemented in November 1993, conditionally approved by EPA in June 1999, and EPA granted the final approval of Regulation 1112 on June 14, 2001 (66 FR 32231). Section 1.0 of Regulation 1142 was approved by EPA on August 11, 2010 (75 FR 48566) and Section 2.0 of the regulation was approved by EPA on May 15, 2012 (77 FR 28489). Regulation 1144 was approved by EPA on August 11, 2010 (75 FR 48566). Regulation 1146 was approved by EPA on March 16, 2010 (75 FR 12449). Regulation 1148 was approved by EPA on August 11, 2010 (75 FR 48566).

Column 4: Explains RACT control requirements.

Column 5: Certifies that the rule represents the RACT control level under the 2015 8-hour ozone NAAQS.

Relevant subgroups being covered in Regulation 1144, Regulation 1146, and Regulation 1148 are briefly discussed in Column 5. More detailed discussions of Regulations 1144, 1146 and 1148 are presented in Section 3.2 of this document.

Delaware's minor source permitting program under Regulation 1102 "Permits" requires a detailed administrative and technical review of Delaware NO_x sources that emit far below the "major" threshold" (i.e., permits are required for the emission of 10 pounds per day or more of "aggregate" air contaminants, and registrations for emissions between 0.2 and 10 lb/day of air contaminants). This permitting program gives confidence that all major NO_x sources are currently controlled by RACT-level controls or more stringent controls.

Effective August 13, 2001, EPA finalized approval of three source-specific NO_x RACT Determinations (66 FR 32231, 6/14/2001) in Delaware. The following three NO_x RACT determinations were removed from Delaware's SIP as part of Delaware's RACT SIP revision for the 2008 8-hour ozone NAAQS: (1) a sulfuric acid (H₂SO₄) and inter-stage absorption system (ISA) process, (2) a metallic nitrite process, and (3) a Polyhydrate Alcohol Catalyst Regenerative (PACR) process. Processes (1) and (2) were both at the General Chemical Corporation facility, Claymont, New Castle, Delaware, and process (3) was at SPI Polyols, Incorporated, Atlas Point Site, New Castle, Delaware. The General Chemical facility at Claymont was permanently shutdown. The PACR process at SPI was permanently shutdown. Therefore, these three NO_x RACT determinations were no longer required in Delaware's ozone SIP. The NO_x RACT determination at the fourth facility was for the electric arc furnace at CitiSteel USA, Incorporated in Claymont, Delaware. The CitiSteel facility permanently shutdown, effective December 31, 2013. Therefore, these three source-specific NO_x RACT determinations are no longer required in Delaware's ozone SIP.

Table 2. Delaware NOx RACT Control List and Determination of Compliance under the 2015 8-hour ozone NAAQS

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>1. Fuel burning equipment with an input capacity of 100 mmBTU/hr or greater</p>	<p>Stationary Source Committee Recommendation on NOx RACT for Utility Boilers, NESCAUM, 8/12/1992.</p> <p>Stationary Source Committee Recommendation on NOx RACT for Industrial Boilers, Internal Combustion Engines and Combustion Turbines, NESCAUM, 9/18/1992.</p> <p>Controlling Emissions of Nitrogen Oxides from Existing Utility Boilers Under Title I of the Clean Air Act: Options and Recommendations, STAPPA/ALAPCO, 4/27/1992.</p> <p>State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990, USEPA, 10/27/1995.</p> <p>Summary of NOx Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>Alternative Control Techniques Document: NOx Emissions from Process Heaters (Revised), USEPA, September 1993.</p> <p>Alternative Control Techniques Document: NOx Emissions from</p>	<p>Final Rule Federal Register Date: 06/14/2001 66 FR 32231</p>	<p>Gas, oil and coal fired units are subject to 0.20, 0.25, or 0.38 lb/mmBTU emission limits, respectively; Or their emissions must be controlled by low NOx burner technology or flue gas circulation with excess air.</p> <p>And in general, equipment larger than 100 mmBTU is required to install NOx continuous emission monitoring system (CEMS).</p>	<p>Yes.</p> <p>This provision fully implements the required NOx controls over the targeted sources.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source.</p> <p>In addition, Delaware has adopted more stringent NOx limits in: (1) Regulation 1142, for two sub-groups of this source, i.e., industrial boilers greater than 100 mmBTU/hour and industrial boilers and heat processers greater than 200 mmBTU/hour at refineries; (2) Regulation 1146, for coal-fired and oil-fired electric generating units (EGUs) with capacity equal to or greater than 25 MW. See Section 3.2 of this document for details.</p> <p>Together, Regulations 1112, 1142, and 1146 require the lowest emission limitations that the covered sources are capable of meeting by the application of</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	<p>Industrial/Commercial/Institutional (ICI) Boilers, USEPA, March 1994.</p> <p>Alternative Control Techniques Document: NOx Emissions from Utility Boilers, USEPA, March 1994.</p> <p>State's Report on Electric Utility Nitrogen Oxides Reduction Technology Options for Application by the Ozone Transport Assessment Group, prepared for the OTAG Control Technology & Options Workgroup by Ken Colburn, 4/11/1996.</p> <p>Status Report on NOx Controls for Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines, NESCAUM, December 2000.</p> <p>Summary of State/Local NOx Regulations for Stationary Sources, USEPA, 2004.</p>			<p>control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>2. Fuel burning equipment with an input capacity of 50 mmBTU/hr or greater and less than 100 mmBTU/hr</p>	<p>Stationary Source Committee Recommendation on NOx RACT for Industrial Boilers, Internal Combustion Engines and Combustion Turbines, NESCAUM, 9/18/1992.</p> <p>Summary of NOx Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>Alternative Control Techniques Document: NOx Emissions from Process</p>	<p>Final Rule Federal Register Date: 06/14/2001 66 FR 32231</p>	<p>Emission rates of the targeted sources are limited to those to be achieved by low excess air and low NOx burners, or flue gas recirculation.</p>	<p>Yes.</p> <p>This provision fully implements the required NOx controls over the targeted sources.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source.</p>

~~[PROPOSED]~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	<p>Heaters (Revised), USEPA, September 1993.</p> <p>Alternative Control Techniques Document: NOx Emissions from Industrial-Commercial/Institutional (ICI) Boilers, USEPA, March 1994.</p> <p>Status Report on NO_x Controls for Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines, NESCAUM, December 2000.</p> <p>Summary of State/Local NO_x Regulations for Stationary Sources, USEPA, 2004.</p>			<p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>3. Fuel burning equipment with an input capacity of less than 50 mmBTU/hr</p>	<p>Stationary Source Committee Recommendation on NO_x RACT for Industrial Boilers, Internal Combustion Engines and Combustion Turbines, NESCAUM, 9/18/1992.</p> <p>Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>Alternative Control Techniques Document: NOx Emissions from Process Heaters (Revised), USEPA, September 1993.</p> <p>Alternative Control Techniques Document: NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers, USEPA, March 1994.</p>	<p>Final Rule Federal Register Date: 06/14/2001 66 FR 32231</p>	<p>The rule requires the targeted sources to conduct annual tune-ups.</p>	<p>Yes.</p> <p>This provision fully implements the required NO_x controls over the targeted sources.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is</p>

~~[PROPOSED]~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NO_x Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	Summary of State/Local NO _x Regulations for Stationary Sources, USEPA, 2004.			reasonably available considering current technological and economic feasibility.
4. Alternative requirement for fuel burning equipment - Seasonal fuel switching (April 1 through October 31) to a low NO _x emitting fuel.	<p>Memorandum, Fuel Switching to Meet the Reasonably Available Control Technology (RACT) Requirements for Nitrogen Oxides (NO_x), Michael H. Shapiro, Air and Radiation, US EPA, 7/30/1993.</p> <p>Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>Memorandum, Nitrogen Oxides (NO_x) Questions from Ohio EPA, Tom Helms, Chief Ozone/Carbon Monoxide Programs Branch, US EPA (no date, referring to 11/30/1993 questions).</p> <p>Summary of State/Local NO_x Regulations for Stationary Sources, USEPA, 2004.</p> <p>Alternative Control Techniques Document: NO_x Emissions from Industrial-Commercial/Institutional (ICI) Boilers, USEPA, March 1994.</p> <p>State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990, USEPA.</p>	Final Rule Federal Register Date: 06/14/2001 66 FR 32234	For the covered sources, fuel switching is limited to the use of natural gas, liquid petroleum gas (LPG) or distillate oil. A 90% availability of the new fuel is required.	<p>Yes.</p> <p>This provision fully implements the required NO_x controls over the targeted sources.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source.</p> <p>The requirements are the lowest emission limitations that the covered source is capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NO_x Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
5. Gas turbines	<p>Alternative Control Techniques Document: NO_x Emissions from Stationary Gas Turbines, USEPA, January 1993.</p> <p>Stationary Source Committee Recommendation on NO_x RACT for Industrial Boilers, Internal Combustion Engines and Combustion Turbines, NESCAUM, 9/18/1992.</p> <p>Status Report on NO_x Controls for Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines, NESCAUM, December 2000.</p> <p>Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>Summary of State/Local NO_x Regulations for Stationary Sources, USEPA, 2004.</p>	Final Rule Federal Register Date: 06/14/2001 66 FR 32231	The rule requires the covered gas turbines to meet 42ppm and 88 ppm NO _x limits for gas and oil fired units, respectively	<p>Yes.</p> <p>This provision fully implements the required NO_x controls over the targeted sources.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source group, except as explained below.</p> <p>In 2007, Delaware adopted Regulation 1148, setting forth additional requirements for a subgroup of combustion turbine electric generating units (EGUs), in particular to control NO_x emissions from the covered EGUs in high-electric-demand-days (HEDDs). See Section 3.2 of this document for details.</p> <p>Together, Regulations 1112 and 1148 require the lowest emission limitations that the covered source groups and subgroup are capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

[PROPOSED][FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NO_x Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
6. Stationary internal combustion engines	<p>Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>Stationary Source Committee Recommendation on NO_x RACT for Industrial Boilers, Internal Combustion Engines and Combustion Turbines, NESCAUM, 9/18/1992.</p> <p>Alternative Control Techniques Document: NO_x Emissions from Stationary Reciprocating Internal Combustion Engines, USEPA, 1993.</p> <p>NO_x Emissions from Stationary Internal Combustion Engines, USEPA, October 2003</p> <p>Stationary Reciprocating Internal Combustion Engines – Updated Information on NO_x Emissions and Control Techniques – Revised Final Report, USEPA, 9/1/2000.</p> <p>Sourcebook: NO_x Control Technology Data, USEPA, July 1991.</p> <p>Status Report on NO_x Controls for Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines, NESCAUM, December 2000.</p> <p>Summary of State/Local NO_x Regulations for Stationary Sources, USEPA, 2004</p>	Final Rule Federal Register Date: 06/14/2001 66 FR 32231	The rule establishes emission limits for the targeted engines to those achieved using pre-ignition chamber combustion or clean burn technology for gas fired units and those achieved using lean burn technology for diesel fired units.	<p>Yes.</p> <p>This provision fully implements the required NO_x controls over the targeted sources.</p> <p>It was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA’s approval, there has been no updated CTG and no significant change in RACT control technology for the covered source group, except as explained below.</p> <p>In 2006, Delaware adopted Regulation 1144, setting forth NO_x emission requirements for a subgroup of stationary generators that were generally exempted from Regulation 1112. See Section 3.2 of this document for details.</p> <p>Together, Regulations 1112 and 1144 require the lowest emission limitations that the covered source groups and subgroup are capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
7. Fuel burning equipment used exclusively for providing residential comfort heating and hot water	<p>Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.</p> <p>State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990, USEPA.</p>	Final Rule Federal Register Date: 06/14/2001 66 FR 32231	Regulation 1112 specifies no emissions limits or control requirements for the targeted source group.	<p>Yes.</p> <p>For this source group, DAQ determined that no cost effective RACT controls existed under the 1-hour ozone NAAQS and under the 1997 ozone NAAQS.</p> <p>The determination was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source group.</p>
8. Incinerator or thermal/catalytic oxidizer constructed before November 15, 1992, and used primarily for the control of air pollution.	Summary of NO _x Control Technologies and their Availability and Extent of Application, USEPA, February 1992,	Final Rule Federal Register Date: 06/14/2001 66 FR 32231	Regulation 1112 specifies no emissions limits or control requirements for the targeted source group.	<p>Yes.</p> <p>For this source group, DAQ determined that no cost effective RACT controls existed under the 1-hour ozone NAAQS and under the 1997 ozone NAAQS.</p> <p>The determination was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source.</p>

[PROPOSED][FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NO_x Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>9. Fuel burning equipment with a rated heat input capacity of less than 15 MMBTU/hour.</p>	<p>Memorandum: De Minimis Values for NO_x RACT, from G.T. Helms, Ozone Policy and Strategies Group, USEPA, 1/1/1995.</p> <p>Alternative Control Techniques Document: NO_x Emissions from Industrial-Commercial/Institutional (ICI) Boilers, USEPA, March 1994</p>	<p>Final Rule Federal Register Date: 06/14/2001 66 FR 32231</p>	<p>Regulation 1112 specifies no emissions limits or control requirements for the targeted source group.</p>	<p>Yes.</p> <p>For this source group, DAQ determined that no cost effective RACT controls existed under the 1-hour ozone NAAQS and under the 1997 ozone NAAQS.</p> <p>The determination was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source.</p>
<p>10. Stationary internal combustion engine with a rated capacity of or less than 450 hp of output power.</p>	<p>Memorandum: De Minimis Values for NO_x RACT, from G.T. Helms, Ozone Policy and Strategies Group, USEPA, 1/1/1995.</p> <p>NO_x Emissions from Stationary Internal Combustion Engines, USEPA, October 2003.</p> <p>Stationary Reciprocating Internal Combustion Engines – Updated Information on NO_x Emissions and Control Techniques – Revised Final Report, USEPA, 9/1/2000.</p> <p>Alternative Control Techniques Document: NO_x Emissions from</p>	<p>Final Rule Federal Register Date: 06/14/2001 66 FR 32231</p>	<p>Regulation 1112 specifies no emissions limits or control requirements for the targeted source group.</p>	<p>Yes.</p> <p>For this source group, DAQ determined that no cost effective RACT controls existed under the 1-hour ozone NAAQS and under the 1997 ozone NAAQS.</p> <p>The determination was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated CTG and no significant change in RACT control technology for the covered source group, except as explained below.</p>

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
	Stationary Reciprocating Internal Combustion Engines, USEPA, 1993.			<p>In 2006, Delaware adopted Regulation 1144, setting forth NOx emission requirements for a subgroup of stationary generators that were generally exempted from Regulation 1112. See Section 3.2 of this document for details.</p> <p>Together, Regulations 1112 and 1144 require the lowest emission limitations that the covered source groups and subgroup are capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
11. Any source operating during the month of November to the end of March and operating with a capacity factor of 5% or less from April 1 to October 31.	<p>Memorandum, Nitrogen Oxides (NO_x) Questions from Ohio EPA, Tom Helms, Chief Ozone/Carbon Monoxide Programs Branch, US EPA (no date, referring to 11/30/1993 questions).</p> <p>Memorandum Subject: De Minimis Values for NO_x RACT, from G.T. Helms, Ozone Policy and Strategies Group, 1/1/1995</p>	Final Rule Federal Register Date: 06/14/2001 66 FR 32231	<p>Regulation 1112 specifies no emissions limits or control requirements for the targeted source group, based on EPA's Helms Memo.¹³</p> <p>Delaware, however, determines that some units in this source group have high short</p>	<p>Yes.</p> <p>For this source group, DAQ determined that no cost effective RACT controls existed under the 1-hour ozone NAAQS and under the 1997 ozone NAAQS.</p> <p>The determination was approved by EPA as adequate under the 1997 ozone NAAQS. After EPA's approval, there has been no updated</p>

¹³ The DAQ believes that the exemptions for this source group based on the 1995 Helms Memo should not continue because short term emissions from the source group impact adversely the ozone air quality in summer time. Delaware has adopted RACT controls in Regulation 1144 and Regulation 1148 to address the short term NOx emissions. The DAQ suggests that EPA revoke the 1995 memo to avoid continuous exemption for the related sources.

~~PROPOSED~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
			<p>term or daily NOx emissions that impact ozone air quality in the ozone season. Delaware has set forth RACT-level requirements outside Regulation 1112 (i.e., in Regulations 1144 and 1148). See Column 5, and Section 3.2 of this document.</p>	<p>CTG and no significant change in RACT control technology for the covered source, except as explained below.</p> <p>In 2006, Delaware adopted: (1) Regulation 1144, setting forth NOx emission requirements for a subgroup of stationary generators that were generally exempted from Regulation 1112; and (2) Regulation 1148 in 2007, setting forth additional requirements for a subgroup of combustion turbine electric generating units (EGUs), in particular to control NOx emissions from the covered EGUs in high-electric-demand-days (HEDDs). See Section 3.2 of this document for details.</p> <p>Together, Regulations 1112, 1144 and 1148 require the lowest emission limitations that the covered source groups and subgroup are capable of meeting by the application of control technology that is reasonably available considering current technological and economic feasibility.</p>
<p>12. Any fuel burning equipment, gas turbine, or internal combustion engine with an annual</p>	<p>Memorandum Subject: De Minimis Values for NO_x RACT, from G.T. Helms, Ozone Policy and Strategies Group, USEPA, 1/1/1995.</p>	<p>Final Rule Federal Register Date: 06/14/2001 66 FR 32231</p>	<p>Regulation 1112 specifies no emissions limits or control requirements for the</p>	<p>Yes.</p> <p>For this source group, DAQ determined that no cost effective</p>

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
<p>capacity factor of less than 5 percent.</p>	<p>Alternative Control Techniques Document: NO_x Emissions from Industrial-Commercial-Institutional (ICI) Boilers, USEPA, March 1994.</p> <p>Alternative Control Techniques Document: NO_x Emissions from Stationary Reciprocating Internal Combustion Engines, USEPA, 1993.</p> <p>Alternative Control Techniques Document: NO_x Emissions from Stationary Gas Turbines, USEPA, January 1993.</p> <p>Alternative Control Techniques Document: NO_x Emissions from Process Heaters (Revised), USEPA, September 1993.</p>		<p>targeted source group, based on EPA’s Helms Memo.⁷</p> <p>Delaware, however, determines that some units in this source group have high short term or daily NO_x emissions that impact ozone air quality in the ozone season. Delaware has set forth RACT-level requirements outside Regulation 1112 (i.e., in Regulations 1144 and 1148). See Column 5, and Section 3.2 of this document.</p>	<p>RACT controls existed under the 1-hour ozone NAAQS and under the 1997 ozone NAAQS. The determination was approved by EPA as adequate under the 1997 ozone NAAQS.</p> <p>After EPA’s approval, there has been no updated CTG and no significant change in RACT control technology for the covered source group, except as explained below.</p> <p>In 2006, Delaware adopted: (1) Regulation 1144, setting forth NO_x emission requirements for a subgroup of stationary generators that were generally exempted from Regulation 1112; and (2) Regulation 1148 in 2007, setting forth additional requirements for a subgroup of combustion turbine electric generating units (EGUs), in particular to control NO_x emissions from the covered EGUs in high-electric-demand-days (HEDDs). See Section 3.2 of this document for details.</p> <p>Together, Regulations 1112, 1144 and 1148 require the lowest emission limitations that the covered source groups and subgroup are capable of meeting by the application of control technology that is reasonably</p>

~~[PROPOSED]~~[FINAL] - RACT SIP FOR THE 2015 8-HOUR OZONE NAAQS

Column 1: NOx Emission Source Group	Column 2: Basis for RACT Control	Column 3: As SIP Revision Approved by EPA	Column 4: RACT Rule Requirements	Column 5: Requirements at least as stringent as RACT level for the 2015 8-hour ozone NAAQS?
				available considering current technological and economic feasibility.

3.2. Implementation of Non-CTG Specified NO_x Controls

As indicated in Table 2 above, Delaware has certified that the framework of Regulation 1112, including Regulations 1112, 1142, 1144, 1146 and 1148 contains adequate NO_x RACT controls under the 2015 8-hour ozone NAAQS. As aforementioned, Regulation 1112 was developed following CTG-ACT guidelines under the 1-hour ozone NAAQS and maintained valid under the 1997 8-hour ozone NAAQS. Delaware has also developed Regulations 1142, 1144, 1146, 1148 and other controls to implement additional RACT-level rules and requirements to aid in maintenance of the 1-hour NAAQS and attainment of the NAAQS. In general, those non-CTG specified rules are developed for meeting requirements of the CAA Section 182(b)(2) and related federal regulations, or for fulfilling Delaware's commitments for model rules agreed upon by regional state affiliations such as the OTC, in which Delaware is a member state.

As aforementioned, EPA has defined RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762). EPA's definition indicates that the RACT requirements must include compliance with the lowest emission levels that were achieved in the past, are achieved at present, or will be achieved in the future under facility's operational limitations (such as operational permits) and equipment standards that were previously applicable, are presently applicable, or will become applicable in the future, respectively. The DAQ believes that the development of its non-CTG specified NO_x rules reflects exactly the EPA's RACT definition, as they were approved by the EPA as adequate under the 2008 8-hour ozone NAAQS. Further, the OTC document "White Paper on Control Technologies and OTC State Regulations for Nitrogen Oxides (NO_x) Emissions from Eight Source Categories"¹⁴ identifies emissions limits and regulations for NO_x emissions identified by OTC states as RACT. The NO_x emissions comparisons for boilers, stationary generators, and combustion turbines of this document provide justification for DAQ's assertion that the following rules reflect RACT.

The non-CTG NO_x rules are discussed in details below.

3.2.1. Regulation 1142 Section 1.0 "Control of NO_x Emissions from Industrial Boilers"

- 1) This rule became effective on 12/12/2001 to control NO_x emissions from large industrial boilers;¹⁵
- 2) It imposes controls on certain industrial boilers with heat input greater than 100 mmBTU/hour, by setting up a NO_x emission rate limit of 0.10 lb/mmBTU for the ozone season, and 0.25 lb/mmBTU for the non-ozone season months.
- 3) It also establishes the requirements of monitoring, recordkeeping and reporting for the covered boilers.

¹⁴ This document can be obtained on the OTC website at https://otcair.org/upload/Documents/Reports/WhitePaper_NOx_Control_04052017.pdf, and is listed in in 5.7 of the Documentation section of this document.

¹⁵ Three boilers at Sunoco refining facility (Claymont, Delaware) used to be subject to Regulation 1142 Section 1.0. The boilers were shutdown in 2002. At present, no source in Delaware is subject to this rule.

3.2.2. Regulation 1142 Section 2.0 “Control of NO_x Emissions from Industrial Boilers and Heat Processers at Petroleum Refineries”

- 1) This rule became effective on 04/11/2011 to control NO_x emission from large industrial boilers and heat processor at petroleum refineries;
- 2) It was originally developed to fulfill requirements to attain the 1997 8-hour ozone NAAQS and was revised following a consent agreement of May 2010 between the Department and the covered refinery;
- 3) It imposes stringent NO_x emission rate limits, and corresponding compliance schedule, for 8 industrial boilers and heat processors with heat input greater than 200 mmBTU/hour at Delaware City refinery, operated by Delaware City Refinery Company (DCRC) (the only petroleum refinery in Delaware);
- 4) The emission rate limits include: 0.015 lb/mmBTU on a 24-hour rolling average basis for three boilers, 20 ppmvd@0% O₂ on a 365-day rolling average basis for a CO boiler, and 0.04 lb/mmBTU on a 24-hour rolling average basis process heaters;
- 5) It establishes an alternative facility-wide NO_x emission cap for the covered facility:
 - a) 2,525 tons in 2013;
 - b) 2,225 tons in 2014;
 - c) 1,650 tons in 2015;
- 6) It also establishes the requirements of compliance, recordkeeping and reporting for the covered refineries.

3.2.3. Regulation 1144 “Control of Stationary Generator Emissions”

- 1) This regulation became effective on 01/11/2006 to control NO_x emissions, as well as other pollutant emissions, from stationary generators;
- 2) It was developed from Delaware governor’s initiative for clean energy and clean air, and later became the template of the OTC Model Rule for Stationary Generator Control Measures (2009);
- 3) It addresses short term NO_x emissions from the covered sources and reduces their daily impacts on ozone air quality during the ozone season;
- 4) It sets up stringent NO_x emission rates for stationary distributed generators, with standby power ratings greater than 10kW, when used at times other than emergency times;
- 5) The NO_x emission rate limits include:
 - a) For existing distributed generators: 4.0 lb/MWh;
 - b) For new distributed generators:
 - i) Installed on or after 01/11/2006, 2.2lb/MWh;
 - ii) Installed on or after 01/01/2008, 1.0 lb/MWh;
 - iii) Installed on or after 01/01/2012, 0.6 lb/MWh;
- 6) For new distributed generators using waste/landfill/digester gases and installed on or after 01/11/2006: 2.2 lb/MWh;

- 7) It establishes requirements for recordkeeping and reporting, emission certification, compliance and enforcement, and emission credit calculations for the covered generators.
- 8) The stationary generators covered by Regulation 1144 are in general exempted from Regulation 1112 because of their small capacities. Delaware, however, determines that these units had high daily NO_x emissions and therefore should be controlled to aid in attainment and maintenance of the ozone NAAQS during the ozone season.

3.2.4. Regulation 1146 “Electric Generating Units (EGU) Multi-Pollutant Regulation”

- 1) This regulation became effective on 12/11/2006 to limit NO_x emission rates and to establish unit-specific annual NO_x mass emissions caps, as well as SO₂ and mercury emission rates and mass emissions caps, from coal and residual oil fired EGUs with a nameplate rating of 25 MW or greater;
- 2) It was developed to fulfill Delaware’s obligations under former EPA cap and trade programs and Clean Air Act (CAA) Section 110 transport restrictions.;
- 3) It sets up stringent NO_x emission rate limit of 0.15 lb/mmBTU for coal-fired and residual oil-fired EGUs with nameplate capacity ratings of greater than 25 MW during the period of May 1, 2009 through December 31, 2009, and a NO_x emissions rate limit of 0.125 lb/MMBTU for the period beginning January 1, 2010 and beyond;
- 4) It establishes standards for recordkeeping and reporting, compliance, and penalties for the covered EGUs.

3.2.5. Regulation 1148 “Control of Stationary Combustion Turbine Electric Generating Unit (EGU) Emissions”

- 1) This regulation became effective on 07/11/2007 to control NO_x emissions from stationary combustion turbine EGUs with base-load nameplate capacities of 1 MW or greater;
- 2) It was developed to fulfill requirements for controlling NO_x emissions in high-electric-demand-days (HEDDs) during the ozone season, as required in the OTC Model Rule for HEDD Turbines (2009);
- 3) It addresses short term NO_x emissions from the covered sources and reduces their daily impacts on ozone air quality during the ozone season;
- 4) It sets up RACT-level NO_x emission limits, 42 ppmv (parts per million by volume) for gaseous fuel and 88 ppmv for liquid fuel, for the covered EGUs;
- 5) It also implements NO_x emission requirements for covered combustion turbine EGUs in HEDDs during the ozone season;
- 6) It establishes standards for monitoring and reporting, recordkeeping for the covered EGUs;
- 7) The stationary combustion turbines covered by Regulation 1148 are in general exempted from Regulation 1112 because of their small capacities. Delaware, however, determines that these units had high daily NO_x emissions and therefore should be controlled to aid in attainment and maintenance of the ozone NAAQS in the ozone season.

3.3. Optimized Operation Limits as RACT Controls for Refinery Units

The DAQ has reviewed the 2017 Delaware emission inventory¹⁶ and has determined that the requirements of Regulation 1112, Section 2.0 of 1142, 1144, 1146, and 1148 continue to provide adequate NO_x RACT emissions controls under the 2015 8-hour ozone NAAQS for all NO_x emission units except for two units located at the Delaware City Refinery. These two units are the fluid-coking unit (FCU) and the fluid-catalytic-cracking unit (FCCU).

The Delaware City refinery currently complies with Section 2.0 of Regulation 1142 by compliance with a facility-wide NO_x emission cap.¹⁷ In addition, NO_x short-term and long-term emission limits from the FCU and the FCCU are covered under an EPA consent decree finalized in letters from EPA to the refinery dated May 21, 2014. In its 2008 RACT SIP Revision, Delaware established the consent decree limits as RACT limits for these two units as follows:

- 1) The FCU and FCCU each generate NO_x and carbon monoxide (CO), the latter being combusted in a downstream CO Boiler;
- 2) The FCU and FCCU NO_x limits are established as follows:
 - a) FCU: 152.0 ppmvd (parts per million by volume dry) @ 0% O₂ on a 7-day rolling average basis and 115.2 ppmvd @ 0% O₂ on a 365-day rolling average basis;
 - b) FCCU: 137.0 ppmvd @ 0% O₂ on a 7-day rolling average basis and 100.7 ppmvd @ 0% O₂ on a 365-day rolling average basis;
- 3) For days in which the units are not operating, no NO_x value shall be used in the average, and those periods shall be skipped in determining the 7-day and 365-day averages;
- 4) The DAQ finds the optimized limits described above to be the lowest emission limitation that the units are capable of meeting by the application of control technology that is reasonably available for the two units considering technological and economic feasibility;
- 5) The following were incorporated into Delaware's 2008 RACT SIP revision and approved by the EPA as adequate under the 2008 ozone NAAQS. The DAQ contends that these requirements for the FCU and FCCU meet the RACT requirements under the 2015 8-hour ozone NAAQS:
 - a) The optimized limits as described in (4) above;
 - b) The compliance requirements as specified in Section 2.4.1 of Regulation 1142.
 - c) The recordkeeping and reporting requirements as specified in Section 2.5 of Regulation 1142.

¹⁶ Delaware's 2017 emissions inventory has been prepared internally by DAQ. The emissions will be publicly available on the EPA's website for the 2017 National Emissions Inventory (NEI) <https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data>.

¹⁷ A facility-wide emissions cap incorporates an overall emissions limit for a pollutant on a plant-wide basis. The cap is designed to maintain compliance with all applicable emission limits, but provides the facility with some flexibility in the operation of individual emissions units.

4. NEGATIVE DECLARATIONS

Some RACT controls have not been adopted in Delaware because there are no targeted emission sources in Delaware. The DAQ makes the negative declarations for the following RACT controls:

- 1) Control of Volatile Organic Emissions from Manufacture of Pneumatic Rubber Tires, EPA-450/2-78-030, December 1978. (Group II).
- 2) Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations, EPA-453/R-96-007, April 1996.
- 3) Control Techniques Guidelines for Shipbuilding and Ship Repair Operations (Surface Coating) - August 1996 (61 FR 44050), August 27, 1996.
- 4) Control Techniques Guidelines for Fiberglass Boat Manufacturing Materials. EPA-453/R-08-004, September 2008.
- 5) Control Techniques Guidelines for the Oil and Natural Gas Industry. EPA-453/B-16-001, October 2016.

In addition, in its implementation rule for the 1997 8-hour ozone NAAQS (70 FR 71612, November 29, 2005), EPA identified that cement kilns and stationary internal combustion engines were two source categories for which additional NO_x control information was available since the RACT determinations under the 1-hour ozone NAAQS were made. However, Delaware declares that (1) it does not have cement kilns within its boundary and (2) the stationary internal combustion engines in Delaware are regulated by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS) for reciprocating internal combustion engines (RICE) (Note that the subgroup of stationary generators is now covered by Regulation 1144).

Furthermore, Delaware declares that it does not have any new major stationary VOC and NO_x emission sources that fall outside the scope of the implemented RACT VOC rules (i.e., sections in Regulation 1124), RACT NO_x rules (i.e., source groups of Regulation 1112), and other VOC rules and NO_x rules discussed in 2.2 and 3.2 of this document, respectively.

5. DOCUMENTATION

5.1. List of EPA's Control Techniques Guidelines (CTG) documents, Alternative Control Techniques (ACT) documents, and Additional Reference Documents, cited in this RACT SIP revision.

- 1) Control Technology Guidance (CTG) document: Control of Volatile Organic Compound Emissions from Coating Operations at Aerospace Manufacturing and Rework Operations, EPA-453/R-97-004, December 1997.
- 2) Alternative Control Techniques (ACT) document: Reduction of Volatile Organic Compound Emissions from Automobile Refinishing, EPA-450/3-88-009, October 1988.
- 3) ACT: Automobile Refinishing, EPA-453/R-94-031, April 1994.
- 4) ACT: Surface Coating of Automotive/Transportation and Business Machine Plastic Parts, EPA-453/R-94-017, February 1994.
- 5) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks, EPA-450/2-77-008, May 1977 (Group I).
- 6) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume III: Surface Coating of Metal Furniture, EPA-450/2-77-032, December 1977.
- 7) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume V: Surface Coating of Large Appliances, EPA-450/2-77-034, December 1977 (Group I).
- 8) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume IV: Surface Coating of Insulation of Magnet Wire, EPA-450/2-77-033, December 1977 (Group I).
- 9) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VI: Surface Coating of Miscellaneous Metal Parts and Products, EPA-450/2-78-015, June 1978 (Group II).
- 10) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VII: Factory Surface Coating of Flat Wood Paneling, EPA-450/2-78-032, June 1978 (Group II).
- 11) CTG: Control of Volatile Organic Emissions from Bulk Gasoline Plants, EPA-450/2-77-035, December, 1977 (Group I).
- 12) CTG: Control of Volatile Organic Emissions from Bulk Gasoline Plants, EPA-450/2-77-035, December, 1977 (Group I).
- 13) CTG: Design Criteria for Stage I Vapor Control Systems - Gasoline Service Stations, November 1975 (Group I).
- 14) CTG: Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals, EPA-450/2-77-026, December 1977 (Group I).
- 15) CTG: Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems, EPA-450/2-78-051, December 1978 (Group II).
- 16) CTG: Control of Refinery Vacuum Producing Systems, Wastewater Separators, and Process Unit Turnarounds, EPA-450/2-77-025, October 1977 (Group I).
- 17) CTG: Control of Volatile Organic Compound Leaks from Petroleum Refinery Equipment, EPA-450/2-78-036, June 1978 (Group II).
- 18) CTG: Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks, EPA-450-2/78-047, December 1978 (Group II).

- 19) CTG: Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed Roof Tanks, EPA-450/2-77-036, December 1977 (Group I).
- 20) CTG: Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants, EPA-450/2-83-007, December 1983 (Group III).
- 21) CTG: Control of Volatile Organic Emissions from Solvent Metal Cleaning, EPA-450/2-77-022 November 1977 (Group I).
- 22) ACT: Halogenated Solvent Cleaners, EPA-450/3-89-030, August 1989.
- 23) CTG: Control of Volatile Organic Compounds from Use of Cutback Asphalt, EPA-450/2-77-037, December 1977 (Group I).
- 24) CTG: Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products, EPA-450/2-78-029, December 1978 (Group II).
- 25) CAA Section 182(b)(3).
- 26) CTG: Control of Volatile Organic Emissions from Existing Stationary Sources, Volume VIII: Graphic Arts-Rotogravure and Flexography, EPA-450/2-78-033, December 1978 (Group II).
- 27) CTG: Control of Volatile Organic Compound Emissions from Large Petroleum Dry Cleaners, EPA-450/3-82-009, September 1982 (Group III).
- 28) CTG: Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation Operations in SOCM, November 15, 1993, EPA-450/4-91-031.
- 29) CTG: Control of Volatile Organic Compound Fugitive Emissions from Synthetic Organic Chemical Polymer and Resin Manufacturing Equipment, EPA-450/3-83-006, March 1984 (Group III).
- 30) CTG: Control of Volatile Organic Compound Emissions from Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins, EPA-450/3-83-008, November 1983 (Group III).
- 31) CTG: Control of Volatile Organic Compound Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry, EPA-450/3-84-015, December 1984 (Group III).
- 32) CAA Section 183(f).
- 33) ACT: Control of Volatile Organic Compound Emissions from Batch Processes, EPA-453/R-93-017, February 1994.
- 34) ACT Document: Industrial Cleaning Solvents, EPA-453/R-94-015, February 1994.
- 35) CTG: Control of Volatile Organic Compound Emissions from Offset Lithographic Printing (CTG Draft), EPA-453/D-95-001, September 1993.
- 36) ACT: Offset Lithographic Printing, EPA-453/R-94-054, June 1994.
- 37) CTG: Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation Operations in SOCM, November 15, 1993, EPA-450/4-91-031.
- 38) ACT: Volatile Organic Liquids Storage in Floating and Fixed Roof Tanks, EPA-453/R-94-001, February 1994.
- 39) CAA Section 182(b)(2)(C).
- 40) Stationary Source Committee Recommendation on NO_x RACT for Utility Boilers, North-East States for Coordinated Air Use Management (NESCAUM), 8/12/1992.
- 41) Stationary Source Committee Recommendation on NO_x RACT for Industrial Boilers, Internal Combustion Engines and Combustion Turbines, North-East States for Coordinated Air Use Management (NESCAUM), 9/18/1992.

- 42) Controlling Emissions of Nitrogen Oxides from Existing Utility Boilers Under Title I of the Clean Air Act: Options and Recommendations, State and Territorial Air Pollution Program Administrators and Association of Local Air Pollutions Officials (STAPPA/ALAPCO), 4/27/1992.
- 43) State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990, USEPA, 10/27/1995.
- 44) Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.
- 45) Alternative Control Techniques Document: NO_x Emissions from Process Heaters (Revised), USEPA, September 1993.
- 46) Alternative Control Techniques Document: NO_x Emissions from Industrial/Commercial/Institutional (ICI) Boilers, USEPA, March 1994.
- 47) Alternative Control Techniques Document: NO_x Emissions from Utility Boilers, USEPA, March 1994.
- 48) State's Report on Electric Utility Nitrogen Oxides Reduction Technology Options for Application by the Ozone Transport Assessment Group (OTAG), prepared for the OTAG Control Technology & Options Workgroup by Ken Colburn, 4/11/1996.
- 49) Status Report on NO_x Controls for Gas Turbines, Cement Kilns, Industrial Boilers, Internal Combustion Engines, NESCAUM, December 2000.
- 50) Summary of State/Local NO_x Regulations for Stationary Sources, USEPA, 2004.
- 51) Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA, February 1992.
- 52) Summary of NO_x Control Technologies and their Availability and Extent of Application, USEPA February 1992.
- 53) Memorandum subject, Fuel Switching to Meet the Reasonably Available Control Technology (RACT) Requirements for Nitrogen Oxides (NO_x), Michael H. Shapiro, Air and Radiation, 7/30/1993.
- 54) Memorandum subject, Nitrogen Oxides (NO_x) Questions from Ohio EPA, Tom Helms, Chief Ozone/Carbon Monoxide Programs Branch, (no date cited, references 11/30/1993 questions).
- 55) State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990, USEPA.
- 56) Alternative Control Techniques Document: NO_x Emissions from Stationary Gas Turbines, USEPA, January 1993.
- 57) Alternative Control Techniques Document: NO_x Emissions from Stationary Reciprocating Internal Combustion Engines, USEPA 1993.
- 58) NO_x Emissions from Stationary Internal Combustion Engines, USEPA, October 2003.
- 59) Stationary Reciprocating Internal Combustion Engines – Updated Information on NO_x Emissions and Control Techniques – Revised Final Report, USEPA, 9/1/2000.
- 60) Sourcebook: NO_x Control Technology Data, USEPA, July 1991.
- 61) Memorandum Subject: De Minimis Values for NO_x RACT, from G.T. Helms, Ozone Policy and Strategies Group, dated 1/1/1995.
- 62) Alternative Control Techniques Document: NO_x Emissions from Iron and Steel Mills, USEPA, September 1994.

- 63) The “Blue Book,” i.e., “ISSUES RELATED TO VOC REGULATION CUTPOINTS, DEFICIENCIES AND DEVIATIONS, Clarification to Appendix D of November 24, 1987 FEDERAL REGISTER,” May 25, 1988.
https://www.epa.gov/sites/production/files/2016-08/documents/voc_bluebook_25may1988.pdf
- 64) Control Techniques Guidelines for Flat Wood Paneling Coatings. EPA 453/R-06-004, September 2006.
- 65) Control Techniques Guidelines for Industrial Cleaning Solvents. EPA 453/R-06-001, September 2006.
- 66) Control Techniques Guidelines for Flexible Package Printing. EPA 453/R-06-003, September 2006.
- 67) Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing. EPA-453/R-06-002, September 2006.
- 68) Control Techniques Guidelines for Paper Film and Foil Coatings. EPA 453/R-07-003, September 2007.
- 69) Control Techniques Guidelines for Metal Furniture Coatings. EPA 453/R-07-005, September 2007.
- 70) Control Techniques Guidelines for Large Appliance Surface Coating. EPA 453-07-004, September 2007.
- 71) Control Techniques Guidelines for Auto and Light-duty Truck Assembly Coatings. EPA 453/R-08-006, September 2008.
- 72) Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Primer-Surfacer and Topcoat Operations. EPA 453/R-08-002, September 2008.
- 73) Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings. EPA-453/R-08-003, September 2008.
- 74) Control Techniques Guidelines for Fiberglass Boat Manufacturing Materials. EPA-453/R-08-004, September 2008.
- 75) Control Techniques Guidelines for Miscellaneous Industrial Adhesives. EPA-453/R-08-005, September 2008.
- 76) Model Rule for Architectural, Industrial and Maintenance Coatings (AIM), Ozone Transport Commission (OTC), 2002.
- 77) Model Rule for Consumer Products, Ozone Transport Commission (OTC), 2006.
- 78) Model Rule for Adhesives and Sealants, Ozone Transport Commission (OTC), 2006.
- 79) Model Rule for Large Above-Ground VOC Storage Tanks, Ozone Transport Commission (OTC), 2010.
- 80) Model Rule for Solvent Degreasing, Ozone Transport Commission (OTC), 2012.
- 81) Letter from U.S. EPA (Philip Brooks, Director of Air Enforcement Division) to the Delaware City Refining Company (John Deemer, HSE Manager) dated May 21, 2014, establishing NO_x limits for the fluid coking unit (FCU) under the consent decree.
- 82) Letter from U.S. EPA (Philip Brooks, Director of Air Enforcement Division) to the Delaware City Refining Company (John Deemer, HSE Manager) dated May 21, 2014, establishing NO_x limits for the fluidized catalytic cracking unit (FCCU) under the consent decree.

- 5.2. **Delaware Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) under the 8-Hour Ozone National Ambient Air Quality Standard (NAAQS), September 2006. Approved by EPA in July 2008 (73 FR 42681).**
- 5.3. **Delaware Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) Under the 2008 Ozone National Ambient Air Quality Standard (NAAQS), August 2014. Approved by EPA in December 2018 (82 FR 57849).**
- 5.4. **Delaware VOC RACT Regulation**
7 DE Admin. Code 1124 Control of Volatile Organic Compound Emissions
<http://regulations.delaware.gov/AdminCode/title7/1000/1100/Split1124/index.shtml#TopOfPage>
(Note: Hard copy of this regulation is available upon request.)
- 5.5. **Delaware NO_x RACT Regulation**
7 DE Admin. Code 1112 Control of Nitrogen Oxides Emissions
<http://regulations.delaware.gov/AdminCode/title7/1000/1100/1112.shtml#TopOfPage>
(Note: Hard copy of this regulation is available upon request.)
- 5.6. **Other Delaware Regulations Included in This RACT SIP Document**
Regulations are available at:
<http://regulations.delaware.gov/AdminCode/title7/1000/1100/index.shtml#TopOfPage>
(Note: Hard copies of the regulations are available upon request.)
- 5.7. **White Paper on Control Technologies and OTC State Regulations for Nitrogen Oxides (NO_x) Emissions from Eight Source Categories (2/10/2017), available at:**
https://otcair.org/upload/Documents/Reports/WhitePaper_NOx_Control_04052017.pdf