

**Request for Clean Air Act  
Section 185 Fee Termination Determination  
for the Connecticut Portion of the  
NY-NJ-CT 1-Hour Ozone Severe Area**

**Technical Support Document**



**Connecticut Department of Environmental Protection  
Bureau of Air Management**

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## 1.0 Introduction and Summary

Subsequent to the passage of the 1990 amendments to the Clean Air Act (CAA), the New York-Northern New Jersey-Long Island (NY-NJ-CT) nonattainment area<sup>1</sup> was classified as severe nonattainment for the now-revoked 1-hour ozone National Ambient Air Quality Standards (NAAQS), with a 2007 attainment deadline. Under section 185 of the CAA, major sources of volatile organic compounds (VOC) and/or nitrogen oxides (NOx) in severe and extreme areas that fail to attain the ozone standard by the required attainment deadline may be subject to annual penalty fees.

Although the NY-NJ-CT nonattainment area failed to measure attainment of the 1-hour NAAQS by the 2007 deadline, area wide compliance was first achieved in 2010, and has continued to be maintained ever since, with the exception of a single year in 2013. The Connecticut Department of Energy and Environmental Protection (CT DEEP, formerly CT DEP), requested in a letter dated April 29, 2011, that EPA make a Clean Data Determination finding under 40 CFR 51.198 for the NY-NJ-CT area for the 1-hour ozone NAAQS. In a June 18, 2012 Federal Register notice,<sup>2</sup> the EPA made such a determination, finding that the area had attained the revoked 1-hour standard based on complete, quality assured and certified ozone monitoring data for 2008-2010. The April 29, 2011 CT DEEP letter also cited permanent and enforceable emission reductions that led to attainment, and requested EPA to make a determination that Connecticut was no longer obligated to develop a CAA section 185 fee program. The EPA did not take action on that request.

EPA's Section 185 Fee Guidance<sup>3</sup> indicates that after EPA issues a rulemaking determining an area is attaining either the 1-hour or 1997 8-hour ozone NAAQS, based on permanent and enforceable emissions reductions, the state responsible for the area is no longer obligated to submit a Section 185 fee program SIP revision. In such cases, the state's existing SIP measures, in conjunction with enforceable federal measures, are adequate for the area to achieve attainment, thus serving the purpose of the section 185 program.

CT DEEP is again requesting that EPA make a determination that Connecticut is no longer required to submit a CAA section 185 fee program for its portion of the NY-NJ-CT 1-hour area to satisfy anti-backsliding requirements for the 1-hour standard. As discussed in the remainder of this report, the request is based on the most recent and complete, quality-assured air quality monitoring data showing current attainment of both the 1-hour and the 1997 8-hour ozone NAAQS, which occurred due to permanent and enforceable emission reductions.

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<sup>1</sup> The Connecticut portion of the NY-NJ-CT 1-hour nonattainment area (Southwest Connecticut) was comprised of Fairfield County, except for the town of Shelton, plus the Litchfield towns of New Milford and Bridgewater.

<sup>2</sup> In that same Federal Register notice ([77 FR 36163](#)), EPA also determined, among other things, that the NY-NJ-CT area had attained the 1997 8-hour NAAQS by the required attainment deadline of June 10, 2010.

<sup>3</sup> "Guidance on Developing Fee Programs Required by Clean Air Act Section 185 for the 1-Hour Ozone NAAQS"; Memorandum from Stephen D. Page, Director of EPA's Office of Air Quality Planning and Standards, to Regional Air Division Directors, Regions I-X; dated January 5, 2010.

## 2.0 Air Quality Data

### 2.1 Southwest Connecticut Air Quality Data for the 1-Hour Ozone NAAQS

Compliance with the 1-hour ozone standard<sup>4</sup> at a monitor occurs when the average number of exceedance days per year over a 3-year period does not exceed one, after making appropriate adjustments<sup>5,6</sup> for any incomplete data sampling. For example, in the simplest case where all data are complete, a monitor is in compliance with the 1-hour NAAQS if it measures no more than three daily maximum 1-hour ozone value above 0.12 parts per million over a contiguous three calendar year period.

Table 1 summarizes recent expected exceedance data for the 1-hour ozone standard at monitors located in the Connecticut portion of the NY-NJ-CT area over the period from 2012 through 2017 (2017 data are preliminary). The table lists both the number of exceedance days each year and the average number of exceedance days per year over each 3-year period. Continuous compliance with the standard has been recorded at all monitors over each 3-year period since the 2012-2014 period, with a maximum 3-year average value of 0.3 at Danbury in both 2016 and 2017 (preliminary). Figure 1 shows that there has been an overall decline in the maximum 1-hour ozone concentration measured at Southwest Connecticut monitors since 2001, with only a single measured exceedance, recorded at the Danbury monitor in 2016, over the last 4 years.

### 2.2 Southwest Connecticut Air Quality Data for the 8-Hour Ozone NAAQS

Compliance with the 1997 8-hour ozone standard is achieved at a monitor when the 3-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm (effectively 84 ppb).<sup>7</sup> Table 2 summarizes both the 4<sup>th</sup>-highest values and the 3-year design values for each monitor located in the Connecticut portion of the NY-NJ-CT area over the period from 2013-2017 (2017 data are preliminary). All monitors have measured continuous compliance with the 1997 8-hour NAAQS over that period. The highest 2016 design value of 83 ppb was measured at the Westport monitor. The highest preliminary design value for 2017 remains the same 83 ppb at both Westport and Stratford.

Figure 2 displays 8-hour ozone design values for each monitor located in the Connecticut portion of the NY-NJ-CT area for the period 2006-2016. The overall decline in values indicated in both Figures 1 and 2 coincide with the implementation of the various mobile and stationary source air pollution control strategies, as described in Chapter 3.

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<sup>4</sup> The now revoked 1-hour average ozone NAAQS is 0.12 parts per million, as specified in 40 CFR 50.9.

<sup>5</sup> Compliance is determined using “expected exceedance” rates, in accordance with Appendix H to 40 CFR 50. Compliance must occur at all monitors in a nonattainment area.

<sup>6</sup> EPA issued a related guidance memorandum “Ozone and Carbon Monoxide Design Value Calculations” dated June 18, 1990, authored by William G. Laxton, Director of the Technical Support Division of EPA’s Office of Air Quality Planning and Standards.

<sup>7</sup> Compliance is determined in accordance with Appendix I to 40 CFR 50. Compliance must occur at all monitors in a nonattainment area.

**Table 1. Southwest Connecticut's 1-Hour Ozone Exceedance Rate 2012 – 2017\***

Site Name	AQS ID	2012	2013	2014	2015	2016	2017*	2012-2014 Average	2013-2015 Average	2014-2016 Average	2015-2017 Average*
Danbury WCSU	09-001-1123	0	0	0	0	1	0	0.0	0.0	0.3	0.3
Greenwich Point Park	09-001-0017	0	0	0	0	0	0	0.0	0.0	0.0	0.0
Stratford Light House	09-001-3007	1	1	0	0	0	0	0.7	0.3	0.0	0.0
Westport Sherwood Island	09-001-9003	1	0	0	0	0	0	0.3	0.0	0.0	0.0

\*2017 data are preliminary and subject to change.

**Figure 1. Southwest Connecticut's Maximum 1-Hour Ozone Trends**

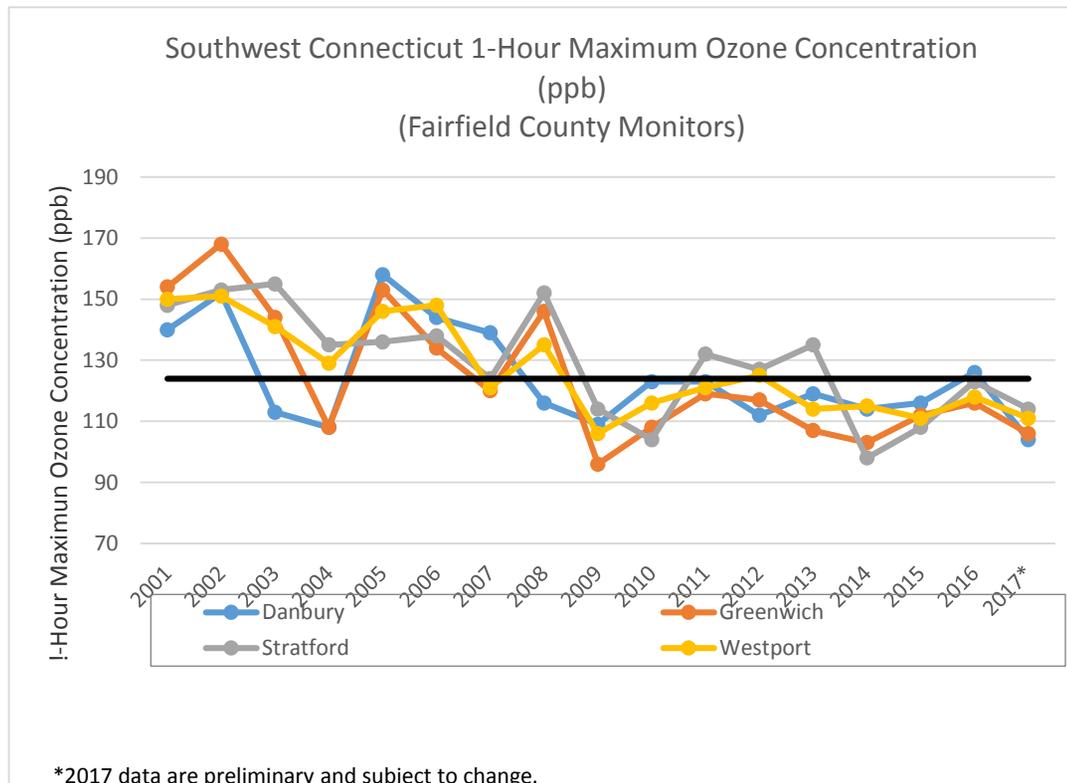
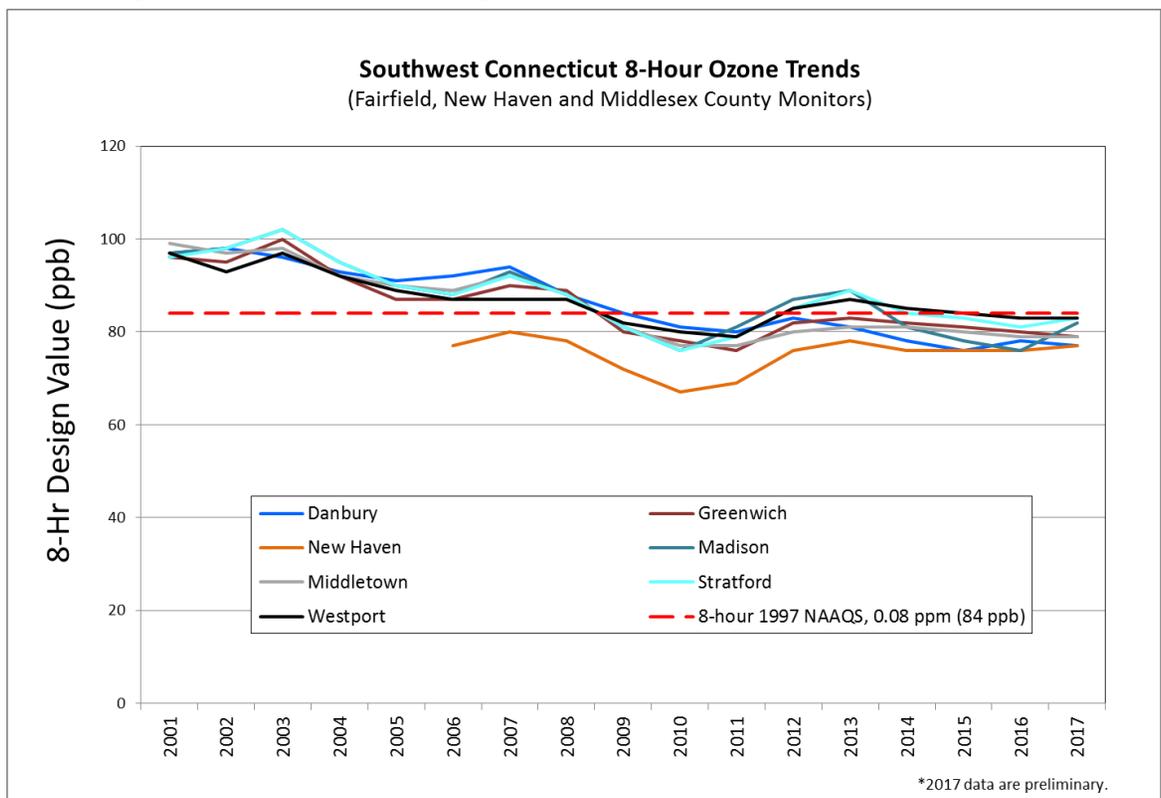


Table 2. Southwest Connecticut’s 8-Hour Values for 2015 - 2017\* (Effective 1997 8-hour NAAQS is 84 ppb)

Site Name	AQS ID	4th Highest Daily 8Hr Max					Design Values (3 Year Averages)		
		2013	2014	2015	2016	2017*	2013 - 2015	2014 - 2016	2015 - 2017*
Danbury WCSU	09-001-1123	76	74	79	81	72	76	78	77
Greenwich Point Park	09-001-0017	82	78	84	79	74	81	80	79
Stratford Light House	09-001-3007	90	74	86	83	81	83	81	83
Westport Sherwood Island	09-001-9003	86	81	87	81	81	84	83	83
Middletown CHV	09-007-0007	82	80	78	80	79	80	79	79
Madison Hammonasset State Park	09-009-3002	85	69	81	80	86	78	76	82
New Haven Criscoolo Park	09-009-0027	75	72	81	75	75	76	76	77

\*2017 data are preliminary and subject to change.

Figure 2. 8-Hour Ozone Design Values for Southwest Connecticut Monitors



### 2.3 Air Quality Data Throughout the NY-NJ-CT Area

In addition to Southwest Connecticut, compliance with both the 1-hour and the 1997 8-hour ozone NAAQS has been achieved at all monitors throughout the multi-state NY-NJ-CT area. Table 3 lists 1-hour and 8-hour design values using the most recent, quality assured and certified data for the period 2014-2016. The highest current 1-hour design value is 114 ppb at the Danbury, CT monitor, compliant with the effective 1-hour NAAQS of 124 ppb. The highest current 8-hour design value is 83 ppb at the Westport, CT monitor, compliant with the effective 1997 8-hour NAAQS of 84 ppb. Preliminary 2017 data indicate continued compliance with both standards throughout the multi-state area.

**Table 3. 2016 1-Hour and 8-Hour Ozone Design Values for the NY-NJ-CT Area (ppb)**

Site ID	Site Name	2014 - 2016 8-hr Design Value	2014 - 2016 1-hr Design Value
90010017	Greenwich, CT	80	108
90011123	Danbury, CT	78	<b>114</b>
90013007	Stratford, CT	81	108
90019003	Westport, CT	<b>83</b>	108
90070007	Middletown, CT*	79	105
90090027	New Haven, CT*	76	104
90099002	Madison, CT*	76	105
340030006	Leonia, NJ	73	95
340130003	Newark Firehouse, NJ	70	88
340170006	Bayonne, NJ	72	101
340190001	Flemington, NJ	70	87
340210005	Rider University, NJ	72	92
340230011	Rutgers University, NJ	74	94
340250005	Monmouth Univ, NJ	70	90
340273001	Chester, NJ	69	87
340290006	Colliers Mills, NJ**	73	93
340315001	Ramapo, NJ	69	90
360050110	NYC-IS52, NY	67	87
360050133	NYC-Pfizer Lab, NY	70	94
360270007	Millbrook, NY	68	88
360610135	CCNY, NY	69	93
360715001	Valley Central, NY	66	81
360790005	Mt Ninham, NY	68	93
360810124	Queens, NY	69	93
360850067	Susan Wagner, NY	76	98
361030002	Babylon, NY	72	96
361030004	Riverhead, NY	72	93
361030009	Holtsville, NY	66	88
361192004	White Plains, NY	74	104

\* These three CT monitors are located in the NY-NJ-CT 8-hr area, but not the NY-NJ-CT 1-hr area.

\*\* The Colliers Mill monitor is located in the NY-NJ-CT 1-hr area, but not the NY-NJ-CT 8-hr area.

### 3.0 Permanent and Enforceable Emission Reductions

The ozone air quality improvements described above result from permanent and enforceable emission reductions secured both in Connecticut and throughout the remainder of the NY-NJ-CT ozone nonattainment area, as well as areas further upwind. This section describes emission estimates for the NY-NJ-CT ozone nonattainment area and the associated control measures that have been implemented in the Connecticut portion of the area.

#### 3.1 Emission Estimates

Connecticut, New York and New Jersey have all recently compiled ozone precursor emission estimates for 2011 and 2017 that reflect state and federal emission control measures implemented in the NY-NJ-CT area. The data presented below are tons per summer day (TPSD) emission estimates taken from each state's most recent 8-hour ozone attainment demonstration SIP proposal, as follows:

1. Connecticut's emissions were obtained from Appendix E of the "8-Hour Ozone Attainment Demonstration for the Connecticut Portion of the New York- Northern New Jersey-Long Island (NY-NJ-CT) Nonattainment Area,"<sup>8</sup> which was submitted to EPA on August 8, 2017. The emissions presented below for are for Fairfield County. Note, however, that the Connecticut portion of the 1-hour NY-NJ-CT area differs slightly from the Fairfield County boundaries, excluding one town (Shelton) from Fairfield County and including two towns (New Milford and Bridgewater) from Litchfield County. Differences in emission estimates are inconsequential, especially when examining the percent differences between 2011 and 2017.
2. New Jersey's emissions were obtained from Table 4-3 and 4-4 of the October 2017 proposed "1997 84 ppb and 2008 75 ppb 8-Hour Ozone Attainment Demonstration: Northern New Jersey-New York-Connecticut Nonattainment Area."<sup>9</sup> Note the emissions presented here: 1) do not include those calculated by NJ DEP for Warren County, because that county was not part of the 1-hour NY-NJ-CT nonattainment area; and 2) do not include emissions for Ocean County, which was a part of the 1-hour NY-NJ-CT nonattainment area, but is not part of the 8-hr nonattainment area. The exclusion of Ocean County from the emission estimates presented here can be assumed to be inconsequential, especially when examining the percent differences between 2011 and 2017.
3. New York's emissions for that state's portion of the 1-hour NY-NJ-CT area were obtained from Tables 12 and 16 of the July 2017 proposed "New York State Implementation Plan for the 2008 Ozone National Ambient Air Quality Standards: New York-N. New Jersey-Long Island, NY-NJ-CT Nonattainment Area."<sup>10</sup>

Table 1 and Table 2, respectively, show the VOC and NOx emission (TPSD) estimates for 2011 for each state's portion of the NY-NJ-CT 1-hour area.

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<sup>8</sup> The CT DEEP document is available at: [http://www.ct.gov/deep/cwp/view.asp?a=2684&q=585816&deepNav\\_GID=1619](http://www.ct.gov/deep/cwp/view.asp?a=2684&q=585816&deepNav_GID=1619).

<sup>9</sup> The NJ DEP document is available at: <http://www.nj.gov/dep/baqp/ozonppb.html>.

<sup>10</sup> The NY DEC document is available at: <http://www.dec.ny.gov/chemical/110727.html>.

**Table 1. 2011 VOC Emission Estimates for the NY-NJ-CT 1-hour ozone nonattainment area**

Sector	CT portion (TPSD)	NY portion (TPSD)	NJ portion (TPSD)	Total (TPSD)
Point	0.5	11.3	31.0	42.8
Area	25.4	301.1	172.4	498.9
On-road	14.6	104.5	71.1	190.2
Non-road	15.6	96.9	77.1	189.6
<b>Total</b>	<b>56.1</b>	<b>513.8</b>	<b>351.5</b>	<b>921.4</b>

**Table 2. 2011 NOx Emissions for the NY-NJ-CT 1-hour ozone nonattainment area**

Sector	CT portion (TPSD)	NY portion (TPSD)	NJ portion (TPSD)	Total (TPSD)
Point	7.0	344.9	70.5	422.4
Area	3.3	52.5	21.7	77.5
On-road	25.1	205.9	172.6	403.6
Non-road	15.3	155.1	103.6	274.0
Offsets	0.3	--	--	0.3
<b>Total</b>	<b>51.0</b>	<b>758.4</b>	<b>368.3</b>	<b>1177.7</b>

Table 3 and Table 4, respectively, show the emission projections for 2017 for the NY-NJ-CT 8-hour ozone nonattainment area, as well as the overall percentage reduction in emissions over the 2011 to 2017 period. Between 2011 and 2017, anthropogenic VOC emissions are estimated to decrease by 11% and anthropogenic NOx emissions are estimated to decrease by 32% in the NY-NJ-CT 1-hour area, due to implemented control strategies in the multi-state area.

**Table 3. 2017 VOC Emissions for the NY-NJ-CT 1-hour ozone nonattainment area**

Sector	CT portion (TPSD)	NY portion (TPSD)	NJ portion (TPSD)	Total (TPSD)	
Point	0.5	10.2	28.5	39.2	
Area	24.6	289.3	165.1	479.0	
On-road	8.2	68.0	47.2	123.4	<b>% Reduction 2011 - 2017</b>
Non-road	11.4	109.7	60.5	181.6	
<b>Total</b>	<b>44.7</b>	<b>477.2</b>	<b>301.3</b>	<b>823.2</b>	<b>10.6 %</b>

**Table 4. 2017 NOx Emissions for the NY-NJ-CT 8-hour ozone nonattainment area**

Sector	CT portion (TPSD)	NY portion (TPSD)	NJ portion (TPSD)	Total (TPSD)	
Point	6.0	210.1	57.8	273.9	
Area	3.1	44.8	21.8	69.7	
On-road	10.9	117.2	97.8	225.9	<b>% Reduction 2011 - 2017</b>
Non-road	10.9	148.7	75.1	234.7	
Offsets	0.4	--	--	0.4	
<b>Total</b>	<b>31.3</b>	<b>520.8</b>	<b>252.5</b>	<b>804.6</b>	<b>31.6 %</b>

### *3.2 Permanent and Enforceable Control Measures*

The emission reductions summarized above are the result of permanent and enforceable control measures. Numerous federal measures and state-adopted control strategies have been implemented in the NY-NJ-CT 1-hour area. In the post-2011 period, Connecticut has implemented a variety of on-road, non-road and stationary source control programs, which are fully described in Connecticut's recent Attainment SIP<sup>11</sup> submittal to EPA, and summarized in the tables below. See New York's<sup>12</sup> and New Jersey's<sup>13</sup> proposed Attainment SIPs for descriptions of enforceable control measures that apply in the rest of the NY-NJ-CT nonattainment area.

#### *On-Road and Non-Road Control Measures*

Table 7 and Table 8 provide a summary of major ozone precursor emission control programs implemented statewide in Connecticut for on-road vehicles and non-road equipment, respectively, that have occurred since the enactment of the 1990 Clean Air Act Amendments. Pre-2011 programs<sup>14</sup> are included in the table because they continue to contribute to post-2011 emission reductions in cases where owners replace older vehicles and equipment with more recent model year versions subject to tighter emission standards.

#### *Stationary and Area Source Control Measures*

Table 9 summarizes federal stationary and area source measures that produce post-2011 ozone precursor emission reductions, along with the effective date of the final rule and the initial date when emission reductions were required.

During the period from 2006 through 2008, EPA issued a large number of Control Techniques Guidelines (CTGs) and Alternate Control Technique (ACT) documents with recommendations on how to control VOC emissions from a variety of source categories. The CTG/ACTs are intended to assist states with the development of RACT regulations. CT DEEP revised its regulations to be consistent with the recommendations of all of EPA's CTG/ACTs that are applicable to sources found in Connecticut, as shown in Table 10.

CT DEEP has also completed adoption of six additional control measures that further reduce NOx or VOC emissions from Connecticut stationary and area sources in the post-2011 period. Table 11 identifies the measures, the relevant statute or regulation, the adoption status, and the anticipated effective and compliance dates. Note that emission reductions resulting from these measures are not reflected in emission projections for 2017, except for the NOx reductions related to Phase 1 fuel oil sulfur limits, which became effective as of 7/1/2014. All other measures will provide emission reductions in the post-2017 period. These are mentioned because they will help provide for continued maintenance of the 1-hour and the 1997 8-hour ozone NAAQS.

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<sup>11</sup> CT's proposed SIP document is available at: [http://www.ct.gov/deep/cwp/view.asp?a=2684&q=585816&deepNav\\_GID=1619](http://www.ct.gov/deep/cwp/view.asp?a=2684&q=585816&deepNav_GID=1619).

<sup>12</sup> NY's proposed SIP document is available at: <http://www.dec.ny.gov/chemical/110727.html>.

<sup>13</sup> NJ's proposed SIP document is available at: <http://www.nj.gov/dep/baqp/ozoneppb.html>.

<sup>14</sup> A more complete description of pre-2011 control programs is provided in CT's "[8-Hour Ozone Attainment Demonstration](#)" (for the 1997 NAAQS), submitted to EPA on 2/1/2008.

**Table 7. On-Road Mobile Sources Control Strategies Implemented in Connecticut<sup>1</sup>**

Control Strategy	Pollutant		Federal Program	State Program	Rule Approval Date <sup>2</sup>	Initial Year of Implementation <sup>3</sup>
	VOC	NO <sub>x</sub>				
Tier 1 Vehicle Standards	•	•	•		6/5/1991 <sup>4</sup>	1994-1996
Reformulated Gasoline – Phases I & II	•	•	•		2/16/1994 <sup>5</sup>	1995 & 2000
On-board Refueling Vapor Recovery	•		•		4/6/1994 <sup>6</sup>	1997-2005
National Low Emission Vehicle (NLEV) Program	•	•	•		1/7/1998 <sup>7</sup>	1998-2003 (in CT)
Tier 2 Motor Vehicle Controls/30ppm Sulfur Gasoline	•	•	•		2/10/2000 <sup>8</sup>	2004-2009
Heavy-Duty Diesel Vehicle Controls and Fuels	•	•	•		10/6/2000 <sup>9</sup>	2004-2005
CT OBD-II Enhanced I/M Program	•	•		•	12/5/2008 <sup>10</sup>	2004
2007 Highway Rule/15ppm Sulfur Diesel Fuel	•	•	•		1/18/2001 <sup>11</sup>	2006-2010
Highway Motorcycle Exhaust Emission Standards	•	•	•		1/15/2004 <sup>12</sup>	2006-2010
CT Low Emission Vehicle Phase 2 (CT LEV2)	•	•	•	•	3/17/2015 <sup>13</sup>	2007-2008
CT Low Emission Vehicle Phase 3 (CT LEV3)	•	•		•	8/1/2013 <sup>14</sup>	2015-2025
Tier 3 Vehicle Standards/10ppm Sulfur Gasoline	•	•	•		4/28/2014 <sup>15</sup>	2017-2025

<sup>1</sup> All strategies (except RFG & OBD-II Enhanced I/M) result in additional emission reductions after 2011 due to gradual fleet turnover.

<sup>2</sup> Unless otherwise noted, this is the Federal Register date of either a final federal rule or EPA's approval of a state SIP submittal.

<sup>3</sup> A range of implementation years is listed for some strategies due to phase-in of standards.

<sup>4</sup> [56 FR 25724 6/5/1991](#).

<sup>5</sup> [59 FR 7716](#).

<sup>6</sup> [59 FR 16262](#).

<sup>7</sup> [63 FR 926](#).

<sup>8</sup> [65 FR 6698](#).

<sup>9</sup> [65 FR 59896](#).

<sup>10</sup> [73 FR 74019](#).

<sup>11</sup> [66 FR 5002](#).

<sup>12</sup> [69 FR 2398](#).

<sup>13</sup> [80 FR 13768](#).

<sup>14</sup> [RCSA 22a-174-36c](#) was adopted by CT DEEP on 8/1/2013; submitted to EPA for SIP approval on December 14, 2015.

<sup>15</sup> [81 FR 23414](#).

**Table 8. Non-Road Mobile Sources Control Strategies Implemented in Connecticut**

Non-Road Engine Category	Date of Final Rule	Implementation Phase-In (MY)
<b>Compression Ignition (diesel) Engines</b>		
Tier 1: Land-Based Diesel Engines > 50 hp	06/17/1994 ( <a href="#">59 FR 31306</a> )	1996-2000
Tier 1: Small Diesel Engines < 50 hp	10/23/1998 ( <a href="#">63 FR 56968</a> )	1999-2000
Tier 2: Diesel Engines (all sizes)		2001-2006
Tier 3: Diesel Engines 50 - 750 hp		2006-2008
Tier 4: All Diesel Engines (Except locomotive and marine vessels)	06/29/2004 ( <a href="#">69 FR 38958</a> )	2008-2015
<b>Spark-Ignition (e.g., gasoline) Engines</b>		
Phase 1: SI Engines < 25 hp (except marine & recreational)	07/03/1995 ( <a href="#">60 FR 34582</a> )	1997
Phase 2: Non-Handheld SI Engines < 25 hp	03/30/1999 ( <a href="#">64 FR 15208</a> )	2001-2007
Phase 2: Handheld SI < 25 hp	04/25/2000 ( <a href="#">65 FR 24268</a> )	2002-2007
Gasoline SI Marine Engines (outboard & personal watercraft)	10/04/1996 ( <a href="#">61 FR 52088</a> )	1998-2006
Large Spark-Ignition Engines >19 kW (or >25 hp)	11/08/2002 ( <a href="#">67 FR 68242</a> )	2004 & 2007
Recreational Land-Based Spark-Ignition Engines		2006-2012
<b>Marine Diesel Engines</b>	Most recent: 2/19/2015 ( <a href="#">80 FR 9078</a> )	US Emission Control Areas in effect: 2012 After treatment NOx controls: 2016
The Act to Prevent Pollution from Ships (APPS) implements the provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI for the United States (33 U.S.C. 1901–1912)	More info: <a href="https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-marine-vessels">https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-marine-vessels</a>	
Commercial Marine Diesel Engines <sup>1</sup> (US-flagged vessels)	12/29/1999 ( <a href="#">64 FR 73300</a> )	2004-2007
Recreational Marine Diesel Engines >37 kW (or >50 hp)	11/08/2002 ( <a href="#">67 FR 68242</a> )	2006-2009
Marine Diesel Engines (US-flagged vessels) >30 liters/cylinder	02/28/2003 ( <a href="#">68 FR 9746</a> )	2004
Spark-Ignition Engines/Equipment (marine & land engines)	10/08/2008 ( <a href="#">73 FR 59034</a> )	2010-2012
<b>Locomotives</b>	04/16/1998 ( <a href="#">63 FR 18978</a> )	Tier 0: 1973-2001 Tier 1: 2002-2004 Tier 2: 2005 +
New & Remanufactured Locomotives and Locomotive Engines <sup>2</sup>		
Locomotive & Marine Diesel Rule (new & remanufactured)	06/30/2008 ( <a href="#">73 FR 37096</a> )	2009-2015
Non-Road Diesel Fuel	06/29/2004 ( <a href="#">69 FR 38958</a> )	Phase 1: 2007 Phase 2: 2010 (2012 for Marine & Locomotive)
<b>Aircraft</b>	05/08/1997 ( <a href="#">62 FR 25356</a> ) 11/17/2005 ( <a href="#">70 FR 69664</a> ) 6/8/2012 ( <a href="#">77 FR 36342</a> )	1997
Control of Air Pollution From Aircraft and Aircraft Engines 1		2005
Control of Air Pollution From Aircraft and Aircraft Engines 2		2012 & 2014
Control of Air Pollution From Aircraft and Aircraft Engines 3		

<sup>1</sup> Only applies to commercial marine diesel engines with displacements under 30 liters per cylinder.

<sup>2</sup> EPA has established three sets of locomotive standards, applied based on the date the locomotive was first manufactured (i.e. during the Tier 0, Tier 1, or Tier 2 periods). The applicable standards take effect when the locomotive or locomotive engine is first manufactured and continue to apply at each periodic remanufacture.

**Table 9. Post-2011 Federal Stationary and Area Source Measures**

<b>Federal Control Measure</b>	<b>Affected Ozone Precursor Pollutant(s)</b>	<b>Date of Federal Rule Promulgation</b>	<b>Commencement of Emission Reductions</b>
RICE NESHAP	NOx, VOC	1/14/2013 (78 FR 6674) amendments to 8/10/2010 rule (75 FR 51570)	2013
ICI Boiler & Process Heater MACT & Amendments	VOC	11/5/2015 amendments (80 FR 72790) to 2/21/2011 rules (76 FR 15608 and 76 FR 15554)	2014 & 2012+, respectively for the two March 2011 rules.
Mercury & Air Toxics Standards	NOx	4/14/2016 (81 FR 24420) latest amendment to original 12/16/2011 (77 FR 9304) rule	2015
Portable Fuel Container Rule (part of Mobile Source Air Toxics rule)	VOC	EPA 2/9/2007 rule (72 FR 8428) enabled CT to revoke equivalent 2007 state rule (RCSA 22a-174-43)	2007-2017 (turnover period)

**Table 10. CTG/ACT-Based VOC Control Measures Implemented In Connecticut Since 2011**

Control Measure	Section of the Regulations of Connecticut State Agencies	Regulation Adoption Date	Commencement of Emissions Reductions*	Relevant CTG or ACT
Metal furniture coating	22a-174-20(p)	4/6/2010	1/1/2011	CTG for Metal Furniture Coatings (2007)
Paper, film and foil coating	22a-174-20(q)	4/6/2010	1/1/2011	CTG for Paper, Film and Foil Coatings (2007)
Flexible package printing	22a-174-20(ff)	4/6/2010	1/1/2011	CTG for Flexible Package Printing (2006)
Offset lithographic and letter press printing	22a-174-20(gg)	4/6/2010	1/1/2011	CTG for Offset Lithographic Printing and Letterpress Printing (2006)
Large appliance coatings	22a-174-20(hh)	4/6/2010	1/1/2011	CTG for Large Appliance Coatings (2007)
Industrial solvent cleaning	22a-174-20(ii)	4/6/2010	1/1/2011	CTG for Industrial Cleaning Solvents (2006)
Spray application equipment cleaning	22a-174-20(jj)	4/6/2010	1/1/2011	State-specific requirements. In the absence of RCSA section 22a-174-20(jj), spray gun cleaning would be addressed via the industrial solvent cleaning requirements (RCSA section 22a-174-20(ii)) adopted pursuant to the CTG for Industrial Cleaning Solvents (2006).
VOC emissions from miscellaneous metal and plastic parts coating	22a-174-20(s)	10/31/2012	1/1/2013	CTG for Miscellaneous Metal and Plastic Parts Coatings (2008)
VOC emissions from pleasure craft coating	22a-174-20(kk)	10/31/2012	1/1/2013	CTG for Miscellaneous Metal and Plastic Parts Coatings (2008)
Control of VOC emissions from above-ground storage tanks	22a-174-20(a)	3/7/2014	6/1/2014	Alternative Control Techniques Document – Volatile Organic Liquid Storage in Floating and Fixed Roof Tanks (1994)  Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks (1978)  Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed Roof Tanks (1977)
VOC emissions from transfer and dispensing of gasoline	22a-174-20(a), 22a-174-30a	7/8/2015	7/1/2015 -- CARB-approved P/V vent valves 7/8/2015 -- Annual pressure decay test	Design Criteria for Stage I Vapor Control Systems – Gasoline Service Stations (1975)

\* The first seven listed control measures were implemented at the beginning of 2011 (i.e., January 1, 2011 effective date). Therefore, associated emission reductions for these measures are reflected in both the 2011 base and 2017 projected inventories presented elsewhere in this section. The 2011 measures are included in this discussion for completeness.

**Table 11. Non-CTG Stationary and Area Source Control Strategies Adopted in Connecticut in the Post-2011 Period\***

Control Measure	Pollutant	Section of the Regulations of Connecticut State Agencies or Connecticut General Statutes	Status of Regulation Adoption	Date Requirements Apply to Create Emissions Reductions
Fuel oil sulfur limits for #2 distillate/heating oil and #4/#6 residual oil that indirectly reduce NOx emissions	NOx	22a-174-19, 22a-17419a, 22a-174-19b, CGS 16a-21a	RCSA 22a-174-19, 19a & 19b: Revised 4/15/2014 and submitted as SIP revision 4/22/2014, with subsequent revisions submitted 6/8/2015 & 9/28/2015. CGS 16a-21a: Revised July 2013.	Phase 1: 7/1/2014 Phase 2: 7/1/2018
Reduction in emission limit for mass burn waterwall municipal waste combustors	NOx	22a-174-38	Adoption completed: 8/2/2016. SIP Revision submitted 9/16/2016. EPA proposed SIP approval 4/6/2017.	8/2/2017.
Control of NOx emissions from fuel-burning equipment at major stationary sources of NOx	NOx	22a-174-22e (one of two regulations replacing previous 22a-174-22)	Adoption completed: 12/22/2016. SIP Revision submitted 1/24/2017. EPA proposed SIP approval 4/6/2017.	Phase 1 emission limits: 6/1/2018. Phase 2 emission limits: 6/2/2023. Unless otherwise specified in permit or order, end of compliance options and case-by-case RACT limits: May 1, 2028.
High daily NOx emitting units at non-major sources of NOx	NOx	22a-174-22f (one of two regulations replacing previous 22a-174-22)	Adoption completed: 12/22/2016. SIP Revision submitted 1/24/2017. EPA proposed SIP approval 4/6/2017.	May 1, 2018.
Reduction in VOC content limits for consumer products	VOC	22a-174-40	Adoption completed: 10/5/2017	May 1, 2018
Reduction in VOC content limits for architectural and industrial maintenance coatings	VOC	22a-174-41, 22a-174-41a	Adoption completed: 10/5/2017	May 1, 2018

\* The 2017 emission projections presented in this document do not include emission reductions from any of the measures listed in this table except for the Phase 1 fuel oil sulfur limits, which are projected to provide a 7% reduction in NOx emissions from boilers and process heaters. All other measures were/will be implemented in August 2017 or later, thereby providing future additional emission reductions to help maintain compliance with both the 1-hour and the 1997 8-hour ozone NAAQS.

## **4.0 Requested Action by EPA**

As a result of the combined efforts of the EPA, Connecticut, New York, New Jersey and some upwind states, the NY-NJ-CT nonattainment area continues to maintain compliance with both the 1-hour and the 1997 8-hour ozone NAAQS.

Based on these measured attainment levels and the permanent and enforceable control strategies that have led to the improvements in ozone air quality, the CT DEEP requests that EPA make a termination determination with regard to the CAA section 185 fee requirements in the Connecticut portion of the NY-NJ-CT 1-hour ozone severe area.