The State of New Jersey
Department of Environmental Protection

State Implementation Plan Revision for the Attainment and Maintenance of the 1-Hour Ozone National Ambient Air Quality Standard

Update to Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy: Additional Emission Reductions, Reasonably Available Control Measure Analysis, and Mid-Course Review

September 12, 2001

Preface

This document is a revision to the State of New Jersey's plan to demonstrate attainment with the 1-Hour Ozone National Ambient Air Quality Standard, in accordance with the Clean Air Act and the Alternative Ozone Attainment Demonstration Policy issued by the United States Environmental Protection Agency (memorandum titled "Ozone Attainment Demonstrations," Mary D. Nichols, Assistant Administrator for Air and Radiation, March 2, 1995). Its purpose is to demonstrate fulfillment of a previous state commitment to obtain additional emission reductions in the New York and Philadelphia Nonattainment Areas.

Acknowledgments

The New Jersey Department of Environmental Protection (NJDEP) acknowledges the efforts and assistance of the agencies, organizations, and individuals whose contributions were instrumental in the preparation of this State Implementation Plan Revision.

In particular, the NJDEP wishes to acknowledge the individuals within the New Jersey Department of Transportation, the United States Environmental Protection Agency Region II and III, the states and jurisdictions of the Ozone Transport Commission, and the staff of the Ozone Transport Commission for their assistance and guidance.

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Acronyms and Abbreviations

CARB	California Air Resource Board
CFR	Code of Federal Regulations
CTG	Control Technology Guidance
DNREC	Delaware Department of Natural Resources and Environmental Control
EIIP	Emission Inventory Improvement Program
GTO	Gasoline Transfer Operations
HAPs	Hazardous Air Pollutants
HDDE	Heavy Duty Diesel Engines
KM	Kilometer
MACT	Maximum Achievable Control Technology
MDE	Maryland Department of the Environment
MY	Model Year
NAAQS	National Ambient Air Quality Standards
NJDEP	New Jersey Department of Environmental Protection
N.J.A.C.	New Jersey Administrative Code
NO_x	Nitrogen Oxides
NTE	Not-to-Exceed
OTC	Ozone Transport Commission
OTR	Ozone Transport Region
PADEP	Pennsylvania Department of Environmental Protection
PPB	Parts Per Billion
PPM	Parts Per Million
RACM	Reasonably Available Control Measures
RACT	Reasonable Available Control Technology
ROP	Rate of Progress
SCM	Suggested Control Measure
SIP	State Implementation Plan
STAPPA/ALAPCO	State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials
TCM	Transportation Control Measure
TPD	Tons per Day
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

Executive Summary

Ozone is a highly reactive gas formed in the lower atmosphere or troposphere from the chemical reaction involving oxides of nitrogen and volatile organic compounds in the presence of sunlight. At elevated levels, it causes a variety of human health effects as well as damage to crops and materials. The United States Environmental Protection Agency (USEPA) is required by the Clean Air Act to set health and welfare standards for air pollutants. These standards are known as the National Ambient Air Quality Standards (NAAQS). The USEPA has established such standards for ozone. Despite substantial state and federal efforts over the past two decades, attainment of the ozone health standard has not been achieved in New Jersey as well as many other areas throughout the country, although significant progress has been made.

Among the provisions of the Clean Air Act is the requirement that areas with ozone concentrations above certain levels demonstrate that their plans will meet the health standard within the time frame required by the Clean Air Act. New Jersey was required to make such a demonstration for the eighteen of its twenty-one counties that have not been designated as in attainment with the NAAQS for ozone. These counties are associated with two multi-state nonattainment areas which are designated the Philadelphia-Wilmington-Trenton Nonattainment Area (referred to as the Philadelphia Nonattainment Area), and the New York-Northern New Jersey-Long Island Nonattainment Area (referred to as the New York Nonattainment Area).

In New Jersey's Phase II Ozone State Implementation Plan (SIP) submittal of August 31, 1998, the State provided air quality projections demonstrating that, under certain conditions conducive to the formation of high ozone concentrations, attainment was plausible without the need for further emission reductions beyond the measures already implemented in New Jersey including those mandated in the Clean Air Act and the regional oxides of nitrogen (NO_x) reductions as embodied in the USEPA NO_x SIP Call[†]. The demonstration also identified and quantified uncertainties in the projections. In reviewing New Jersey's and other states' demonstrations, the USEPA performed its own analyses and determined that further emission reductions are necessary for attainment. The USEPA results are provided in Table ES-1 for the multi-state nonattainment areas. The emission reductions in Table ES-1 already assume a USEPA - calculated credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program.

This SIP revision outlines the process by which control measures were selected to address the additional emission reductions identified by the USEPA, and discusses the content and emission benefits of each of the measures. As shown in Table ES-2, implementation of the control measures outlined in this document by the involved states in the Philadelphia and New York Nonattainment Areas will result in sufficient emission reductions to meet the USEPA identified emission shortfalls in these areas. In the Philadelphia Nonattainment Area excess NO_x emission reductions are substituted to achieve the volatile organic compound emission shortfall. Additional benefits accrue if the control measures are implemented in counties in the 100 kilometer area around the nonattainment areas.

New Jersey is also pursuing some additional control measures. These additional control measures, if adopted, may include emission reductions from implementation of the outlined control measures in New Jersey's three counties which are not included in either of the nonattainment areas, promulgation of California's new heavy duty diesel engine standards and test procedures for model years 2005 and 2006,

[†] 63 Fed. Reg. 57356 (October 27, 1998)

Table ES - 1: USEPA Identified Additional Emission Reductions Required in Multi-State Nonattainment Areas, After Credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program(1)

Area	1990 Emissions [Tons per Day (TPD)]		Additional Required Emission Reductions [% of 1990 Emissions]		Additional Required Emission Reductions (TPD)	
	VOC	NO_X	VOC	NO_X	VOC	NO_X
Philadelphia-Wilmington-Trenton Nonattainment Area; New Jersey, Pennsylvania, Delaware, Maryland; 2005 attainment date (2)	1380	1010	4.5	0.3	62	3
New York - Northern New Jersey - Long Island Nonattainment Area; New Jersey, New York, Connecticut; 2007 attainment date (3)	2214	2052	3.8	0.3	85	7

(1) The mix of VOC and NO_x reductions shown may be changed in the future by substituting NO_x for VOC, or vice-versa, on an equivalent ozone reduction basis, consistent with the Clean Air Act and USEPA Guidance††

(2) USEPA, "Technical Support Document for the Trenton, New Jersey portion of the Philadelphia Ozone Nonattainment Area", December 14, 1999.

(3) USEPA, "Technical Support Document, Modeling for the NYC Ozone Nonattainment Area", December 13, 1999.

and updating New Jersey's rule regarding Gasoline Transfer Operations (Stage I and II gasoline vapor recovery at retail service stations).

As required by the USEPA†††, the State conducted a Reasonably Available Control Measure (RACM) analysis for this SIP revision. Briefly, RACMs are any feasible control measures that would advance the attainment date for a particular nonattainment area. The analysis identified a number of candidate emission reduction control measures, however collectively the measures do not meet the RACM test to advance the attainment date for either nonattainment area in the State. Therefore, given the control measures already contained in New Jersey's SIP and the additional control measures in this SIP revision, New Jersey is moving to attain the one-hour ozone standard as expeditiously as practicable.

†† USEPA, "Clarification of Policy for Nitrogen Oxides (NO_x) Substitution", Memorandum, August 5, 1994.

††† As requested in a letter dated April 23, 2001 from William Muszynski, Acting USEPA Region II Administrator, to Robert Shinn, NJDEP Commissioner.

Table ES-2: Estimated Emission Reductions Due to Implementation of Additional Control Measures in Nonattainment Areas ††††

Nonattainment Area	Attainment Date	Model Rule	2005/2007 Projected Benefit TPD		USEPA Identified Shortfall TPD	
			VOC	**NO_x**	**VOC**	**NO_x**
Philadelphia	2005	NO_x Rule		6		
		Consumer Products	9			
		Portable Fuel Containers	5			
		Architectural and Industrial Maintenance Coatings	19			
		Mobile Equipment Refinishing	6			
		Solvent Cleaning Operations	20			
		Total	**59**	**6**	**62**	**3**
New York	2007	NO_x Rule		22		
		Consumer Products	26			
		Portable Fuel Containers	25			
		Architectural and Industrial Maintenance Coatings	42			
		Mobile Equipment Refinishing	20			
		Solvent Cleaning Operations	7			
		Total	**120**	**22**	**85**	**7**

This SIP revision also contains the New Jersey's Mid-Course Review of the State's status in attaining the 1-hour standard. The State previously committed to conducting a mid-course review in the August 31, 1998, SIP revision. New Jersey has concluded from this midcourse analysis that it is currently on track to attain the 1-hour ozone standard in both nonattainment areas. The State will continue to track monitored ozone values closely and take appropriate actions in the future.

†††† Appendix II, page 42

I. Introduction

This revision to the New Jersey State Implementation Plan (SIP) for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards (NAAQS) provides for fulfillment of an enforceable commitment by New Jersey to adopt sufficient measures to address required additional emission reductions identified by the United States Environmental Protection Agency (USEPA).[1] In addition, this SIP revision contains: New Jersey's Reasonably Available Control Measures (RACM) Analysis and results[2], and the USEPA Mid-Course Review.

II. Current Ozone Air Quality

The 1-hour ozone standard is 0.12 parts per million (ppm), which is rounded to 124 parts per billion (ppb) for operational monitoring purposes. Similarly, the 8-hour ozone standard is 0.08 ppm, which for operational monitoring purposes is rounded up to 84 ppb. The regulatory value for the USEPA's 1-hour standard is termed the "1-hour design value," and is the fourth highest ozone concentration at a monitoring site over consecutive 3-year periods. The regulatory value for the USEPA's 8-hour standard is termed the "8-hour design value," and is the 3 year average of the 4th highest 8-hour averaged ozone concentration at a monitoring site for each year. The design value for an area is the highest design value of all the monitoring sites in the area.

New Jersey's ozone monitoring sites are shown in Figure 1. The monitoring sites have been grouped into two regions, North/Central New Jersey and Southern New Jersey. North/Central New Jersey refers to the following monitoring sites: Monmouth University, Rider University, New Brunswick, Flemington, Cliffside Park, Bayonne, Newark-Rutgers and Bayonne. Southern New Jersey refers to the following monitoring sites: Ancora State Hospital, Collier's Mills, Camden, Clarksboro, Nacote Creek and Millville.

Figures 2 and 3 illustrate a significant reduction in the number of monitoring site exceedances from 1990 to 1999, with diminishing progress since 1994.[3] The air quality data in Figures 4, 5, 6, and 7 indicate the number of days when the standard was exceeded and the 1-hour and 8-hour standard design values as defined above in the 1990 to 1994 time frame. Since then, ozone concentrations appear to have leveled off. However, in interpreting this data it is critical to remember that emissions of oxides of nitrogen (NO_x), and to a lesser extent volatile organic compounds (VOC), outside and upwind of New Jersey, play a major role in the ozone concentrations within the State. Therefore, a close correlation between emission reductions in New Jersey and ozone concentrations in New Jersey is not necessarily expected. Nevertheless, the leveling off of trends reinforces the need for New Jersey to maintain progress in emission reductions towards attaining the 1-hour standard in the State, as well as in areas downwind of New Jersey. This aspect is discussed in more detail in Section VIII below.

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[1] 64 Fed. Reg. 70380, December 16, 1999

[2] As requested in a letter dated April 23, 2001 from William Muszynski, Acting USEPA Region II Administrator, to Robert Shinn, NJDEP Commissioner.

[3] It should be noted that there are have been several changes in monitor sites between 1990 and 1999. The site formally located in Cliffside Park has been moved to Ramapo, the site at McGuire AFB has been moved to Colliers Mills and the site at Plainfield has been eliminated.

Figure 1

State of New Jersey Ozone Monitoring Network 1999

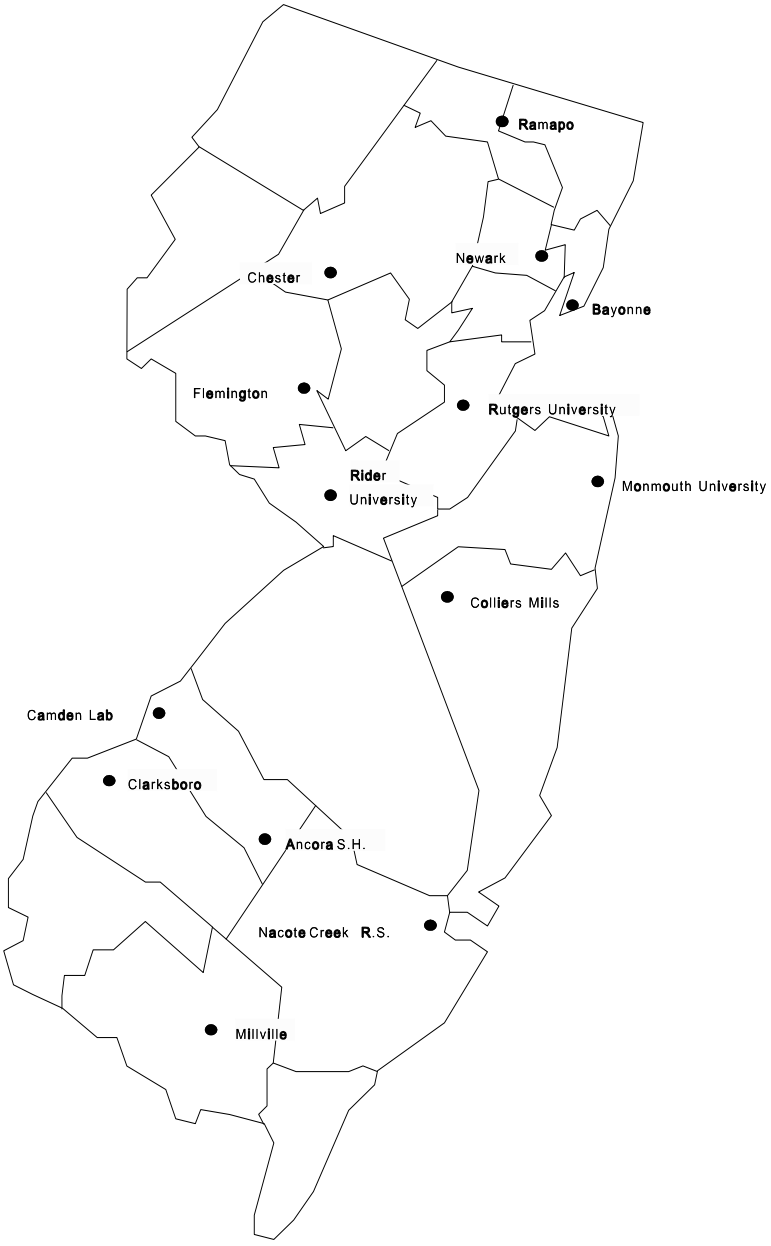
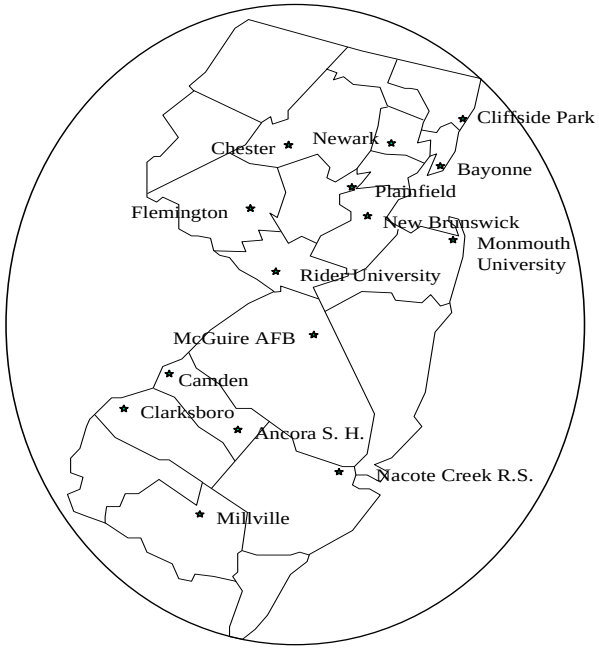


Figure 2
Sites in New Jersey Not Attaining the 1-Hour Ozone Standard

1990

All Sites Fail to Meet Standard



1999

7 of 14 Sites Fail to Meet Standard

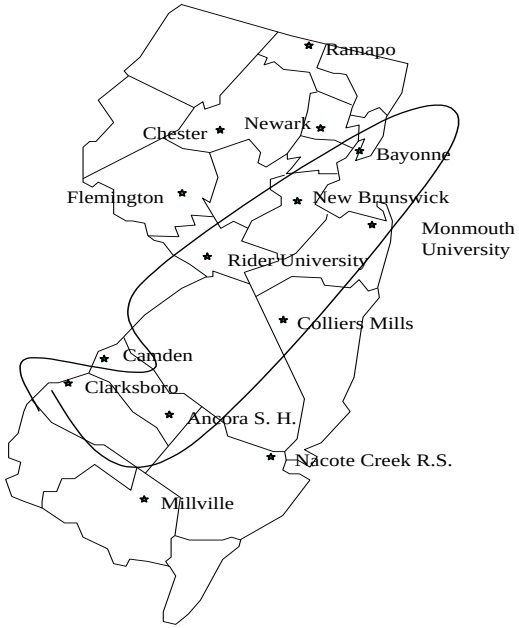
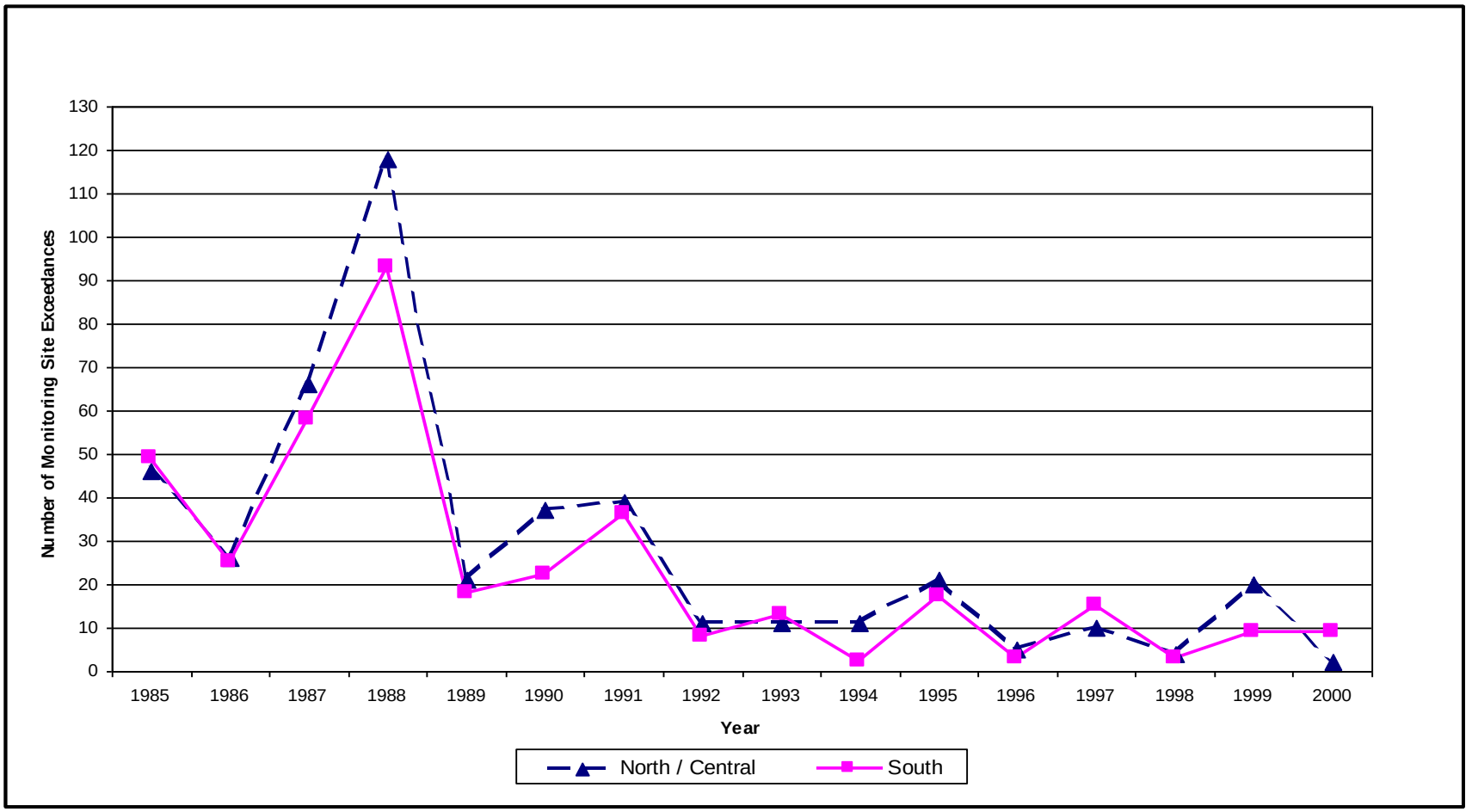


Figure 3
Total Number of Monitoring Site Exceedances of the 1-Hour Ozone Standard Each Year in New Jersey



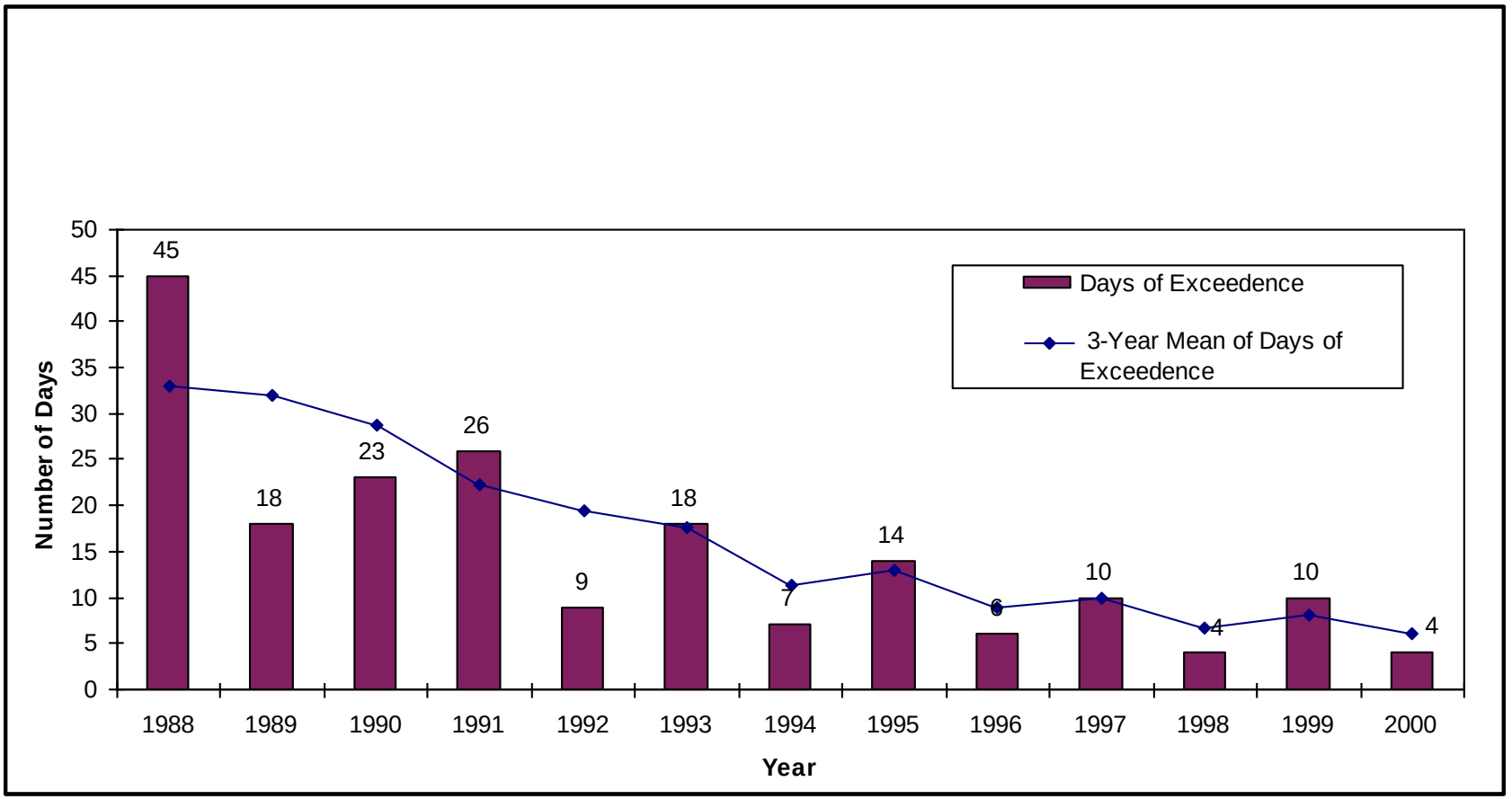


Figure 4
Days on Which the 1-Hour Ozone Health Standard Was Exceeded in New Jersey, 1988 - 2000

Figure 5
1-Hour Standard: Maximum Design Values of the Monitors in North/Central and Southern New Jersey

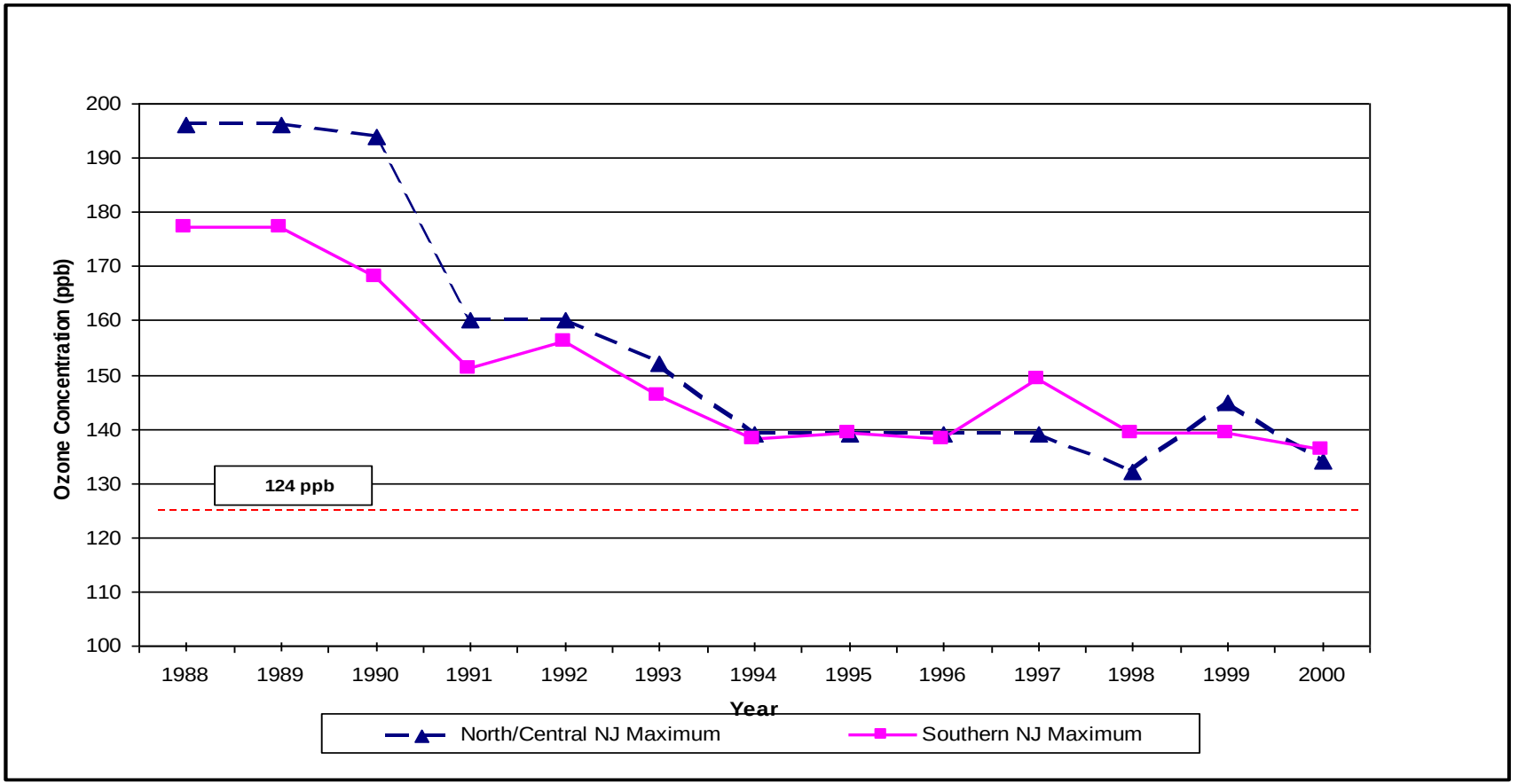


Figure 6
Number of Days on Which the 8-Hour Ozone Health Standard*Was Exceeded
in New Jersey, 1988 - 2000

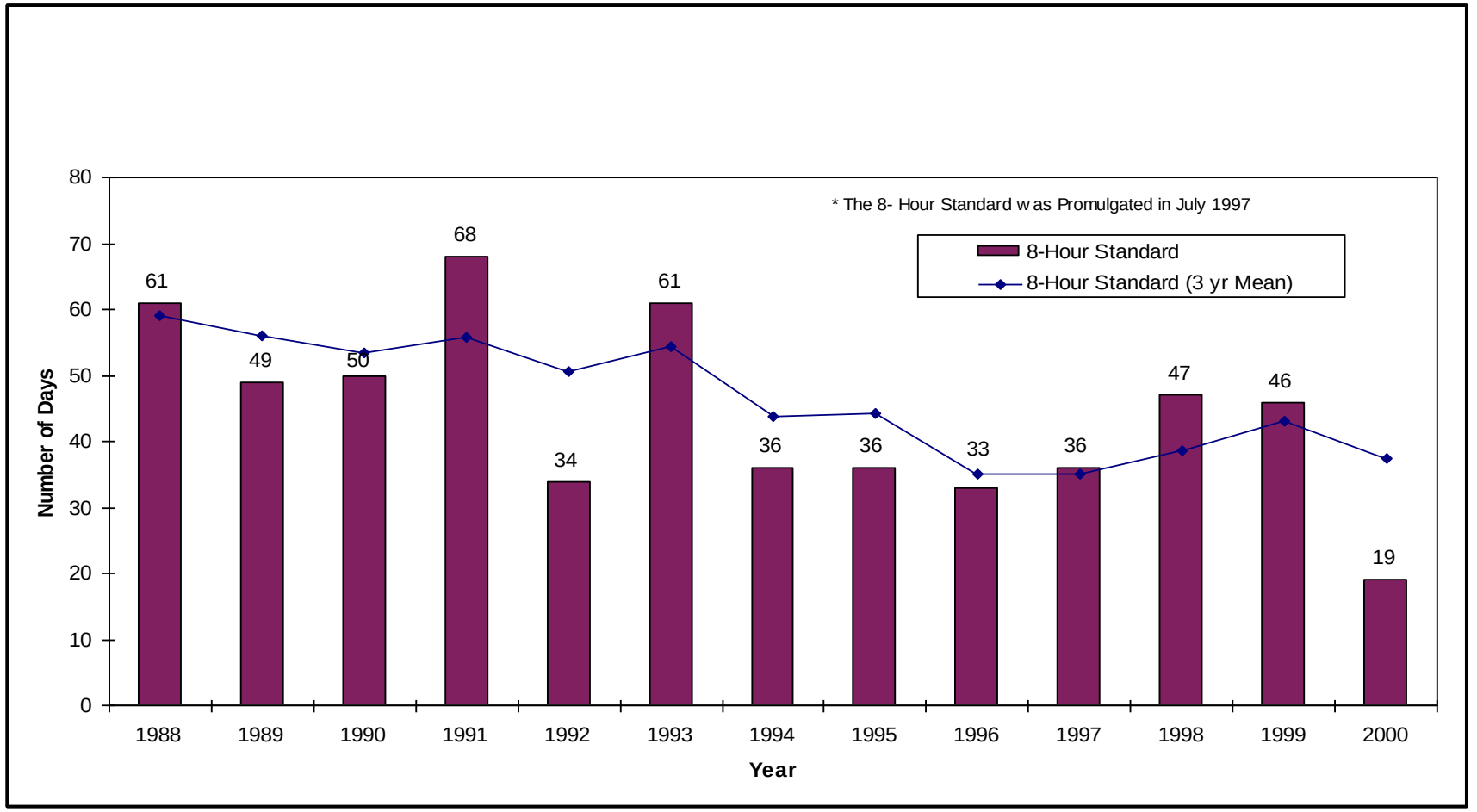
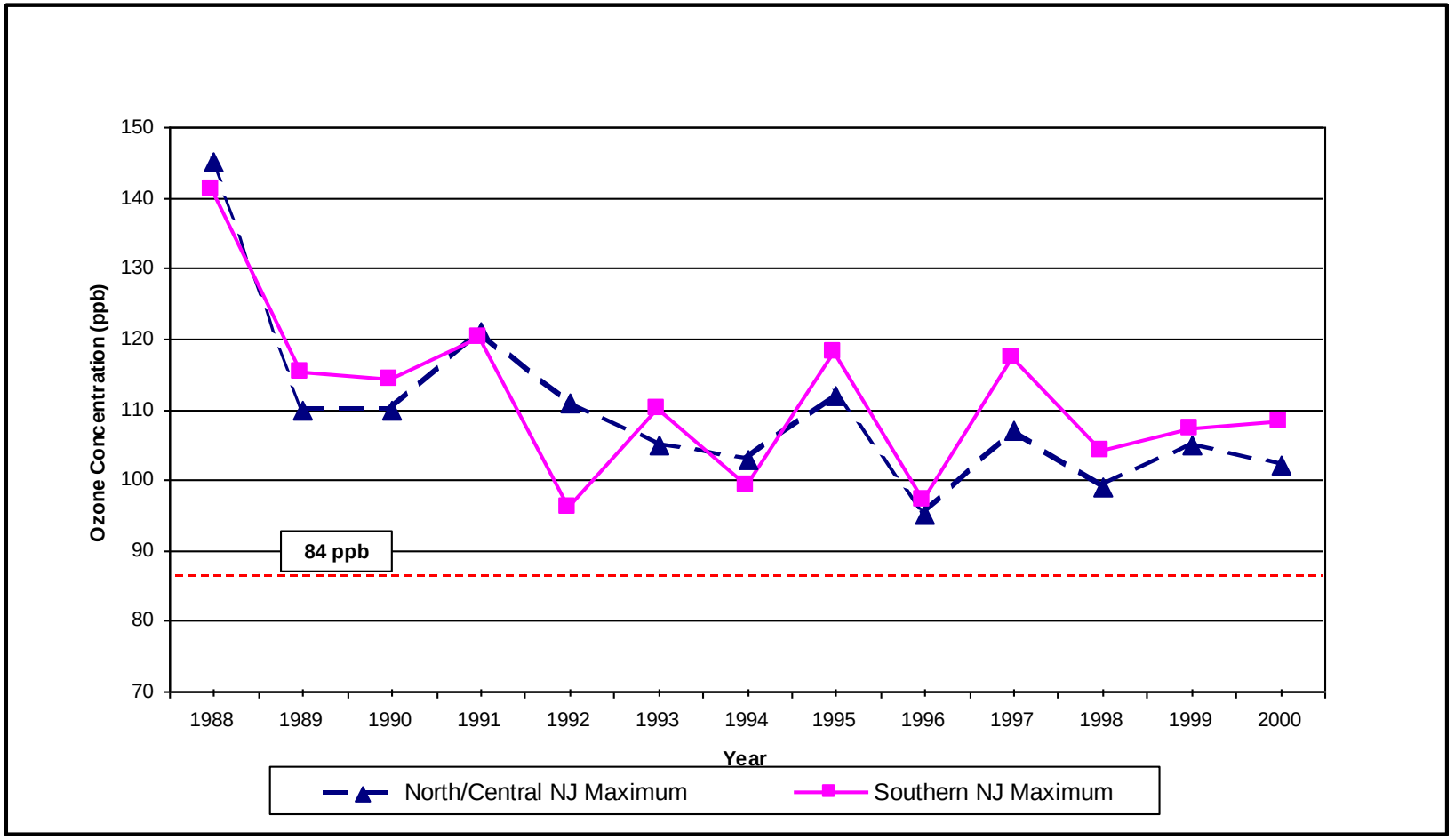


Figure 7
8-Hour Standard: Maximum Design Values of the Monitors in North/Central and Southern New Jersey


150
140
130
120
110
100
90
80
70
Ozone Concentration (ppb)
84 ppb
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
Year
North/Central NJ Maximum
Southern NJ Maximum

III. Background

A. Phase II Ozone SIP

On August 31, 1998, New Jersey submitted to the USEPA a SIP revision entitled, "Attainment and Maintenance of the Ozone National Ambient Air Quality Standards - Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy." This document is referred to as the Ozone Attainment Demonstration SIP by the USEPA or alternatively as the Phase II Ozone SIP. This SIP addressed the USEPA requirements related to attainment of the 1-hour NAAQS for ozone as contained in a March 2, 1995 memorandum from Mary Nichols, and a December 29, 1997 memorandum from Richard D. Wilson. The submittal included: a demonstration of attainment of the 1-hour NAAQS for Ozone for the two multi-state nonattainment areas which are designated the Philadelphia-Wilmington-Trenton Nonattainment Area, and the New York-Northern New Jersey-Long Island Nonattainment Area, subsequently referred to as the Philadelphia Nonattainment Area and the New York Nonattainment Area, respectively; a list of control measures adopted to date; and commitments to:

1) submit a post-1999 Rate of Progress (ROP) Plan and adopted regulations needed to achieve post-1999 emission reductions by December 31, 2000;
2) implement the New Jersey portion of the USEPA regional NO_x cap (USEPA NO_x SIP Call);
3) undertake a Mid-Course Review and submit a report to the USEPA by December 31, 2002;
4) evaluate additional control measures, not currently implemented, for potential future implementation; and
5) propose such reasonable and necessary control measures needed to address any shortfall identified in the Mid-Course Review which are necessary for attainment.

B. USEPA Analysis Of Phase II Ozone SIP

The USEPA conducted an analysis and generated their own attainment projections[4] for the Philadelphia and New York Nonattainment Areas. The New Jersey portions of these nonattainment areas are depicted in Figure 8.

With regard to the Philadelphia Nonattainment Area, the USEPA found that additional emission reductions were needed to more conclusively project attainment. The additional reductions needed in the Philadelphia Nonattainment Area, after taking credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, were estimated by the USEPA at 4.8% VOC and 2.5% NO_x, or a sum of percentage VOC and NO_x reductions of 7.3%[5].

With respect to the New York Nonattainment Area, the USEPA analysis likewise concluded[6] that additional emission reductions were needed to more conclusively project attainment. These reductions,

[4] 64 Fed. Reg. 70380 (December 16, 1999).

[5] USEPA Region II, “Technical Support Document for the Trenton, New Jersey portion of the Philadelphia Ozone Nonattainment Area”, December 14, 1999.

[6] USEPA Region II, “Technical Support Document, Modeling for the NYC Ozone Nonattainment Area”, December 13, 1999.

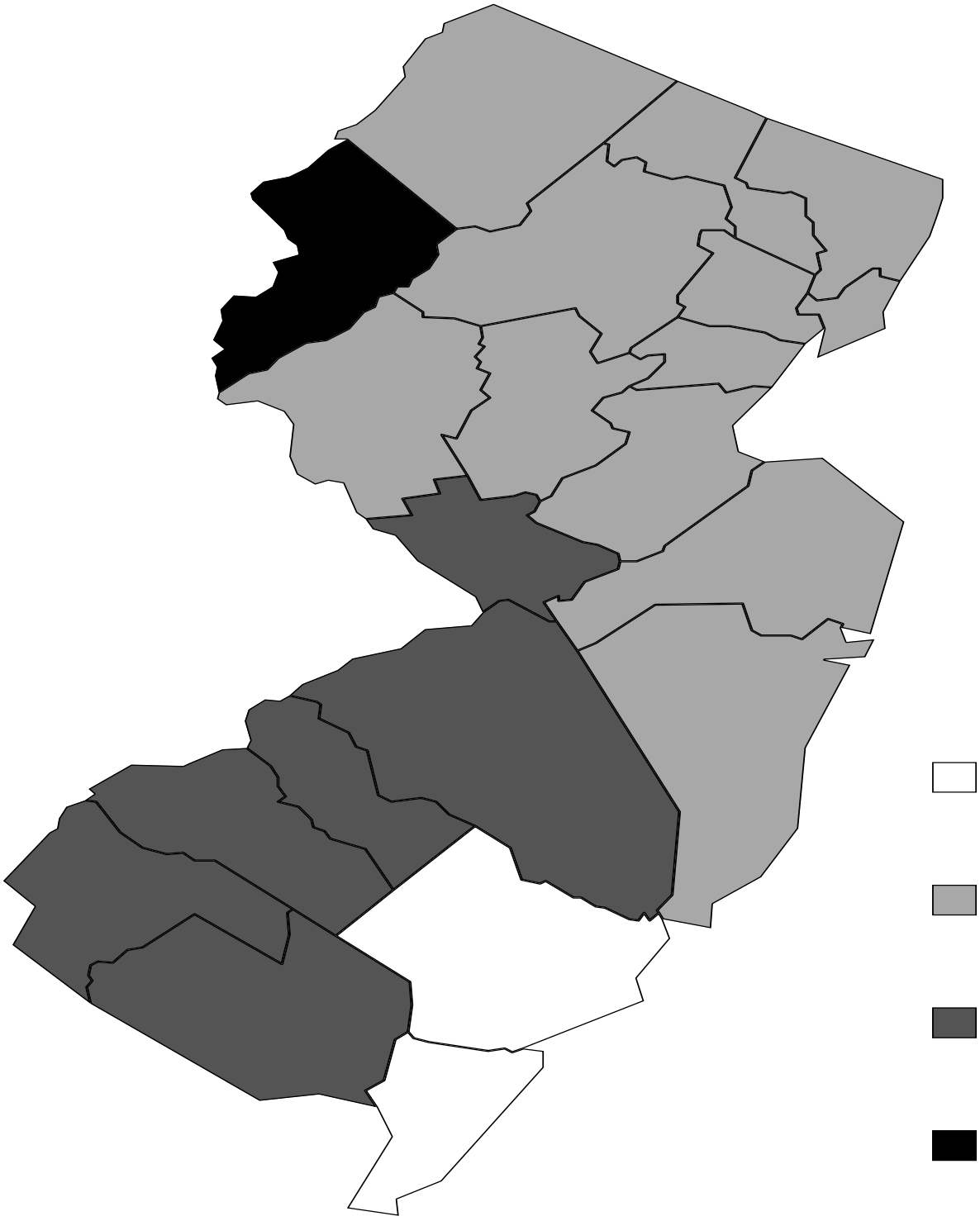


Figure 8: Air Quality Regions in New Jersey

after taking credit for the Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program, were estimated by the USEPA at 4.15% VOC and 3.05% NO_x or a sum of percentage VOC and NO_x reductions of 7.2%.

C. Previous New Jersey Analysis Regarding the Need for Additional Emission Reductions

In its August 31, 1998 Attainment Demonstration, New Jersey utilized photochemical air quality modeling in a "rollback" mode[7] with other "weight of evidence" analyses to project ozone concentrations in the attainment years for the Philadelphia Nonattainment Area and New York Nonattainment Area, respectively.

With respect to the Philadelphia Nonattainment Area, the demonstration showed that attainment was plausible using 1996 1-hour ozone design value levels as the starting point for the analysis. The analyses demonstrated that no new additional emission reductions beyond measures already implemented in New Jersey including those mandated in the Clean Air Act and the USEPA Regional NO_x emission caps were necessary for attainment. However, the State acknowledged an uncertainty in the demonstration related to a higher 1995-1997 design value at the Colliers Mills monitoring site. Although this higher value was not expected to persist, an analysis of this issue[8] in the demonstration indicated the possible need for additional emission reductions to provide a 6 ppb further ozone reduction. Using ozone/emission sensitivity factors from Table I-2 in Appendix I of the New Jersey Phase II Ozone SIP, adjusted to 1990 emission inventory levels, this would require an additional 10% NO_x or 13% VOC emission reduction.

Regarding the New York Nonattainment Area, using 1998 1-hour ozone design value data as the starting point for the demonstration, attainment of the 1-hour ozone NAAQS was plausibly demonstrated in the area with the implementation of mandated Clean Air Act measures and the USEPA Regional NO_x caps. The uncertainty in this demonstration was also noted primarily with respect to the starting design value. An analysis in the SIP, using a 5 year average of design values as the starting point for the projection suggested that an additional 11% VOC or 12% NO_x[9] emission reduction, relative to 1990 levels, could be needed to attain the 1-hour ozone standard.

D. Additional USEPA Identified Emission Reduction Requirements

On December 21, 1999, USEPA Administrator Browner signed regulations implementing a Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Program (Federal Tier 2 Program) to reduce emissions from motor vehicles. This program provides a significant control measure toward achieving attainment with the ozone health standard.[10] The USEPA estimated the benefits[11] from the proposed Federal Tier 2 Program.

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[7] The “rollback” method utilizes current monitored ozone levels multiplied by the ratio of air quality-modeled ozone concentrations with current and future projected emissions to predict future air quality, i.e., ozone levels.

[8] NJDEP, “Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy - Phase II Ozone Submittal”, August 31, 1998, page 60.

[9] Ibid, page 79.

[10] 65 Fed. Reg. 6698 (February 10, 2000).

[11] USEPA, “1-Hour Ozone Attainment Demonstrations and Tier 2 Motor Vehicle / Sulfur Rulemaking Memorandum”, November 8, 1999.

For the Philadelphia Nonattainment Area, after taking credit for the Federal Tier 2 Program, the estimated additional reductions required are 4.5% in VOCs and 0.3% in NO_x relative to the 1990 emission inventory. This is equivalent to remaining emission reductions in the multi-state Philadelphia Nonattainment Area of 61.8 tons of VOC and 3.4 tons of NO_x per summer day.
For the multi-state New York Nonattainment Area, after taking credit for the Federal Tier 2 Program, the estimated additional reductions required are 3.8% in VOCs and 0.3% in NO_x, relative to the 1990 emission inventory. This is equivalent to remaining emission reductions in the New York Nonattainment Area of 85 tons of VOC and 7 tons of NO_x per summer day. These results are summarized in Table 1.

Table 1: USEPA Identified Additional Emission Reductions Required in Multi-State Nonattainment Areas, After Credit for Tier 2 Motor Vehicle Standard / Low Sulfur Gasoline Emission Benefit(1)

Area	1990 Emissions [Tons per Day (TPD)]		Additional Required Emission Reductions [% of 1990 Emissions]		Additional Required Emission Reductions (TPD)	
	VOC	NO_x	VOC	NO_x	VOC	NO_x
Philadelphia-Wilmington-Trenton Nonattainment Area; New Jersey, Pennsylvania, Delaware, Maryland; 2005 attainment date(2)	1380	1010	4.5	0.3	62	3
New York - Northern New Jersey - Long Island Nonattainment Area; New Jersey, New York, Connecticut; 2007 attainment date(3)	2214	2052	3.8	0.3	85	7

(1) The mix of VOC and NO_x reductions shown may be changed in the future by substituting NO_x for VOC, or vice-versa, on an equivalent basis, consistent with USEPA Policy.
(2) USEPA, "Technical Support Document for the Trenton, New Jersey portion of the Philadelphia Ozone Nonattainment Area", December 14, 1999.
(3) USEPA, "Technical Support Document, Modeling for the NYC Ozone Nonattainment Area", December 13, 1999.

The required commitment and a list of potential control measures to meet the additional emission reductions were included in New Jersey's April 26, 2000, Additional Emission Reduction Commitment SIP revision.

E. Reasonably Available Control Measures Analysis

New Jersey included a list of all the control measures it implemented as part of the Phase II Ozone SIP. However, during the public comment period for the review of Phase II Ozone SIPs for eight States the USEPA received comments which claimed that some or all of the states may not have fully evaluated whether or not there were additional RACMs available for inclusion in the ozone attainment demonstrations. The USEPA reviewed these comments and available guidance and determined that New Jersey, and other states, must document in more detail an analysis to determine whether or not additional reasonably available control measures, which would expedite the attainment date, exist for the nonattainment areas.

The requirement for implementation of all RACMs is found in the Nonattainment Area Plan Provisions section of the Clean Air Act (Section 172(c)(1)). Specifically this section reads:

> (1) In general - Such plan provisions shall provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and shall provide for attainment of the national primary ambient air quality standards.

The USEPA interpreted this provision in 1979[12] and subsequent guidance. In this interpretation the USEPA indicated that implementation of measures which might be reasonably available for implementation in the nonattainment area but which could not be implemented on a schedule that would advance the date of attainment in the area would not be required.

New Jersey has completed a RACM analysis (see Appendix III). The results of that analysis are discussed in Section VI of this document.

IV. Control Measures to Meet USEPA Identified Additional Emission Reduction Requirement

A. Background

The USEPA determined that additional emission reductions, beyond those already identified in New Jersey's Ozone Attainment Demonstration SIP submission, were necessary for the Philadelphia and New York Nonattainment Areas.[13] As an initial matter, for areas such as these, the USEPA required each state to submit a commitment to adopt additional control measures to meet the level of reductions that the USEPA identified as necessary for attainment. This commitment not only required states to identify control measures but to formally adopt them through their rulemaking process. New Jersey chose to work through the Ozone Transport Region (OTR) to develop a regional strategy regarding the measures necessary to meet the additional reductions identified. OTR states were required to submit the additional control measures developed through the regional process to the USEPA by October 31, 2001.[14]

New Jersey worked with other states and jurisdictions in the Ozone Transport Commission (OTC) to identify potential control measures to fill the additional emission reduction requirements. A list of possible additional control measures was prepared at a meeting of the OTC's Stationary/Area Source and Mobile Source Committees on November 17, 1999. The focus of this list was later modified at a January 27, 2000, meeting of the OTC.

Prior to the preparation of New Jersey's Additional Emission Reduction Commitment SIP, the OTC further refined and focused the list of potential control measures which the group would pursue on a regional basis. The final list of control measures which the OTC decided to pursue for the additional emission reduction requirements includes:

reduction of VOCs from:

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[12] 44 Fed. Reg. 20372 (April 4, 1979).

[13] 64 Fed. Reg. 70380 (December 16, 1999).

[14] 64 Fed. Reg. 70380 (December 16, 1999).

1) commercial and consumer products
2) architectural and industrial maintenance coatings
3) solvent cleaning operations
4) mobile equipment repair and refinishing operations
5) portable fuel containers

reduction of NO_x from:
1) selected stationary sources which include: industrial boilers, stationary combustion turbines,
stationary internal combustion engines and cement kilns.

Each of the rules to be proposed by New Jersey is based on an OTC model rule. Each OTC model rule was evaluated on a regional basis by representatives of states and jurisdictions in the OTR. In addition, affected and interested parties were involved in the development of the OTC model rule. Industry provided substantive comments during a public review and hearing process on the OTC model rule. Many of these comments were subsequently incorporated in the final version of the OTC model rule. It is the desire of industry and the OTC that the OTR states and jurisdictions adopt rules as close to the model rule as possible to maintain consistency throughout the region.

B. Commercial and Consumer Products

i. Description

The New Jersey commercial and consumer products rule to be proposed contains requirements which address VOC emissions from consumer products such as air fresheners, automotive brake cleaners, carpet and upholstery cleaners, household adhesives, floor wax strippers and hairspray. Two related rules currently exist regarding consumer products in New Jersey, an existing New Jersey rule[15] and a USEPA national rule[16]. The existing New Jersey rule became effective in November 1995 and regulates 22 product categories (40 sub-categories). The USEPA national rule became effective in September 1998 and regulates 24 product categories (43 sub-categories). Over half of the consumer products' VOC emission inventory (as defined by the USEPA[17]) is not regulated by the existing New Jersey or national rules. The New Jersey commercial and consumer products rule to be proposed, discussed below, is more stringent than the existing rules.

A comparison of the existing New Jersey rule with the USEPA national rule shows that the main differences between the two are that the national rule regulates automotive windshield washer fluids and charcoal lighter materials, while the existing New Jersey rule did not (prior to adoption of the national rule). As discussed in the December 31, 2000, "New Jersey 1996 Actual Emission Inventory and Rate of Progress Plans for 2002, 2005 and 2007" SIP, the existing New Jersey rule resulted in an estimated 9% reduction of the total consumer products VOC emission inventory. The national rule resulted in an estimated 12% reduction of the total consumer products' VOC emission inventory (or 20% of the

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[15] N.J.A.C. 7:27-24, "Control and Prohibition of Volatile Organic Compounds from Consumer and Commercial Products", November 1995.

[16] USEPA CFR 40, Ch 1, Sub C, Part 59, "National Volatile Organic Compound Emission Standards for Consumer and Commercial Products, Automobile Refinish Coatings, Architectural Coatings", September 1998.

[17] USEPA, EIIP, Volume III, Chapter 5, "Consumer and Commercial Solvent Use", August 1996.

regulated categories), or approximately a 3% additional VOC emission reduction beyond the existing State rule.

The New Jersey commercial and consumer products rule to be proposed is based on the OTC model rule. The OTC model rule is largely based on the California Air Resources Board (CARB) rules and background data. The CARB VOC limits and data were reviewed for applicability in the OTR, including New Jersey. As a result, the OTC model rule includes most, but not all the product categories regulated in California. Some of the VOC limits have an effective date later than in California. To maximize consistency and uniformity of the products, which is very important to industry, most VOC limits, definitions, exemptions and flexibility options in the New Jersey commercial and consumer products rule to be proposed are the same as those used in California.

The New Jersey commercial and consumer products rule to be proposed regulates 45 consumer product categories (88 sub-categories), of which 21 of these categories (42 sub-categories) were not included in the USEPA national rule and 14 categories (17 sub-categories) have more stringent limits than the national rule. Some of the more stringent limits are currently in effect in California, and are known to be technologically feasible, while others have future effective dates. Manufacturers producing consumer products will be responsible for developing and distributing compliant products for sale at the retail and wholesale levels. In addition, any person who sells, supplies, or offers for sale consumer products will also be held accountable.

Manufacturers will ensure compliance with the limits by reformulating products and substituting products with compliant products that are already on the market. The anticipated compliance date will allow the limits for some of the products to take effect in California before becoming effective in the OTR.

If complying with the VOC content limits becomes problematic, flexibility options will be included in the rule to be proposed. These include an alternative compliance plan (averaging), an innovative product exemption (e.g., a non-compliant product with a delivery system that renders it in compliance with the limits); a variance and exemptions. In response to discussions with industry, the New Jersey commercial and consumer products rule to be proposed contains provisions for streamlining State approvals of the flexibility options and accepting CARB approval, when possible, where an innovative product exemption, an alternative compliance plan, or a variance has been granted in California. This option was included in order to avoid duplicating a lengthy and complex process that would have to occur on a state-by-state basis.

ii. Estimated Emission Reduction

It is estimated that the New Jersey commercial and consumer products rule to be proposed will achieve a 14.2% reduction of the total consumer products VOC emission inventory, beyond the current USEPA national rule. This is a reduction of approximately 32% for the categories being regulated, however, the entire consumer products inventory is not being regulated.

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six OTC model rules being prepared for use on a regional basis.[18] The results of the study are summarized in an OTC report (Appendix I) and a copy of the contractor report is included in Appendix II. As shown in the regional study, the New Jersey commercial and consumer products rule to be proposed is estimated to result in a reduction in VOC

[18] Pechan," Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

emissions of approximately 8.72 TPD in the entire Philadelphia Nonattainment Area in 2005 and 26.26 TPD in the entire New York Nonattainment Area in 2007.

iii. Rule Schedule and Compliance Date

This rulemaking is currently underway. Proposal of the rule is anticipated in the Fall, 2001. The final rule will be codified in N.J.A.C. 7:27-24, Control and Prohibition of Volatile Organic Compounds from Commercial and Consumer Products. The anticipated compliance date for the consumer product VOC limits is January 1, 2005.

C. Architectural and Industrial Maintenance Coatings

i. Description

This rule to be proposed contains requirements which address VOC emissions from architectural and industrial maintenance coatings. Architectural coatings include, but are not limited to, paints, varnishes, stains, industrial maintenance coatings, and traffic coatings. General use flat and nonflat (eggshell, satin, semi-gloss, gloss) coatings account for about 61% of the sales of architectural coatings. The remaining sales consist of a variety of specialties coating categories. An architectural coating (or paint) is applied in the field at the site of installation, e.g. in a home or office building, rather than in a shop or factory where pollution control equipment may be installed.

Two related rules currently exist regarding architectural and industrial maintenance coatings in New Jersey, an existing New Jersey rule[19] and a USEPA national rule[20]. The New Jersey architectural and industrial maintenance rule to be proposed is more stringent than the existing rules. The existing New Jersey rule became effective February 21, 1989. It regulates 29 coating categories and reduced architectural and industrial maintenance coatings VOC emissions by approximately 14%. These emission reductions are from the following four architectural and industrial maintenance categories: architectural surface coatings, traffic paints, high performance maintenance coatings, and other special purpose coatings. The VOC emissions inventory for these categories is based on EPA guidance.[21]

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[19] N.J.A.C. 7:27- 23, "Prevention of Air Pollution From Architectural Coatings and Consumer Products", February 21, 1989.

[20] USEPA CFR 40, Ch 1, Sub C, Part 59, "National Volatile Organic Compound Emission Standards for Consumer and Commercial Products, Automobile Refinish Coatings, Architectural Coatings", September 1998.

[21] USEPA, EIIP, Volume III, Chapter 3, "Architectural Surface Coatings", November 1995.

The USEPA national rule became effective in September 1998. The national rule regulates 61 coating categories and allowed a VOC emission reduction credit of 20%.[22] New Jersey calculations showed little difference between the national rule emission reductions and the existing New Jersey rule emission reductions. Therefore, no additional emission reductions were claimed for the national rule in New Jersey. The national rule contains more coating categories than the existing New Jersey rule. However, this disparity has little impact on the emission reduction calculations. Many of the additional categories are small market share categories and were given VOC limits close to existing market limits to protect the categories from being subject to a lower VOC limit.

The New Jersey architectural and industrial maintenance rule to be proposed is based on the OTC model rule. The OTC model rule is based on the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) Model rule, October 2000. The STAPPA/ALAPCO Model rule is based on the CARB Suggested Control Measures (SCM), June 2000, and background data. The USEPA national rule did not include the VOC limits and VOC emission reductions originally anticipated by STAPPA/ALAPCO and many states. Therefore, STAPPA/ALAPCO continued to evaluate additional VOC reductions that could be obtained from architectural and industrial maintenance coatings reformulation. When the OTC commenced its control measure development initiative, OTC recognized that it and STAPPA/ALAPCO were on parallel courses to develop architectural and industrial maintenance coating regulations. The OTC joined the STAPPA/ALAPCO effort.

The technical basis for the VOC coating content limits lie within the framework that the CARB developed for its SCM. Significant technical documentation was developed as part of the CARB process. The CARB VOC limits and data were reviewed for applicability in the OTR, including New Jersey. To maximize consistency and uniformity of the products, which is very important to industry, most VOC limits, definitions, exemptions and flexibility options in the New Jersey architectural and industrial maintenance rule to be proposed are the same as those used in California.

The New Jersey architectural and industrial maintenance rule to be proposed sets specific VOC content limits for 47 coating categories. In most cases, these limits are more stringent than the existing New Jersey rule and the USEPA national rule. Some coating categories are the same as in the existing rules and some are unique to the New Jersey architectural and industrial maintenance rule to be proposed. Sixteen coating categories are included in the national rule that are not included in the New Jersey

[22] USEPA, Memorandum from John Seitz, March 7, 1996.

architectural and industrial maintenance rule to be proposed. These categories are generally small market share categories and were given VOC limits close to existing market limits in order to protect the categories from being subject to a lower VOC limit.

The two main variations between the New Jersey architectural and industrial maintenance rule to be proposed and the STAPPA/ALAPCO model rule are:

- The effective date of the limits: The New Jersey architectural and industrial maintenance rule to be proposed is using January 1, 2005, while STAPPA/ALAPCO is using January 1, 2003;
- The limit for Industrial Maintenance Coatings: Industry representatives have requested that the limit be 340 g/l, instead of the 250 g/l used by STAPPA/ALAPCO due to the climate in the Northeast. This requested limit will be in the rule to be proposed .

The New Jersey architectural and industrial maintenance rule to be proposed does not apply to any architectural and industrial maintenance coating sold in a container with a volume of one liter or less or any aerosol coating product.

Manufacturers will ensure compliance with the limits by reformulating products and substituting products with compliant products that are already on the market. The compliance date will allow the limits for most products to take effect in California before becoming effective in the OTR. Therefore, if manufacturers experience reformulation problems, the OTR will have time to address them before those limits become effective.

ii. Estimated Emission Reduction

It is estimated that the New Jersey architectural and industrial maintenance rule to be proposed will achieve a 31% VOC emission reduction, beyond the current USEPA national rule. The categories included in the calculations are: architectural surface coatings, traffic paints, high performance maintenance coatings and other special purpose coatings.

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six rules being prepared for use on a regional basis.[23] The results of the study are summarized in an OTC report (Appendix I) and a copy of the contractor report is included in Appendix II. As shown in the study, the New Jersey architectural and industrial maintenance rule to be proposed will result in a reduction in VOC emissions of approximately 18.82 TPD in the entire Philadelphia Nonattainment Area in 2005 and approximately 41.57 TPD in the entire New York Nonattainment Area in 2007.

[23] Pechan," Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

iii. Rule Schedule and Compliance Date

This rulemaking is currently underway. Proposal of the rule is anticipated in the Fall, 2001. The final rule will be codified in N.J.A.C. 7:27-23, Prevention of Air Pollution from Architectural Coatings and Consumer Products. The anticipated compliance date for the architectural and industrial maintenance limits is January 1, 2005.

D. Solvent Cleaning Operations

i. Description

This rule to be proposed contains requirements to address VOC emissions from both vapor and cold solvent cleaning operations. It establishes hardware and operating requirements and alternative compliance options for vapor solvent cleaning machines used to clean metal parts. These requirements are based on the federal Maximum Achievable Control Technology (MACT) standard for chlorinated solvent vapor degreasers. The New Jersey solvent cleaning operations rule to be proposed also establishes hardware and operating requirements and solvent volatility limitations for the cold solvent cleaning operations. These volatility provisions are based on regulatory programs already in place in several States, including Maryland and Illinois.

New Jersey has an existing solvent cleaning operations rule based on the USEPA's Control Technology Guidance (CTG) issued in November of 1977. The existing New Jersey rule was adopted on September 22, 1986.[24] The existing New Jersey rule only provides for hardware and operating requirements for both vapor and cold solvent cleaning operations, as recommended by USEPA's 1977 CTG. Thus, it does not implement the higher levels of technology required under this rulemaking which is based on the more recent MACT standards[25] and the new volatility provisions.

Vapor cleaning machines are generally used in manufacturing operations to clean soils, including grease, oil, waxes, and the like, from parts where the highest level of cleanliness is necessary. Such manufacturing operations include the electronics industry and high quality metal machining and finishing operations. For vapor degreasers, hardware and operating provisions will be established under the federal halogenated solvent MACT. These requirements will apply to machines using either halogenated or non-halogenated solvents. The requirements in the New Jersey solvent cleaning operations rule to be proposed will apply to operators of vapor cleaning machines with a solvent surface area greater than one square foot.

In contrast, cold cleaners are used less frequently in manufacturing operations. They are more typically used in automobile repair and maintenance facilities, and in industrial maintenance shops. It is estimated that in excess of 50% of cold cleaning units are in automotive maintenance facilities. These units are either small remote reservoir machines or small immersion cleaning machines. The machines are useful in removing heavy soils where extreme cleanliness is not required. There are at least 100,000 cold cleaning machines in use in the OTR.

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[24] N.J.A.C. 7:27-16.6, "Control and Prohibition of Air Pollution by Volatile Organic Compounds: Open Top Tanks and Surface Cleaners".

[25] 59 Fed. Reg. 61801 (December 2, 1994).

The New Jersey solvent cleaning operations rule to be proposed specifies that cold cleaning operations use low volatility solvents. The proposal requires, within one year of the rule's adoption, that the solvents used in cold cleaning machines not exceed a volatility of one millimeter of mercury. The cold cleaner provisions of this rule to be proposed will primarily affect small business and solvent suppliers. Most of the cold cleaning machines are provided to users through contract with regional and national companies. The machine providers will be responsible for assuring that the cold cleaner solvent meets the volatility limit. In other cases, the users and solvent providers will have to assure that the solvent meets the required limit. All limits will apply only to cold cleaners containing greater than one liter of solvent.

Overall, the requirements of the New Jersey solvent cleaning operations rule to be proposed will apply only to cold cleaners and vapor cleaning machines cleaning metal parts. Exemptions will be provided in situations where safety concerns result from using low volatility cold cleaning solvents. Record keeping requirements specify that the user must maintain records of solvent use and other information that is routinely gathered during normal business operations.

ii. Estimated Emission Reduction

It is estimated that the New Jersey solvent cleaning operations rule to be proposed will achieve a 66% VOC emission reduction. It should be noted that New Jersey has an existing solvent cleaning operations rule which achieves 60% reduction of solvent cleaning operations VOC emissions. Therefore, the New Jersey solvent cleaning operations rule to be proposed will realize only an additional 6% VOC emission reduction, from the uncontrolled level, in New Jersey. However, it is anticipated that the full 66% reduction in solvent cleaning operations VOC emissions will be achieved in other parts of the nonattainment areas and other parts of the OTR.

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six rules being prepared for use on a regional basis.[26] The results of the study are summarized in an OTC report (Appendix I) and a copy of the contractor report is included in Appendix II. As shown in the study, the New Jersey solvent cleaning operations rule to be proposed will result in a reduction in VOC emissions of approximately 20.08 TPD in the entire Philadelphia Nonattainment Area in 2005 and approximately 6.87 TPD in the entire New York Nonattainment Area in 2007.

iii. Rule Schedule and Compliance Date

This rulemaking is currently underway. Proposal of the rule is anticipated in the Fall, 2001. The final rule will be codified in N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds. The compliance date for this rule is one year after adoption.

E. Mobile Equipment Repair and Refinishing Operations

i. Description

[26] Pechan," Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

This rule to be proposed contains requirements which address VOC emissions from mobile equipment repair and refinishing operations and is based on guidance from the USEPA's alternative control technique document issued on April of 1994. Two related rules currently exist regarding mobile equipment repair and refinishing in New Jersey, an existing New Jersey rule[27] and a USEPA national rule[28]. Various limits in the existing New Jersey rule became effective between 1982 and 1990. However, the existing New Jersey rule limits are only applicable to those facilities that use over one half gallon of paint per hour and 2.5 gallons per day. The vast majority of auto body refinishers do not exceed these criteria and are therefore not subject to the existing New Jersey rule. The USEPA national rule became effective September 11, 1998 and it regulates the VOC content of primers and coatings applied in autobody refinishing operations. The USEPA estimated that the national rule resulted in a 36% reduction of emissions from these paints.[29]

The New Jersey mobile equipment repair and refinishing rule to be proposed establishes requirements for using improved transfer efficiency coating application equipment, such as high volume-low pressure equipment, using spray gun cleaning equipment that minimizes solvent loss, and enclosed spray gun cleaning. Using higher transfer efficiency equipment reduces paint use and consequently reduces painting-related emissions. Reduced "over spray" from painting operations will reduce the frequency of booth filter replacement and related disposal and replacement costs, making operations more economical for facility owners.

The New Jersey mobile equipment repair and refinishing rule to be proposed applies to a facility that applies refinish materials to a variety of mobile equipment for compensation. The majority of the affected facilities will be small businesses. The shops range in size from small, one or two employee facilities, to larger production paint shops with 20 or more employees. Pure hobbyist coating application is exempted.

While use of commercially available spray gun cleaners are desirable, the New Jersey mobile equipment repair and refinishing rule to be proposed allows other containers for spray gun cleaning to be used, as long as the container is closed when not in use. Operators will be required to complete minimum training in proper use of equipment and materials, and maintain a record of the training. The training requirement can be met through attending formalized training centers or through information provided by paint and equipment representatives during routine shop visits.

ii. Estimated Emission Reduction

It is estimated that the New Jersey mobile equipment repair and refinishing rule to be proposed will achieve a 38% reduction in VOC emissions. This estimate includes a 35% reduction from the use of high transfer efficiency spray guns or equivalent equipment and another 3% from the use of enclosed spray gun cleaners.

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[27] N.J.A.C. 7:27-16.7, "Control and Prohibition of Air Pollution by Volatile Organic Compounds: Surface Coating and Graphic Arts Operations".

[28] USEPA CFR 40, Ch 1, Sub C, Part 59, "National Volatile Organic Compound Emission Standards for Consumer and Commercial Products, Automobile Refinish Coatings, Architectural Coatings", September 1998.

[29] 63 Fed. Reg. 48806.

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six rules being prepared for use on a regional basis.[30] The results of the study are summarized in an OTC report (Appendix I) and a copy of the contractor report is included in Appendix II. As shown in the study, the New Jersey mobile equipment repair and refinishing rule to be proposed will result in a reduction in VOC emissions of approximately 6.34 TPD in the entire Philadelphia Nonattainment Area in 2005 and approximately 20.22 TPD in the entire New York Nonattainment Area in 2007.

iii. Rule Schedule and Compliance Date

This rulemaking is currently underway. Proposal of the rule is anticipated in the Fall, 2001. The final rule will be codified in N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds. The compliance date for this rule is one year after adoption.

F. Portable Fuel Containers

i. Description

This rule to be proposed contains requirements which address VOC emissions from portable fuel containers and is based on the CARB's portable fuel containers rule which took effect January 2001. The New Jersey portable fuel containers rule to be proposed applies to all portable fuel containers and/or spouts except: (1) containers with a capacity of less than or equal to one quart; (2) rapid re-fueling devices with capacities greater than or equal to four gallons; and (3) safety cans and portable marine fuel tanks that operate in conjunction with outboard engines. This rule to be proposed would become effective January 1, 2003.

Portable fuel containers and/or spouts must be equipped with an automatic shut-off device that stops fuel flow before the fuel tank overflows, and an automatic device that closes and seals when it is removed from the fuel tank. There are also other required design specifications, all of which are intended to significantly lessen the possibility of gasoline spillage and reduce emissions.

The New Jersey portable fuel containers rule to be proposed applies to any person who sells, supplies, offers for sale, or manufactures for sale portable fuel containers and/or spouts. Since all new containers will comply with the provisions of the portable fuel containers rule, the requirements should be transparent to the customer. Manufacturers are required to label products with a variety of information including the date of manufacture and a representative compliance code.

In addition to reducing VOC emissions, the New Jersey portable fuel containers rule to be proposed will reduce public exposure to hazardous constituents present in gasoline, such as benzene. Benzene is a toxic air contaminant, and a known human carcinogen. Although the risk reductions have not been quantified, it is anticipated that the spill-proof features and permeation requirement will significantly reduce regional benzene emissions.

The New Jersey portable fuel containers rule to be proposed will also improve water quality in aquifers, lakes and rivers. It will greatly reduce the amount of gasoline spilled onto the ground while refueling lawn, garden, and small construction equipment. Many marine pleasure craft,

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[30] Pechan," Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

especially personal water craft, are refueled using portable containers, and the threat of fuel spillage during on the water refueling is always present. The spill-proof systems will allow users of pleasure craft to refuel their engines without fuel spillage thus reducing the potential discharge of fuel into the aquatic environment from these activities.

ii. Estimated Emission Reduction

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six rules being prepared for use on a regional basis.[31] The results of the study are summarized in an OTC report (Appendix I) and a copy of the contractor report is included in Appendix II. Based on the results of this study, it is estimated that VOC emissions from portable fuel containers will be reduced by approximately 75% of total uncontrolled emissions, once the New Jersey portable fuel containers rule to be proposed is fully effective. It is estimated that it will take 10 years to turnover the portable fuel containers population. As shown in the regional study, the New Jersey portable fuel containers rule to be proposed will result in a reduction of VOC of approximately 5.04 TPD in the entire Philadelphia Nonattainment Area in 2005 and 25.09 TPD in the entire New York Nonattainment Area in 2007.

iii. Rule Schedule and Compliance Date

This rulemaking is currently underway. Proposal of the rule is anticipated in the Fall, 2001. The final rule will be codified in N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds. The anticipated compliance date for the portable fuel containers rule is January 1, 2003.

G. Selected Stationary Source NO_x Reductions

i. Description

This rule to be proposed contains requirements which address NO_x emissions from a broad range of stationary sources which include,(1) boilers that are used to heat institutions, commercial, and residential buildings, and for heat and power in industrial applications; (2) small to large internal combustion engines that can be used as stand-alone power generation units and at pipeline compressor stations; (3) turbines that are typically used as on-site backup electric power generators; and (4) cement kilns.

Many portions of the OTC model rule on States' Reasonably Available Control Technology (RACT) rules.[32] The New Jersey NO_x rule to be proposed helps to standardize many of these RACT requirements across the OTR and encourages the use of technologies that will achieve better NO_x emission reductions.

Many of the sources in the New Jersey NO_x rule to be proposed are below typical permitting thresholds. An ancillary concern associated with regulating these sources is that they are used

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[31] Pechan," Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

[32] A RACT is required on existing sources in areas that are not meeting the NAQQS, i.e., nonattainment areas.

for on-site electric power generation ("distributed generation") to address electric power grid deficits and/or price spikes in the summertime. This can lead to a surge in "dirty power" generation (i.e., power produced by small uncontrolled generators, causing a large increase in NO_x emissions) during periods of highest ozone concentrations. In general, there are currently no emission limits on these sources, nor are there incentives in place to encourage cleaner distributed generation.

The New Jersey NO_x rule to be proposed establishes emission rate limits and NO_x reduction requirements for source categories based on production rate, i.e."output" , and type of device. In addition, it specifies testing requirements, use of continuous emissions monitors, or other specified NO_x methods, to determine compliance.

Given the size, age, and variety of the regulated sources, there will be some engines that may not be able to meet the NO_x standards to be proposed. Therefore, the New Jersey NO_x rule to be proposed includes compliance flexibility. Sources may either: (1) meet the established NO_x emission rate limits; (2) achieve the given NO_x reduction percentage; or (3) purchase ozone season NO_x credits. This will allow compliance options while maintaining the environmental benefits of the rule.

In addition to providing more stringent emission limits for existing power generation, the New Jersey NO_x rule to be proposed will also encourage cleaner, alternative sources of on-site power generation. Since NO_x emissions are also involved in particle formation, visibility degradation, and nutrient deposition in waterways, there will also be ancillary benefits beyond reducing ozone.

ii. Estimated Emission Reduction

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six rules being prepared for use on a regional basis.[33] The results of the study are summarized in an OTC report (Appendix I) and a copy of the contractor report is included in Appendix II. Emission reductions for the New Jersey NO_x rule to be proposed were calculated for each applicable source in New Jersey, and throughout the OTR. Percent reductions, of course, vary with type of source and the assumed control measure which would be utilized to reduce emissions. Details on the methodology used to calculate the emission reductions, as well as a sample calculation, can be found in Chapter III of Appendix II. As shown in the regional study, the New Jersey NO_x rule to be proposed will result in a reduction in NO_x emissions of approximately 5.84 TPD in the entire Philadelphia Nonattainment Area in 2005 and 21.90 TPD in the entire New York Nonattainment Area in 2007.

iii. Rule Schedule and Compliance Date

This rulemaking is currently underway. Proposal of the rule is anticipated in the Fall, 2001. The final rule will be codified in N.J.A.C. 7:27-19, Control and Prohibition of Air Pollution by Oxides of Nitrogen. The compliance date for this rule is one year after adoption.

H. Collateral Emission Reduction Benefits

[33] Pechan, "Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

In addition to reducing VOCs, it should be noted that some VOCs also oxidize and condense in the atmosphere to form a class of fine particulates known as secondary organic aerosols. Initial monitoring data indicates that these secondary organics can be a significant component of total fine particulates, particularly in urban areas.[34, 35]

[34] Amar, Praveen, NESCAUM's Progress Report on "Determination of Fine Particles Concentrations and Chemical Composition in the Northeastern US", 1995.

[35] NESCAUM, "Regional Haze and Visibility in the Northeast and Mis-Atlantic States", draft report, November 30, 2000.

Fine particulates have been associated with a number of adverse health effects including,[36] premature mortality, aggravation of respiratory and cardiovascular disease, changes in lung function and increased respiratory symptoms, changes to lung tissues and structure, and altered respiratory defense mechanisms. Therefore, to the extent that VOC emissions are lowered, there can be a beneficial impact in terms of mitigating the adverse health impacts from fine particulates as well. In addition, fine particles are also contributors to visibility impairment, thus reductions in particle formation will result in increased visibility.

Air toxics are air pollutants that, in sufficient concentrations and exposure, are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or to cause adverse environmental effects. Generally, the toxic air pollutants of greatest concern are those that are released to the air in amounts large enough to create a risk to human health, and that have the potential to expose many people. Toxic air pollutants may have indirect public health effects through deposition onto soil or into lakes and streams, potentially affecting ecological systems and, eventually, human health through consumption of contaminated food.

Certain VOC from area sector sources that react to form ozone are air toxics and may form hazardous air pollutants (HAPs), as defined in Section 112 of the Clean Air Act. Some of the OTC model rules, including the solvent cleaning and the mobile equipment repair and refinishing rules, require the use of equipment that allows less VOC-containing product to be used. Several of the model rules, including the architectural and industrial maintenance coatings model rule, also require the use of reformulated products that contain lower concentrations of HAPs. These requirements will result in reduced occupational exposure to HAPs emissions in the workplace. The OTC States have not studied the extent to which the specific VOC being controlled by the OTC model rules are or form such HAPs. Generally, controlling VOC can lead to reductions in HAPs.[37]

Nitrogen accumulates in watersheds. Because most North American terrestrial ecosystems are nitrogen-limited, nitrogen deposition often has a fertilizing effect, accelerating plant growth. However, nitrogen deposition and the associated plant growths can cause adverse changes in some terrestrial ecosystems, including shifts in plant species composition, decreases in species diversity, undesirable nitrate leaching to surface and ground water, and decreased plant growth.

NOx emissions contribute directly to the widespread accelerated eutrophication of coastal waters and estuaries. Atmospheric nitrogen deposition onto surface waters and tidal waters has been documented to contribute up to 44% of the total nitrogen loading to US coastal waterbodies.[38] The addition of nitrogen results in accelerated algae and aquatic plant growth, causing adverse ecological effects and economic impacts that range from nuisance algal blooms to oxygen depletion and fish kills. A recent study by a National Academy of Sciences National Research Council panel has also found that the overabundance of nutrients -- especially nitrogen -- is causing serious environmental damage on all of the nation's coasts. The study calls for reductions in nitrogen loading from the atmosphere and upstream watersheds, from rivers polluted by agricultural runoff, from wastewater treatment plants, and from the burning of fossil fuels.

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[36] 61 Fed. Reg. 241 (December 13, 1996).

[37] USEPA, “Air Toxics Program: The Integrated Urban Strategy, Report to Congress”, July 2000.

[38] OTC, 2001, “Ozone Transport Commission Report on Achieving Additional Emission Reductions”

V. Additional Emission Reduction Conclusions

Estimated emission reductions by nonattainment area and control measure are summarized in Table 2. The estimated emission reductions for the New Jersey portion of each of the nonattainment areas by pollutant are summarized in Table 3. Implementation of the control measures outlined in this document

by the states in the New York Nonattainment Area will result in sufficient emission reductions to meet the USEPA identified emission shortfalls in these areas. In the Philadelphia Nonattainment Area excess NO_x emission reductions are substituted to achieve the volatile organic compound VOC emission shortfall. Implementation of measures in the 100 km area outside a nonattainment area would result in additional emission reduction benefits (see Appendices I and II).

Section 182(c)(2)(C) of the Clean Air Act allows for the substitution of VOC emission reductions with NO_x emission reductions if it can be demonstrated that such substitution yields equivalent ozone reductions. New Jersey made such an equivalency demonstration in its Phase I Ozone SIP.[39] The other states in the

Philadelphia Nonattainment Area have also demonstrated equivalence. In order to make the substitution in this case, it is necessary to calculate a NO_x to VOC emissions ratio for the entire Philadelphia

Table 2: Estimated Emission Reductions Due to Implementation of Control Measures in Nonattainment Areas [40]

nattainment Area	ainment Date	odel Rule	05/2007 ojected Benefit (TPD)		EPA ntified Shortfall (TPD)	
			VOC	**NO_x**	**VOC**	**NO_x**
lladelphia	05	O_x Rule		6		
		nsumer Products	9			
		rtable Fuel Containers	5			
		chitectural and Industrial	19			
		laintenance Coatings	6			
		obile Equipment Refinishing	20			
		lvent Cleaning Operations	**59**	**6**	**62**	**3**
		Total				

[39] NJDEP, "State Implementation Plan Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards, Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy, Phase I Ozone SIP Submittal", December 31, 1996, pages 38-39.

[40] Appendix II, page 42.

nattainment Area	ainment Date	del Rule	05/2007 ojected Benefit (TPD)		EPA ntified Shortfall (TPD)	
			VOC	**NO_x**	**VOC**	**NO_x**
w York	07	O_x Rule		22		
		nsumer Products	26			
		rtable Fuel Containers	25			
		chitectural and Industrial	42			
		Maintenance Coatings	20			
		bile Equipment Refinishing	7			
		lvent Cleaning Operations	**120**	**22**	**85**	**7**
		Total				

Table 3: New Jersey Portion of Emission Reductions From OTC Model Rules [41]

w Jersey Portion of Nonattainment Area	ainment Date	OC Reductions PD)	O_x Reductions PD)
ladelphia	2005	11.71	3.24
w York	2007	45.00	7.57

Nonattainment Area. This calculation was made by totaling the VOC and NO_x emission inventories for the counties from the various states in the Philadelphia Nonattainment Area for 2002.[42] This data is presented in Table 4. A NO_x to VOC ratio of 1.04 was derived from this data, i.e., 1 ton of NO_x emission reduction is equivalent to 1.04 tons of VOC in terms of ozone reduction.

Table 4: Philadelphia Nonattainment Area Emission Inventories for New Jersey, Pennsylvania, Delaware and New York for 2002

[41] Appendix II, page 47.

[42] Not all states in the Philadelphia Nonattainment Area have prepared projected emission inventories for 2005. Therefore, it was necessary to base this calculation on the 2002 projected emission inventories for the four states in the Philadelphia Nonattainment Area.

te	VOC (TPD)	NO_x (TPD)
w Jersey[a]	202	234
nnsylvania[b]	446	362
laware[c]	165	187
ryland[d]	24	18
Total	837	801

[a] NJDEP, "Proposed State Implementation Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standard, New Jersey 1996 Actual Emission Inventory and Rate of Progress Plans for 2002, 2005 and 2007", December 31, 2000.

[b] PADEP, "State Implementation Plan Revision for the Philadelphia Interstate Ozone Nonattainment Area Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy, Phase II", April 1998.

[c] DNREC, "Delaware's 2002 Rate of Progress Plan for Kent and New Castle Counties for Demonstrating Progress Toward Attainment of the One-Hour National Ambient Air Quality Standard for Ground-Level Ozone", February 3, 2000.

[d] MDE, "Phase II Attainment Plan for Baltimore Region and Cecil County", April 24, 1998.

Six tons per day of NO_x emission reductions are estimated for the Philadelphia Nonattainment Area from the New Jersey NO_x rule to be proposed. Only 3 TPD are required to meet the NO_x shortfall in the Area. Therefore, there are 3 TPD of NO_x emissions available for substitution; 3 TPD NO_x * 1.04 = 3.12 TPD VOC equivalent. The estimated VOC emission reductions from the control measures equal 59 TPD VOC plus 3 TPD VOC equivalent equals 62 TPD VOC emission reductions for the Philadelphia Nonattainment Area in 2005. This means that implementation of the control measures outlined in this document, with NO_x substitution, will result in emission reductions which meet the USEPA identified emission shortfalls in the Philadelphia Nonattainment Area.

VI. Reasonably Available Control Measure Conclusions

The RACM analysis included an evaluation of potential transportation control measures (TCMs) for on-road mobile sources and other potential control measures for point, area, off-road and on-road source categories. New Jersey emission inventories were sorted by emission level to identify source categories with the greatest potential for additional control measure benefits. Individual TCMs and other control measures were evaluated with regard to their technical feasibility, economic feasibility and implement ability. Finally, the sums of the estimated emission benefits from the potentially implementable measures were then compared to the emission reductions required to advance the attainment dates for each nonattainment area.

The analysis identified a number of candidate emission reduction control measures, however collectively the measures do not meet the RACM test to advance the attainment date for either nonattainment area in the State. Therefore, given the control measures already contained in New

Jersey's SIP and the additional control measures in this SIP revision, New Jersey is moving to attain the one-hour ozone standard as expeditiously as practicable. The full RACM analyses, including the screening criteria and control measures considered, is presented in Appendix III. Although no measures would advance the attainment date, a number of TCMs and other potential control measures were found to be feasible, given sufficient development and implementation time, and may be candidates to pursue in the future should additional emission reductions be needed.

The maximum number of additional control measures that can be effectively implemented within the timeframe necessary to provide emission benefits prior to the attainment dates would be limited based on
practical administrative feasibility factors such as: resource limitations, constraints imposed by the regulatory process, and availability of specific implementation funds. Implementation of more than the six
TCM/other measures listed in Table 5 is impracticable. Therefore, if the estimated benefits from Table 5

Table 5: Summary of the Potentially Implementable TCM and Other Control Measures Resulting from the Analysis of Technical/Economic Feasibility, Magnitude of Benefit and Timing

		Estimated Benefits (TPD)	
ırce Category	**ntrol Measure**	**w York (2006)**	**Philadelphia (2004)**
nsit Improvements	ed Guideway Projects	3 VOC + NO_x	0.0
os Lt. Duty Trucks - Surface	d-on Controls	1.1 VOC	0.0
Coating	d-on Controls for Small Sources	0.0	1.0 VOC
c. Metal Parts - Surface Coating	(<5TPY)	1.5 NO_x	0.0
vy Duty Diesel Vehicles	E Engine Standards	1.7 VOC	0.3 VOC
oline Transfer Operations	anced Vapor Recovery	1.6 NO_x	0.4 NO_x
vy Duty Diesel Vehicles	luce Truck Idling		

are considered, total VOC and NO_x benefits of 7.2 TPD could be realized for the New York area in 2006 and 1.7 TPD could be realized for the Philadelphia area in 2004.

In order to assess the level of emission reductions required to advance the attainment date for each area it was necessary to quantify the VOC and NO_x reductions expected in the year prior to the attainment year. For the New Jersey portion of the New York nonattainment area the amount of VOC/NO_x reduction in the year prior to the current attainment year of 2007 is estimated to be the sum of the benefit from the Portable Fuel Containers rule (2.0 TPD) and the net change in emissions from all other sources (7.6 TPD) for a total of 9.6 TPD. In order to assess the advancement of the attainment date criteria for the New Jersey portion of the Philadelphia area it is necessary to consider the amount of VOC and NO_x emission inventory reduction combined in the year prior to the current attainment year of 2005. This is estimated to be the sum of the

benefits from the AIMs, Consumer Products and Portable Fuel Containers rules (8.2 TPD) and the net change in emissions from all other sources (17.6 TPD) for a total quantity of 25.8 TPD.

The sum of the estimated benefits from the potentially implementable TCMs and other control measures were estimated to be 7.2 TPD for the New York area and 1.7 TPD for the Philadelphia area. These benefits are less than the values (9.6 TPD for the New York area and 25.8 TPD for the Philadelphia area) required to advance the attainment date for either area. Therefore, no TCM or other control measures have been identified which could advance the attainment dates for either area.For more details on the RACM analysis, see Appendix III.

VII. Additional Emission Reduction Planning

A. Overview

In addition to the six control measures discussed above, New Jersey is pursuing some additional control measures. The following discussion outline these measures and their potential emission benefits.

B. 100 Kilometer Counties

The USEPA issued guidance in 1997 which allows states to take credit for emission reductions outside existing nonattainment areas to satisfy the post 1996 ROP requirements mandated by the Clean Air Act.[43] In general, the 'outside' area in the guidance is defined as 100 kilometer (km) outside the nonattainment area for VOC emission reductions and 200 km outside the nonattainment area for NO_x reductions.

As part of the regional effort to address the 1-hour ozone additional reduction requirements, the OTC commissioned a study to quantify the reduction benefits of the six rules being prepared for use on a regional basis.[44] Included in this analysis were the emission reduction benefits for counties in the 100 km area around the nonattainment areas. There are 3 counties in New Jersey which are in the 100 km area, Atlantic and Cape May Counties which are in the Philadelphia Nonattainment Area 100 km area, and Warren County which is in the New York Nonattainment Area 100 km area. As shown in Table 6, implementation of the six control measures in the New Jersey 100 km counties will result in additional reductions in VOC emissions of approximately 2.38 TPD for the Philadelphia Nonattainment Area in 2005
and approximately 0.78 TPD for the New York Nonattainment Area in 2007, and additional reductions in NO_x emissions of approximately 0.22 TPD for the Philadelphia Nonattainment Area in 2005 and approximately 0.52 TPD for the New York Nonattainment Area in 2007.

Table 6: Estimated Emission Reductions Due to Implementation of Control Measures in 100 km Area in New Jersey [45]

[43] USEPA, Memorandum from Richard D. Wilson, May 1997, Ref: OZPMRH-5-97.

[44] Pechan, "Control Measure Development Support Analysis of Ozone Transport Commission Model Rules", March 31, 2001.

[45] Appendix II, page 43.

nattainment Area	ainment Date	odel Rule	05/2007 Benefit (TPD)	
			VOC	**NO_x**
ladelphia (Atlantic and Cape May Counties)	05	O_x Rule		0.22
		nsumer Products	0.49	
		rtable Fuel Containers	0.28	
		chitectural and Industrial Maintenance Coatings	1.06	
			0.38	
		obile Equipment Refinishing	0.17	
		lvent Cleaning Operations	**2.38**	**0.22**
		Total		
w York (Warren County)	07	O_x Rule		0.52
		nsumer Products	0.15	
		rtable Fuel Containers	0.15	
		chitectural and Industrial Maintenance Coatings	0.32	
			0.11	
		obile Equipment Refinishing	0.05	
		lvent Cleaning Operations	**0.78**	**0.52**
		Total		

C. Heavy Duty Diesel Vehicles

Seven large heavy duty diesel engine (HDDE) manufacturers, who allegedly violated federal engine certification regulations through the use of emission control defeat devices, have agreed, pursuant to consent decrees, to produce HDDEs meeting new standards and test procedures designed to address the defeat device issue (sometimes referred to as the “Not-To-Exceed” (NTE) standards) by October 1, 2002, and for two years thereafter. The USEPA had intended to adopt federal NTE standards for HDDEs that would apply in model year (MY) 2004 and thereafter, but, due to federal timing constraints, adopted the standards effective with MY 2007. This leaves a temporal gap between the consent decree’s NTE standards and the new federal rule for MY 2005 and 2006 HDDEs.

California has adopted NTE engine standards for MYs 2005 and 2006. Under Section 177 of the Clean Air Act, states are allowed to adopt California’s NTE engine standards. New Jersey, other

OTC states, except Virginia, and several other states are proceeding with rulemakings to require the California NTE engine standards.[46] Implementation of the standards will result in NO_x emission reductions.

[46] OTC members signed a Memorandum of Understanding on December 11, 2000, which committed the member states, except Virginia, to propose the California NTE engine standards.

The CARB staff have developed a methodology to calculate the NOx emission reductions associated with implementing the California NTE engine standards for MYs 2005 and 2006. Based on this methodology, it is estimated that implementation of the control measure will result in NO_x emission reductions of approximately 1.4 TPD in the New Jersey portion of the Philadelphia Nonattainment Area in 2005 and approximately 2.7 TPD in the New Jersey portion of the New York Nonattainment Area in 2007[47]. New Jersey is proposing this control measure statewide, therefore additional reductions will be realized in New Jersey's 100 km counties (Atlantic and Cape May Counties for the Philadelphia Nonattainment Area and Warren County for the New York Nonattainment Area). This will result in additional reductions in NO_x emissions of approximately 0.2 TPD for the Philadelphia Nonattainment Area in 2005 and approximately 0.2 TPD for the New York Nonattainment Area in 2007.

This rulemaking is currently underway. Final rule adoption is anticipated in September 2001. The anticipated effective date for the NTE rule is January 1, 2002; with an anticipated compliance date of January 1, 2004.

D. Gasoline Transfer Operations

New Jersey is evaluating updating its existing rule regarding Gasoline Transfer Operations (GTO) (Stage I and Stage II gasoline vapor recovery at retail service stations)[48]. Items under consideration in this evaluation include the following:

Stage I:

Existing 90% transfer efficiency raised to 98%

Pressure/vacuum relief valves on vent pipes

Drop tube with overfill protection

Leak free connections, fittings and hoses

Leak free vapor manhole and loading manhole during non-transfer conditions

Fuel blend compatibility

Stage II:

Compatibility with Phase I system

Nozzle/Dispenser Compatibility

Balance nozzle check valve specifications

Boots on assist nozzles

Leak free connections, fittings and hoses

[47] Emission reductions for both the nonattainment areas include the MYs 2005 and 2006. This is because MY engine/vehicles are usually produced and start being sold in the proceeding year, i.e., MY 2005 engines/vehicles are produced and start being sold in calendar year 2004.

[48] N.J.A.C. 7:27-16.3, "Gasoline Transfer Operations".

Unihose for new and modified stations

Vapor piping guidelines for new stations

Liquid condensate traps for new stations only if vapor piping guidelines cannot be met

Annual pressure testing of Stage I and Stage II system:

The updated GTO rule may require that facilities conduct pressure testing of their Stage I and Stage II systems once a year by an independent contractor. If the system passes the test, the results do not have to be submitted to the NJDEP, just maintained on-site. If the system fails the pressure test, the NJDEP must be notified, and the system must be repaired and retested.

Preliminary estimations of VOC ozone season emission reductions from the above measures are approximately 3.5 TPD statewide in New Jersey in 2005; approximately 0.8 TPD in the New Jersey portion of the Philadelphia Nonattainment Area in 2005 and approximately 2.4 TPD in the New Jersey portion of the New York Nonattainment Area in 2007. If this update to the GTO rule is proposed it will most likely be implemented Statewide, therefore additional reductions will be realized in New Jersey's 100 km counties (Atlantic and Cape May Counties for the Philadelphia Nonattainment Area and Warren County for the New York Nonattainment Area). This would result in additional reductions in VOC emissions of approximately 0.2 TPD for the Philadelphia Nonattainment Area in 2005 and approximately 0.1 TPD for the New York Nonattainment Area in 2007.

Actual reductions may be higher due to the proposed annual pressure testing, which will encourage a higher level of good housekeeping measures, but actual reductions are difficult to calculate.

VIII. Air Quality Review

A. The Mid-Course Review

On August 31, 1998, New Jersey submitted to the USEPA a SIP revision entitled, "Attainment and Maintenance of the Ozone National Ambient Air Quality Standards - Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy." This SIP revision addressed the USEPA requirements related to attainment of the 1-hour NAAQS for ozone as contained in a March 2, 1995 memorandum from Mary Nichols, and a December 29, 1997 memorandum from Richard D. Wilson. The submittal included: a demonstration of attainment of the 1-hour NAAQS for Ozone for the two multi-state nonattainment areas- the Philadelphia Nonattainment Area which has a 2005 attainment date, and the New York Nonattainment Area, which has a 2007 attainment date, a list of control measures adopted to date, and several commitments including conducting a Mid-Course Review to ensure that New Jersey's plan for attainment is on track, and submitting a report on the Mid-Course Review to the USEPA by December 31, 2002.

In a subsequent SIP submittal[49] New Jersey revised the commitment date for the Mid-Course Review to no later than December 31, 2003. However, the USEPA is planning to release new guidance

[49] NJDEP, "State Implementation Plan Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards, Update to Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy - Additional Emission Reduction Commitment and Transportation Conformity Budgets", April 26, 2000.

for performing the Mid-Course Review . This new guidance is expected to require submittal of the USEPA required Mid-Course Review by December 31, 2004. The Philadelphia Nonattainment Area has a November 15, 2005 attainment date. Should the USEPA Mid-Course Review show that the Philadelphia Nonattainment Area will not meet attainment in 2005, there would be insufficient time to implement additional control measures to achieve additional emission reductions which can bring the area into attainment by 2005. Also, the State believes that as attainment dates are approached, extensive analyses, including air quality modeling prediction are not necessary but, rather, the State will rely predominantly on current air quality monitored measurements to assess its attainment status.

Because New Jersey regards the 2004 date as too late to take any needed corrective actions in the Philadelphia Nonattainment Area and because it believes that a review can be streamlined considerably it is conducting the Mid-Course Review to which it previously committed at this time as described below.

The trends since 1988 and the current maximum one-hour ozone design values for the Philadelphia and New York Nonattainment Areas are provided in Figures 9 and 10, respectively. For the Philadelphia Nonattainment Area the monitor at Fairhill, MD has been excluded because its readings are influenced much more by the Baltimore than the Philadelphia Nonattainment Area.

Using a three year average (1998-2000) of design values for each area as a starting point and previous SIP predictions of ozone air quality benefits, anticipated ozone levels were derived for the attainment dates[50]. The results are shown in Table 7.

[50] 2005 for the Philadelphia area and 2007 for the New York area.

From Table 7, for the Philadelphia Nonattainment Area, an ozone level of 118.9 ppb is projected which is below the 124 ppb standard. For the New York Nonattainment Area a level of 124.1 ppb is projected, which is essentially at the standard. For the New York Nonattainment Area projection in Table 7 it should be noted from Table 2 that VOC emission reduction benefits from the OTC model rules of 120 tons per day are predicted which is 35 tons per day greater than 85 tons per day that the USEPA has required. NO_x reductions are 15 tons per day greater than required. Prorating this additional benefit of 50 tons per day against the 158[51] tons per day reduction that was predicted by the USEPA to result in a 5 ppb benefit, results in an additional 50/158 x 5ppb = 1.58 ppb benefit. This effect has been included in Table 7.

New Jersey has concluded on the basis of this analysis that it is on-track to attain the 1-hour ozone standard in both nonattainment areas.

Table 7: Attainment Projections for the One-Hour Ozone Standard* for the Philadelphia and New York Nonattainment Areas

	iladelphia Area	w York Area
rrent(1) Maximum Ozone Design Value (ppb)	138.0	143.7
ticipated Benefit from Clean Air Act Mandated Nonattainment Area Measures (ppb)	-3.4(2)	–5.0(3)
nefit(4) from Regional NO_x Reductions (ppb)	-11.7	-8.0
nefit from Meeting USEPA Identified Additional Emission Reductions(5)	-4.0	-5.0
ditional Benefit from OTC Model Rules	0.0	-1.6

[51] A required 4.2% reduction of 1990 inventory levels (or 92 tons per day: 85 tons per day VOC plus 7 tons per day NO_x) was scaled up to the 7.2% emission reduction required prior to taking credit for the Tier 2/Low Sulfur Gasoline Program. This results in a 158 ton per day reduction that was predicted by the USEPA to cause a 5 ppb benefit in the area.

	iladelphia Area	w York Area
jected Ozone Level in Attainment Year (ppb)	118.9	124.1

* One-Hour Ozone Standard = 124 ppb.

(1) 3 year (1998-2000) average of design values.

(2) The New Jersey Phase II Ozone SIP predicted a 8.6 ppb benefit from 1996 to 2005 for the Philadelphia Area from Clean Air Act measures. Since it is now 2001 and 6 years of that 10 year period have elapsed, a credit of 4/10 the prediction or 3.4 ppb is taken here to project future benefit.

(3) The New Jersey Phase II Ozone SIP predicted a 10 ppb benefit from 1996 to 2007 for the New York area from Clean Air Act measures. Since 6 years of that 12 year period have elapsed a credit of 6/12 x 10 or 5.0 ppb is taken for predicted future benefit.

(4) Predicted from New Jersey Phase II Ozone SIP / Attainment Demonstration.

(5) From USEPA Technical Support Document for the New York City Ozone Nonattainment Area (December 13, 1999) and the Technical Support Document entitled *Modeling for the Trenton, New Jersey Portion of the Philadelphia Nonattainment Area* (December 14, 1999).

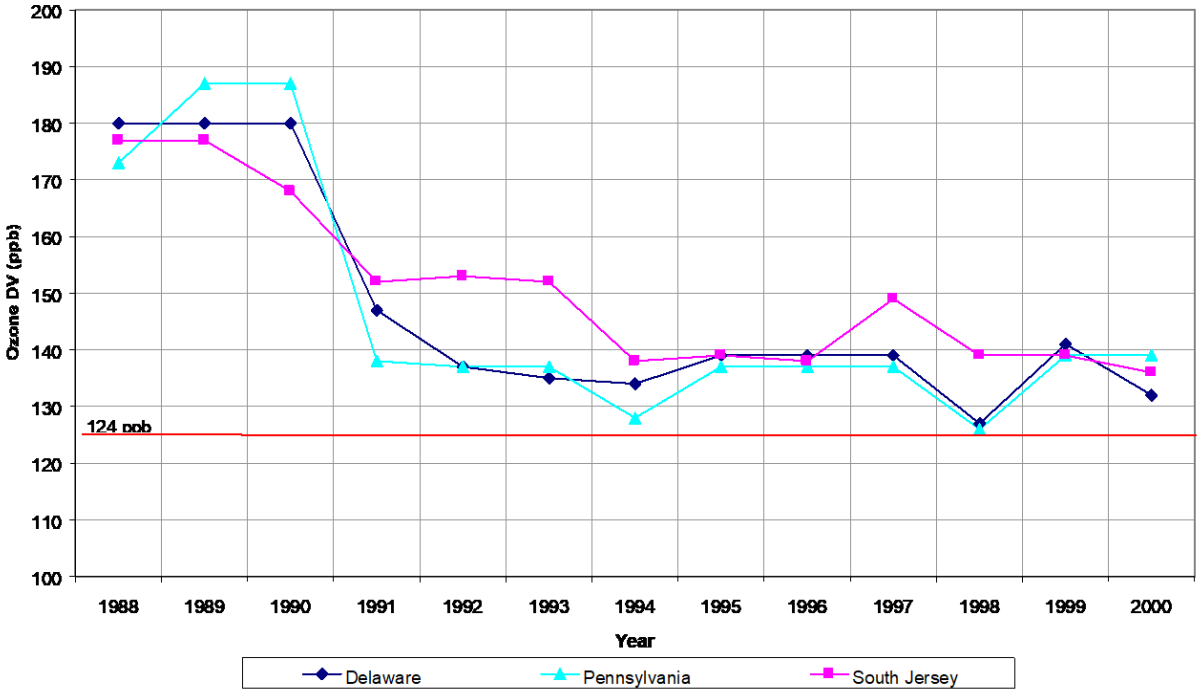
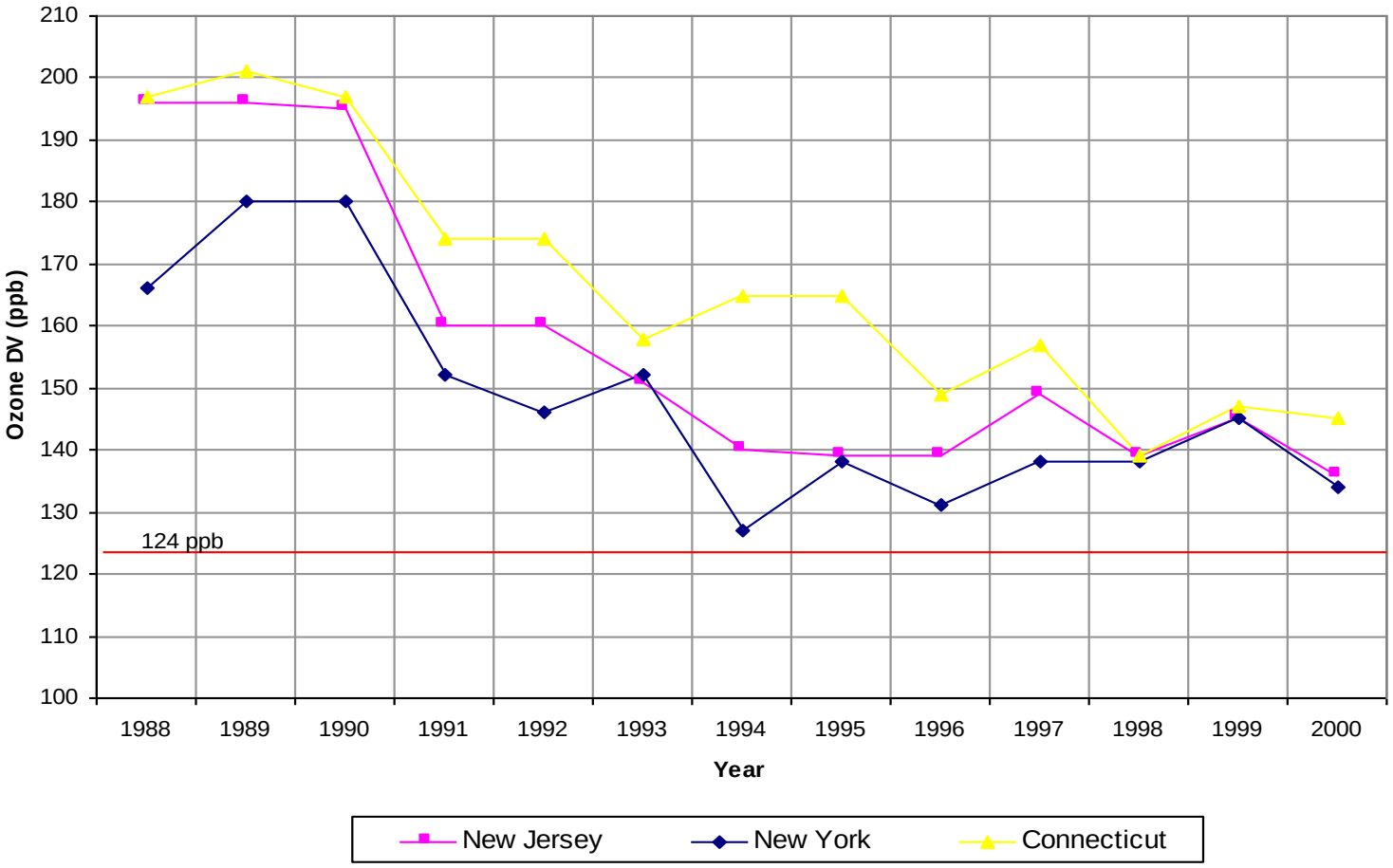


Figure 9

1-Hour Maximum Ozone Design Values for the Delaware, Pennsylvania, and Southern New Jersey Portions of the Philadelphia Nonattainment Area

Figure 10

1-Hour Maximum Ozone Design Values for New Jersey, New York, and Connecticut Portions of the New York Nonattainment Area



B. Planning As Attainment Dates Are Approached

Notwithstanding the above conclusion, the State is cognizant of the inherent uncertainties in predictions of future air quality. Therefore, it will continue to diligently track monitored ozone values each ozone season and take future steps as it deems appropriate.

In that connection, New Jersey has suggested and will participate in any collegiate effort by the OTC states to: (1) more comprehensively assess the issues of transport and concomitant changes in air quality to changes in emissions and (2) promote a better understanding of the emissions-air quality linkage within the OTR. This effort is envisioned to include not only state and USEPA representatives, but also members of academia and industry.

IX. Public Participation

The announcement on the proposed revision to New Jersey's Ozone SIP, specifically the Update to Meeting the Requirements of the Alternative Ozone Attainment Demonstration Policy - Additional Emission Reductions, Reasonably Available Control Measure Analysis, and Mid-Course Review (to be referred to as the Control Measure SIP), appeared in five newspapers throughout the State on or before June 26, 2001. In addition, it appeared as a Miscellaneous Notice in the New Jersey Register on July 2, 2001. The proposed SIP revision was transmitted to the United States Environmental Protection Agency Region II Administrator on June 18, 2001. It was also sent to the states within the Ozone Transport Region and other interested parties on or before June 26, 2001.

The Public Hearing on the proposed SIP revision was held on July 26, 2001, at 10:00 a.m. in the War Memorial Building, John Fitch Plaza, Corner of W. Lafayette and Barracks Streets, Trenton, New Jersey 08625. The Notice of Availability of the proposed SIP Revision and Hearing Date and Location is provided in Appendix IV, Attachment A.

The comment period closed on July 27, 2001.

Appendix IV has been updated to include the legal notice (Attachment B), the State's response to comment document (Attachment C) and verification that the advertisement did occur in compliance with 40CFR 51.102 (Attachment D).