

Region 3 Plan Summary
Maryland Portion of the Philadelphia- Wilmington-Trenton Ozone Nonattainment Area

Title: Post-1996 Rate of Progress (ROP) Plan for the Cecil County, Maryland Portion of the Philadelphia-Wilmington -Trenton Ozone Nonattainment Area

Federal Register Dates: February 3, 2000, 66 FR 5296 (proposed rule); September 19, 2001, 66 FR 48209 (final rule); revised April 15, 2004, 69 FR 19968 (proposed rule), 69 FR19939 (final rule).

EPA Approval/Effective date: October 19, 2001; revised, effective June 1, 2004.

State Submittal Dates: December 24, 1997; revised on August 18, 1998, December 21, 1999, December 28, 2000, and March 8, 2004.

Affected Areas: Cecil County

Summary of the Plan: On December 24, 1997, Maryland submitted the first 9 percent ROP demonstration for the 1999 milestone year for Cecil County. On August 18, 1998, Maryland submitted the ROP demonstrations for milestone years 2002 and 2005. On December 21, 1999, and December 28, 2000 Maryland submitted additional SIP revisions revising the Cecil County ROP demonstrations for the milestone years 1999, 2002 and 2005. On March 8, 2004, Maryland submitted a SIP revision which revised projected 2005 volatile organic compound (VOC) emissions from mobile sources by through the use of the MOBILE6 emissions model.

Table 1: Revised Base Year Inventory for Cecil County in Tons Per Day

	VOC Previously Approved	VOC Revised	Change	NOx Previously Approved	NOx Revised	Change
Mobile Sources	7.2	7.2	0	9.3	9.3	0
Point Sources	.55	.6	(+.05)	0	0	0
Nonroad Sources	2.02	2.0	(-.02)	2.5	2.6	(+.1)
Area sources	9.23	8.7	(-.53)	1.1	1.8	(+.7)
Biogenic Sources	32.96	32.96	0	NA	NA	NA
Total	51.96	51.46	(-.5)	12.9	13.7	(+.8)

Table 2: 2005 VOC Target Levels in Tons Per Day

Row	Description	VOC
	1990 Base Year Inventory	52.87
	(Minus biogenic emissions)	32.96
1	1990 Rate-of-Progress Base-Year Inventory	19.91
	1990 Inventory Adjusted to 1996	16.87
2	Reduction Required for 15% VOC Rate-of-Progress	2.53
3	1990 Inventory Adjusted to 1999	3.68
	1990 Inventory Adjusted to 1999	17.01
4	Reduction Required for 1999 Rate-of-Progress to 1999	1.53
5	Fleet Turnover Correction 1996 to 1999	0
	1990 Inventory Adjusted to 2002	15.76
6	Reduction Required for 2002 Rate-of-Progress	1.42
7	Fleet Turnover Correction 1999 to 2002	1.25
	1990 Inventory Adjusted to 2005	15.37
8	Reduction Required for 2005 Rate-of-Progress	1.38
9	Fleet Turnover Correction 2002-2005	0.39
10	2005 Target Level is Row one minus the sum of rows two through nine	7.73

Table 3: NOx Target Levels in Tons Per Day - (based on 0 percent reduction in Nox)

	1999	2002	2005
1990 Base Year Inventory	13.7	13.7	13.7
(Minus non-creditable FMVCP/RVP 1990-1999)	(-1.7)	(-1.9)	(-2.0)
1990 Adjusted Base Year Inventory	12.0	11.8	11.7
0 Percent Required Reduction	0	0	0
Rate of Progress Emission reduction requirement	0.0	0.0	0.0
Fleet Turnover correction	0.0	0.2	0.1
Target Level from previous milestone year	12.0	12.0	11.8
(Minus Emission Reduction Requirement)	(-0.0)	(-0.0)	(-0.0)
(Minus Fleet Turnover correction)	(-0.0)	(-0.2)	(-0.1)

	1999	2002	2005
Target Level	12.0	11.8	11.7

Table 4: Projected (Uncontrolled) VOC Emissions for Cecil County in tons per day

Source Category	1990 VOC Baseline *	1999 VOC Projected	2002 VOC Projected	2005 VOC Projected *
Point	0.55	0.6	0.6	0.55
Mobile	8.59	10.3	11.5	8.59
Nonroad	2.04	2.3	2.4	2.04
Area	8.73	9.0	9.1	8.73
Total	19.91	22.2	23.6	17.26

* Revised effective June 1, 2004

Table 5: Projected (Uncontrolled) NOx Emissions for Cecil County in tons per day

Source Category	1990 NOx Baseline	1999 NOx Projected	2002 NOx Projected	2005 NOx Projected
Point	0	0	0	0
Mobile	9.3	12.7	13.2	13.4
Nonroad	2.6	2.8	3.0	3.0
Area	1.8	1.9	2.0	2.2
Total	13.7	17.4	18.2	18.6

Table 6: Control Measures/Regulations Included As Part of the Cecil County Plan (tons per day)and Expected Emissions Reductions

Control Measure	1999 VOC Reduction	1999 NOx Reduction	2002 VOC Reduction	2002 NOx Reduction	2005 VOC Reduction	2005 NOx Reduction
AIM Coatings	0.2	0.0	0.2	0.0	0.17	0.0
Consumer Products	0.1	0.0	0.1	0.0	0.07	0.0
Autobody Refinishing	0.2	0.0	0.2	0.0	0.29	0.0
Surface Cleaning	0.2	0.0	0.2	0.0	0.18	0.0

Control Measure	1999 VOC Reduction	1999 NO_x Reduction	2002 VOC Reduction	2002 NO_x Reduction	2005 VOC Reduction	2005 NO_x Reduction
Stage I Vapor Recovery	0.8	0.0	0.8	0.0	0.84	0.0
Printing Operations (screen, lithographic, flexographic and rotogravure combined)	0.1	0.0	0.1	0.0	0.15	0.0
Nonroad Heavy Duty Diesel	0.0	0.2	0.0	0.3	0.0	0.5
Nonroad Small Gas Engines	0.4	0.0	0.5	0.0	0.73	0.0
Locomotive Engines			0.0	0.1	0.0	0.2
Open Burning	3.5	0.7	3.5	0.7	4.23	0.7
Mobile Source control programs ¹ ,	6.2	4.9	8.4	6.3	2.02 ²	7.4
Stage II Refueling					0.32	
Emission Stds. For Large Spark Ignition Engines					0.02	
Marine Engines					0.17	
Nonroad RFG					0.70	
Total	11.7	5.8	14.0	7.4	9.86	8.8

¹Mobile source control programs include the total amount of reductions associated with enhanced I/M, Tier 1 emission standards, reformulated gasoline, Stage II refueling controls, NLEV, highway heavy duty engine standards, and FMVCP/RVP. EPA's MOBILE5b emissions model was used to generate the combined emission reductions from these programs.

² Includes enhanced I/M, Tier I, reformulated gasoline, LEV and HDDE. Emissions from large spark ignition engines, marine engines, and nonroad RFG are listed separately. EPA's MOBILE6 emissions model was used to generate the combined emission reductions from these programs.

ROP Demonstration in Tons Per Day

Cecil County	1999 VOC	1999 NO_x	2002 VOC	2002 NO_x	2005 VOC*	2005 NO_x
Projected Uncontrolled Emissions (refer to tables 4 and 5) (includes growth)	22.2	17.4	23.6	18.2	17.26	18.6
Reductions From Creditable Emission Control Measures (refer to table 7)	11.7	5.8	14.0	7.4	9.86	8.8
Emissions Level Obtained (uncontrolled emissions minus emission reductions)	10.5	11.6	9.6	10.8	7.41	9.8
Projected Target Levels (refer to tables 2 and 3)	12.6	12.0	10.9	11.8	7.73	11.7
Surplus Emission Reductions (target levels minus emissions obtained)	2.1	0.4	1.3	1.0	0.32	1.9

* Revised effective June 1, 2004.

Motor Vehicle Emissions Budget (tons per day), as revised effective December 27, 2003

	VOC	NO_x
1999	4.4	7.8
2002	2.7	6.3
2005	3.0	11.3

Contingency Measures:

EPA previously approved the 2005 ROP plan for Cecil County (66 FR 48209, September 19, 2001) including contingency measures. In the March 8, 2004 revision to the plan, Maryland outlines its approach for using the NO_x reductions from an already implemented control measure (its SIP-approved rule banning open burning) for contingency purposes as discussed below. The EPA encourages the early implementation of required control measures and of contingency measures as a means of guarding against failure to meet a milestone. EPA allows for the substitution of NO_x emission reductions for VOC in contingency plans, provided NO_x reductions are necessary for attainment.

Maryland determined its contingency requirement (tpd) as follows:

52.87	1990 Base Year Inventory (A)
32.96	Biogenic Emissions (B)
19.91	1990 Rate-of-Progress Base Year Inventory (C=A-B)
3.20	FMVCP/RVP Reductions Between 1990 and 2005 (D)
16.71	1990 Adjusted Base Year Inventory Calculated Relative to 2005 (E=C-D)
0.03	Percent Contingency Measure Reduction Requirement (3%) (R)
0.50	Contingency Measure Reduction Requirements

The emission reduction measures listed to meet the 2005 target level for VOCs are expected to result in more emission reductions than are needed to meet ROP requirements (see Tables 3 and 4, above). Maryland's March 8, 2004 submittal indicates that it is now dedicating the all of the VOC emission reductions from its control measures to control strategy portion of the 2005 ROP plan to ensure that the ROP requirement (emissions target level) is met . If contingency measure credits are needed in the future, the NOx emission reductions achieved through the open burning ban rule will be used. A total of 0.74 tpd of NOx surplus from the open-burning ban rule is available to meet the VOC contingency requirement of the 2005 ROP plan utilizing NOx substitution if needed. The open burning ban rule was adopted and implemented as a part of the Maryland SIP's attainment demonstration for the Philadelphia area approved by EPA (66 FR 54977, October 29, 2001), which demonstrated that NOx reductions are needed for attainment.

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