

Lexington-Fayette, Kentucky Area 1-hour Ozone Maintenance Plan

Effective Update Date: 12/18/04 (69 FR 55749, 09/16/04)

Background of the Plan: On November 13, 1992, the Commonwealth of Kentucky through the Natural Resources and Environmental Protection Cabinet (Cabinet), submitted a maintenance plan and a request to redesignate the Lexington area from nonattainment to attainment for the 1-hour ozone standard. EPA designated the Lexington-Fayette area as nonattainment because the area violated the ozone standard during the period from 1987 through 1989 [See 56 FR 56694 (Nov. 6, 1991) and 57FR 56762 (Nov. 30, 1992), codified at 40 CFR 81.318]. On November 13, 1992, Kentucky submitted a redesignation request and maintenance plan for the Lexington-Fayette area. EPA approved this request on September 11, 1995. On August 24, 2004, the Commonwealth submitted to EPA a SIP revision providing the final 10-year updates for the 1-hour ozone maintenance plans for the Lexington, Kentucky maintenance area. This 10-year update for the Lexington Maintenance Area includes updated MVEBs for the year 2004 and establishes new MVEBs for the year 2015.

Summary of the Plan: This State Implementation Plan revision relies on an attainment level of emissions of volatile organic compounds (VOCs) and nitrogen oxides (NO_x) to maintain the 1-hour ozone standard through a combination of control measures. These measures include both stationary and mobile source controls. The Commonwealth agreed to periodically update the emissions inventory to ensure maintenance of the standard and to implement certain contingency measures if the emissions level is exceeded or the standard is violated. The Lexington-Fayette marginal nonattainment area projected an increase in both VOCs and NO_x emissions but demonstrated, through modeling, they will continue to meet the ozone standard.

Summary of the Plan Update: On August 19, 2004, EPA approved revisions to the Lexington portion of the Commonwealth of Kentucky's SIP revision, submitted on August 24, 2004. The SIP revision satisfied the requirements of the CAA for the 10-year update to the 1-hour ozone maintenance plan for the Lexington Maintenance Area. In order to approve this revision, EPA first needed to make an adequacy determination with respect to transportation conformity. Such determination was made through the use of projected emission inventories, using MOBILE6.2 modeling. As a result, The Lexington Maintenance Area's draft second 10-year maintenance plan submission contains new proposed VOC and NO_x MVEBs and emission inventories for the year 2015. From these projections, VOC emissions are predicted to decrease 6.52% by 2015, and NO_x emissions are expected to decrease 39.50%. A more detailed overviews of the emissions projections are presented below in the MVEB update section and emission reduction update section.

Control Measures: A variety of control measures will be utilized including the following:

- Emissions Inventory
- Reasonably Available Control Technology (RACT)
- Emissions Statements

- New Source Review
- Reid Vapor Pressure (RVP)

This area is subject to the Federal RVP requirements. For a listing of the exact requirements please refer to <http://www.epa.gov/otaq/volatility.htm>.

Motor Vehicle Emissions Budget (MVEB):

MVEB (tons per day)		
Year	VOC	NOx
2004	18.14	27.36
2015	10.59	13.27

Contingency Measures: The Commonwealth’s contingency plan is triggered by two indicators, the emissions inventory for interim years exceeding the baseline emission inventory by more than 10 percent or an air quality violation. The plan contains a contingency to implement RACT on existing major sources in the area where the violation occurred within ninety (90) days. RACT was not required for this nonattainment area because it was designated as a marginal nonattainment area pursuant to the CAA. However, Kentucky chose to apply RACT on all major sources which commenced on or after the effective date of a particular RACT rule.

Emission Reductions: On November 13, 1992, the Commonwealth of Kentucky submitted comprehensive inventories of VOC, NOx, and carbon monoxide emissions for the Lexington-Fayette marginal nonattainment area. The inventories included biogenic, area, stationary, and mobile sources using 1990 as the base year for calculations to demonstrate maintenance. The area wide VOC emissions inventory for baseline year 1990 was 63.79 tons per day with a total reduction of 9.20 percent by 2004. The area wide NOx emissions inventory for baseline year 1990 was 32.54 tons per day with a total reduction of 0.98 percent by 2004. The Lexington-Fayette marginal nonattainment was redesignated attainment on November 13, 1995. Because there were increases in VOC and Nox emissions, Kentucky was required to model to demonstrate maintenance of the ozone standard despite emissions growth. The Empirical Kinetics Modeling Approach was the model used. The modeling indicated that the future mix of emissions produced ozone levels below the federal ozone standard. Thus, the analysis indicated that the Lexington area should continue to maintain the standard throughout the maintenance period. The updated emissions inventories in 2004 for NO_x and VOC are shown in the table below, and reflect projected emissions reductions from the base year levels, year 2000.

Lexington 1-Hour Ozone Maintenance Area Emissions Inventory
(Tons per Day)

	2000	2004	2005	2009	2012	2015
VOC Total Emissions	53.53	51.77	50.67	49.9	49.04	50.04
VOC Safety Margin	n/a	1.76	2.86	3.63	4.94	3.49
VOC % Reductions	n/a	3.29%	5.34%	6.78%	9.23%	6.52%

NOx Total Emissions	46.79	43.21	41.99	36.52	31.75	28.31
NOx Safety Margin	n/a	3.58	4.8	10.27	15.04	18.48
NOx % Reductions	n/a	7.65%	10.26%	21.95%	32.14%	39.50%

Federal Register: (60 FR 47089, 11/13/95), Lexington-Fayette, Kentucky Area Ozone Maintenance Plan; (69 FR 55749, 04/23/04), Lexington-Fayette, Kentucky Ozone Maintenance Plan Update: Proposed Rule; (69 FR 55749, 08/16/04), Lexington Maintenance Plan Update: Final Rule.

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