

Kentucky Portion of the Louisville 1-Hour Ozone Nonattainment Area Request for Redesignation to Attainment

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Appendices

A Louisville 1-Hour Ozone Nonattainment Area

1. 57 FR 56694 (11-6-91) - Kentucky 1-hour ozone standard nonattainment area counties
2. 60 FR 48653 (9-20-95) - Modified nonattainment area boundaries for Bullitt County and Oldham County
3. Map of nonattainment area boundary for Bullitt County
4. Map of nonattainment area boundary for Oldham County
5. Map of Louisville 1-hour ozone nonattainment area

B EPA Redesignation Guidance

1. *General Preamble: Implementation of Title I of the Clean Air Act Amendments of 1990*, published in the *Federal Register* on April 16, 1992 (57 FR 13498) Section III. SIP Requirements; H. General; 6. Redesignations
2. Memorandum - *State Implementation Plan (SIP) Requirements for Areas Submitting Requests for Redesignation to Attainment of the Ozone and Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS) on or after November 15, 1992*, Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation, September 17, 1993
3. Memorandum - *Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard*, John S. Seitz, Director, Office of Air Quality Planning and Standards, May 10, 1995

C Air Monitoring Information

1. Map of Ozone Monitors in the Louisville 1-Hour Ozone Nonattainment Area
2. February 10, 1999, Anderson-Carnahan letter giving approval to exclude May 14-15, 1998, ozone monitoring data
3. Bortzer letter regarding April 3-4, 1998, missing data at Charlestown monitor
4. January 23, 2001, Hornback letter requesting determination of attainment for the Kentucky portion of the Louisville 1-hour ozone nonattainment area
5. December 20, 2000, Kaplan letter requesting determination of attainment for the Indiana portion of the Louisville 1-hour ozone nonattainment area

D 1999 Periodic Emissions Inventories

1. Jefferson County: 1999 Periodic Emissions Inventories and Methodology Documentation
2. Bullitt and Oldham Counties: 1999 Periodic Emissions Inventories and Methodology Documentation

E Kentucky 15% ROP Plan

1. 64 FR 49425 Proposed approval of Kentucky 15% ROP Plan
2. 64 FR 49404 Direct final approval of Kentucky 15% ROP Plan
3. 64 FR 59644 Withdrawal of direct final approval of Kentucky 15% ROP Plan
4. 15% Plan

F Negative Declaration Letters for Post-1990 CTG Categories

1. DAQ 12-14-99 post-1990 CTG negative declaration letter

2. APCD 2-26-01 post-1990 CTG negative declaration letter

G Point Source Emission Reduction Programs

1. Regulation 1.18 *Rule Effectiveness*
2. Regulation 6.42 *Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities*
3. Regulation 6.43 *Volatile Organic Compound Emission Reduction Requirements*
4. Jefferson County Board Orders with incorporated NO_x RACT Plans
 - American Synthetic Rubber Company, LLC
 - E.I. DuPont de Nemours & Company
 - Ford Louisville Assembly Plant
 - GE Appliances
 - Kosmos Cement Company
 - Louisville Gas & Electric Company - Cane Run Generating Station
 - Louisville Gas & Electric Company - Mill Creek Generating Station
 - Louisville Medical Center Steam Plant
 - Oxy Vinyls, LP
 - Rohm & Haas Company
 - Texas Gas Transmission

H Area Source Emission Reduction Programs

1. Regulation 6.40 *Standards of Performance for Gasoline Transfer to Motor Vehicles (Stage II Vapor Recovery and Control)*
2. Regulation 6.44 *Standards of Performance for Existing Commercial Motor Vehicle and Mobile Equipment Refinishing Operations*
3. Regulation 7.79 *Standards of Performance for New Commercial Motor Vehicle and Mobile Equipment Refinishing Operations*
4. 63 FR 48848, 48855 (September 11, 1998) *National Volatile Organic Compound Emission Standards for Architectural Coatings*
5. June 21, 1995, Seitz Memorandum *Regulatory Schedule for Consumer and Commercial Products under Section 183(e) of the Clean Air Act*
6. *Use of VOC Credit from Federal Consumer and Commercial Products Regulation*
7. 401 KAR 63:005. *Open Burning*
8. Regulation 6.45 *Standards of Performance for Existing Solid Waste Landfills*
9. Regulation 6.18 *Standards of Performance for Existing Solvent Metal Cleaning Equipment*
10. Regulation 7.18 *Standards of Performance for New Solvent Metal Cleaning Equipment*
11. *Cold Cleaning Degreasers: Reduced Vapor Pressure Requirement*
12. 1999 Area Source Emission Reductions, Based on Federal Guidance
13. Making Up the VOC Emission Reduction Shortfall: 15% Plan & Commuter Credits

I Mobile Source Emission Reduction Programs

1. September 29, 1993, Governor Jones letter requesting reformulated gasoline for the Kentucky portion of the Louisville ozone nonattainment area
2. Regulation 8.01 *Mobile Source Emissions Control Requirements*
3. Regulation 8.02 *Vehicle Emissions Testing Procedure*

J Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories

1. Jefferson County: 1999 Baseline Actual and Projected Emissions Inventories and Methodology Documentation
2. Bullitt and Oldham Counties: 1999 Baseline Actual and Projected Emissions Inventories and Methodology Documentation

K Public Review Process

1. Legal Notice
2. Minutes of Public Hearing
3. Minutes of Board Meeting
4. Comment and Response Document

Kentucky Portion of the Louisville 1-Hour Ozone Nonattainment Area Request for Redesignation to Attainment

1.0 Executive Summary

The Louisville area is currently designated and classified as a Moderate Ozone Nonattainment Area for the 1-hour ozone National Ambient Air Quality Standard (1-hour ozone standard). The Kentucky counties included in the Louisville 1-hour ozone nonattainment area are Jefferson County and portions of Bullitt and Oldham Counties; The Indiana counties included are Clark and Floyd Counties. **The Commonwealth of Kentucky requests that the United States Environmental Protection Agency (EPA) redesignate the Kentucky portion of the Louisville ozone nonattainment area to attainment for the 1-hour ozone standard.** The State of Indiana is separately requesting that the Indiana portion of the Louisville ozone nonattainment area be redesignated to attainment. These requests are based on three years, 1998 to 2000, of ambient monitoring data at all seven ozone monitors in the Louisville ozone nonattainment area showing no violation of the 1-hour ozone standard, the implementation of permanent and enforceable reductions in ozone precursor emissions, compliance with all applicable requirements, and the Kentucky **Maintenance Plan** with projections demonstrating that the 1999 emission levels in this area will not be exceeded through the year 2012. Also included are the **joint Kentucky-Indiana Regional Mobile Source Budgets** for transportation conformity purposes.

This redesignation request was prepared jointly by the Kentucky Division for Air Quality (DAQ) and the Air Pollution Control District of Jefferson County (APCD) in accordance with guidance documents developed by the U.S. EPA. The preparation of the regional mobile source budgets was also coordinated with the Indiana Department of Environmental Management (IDEM) and the Kentuckiana Regional Planning and Development Agency (KIPDA).

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2.0

Background

The Clean Air Act Amendments of 1977 required States with areas designated nonattainment for ozone and carbon monoxide (CO) to submit, by 1979, plans to demonstrate attainment with the National Ambient Air Quality Standards (NAAQS) by 1982. States unable to show attainment with these standards in urban areas by 1982 were granted an extension to 1987 to demonstrate attainment, provided that certain control programs were implemented. These control programs include a vehicle inspection/maintenance (I/M) program and reasonably available control technology (RACT) for all sources for which EPA had published a Control Techniques Guideline (CTG) and for all major non-CTG sources.

The EPA reviewed monitoring data in 1987 that indicated many areas throughout the nation still did not meet the national standards for ozone or CO. After reviewing the monitoring data, the EPA proposed a post-1987 policy for addressing those areas still classified as nonattainment for CO or ozone. This guidance provided the conditions with which areas remaining nonattainment must comply in order to revise their State Implementation Plans (SIPs) and demonstrate attainment.

Based on 1988 monitoring data, the EPA announced, in a July 30, 1990, *Federal Register* notice, that several areas in the Commonwealth did not meet the national 1-hour ozone standard. This notice proposed that 24 counties in Kentucky be designated as nonattainment. On March 14, 1991, then Governor Wallace Wilkinson requested that then EPA Region 4 Administrator Greer Tidwell revise that notice. Based on the request and subsequent documentation, the EPA revised the list of counties to be designated as nonattainment.

In accordance with the Clean Air Act Amendments of 1990, the EPA published a November 6, 1991,

Federal Register notice¹ identifying the final list of 15 counties to be included in nonattainment areas within Kentucky, effective January 6, 1992. The Kentucky portion of the Louisville ozone nonattainment area is comprised of Jefferson County and portions of Bullitt County and Oldham County.

On September 20, 1995, based on a request by the Commonwealth to clarify the nonattainment area boundaries of the partial counties, the EPA published a *Federal Register* notice² that modified the boundaries for the Bullitt County and Oldham County portions of the Louisville ozone nonattainment area. Maps of the current nonattainment portions of Bullitt County and Oldham County as well as a map of the entire Louisville 1-hour ozone nonattainment area, including Clark and Floyd Counties, Indiana, are included in *Appendix A: Louisville 1-Hour Ozone Nonattainment Area*.

¹ A copy of the *Federal Register* notice, 57 FR 56694, is included in *Appendix A: Louisville 1-Hour Ozone Nonattainment Area*.

² A copy of the *Federal Register* notice, 60 FR 48653, is included in *Appendix A: Louisville 1-Hour Ozone Nonattainment Area*.

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3.0 Criteria for Redesignation

The Clean Air Act section 107(d)(3)(E) states the criteria that must be met for the EPA Administrator to redesignate an area to attainment. The EPA has summarized these criteria as follows:

1. The EPA has determined that the NAAQS has been attained,
2. The applicable implementation plan has been fully approved by the EPA under section 110(k),
3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions,
4. The State has met all applicable requirements for the area under section 110 and part D, and
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

The EPA has provided guidance on these redesignation requirements in the following documents³:

1. *General Preamble: Implementation of Title I of the Clean Air Act Amendments of 1990*, published in the *Federal Register* on April 16, 1992 (57 FR 13498) Section III. SIP Requirements; H. General; 6. Redesignations (General Preamble).
2. Memorandum - *State Implementation Plan (SIP) Requirements for Areas Submitting Requests for Redesignation to Attainment of the Ozone and Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS) on or after November 15, 1992*, Michael H. Shapiro, Acting Assistant Administrator for Air and Radiation, September 17, 1993.
3. Memorandum - *Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard*, John S. Seitz, Director, Office of Air Quality Planning and Standards, May 10, 1995 (1995 Seitz memorandum).

³ A copy of these documents is included in *Appendix B: EPA Redesignation Guidance*.

This redesignation request document is organized in Sections 4 to 7 to address the five criteria established in Clean Air Act section 107(d)(3)(E) as follows:

Section 4.0 Improvement in Air Quality

Criterion 1

Section 5.0 Fully Approved SIP, Section 110 and Part D Requirements

Criterion 2

Criterion 4

Section 6.0 Permanent and Enforceable Emission Reductions

Criterion 3

Section 7.0 Maintenance Plan

Criterion 5

Section 8 specifically documents mobile source volatile organic compound (VOC) and oxides of nitrogen (NO_x) emissions budgets for the Kentucky/Indiana Region for use in future transportation conformity analyses.

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4.0 Improvement in Air Quality

Criterion 1. The EPA has determined that the NAAQS has been attained.

The January 6, 1992, ozone nonattainment area designations were based on air quality data collected during the 1987 to 1989 three-year period, which included the summer of 1988, one of the hottest summers on record. Since then, the ambient ozone air quality data for the five monitors in the Kentucky portion of the Louisville Ozone Nonattainment Area and the two monitors in the Indiana portion of the Louisville Ozone Nonattainment Area indicate, in general, a steady decline in the number of exceedances of the 1-hour ozone standard at each individual monitor⁴. In simple terms, attainment of the 1-hour ozone standard is achieved when each monitor in the area records three or less exceedances of the 1-hour ozone standard in a consecutive three-year period.⁵ Table 4.1 is a summary of the days in which the 1-hour ozone standard (0.12 parts per million) was exceeded at each monitor in the Louisville Ozone Nonattainment Area. Due to the EPA-established rounding convention, a 1-hour monitor reading of 0.124 parts per million (ppm) is considered in attainment of the 1-hour ozone standard and a 1-hour monitor reading of 0.125 ppm is considered an exceedance of the 1-hour ozone standard. No monitor recorded more than three exceedances of the 1-hour ozone standard during the three-year period 1998 to 2000.

⁴ A map showing the location of the seven ozone monitors in the Louisville 1-hour ozone nonattainment area is included in *Appendix C: Air Monitoring Information*.

⁵ The actual method for determining attainment of the 1-hour ozone standard is contained in 40 CFR 50.9. The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1, as determined by Appendix H to 40 CFR 50.

Table 4.1
Summary of Ozone Exceedances

Monitor	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
New Albany	*	*	*	*	*	1	1	2	2 ^{T1}	0	0
Charlestown	2	3	0	3	3	2	0	3	3	0	0
WLKY	0	0	0	2	0	0	1	0	1	0	0
Buckner	2	1	0	0	0	0	0	2	1	1	0
Watson	*	*	0	0	1	1	1	0	1	0	0
Bates	0	0	0	0	0	1	0	1	1 ^{T2}	0	0
Shepherdsville	0	1	0	0	0	0	0	1	0	0	0

* No monitor was not operated at this location during this year.

^{T1} One of these exceedances occurred on May 14, 1998. This exceedance was not flagged by IDEM as an exceptional event caused by transported pollution from the Mexican fires.

^{T2} An exceedance was also monitored on May 14, 1998. However, this exceedance was flagged by DAQ, pursuant to approval from EPA in a February 10, 1999, letter⁶, as an exceptional event caused by transported pollution from the Mexican fires.

As identified in Footnote No. 5, the actual method for determining attainment of the 1-hour ozone standard is contained in 40 CFR 50.9. The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than 1, as determined by Appendix H to 40 CFR 50. Table 4.2 is a summary of the calculated number of days of expected exceedance of the 1-hour ozone standard for each ozone monitor in the Louisville ozone nonattainment area for each year from 1998 to 2000 and the average for that three-year period.

⁶ A copy of this February 10, 1999, letter from Ms. Linda Anderson-Carnahan, Chief, Air Planning Branch, EPA Region 4, to Mr. Larry Garrison, Manager, Technical Services Branch, DAQ, is included in *Appendix C: Air Monitoring Information*.

Table 4.2
Expected Number of Exceedances

Monitor	1998	1999	2000	Average
New Albany	2.0	0.0	0.0	0.7
Charlestown	3.1 ^{T1}	0.0	0.0	1.0
WLKY	1.1	0.0	0.0	0.4
Buckner	1.1	1.2	0.0	0.8
Watson Lane	1.2	0.0	0.0	0.4
Bates	1.2	0.0	0.0	0.4
Shepherdsville	0.0	0.0	0.0	0.0

^{T1} Because of missing data, predominately during the first week of April 1998, the number of expected exceedances for the Charlestown ozone monitor in 1998 was calculated as approximately 3.2. However, documentation regarding the meteorological conditions on April 3-4, 1998, adequately demonstrated that the ozone concentrations could reasonably be assumed to be less than the 1-hour ozone standard on those days. A copy of the letter from Jay Bortzer, Acting Chief, Air Programs Branch, EPA Region 5, to Ms. Janet McCabe, Assistant Commissioner, IDEM, approving the exclusion of April 3-4, 1998, as missing ozone days for calculating the expected exceedances is included in *Appendix C: Air Monitoring Information*. As a result, the calculated number of expected exceedances for the Charlestown monitor in 1998 is 3.1.

No Kentucky monitor in this area is expected to have greater than one exceedance of the 1-hour standard. Therefore, each monitor shows attainment of the 1-hour ozone standard during the three-year period 1998 to 2000.

The ambient ozone monitoring data were collected at sites that were selected with assistance from the respective EPA Region 4 and 5 offices and are considered to be representative of the area of highest concentration. The collected data were quality-assured in accordance with 40 CFR 58 and recorded in the EPA Aerometric Information Retrieval System (AIRS). A January 16, 2001, letter from John E. Hornback, director, DAQ, to Dr. Kenneth L. Mitchell, EPA Region 4, notified the EPA that the quality-assured 2000 ozone data for the five ozone monitors operated by the DAQ and the

APCD has been entered into EPA's AIRS database. A January 23, 2001, letter from Mr. Hornback to Winston A Smith, EPA Region 4, requests the EPA to make a determination that the Kentucky portion of the Louisville 1-hour ozone nonattainment area has monitored attainment for the 1-hour ozone standard for the three-year period 1998 to 2000. Enclosed with that letter is a report from AIRS summarizing those ozone monitoring results. A similar letter, dated December 20, 2000, and AIRS report was sent by Ms. Lori F. Kaplan, Commissioner, IDEM, to Mr. Francis X. Lyons, EPA Region 5. A copy of each of these letters is included in *Appendix C: Air Monitoring Information*.

It is anticipated that these monitors will remain at their current locations for the duration of the maintenance plan period (1999-2012). A map indicating the location of the seven ozone monitors in the Louisville 1-hour ozone nonattainment area is included as *Appendix C: Air Monitoring Information*.

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5.0 Fully Approved SIP, Section 110 and Part D Requirements

Criterion 2: The applicable implementation plan has been fully approved by the EPA under section 110(k).

Criterion 4. The State has met all applicable requirements for the area under section 110 and part D.

5.1 Section 110 Implementation Plans

The general SIP elements are listed in section 110(a) of the Clean Air Act. In summary, these requirements include the following:

1. A SIP submittal that has been adopted by the state after reasonable notice and public hearing,
2. Provisions to establish and operate appropriate apparatus, methods, systems, and procedures necessary to monitor ambient air quality,
3. Implementation of a permit program, provisions for part C, *Prevention of Significant Deterioration (PSD)*, and part D, *New Source Review (NSR)*, permit programs,
4. Criteria for stationary source emission control measures, monitoring, and reporting,
5. Provisions for modeling, and
6. Provisions for public and local agency participation.

The DAQ and the APCD (collectively, “the Agencies”) believe that these requirements have not changed substantially since the enactment of the 1990 amendments to the Clean Air Act and that the Kentucky SIP is fully approved under section 110(k). Further, some of the generic Section 110 requirements have been superseded by the specific 1-hour ozone nonattainment area requirements in part D subpart 2, which were added by the Clean Air Act Amendments of 1990.

5.2 Part D Plan Requirements for Nonattainment Areas

5.2.1 Subpart 1 Nonattainment Areas in General

Section 172(c) The general nonattainment plan requirements are contained in section 172(c) of the Clean Air Act. As described in the EPA's General Preamble, specific requirements of subpart 2 *Additional Provisions for Ozone Nonattainment Areas* may override the general provisions of subpart 1 *Nonattainment Areas in General*. The Agencies will address those specific subpart 2 requirements later in this document. The Agencies believe that the applicable section 172(c) requirements have been met.

Section 176 The requirements for transportation conformity and general conformity are contained in section 176(c). The Agencies believe that the transportation conformity and general conformity requirements have been met. As part of the transportation conformity requirements, on-highway motor vehicle (mobile source) budgets for VOC and NO_x emissions must be established as part of the maintenance plan. The mobile source budgets will be established in Section 8 of this document.

5.2.2 Subpart 2 Additional Provisions for Ozone Nonattainment Areas

The Louisville ozone nonattainment area is classified as Moderate. Therefore, the requirements of both section 182(a) *Marginal Areas* and section 182(b) *Moderate Areas* apply. Further, because the Louisville ozone nonattainment area is comprised of portions of both the Commonwealth of Kentucky and the State of Indiana, the requirements of section 182(j) *Multi-State Ozone Nonattainment Areas* also apply.

1990 Baseline Emissions Inventory, Periodic Emissions Inventories, and Emission Statements

The Agencies have both adopted, and submitted for inclusion in the Kentucky SIP, regulations that require submittal of actual emissions of VOC and NO_x, as required by section 182(a)(3)(B). Further, the Agencies have both submitted to the EPA 1990 baseline emissions inventories and periodic

emissions inventories reflecting the actual emissions for 1993 and 1996. The 1999 periodic emissions inventories, which would normally be due on November 15, 2001, are included in *Appendix D: 1999 Periodic Emissions Inventories*.

15 Percent VOC Reduction Plan Section 182(b)(1)(A) required the development and implementation of a plan to reduce VOC emissions by 15% from 1990 level emissions. This requirement is referred to as the 15% Rate of Progress (ROP) plan. Approval of Kentucky's final 15% ROP plan was concurrently proposed and issued as a direct final by the EPA in the *Federal Register* on September 13, 1999 (64 FR 49425 and 64 FR 49404, respectively) Because of adverse comments received during the comment period, the EPA withdrew the direct final approval in a *Federal Register* notice on November 3, 1999 (64 FR 59644)⁷. The EPA has not taken final action of Kentucky's 15% ROP plan. The 15% ROP plan consisted of a mix of point, area, and mobile source control measures, including:

1. Requirement for the sale and use of reformulated gasoline (RFG) for on-road vehicles, off-road vehicles, and other gasoline-powered equipment in the Kentucky portion of the nonattainment area (Jefferson County and portions of Bullitt and Oldham Counties),
2. VOC limits for architectural and industrial maintenance coatings (Jefferson County),
3. VOC coating limits and workplace practice requirements for vehicle repair facilities (Jefferson County),
4. Stage II vapor recovery controls (Jefferson County),
5. Collection and control of gases at municipal solid waste landfills (Jefferson County),
6. Enhancement of the inspection/maintenance program, including testing of commuters to Jefferson County, under-the-hood anti-tampering inspections, and pressure testing (Jefferson County),
7. Development and implementation of site-specific rule effectiveness plans (Jefferson County),
8. Reductions from sources out of compliance in 1990 (Jefferson County),

⁷ A copy of these *Federal Register* notices, 64 FR 49425, 64 FR 49404, and 64 FR 59644, is included in *Appendix E: Kentucky 15% ROP Plan*.

9. Source-specific VOC reductions from industrial plants (Jefferson County, Regulation 6.43 *Volatile Organic Compound Emission Reduction Requirements*), and
10. Use of industrial-held and community-held VOC emission reduction credits (ERCs) (Jefferson County).

Most of the State and local control measures that were included in the Kentucky 15% ROP plan were fully implemented for the 1995 ozone season and all of the State and local control measures were fully implemented for the 1996 ozone season. A copy of Kentucky's 15% ROP plan is included in *Appendix E: Kentucky 15% ROP Plan*.

As discussed in the 1995 Seitz memorandum, if the EPA has determined that an area has attained the 1-hour ozone standard, based upon monitored ambient air levels, then certain abatement planning requirements no longer apply to that area, provided that the area continues to be in compliance with the 1-hour ozone standard. The EPA has thus determined that final approval of the 15% ROP plan is not necessary for redesignation to attainment. However, the EPA will need to take final action on any SIP revision requests relating to the underlying VOC and NO_x regulations because they provided for permanent and enforceable reductions in ozone precursor emissions during the 1998 to 2000 ozone seasons, contributing to monitored attainment of the 1-hour ozone standard. These ozone precursor emission reduction regulations will be discussed in Section 6.

VOC RACT Requirement Reasonably Available Control Technology (RACT) is required under section 181(b)(2) for the following three categories of VOC sources:

1. Sources covered by a Control Technique Guideline (CTG) document issued between November 15, 1990, and the date of attainment,
2. Sources covered by a CTG issued prior to November 15, 1990, and
3. Any other source that is major for VOC that is not covered by a CTG.

The post-1990 Amendments CTG documents described by the first category include the following:

1. *Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation*

Operations Processes in the Synthetic Organic Chemical Manufacturing Industry, EPA-450/4-91-031, August 1993

2. *Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations*, EPA-453/D-95-002, April 1996
3. *Alternative Control Techniques Document; Surface Coating Operations at Shipbuilding and Ship Repair Facilities*, EPA-453/R-94-032, April 1994 plus *Control Techniques Guidelines for Shipbuilding and Ship Repair Operations (Surface Coating)*, *Federal Register* notice, August 27, 1996 (61 FR 44050)
4. *Control of Volatile Organic Compound Emissions from coating Operations at Aerospace Manufacturing and Rework Operations*, EPA-453/R-97-004, December 1997

The DAQ submitted a negative declaration letter to the EPA on December 14, 1999, for all four of these CTG categories. A copy of this negative declaration letter is included in *Appendix F: Negative Declaration Letters for Post-1990 CTG Categories*.

The APCD submitted a negative declaration letter to the EPA on February 26, 2001, for all four of these CTG categories. A copy of this negative declaration letter is included in *Appendix F: Negative Declaration Letters for Post-1990 CTG Categories*.

With respect to the second category, the pre-1990 Amendments CTGs, there is no source subject to any of these CTGs for the portions of Bullitt County and Oldham Counties in the Louisville 1-hour ozone nonattainment area. Because Jefferson County had been designated nonattainment and subject to the RACT requirements following the 1977 Amendments to the Clean Air Act, the APCD had already promulgated RACT regulations for the RACT I, II, and III CTG source categories as well as established RACT for all non-CTG major VOC sources, the third category of VOC sources for which RACT is required .

With respect to the third category, the non-CTG major VOC source RACT requirement, the only stationary source located in Bullitt County or Oldham County to which this requirement is applicable is Publishers Printing in Bullitt County. Compliance with this requirement for Publishers Printing is described in Section 6.2.2.

Stage II Vapor Recovery The EPA promulgated rules requiring onboard vapor control of motor vehicles on April 6, 1994 (59 FR 16292). Therefore, pursuant to section 202(a)(6) of the Clean Air Act, Stage II control for gasoline refueling stations is no longer required. However, the APCD adopted a regulation, which remains in effect, to require Stage II controls. This program is described in Sections 6.3.1.

Vehicle Inspection and Maintenance (I/M) Program A basic I/M program is required in the urbanized area of the Louisville 1-hour ozone nonattainment area. The Jefferson County Vehicle Emission Testing (VET) program meets this requirement and is described in Section 6.4.5.

NO_x RACT Requirement All major sources of NO_x are required to have RACT unless a section 182(f) petition is approved by the EPA. The APCD's Regulation 6.42 *Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities* establishes a framework for developing case-by-case RACT determinations for major NO_x sources. Eleven stationary sources in Jefferson County are subject to the NO_x RACT requirement. The enabling regulation and resulting NO_x RACT plans are described in Section 6.2.4. There is no source located in Bullitt County or Oldham County to which the NO_x RACT requirement applies.

Multi-State Ozone Nonattainment Area Requirement Because the Louisville 1-hour ozone nonattainment area is comprised of portions of the State of Indiana and the Commonwealth of Kentucky, the area is referred to as a "multi-State ozone nonattainment area." As a result, pursuant to section 182(j)(1)(B) and subsequent EPA guidance, the Louisville 1-hour ozone nonattainment area was required to submit an attainment demonstration that was based upon photochemical grid modeling. Both the State of Indiana and the Commonwealth of Kentucky have made SIP submittals that included attainment demonstrations based upon photochemical grid modeling, the most recent being in November 1999.

However, EPA guidance provided in the 1995 Seitz memorandum indicates that an attainment demonstration, including the requirement for photochemical grid modeling, is no longer needed for an area with monitored attainment of the 1-hour ozone standard and for which an approvable redesignation request and maintenance plan is submitted. Therefore, the requirement for an

attainment demonstration based upon photochemical grid modeling is no longer applicable to the Louisville 1-hour ozone nonattainment area.

Kentucky Portion of the Louisville 1-Hour Ozone Nonattainment Area

Request for Redesignation to Attainment

6.0 Permanent and Enforceable Emission Reductions

Criterion 3: The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.

The improvement in air quality in the Louisville 1-hour ozone nonattainment area, as demonstrated by the ambient air monitoring data showing attainment of the 1-hour ozone standard, is due to the implementation of permanent and enforceable emission reductions. Many categories of sources have shown, and will continue to show, reductions in VOC and NO_x emissions due to regulatory measures implemented since passage of the 1990 Clean Air Act Amendments by the EPA, the Commonwealth of Kentucky, and the APCD. Emission reductions have also occurred in the Indiana portion of the Louisville 1-hour ozone nonattainment area. The following discussion will focus on only those reductions occurring in the Kentucky portion; the IDEM redesignation request will address the Indiana reductions.

Monitored attainment of the 1-hour standard was achieved for the 1998 to 2000 three-year period. Kentucky and Indiana have, for several reasons, chosen to use 1999 as the base year for the maintenance plan. First, for a practical reason, a complete emissions inventory for 2000 could not be developed until well into 2001 because most of the activity data are not available until at least April. Second, not only are the activity data available for 1999, but also the Agencies were already required to develop, and were in the process of developing, a full emissions inventory for 1999 pursuant to the periodic emissions inventory requirement of section 182(a)(3)(A). Third, during 1999, there was only one exceedance of the 1-hour ozone standard, and this occurred at only one of the seven ozone monitors in the Louisville 1-hour ozone nonattainment area. Thus, the level of emissions during 1999 is clearly reflective of a level at which attainment of the 1-hour ozone standard was achieved, and the use of the 1999 emissions as the base for the maintenance plan is justifiable.

6.1 1999 Periodic Emissions Inventories

Section 182(a)(1) of the Clean Air Act requires the development of a “comprehensive, accurate, current inventory of actual emissions from all sources, as described in section 172(c)(3), in accordance with guidance provided by the Administrator” for each Marginal (and above) 1-hour ozone nonattainment area. Section 182(a)(3)(A) requires those areas to develop revised emissions inventories every three years after the 1990 emissions inventory until the area is redesignated to attainment. As required by the EPA, emissions inventories are to be developed for VOC, NO_x, and CO.

For the purpose of the baseline emissions inventories requirements and the periodic emissions inventories requirements, the 1990, 1993, 1996, and 1999 actual emissions inventories that have been developed by the APCD have included banked VOC emission reduction credits (ERCs). The APCD has a banked ERC program; the DAQ does not. It should be noted, however, that for the purpose of the 1999 emissions inventories that will be used as the baseline for the maintenance plan, banked ERCs representing reductions that occurred before 1999 will not be included. Thus, the 1999 periodic emissions inventories and the 1999 maintenance plan baseline emissions inventories will be different by the amount of ERCs that represent emission reductions that occurred before 1999. This change is more fully explained in Section 7.1.

Table 6.1 is a summary of the 1999 periodic emissions inventories. The details of the 1999 periodic emissions inventories are included in *Appendix D: 1999 Periodic Emissions Inventories*. Included in this appendix are the following documents:

Jefferson County

1. 1999 and Projected Point Source VOC Emissions (lbs/day) for Jefferson County
2. 1999 and Projected Point Source NO_x Emissions (lbs/day) for Jefferson County
3. 1999 and Projected Stationary Area Source VOC Emissions (lbs/day) for Jefferson County
4. 1999 and Projected Off-Road Mobile Source VOC Emissions (lbs/day) for Jefferson County
5. 1999 and Projected Stationary Area Source NO_x Emissions (lbs/day) for Jefferson County

6. 1999 and Projected Off-Road Mobile Source NO_x Emissions (lbs/day) for Jefferson County
7. 1999 and Projected Mobile Source VOC and NO_x Emissions (tpsd)
8. General Description of the Point Source Inventory
9. Stationary Area and Off-Road Mobile Source Inventories
10. Derivation of Mobile Source Emissions Inventories and Projections
11. Banked Emissions for Volatile Organic Compounds (VOCs)
12. VOC Emissions Banking: Post 1999 Credits

Bullitt and Oldham Counties

1. The Kentucky 1999 Periodic Emissions Inventory (PEI)

Table 6.1
1999 Periodic Emissions Inventories

Area	Source Category	VOC tpsd	NO _x tpsd	CO tpsd
Jefferson County	Point - Actual	31.32	116.74	13.13
	Point - ERCs	9.78	0.00	0.00
	Area	17.18	0.75	1.25
	Mobile	38.12	69.15	238.11
	Nonroad	13.03	18.40	65.21
Total		109.43	205.04	317.70
Nonattainment portion of Bullitt County	Point	0.17	0.01	0.00
	Area	0.93	0.03	0.34
	Mobile	1.66	2.48	10.15
	Nonroad	1.06	0.78	5.71
Total		3.82	3.30	16.20
Nonattainment portion of Oldham County	Point	0.03	0.11	0.05
	Area	0.83	0.03	0.38
	Mobile	1.35	1.97	8.44
	Nonroad	0.98	0.77	5.24
Total		3.19	2.88	14.11
Total for KY portion of Louisville 1-hr O ₃ nonattainment area	Point	41.30	116.86	13.18
	Area	18.94	0.81	1.97
	Mobile	41.13	73.60	256.70
	Nonroad	15.07	19.95	76.16
Total		116.44	211.22	348.01

Notes for Table 6.1

1. The VOC "Point - Actual" Source Category number for Jefferson County includes 0.21 tons per summer day of VOC emissions in excess of allowed VOC emissions.
2. The VOC "Point - ERCs" Source Category number for Jefferson County is comprised of the banked VOC ERCs that represent emission reductions that occurred before

1999. In two cases, Philip Morris and Earthgrains Bakery, the amount of banked VOC emission reductions that occurred before 1999 was calculated by subtracting the 1999 actual VOC emissions from the total current banked ERCs. The reason that the number of banked ERCs can exceed the actual emissions of a given year is that the amount of banked credits is "... calculated from the operating history of the affected facility for the two-year period before the application is filed unless a different two-year period is more representative of normal operation of the affected facility" [Regulation 2.12 *Emissions Trading (Including Banking and Bubble Rules)* section 4.1.2]. Documentation listing all currently-issued VOC ERCs and the portion of the Philip Morris and Earthgrains Bakery banked VOC ERCs that represent actual 1999 emissions is included in *Appendix D: 1999 Periodic Emissions Inventories*.

3. There are banked ERCs for both NO_x and CO. However, unlike banked VOC ERCs, banked ERCs for NO_x and CO had not been included in the 1990 baseline and 1993 and 1996 periodic emissions inventories because the Clean Air Act Amendments of 1990 did not establish percent reduction requirements for NO_x or CO for 1-hour ozone nonattainment areas. Therefore, for consistency purposes, banked NO_x and CO ERCs are not included in the 1999 periodic emissions inventories.

Table 6.2 shows a summary of the VOC emissions reductions that have occurred in the Kentucky portion of the Louisville 1-hour ozone nonattainment area since 1990. While compliance with the 15% ROP plan provision will not be required, the data show that the actual emissions in 1996 were less than the emissions after reductions under the 15% ROP plan, and that actual emissions in 1999 were reduced from 1996 levels. Thus, clearly, significant VOC emission reductions have occurred over the 1990 to 1999 time period.

Table 6.2
Comparison of 1990, 1996, and 1999 VOC Emissions

Area	Source Category	1990 Actual tpsd	15% ROP Projected tpsd	1996 Actual tpsd	1999 Actual tpsd	Reduction 1990-1999 tpsd	1990-99 % Reduction
Jefferson County	Point	83.42	70.50	40.74	41.10	42.32	50.7
	Area	36.78	29.72	18.37	17.18	19.60	53.3
	Mobile	89.43	37.52	42.00	38.12	51.31	57.4
	Nonroad	11.08	12.41	13.26	13.03	-1.95	-17.6
	Total	220.71	150.15	114.37	109.43	111.28	50.4
Kentucky nonattainment portions of Bullitt Co. and Oldham Co.	Point	0.33	0.35	0.17	0.20	0.13	39.4
	Area	2.02	1.94	2.21	1.76	0.26	12.9
	Mobile	3.38	1.99	2.67	3.01	0.37	10.9
	Nonroad	1.60	1.76	1.95	2.04	-0.44	-27.5
	Total	7.33	6.04	7.00	7.01	0.32	4.4
Total for KY portion of Louisville 1-hr O ₃ nonattainment area	Point	83.75	70.85	40.91	41.30	42.45	50.7
	Area	38.80	31.66	20.58	18.94	19.86	51.2
	Mobile	92.81	39.51	44.67	41.13	51.68	55.7
	Nonroad	12.68	14.17	15.21	15.07	-2.39	-18.8
	Total	228.04	156.19	121.37	116.44	111.60	48.9

Notes for Table 6.2

1. The baseline for the 15% ROP reduction requirement is not the actual 1990 emissions inventory. The 15% ROP baseline is calculated by subtracting certain emission reductions from the actual 1990 emissions inventory, most notably reductions from the required drop in Reid vapor pressure for gasoline and vehicle fleet turnover.
2. The 1990 and 1996 emissions inventories were developed using the emission factors and procedures that were applicable at the time that those emissions inventories were developed. The 1999 emissions inventories were developed using updated emission factors and procedures, as appropriate. Because of the different emission factors and procedures used to develop these emissions inventories, comparisons between 1990 or 1996 emissions levels and 1999 emissions levels based upon this table are not precise and should recognize these differences.

3. For the purpose of the 1990 emissions inventory requirements of sections 182(a)(1) and 182 (b)(1)(B) of the Clean Air Act and the periodic emissions inventory requirement of section 182(a)(3)(A) of the Clean Air Act, the 1990, 1996, and 1999 actual emissions inventories in this table include banked emission reduction credits (ERCs). However, for the purpose of the 1999 emissions inventories that will be used as the baseline for the maintenance plan, banked ERCs representing reductions that occurred before 1999 will not be included. Thus, the 1999 periodic emissions inventories and the 1999 maintenance plan baseline emissions inventories will be different by the amount of ERCs that represent emission reductions that occurred before 1999.

Table 6.3 shows a summary of the NO_x emissions in the Kentucky portion of the Louisville 1-hour ozone nonattainment area since 1990.

Table 6.3
Comparison of 1990, 1996, and 1999 NO_x Emissions

Area	Source Category	1990 Emissions tpsd	1996 Emissions tpsd	1999 Emissions tpsd	1990-99 Reduction tpsd	1990-99 % Reduction
Jefferson County	Point	147.72	105.32	116.74	30.98	21.0
	Area	1.69	1.10	0.75	0.94	55.6
	Mobile	36.57	50.05	69.15	-32.58	-89.1
	Nonroad	17.67	19.13	18.40	-0.73	-4.1
	Total	203.65	175.60	205.04	-1.39	-0.7
Kentucky nonattainment portions of Bullitt Co. and Oldham Co.	Point	0.15	0.01	0.12	0.03	20.0
	Area	0.10	0.15	0.06	0.04	40.0
	Mobile	3.92	3.77	4.45	-0.53	-13.5
	Nonroad	1.52	1.55	1.55	-0.03	-2.0
	Total	5.69	5.48	6.18	-0.49	-8.6
Total for KY portion of Louisville 1-hr O ₃ nonattainment area	Point	147.87	105.33	116.86	31.01	21.0
	Area	1.79	1.25	0.81	0.98	54.7
	Mobile	40.49	53.82	73.60	-33.11	-81.8
	Nonroad	19.19	20.68	19.95	-0.76	-4.0
	Total	209.34	181.08	211.22	-1.88	-0.9

It can be seen that NO_x emissions were reduced between 1990 and 1996, but increased from 1996 to 1999 to a level just slightly less than the 1990 level. Using 1999 as the baseline for the maintenance plan, however, is still legitimate because the level of emissions that occurred in 1999 resulted in only one exceedance at only one of the seven ozone monitors in the Louisville 1-hour ozone nonattainment area, clearly a condition representative of attainment of the 1-hour ozone standard. Further, due to implementation of amended NO_x RACT plans in Jefferson County starting in January 2000, the 2000 level of NO_x emissions is expected to be substantially less than the 1999 level and, with the advent of additional national NO_x reductions in 2003-2004, that reduction is expected to continue throughout the maintenance period.

Table 6.4 shows a summary of the CO emissions in the Kentucky portion of the Louisville 1-hour ozone nonattainment area since 1990.

Table 6.4
Comparison of 1990, 1996, and 1999 CO Emissions

Area	Source Category	1990 Emissions tpsd	1996 Emissions tpsd	1999 Emissions tpsd	1990-99 Reduction tpsd	1990-99 % Reduction
Jefferson County	Point	10.10	8.88	13.13	-3.03	-30.0
	Area	1.25	1.35	1.25	0.00	0.0
	Mobile	512.29	249.29	238.11	274.18	53.5
	Nonroad	18.11	68.05	65.21	-47.10	-260.1
	Total		541.75	327.57	317.70	224.05
Kentucky nonattainment portions of Bullitt Co. and Oldham Co.	Point	0.04	0.00	0.05	-0.01	-25.0
	Area	1.51	2.05	0.72	0.79	52.3
	Mobile	21.93	16.54	18.59	3.34	15.2
	Nonroad	8.27	10.22	10.95	-2.68	-32.4
	Total		31.75	28.81	30.31	1.44

Area	Source Category	1990 Emissions tpsd	1996 Emissions tpsd	1999 Emissions tpsd	1990-99 Reduction tpsd	1990-99 % Reduction
Total for KY portion of	Point	10.14	8.88	13.18	-3.04	-30.0
	Area	2.76	3.40	1.97	0.79	28.6
Louisville 1-hr	Mobile	534.22	265.83	256.70	277.52	51.9
O ₃ nonattainment area	Nonroad	26.38	78.27	76.16	-49.78	-188.7
	Total	573.50	356.38	348.01	225.49	39.3

6.2 Point Sources The following information outlines point source emission reduction measures that have occurred since 1990.

6.2.1 Point Source 15% ROP Plan - Jefferson County

The final set of permanent and enforceable VOC emission reductions from point sources in Jefferson County is contained in the 15% ROP plan dated May 30, 1997. In summary form, the VOC reductions, in pounds per summer day (ppsd), are comprised of the following categories:

- Reductions pursuant to Regulation 1.18 *Rule Effectiveness*⁸ 12,740 ppsd
- Reductions from sources out of compliance in 1990 2,696 ppsd
- Industry voluntary reductions⁹ 7,127 ppsd
- Industry-held emission reduction credits 5,859 ppsd
- Community-held emission reduction credits 5,129 ppsd

The total permanent and enforceable VOC emission reductions pursuant to the point source portion of the 15% ROP plan is 33,551 ppsd. A copy of the 15% ROP plan is included in *Appendix E: Kentucky 15% ROP Plan*.

⁸ A copy of Regulation 1.18 *Rule Effectiveness* is included in *Appendix G: Point Source Emission Reduction Programs*.

⁹ The legally enforceable mechanism for most of these reductions is Regulation 6.43 *Volatile Organic Compound Emission Reduction Requirements*, as amended on May 21, 1997. A copy of this regulation is included in *Appendix G: Point Source Emission Reduction Programs*.

6.2.2 VOC RACT - Publishers Printing - Kentucky

The DAQ has determined that emission reductions in VOC emissions are anticipated for Publishers Printing in Bullitt County. This is due to the expected installation of additional RACT control measures in the near future. Company representatives are currently working with division and EPA Region 4 staff. The company will submit a compliance schedule as part of their Title V permit application, which will outline when the equipment will be installed and when emission reductions are expected.

6.2.3 NO_x RACT - Jefferson County

To address the requirement for NO_x RACT for all major NO_x sources, the APCD adopted Regulation 6.42 *Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities* on March 2, 1994, amended on March 17, 1999¹⁰. This regulation set the framework for developing individual NO_x RACT plans. Pursuant to this regulation, NO_x RACT plans, enforceable through the incorporation in a Board Order, were established for the following eleven companies:

- % American Synthetic Rubber Company, LLC
- % E.I. DuPont de Nemours & Company
- % Ford Louisville Assembly Plant
- % GE Appliances
- % Kosmos Cement Company
- % Louisville Gas & Electric Company - Cane Run Generating Station
- % Louisville Gas & Electric Company - Mill Creek Generating Station
- % Louisville Medical Center Steam Plant
- % Oxy Vinyls, LP

¹⁰ A copy of Regulation 6.42 *Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities* is included in *Appendix G: Point Source Emission Reduction Programs*.

- % Rohm & Haas Company
- % Texas Gas Transmission

A copy of each Board Order with the attached NO_x RACT plan is included in *Appendix G: Point Source Emission Reduction Programs*.

6.3 Area Sources The following information outlines area source emission reduction measures that have occurred since 1990.

6.3.1 Stage II Vapor Recovery - Jefferson County

The APCD adopted Regulation 6.40 *Standards of Performance for Gasoline Transfer to Motor Vehicles (Stage II Vapor Recovery and Control)*¹¹ in December of 1992 and amended this regulation in August 1993. This regulation required the implementation of Stage II vapor recovery at gasoline dispensing facilities by the following dates:

- December 16, 1993, for gasoline dispensing facilities for which construction commenced after November 15, 1990,
- June 16, 1994, for gasoline dispensing facilities that dispense at least 100,000 gallons of gasoline per month, and
- June 16, 1995, for gasoline dispensing facilities that dispense between 10,000 gallons and 100,000 gallons of gasoline per month.

6.3.2 Architectural Coatings, Traffic Paints, Auto Body Refinishing, and Commercial/Consumer Products - Kentucky

The EPA has promulgated federal regulations to reduce the VOC emissions from the application of architectural and industrial maintenance coatings (e.g. traffic paints and coatings for bridges) [40 CFR

¹¹ A copy of Regulation 6.40 *Standards of Performance for Gasoline Transfer to Motor Vehicles (Stage II Vapor Recovery and Control)* is included in *Appendix H: Area Source Emission Reduction Programs*.

part 59 subpart D *National Volatile Organic Compound Emission Standards for Architectural Coatings* (63 FR 48848, September 11, 1998)], auto body refinishing [40 CFR part 59 subpart B *National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings* (63 FR 48806, September 11, 1998)], and consumer and commercial products [40 CFR part 59 subpart C *National Volatile Organic Compound Emission Standards for Consumer Products* (63 FR 48819, September 11, 1998)]. The federal requirements for VOC in paints used in architectural coatings will reduce emissions from these products by 20% according to guidance provided by the EPA in the *Federal Register* notice promulgating the rule (63 FR 48855). The amount of reduction from Auto Body Refinishing has been calculated at 27%. Consumer and commercial product emission reduction credit was calculated at 20%. The guidance and equations used in these reduction calculations are included in *Appendix H: Area Source Emission Reduction Programs*.

6.3.3 Architectural Coatings, Traffic Paints, Auto Body Refinishing, and Commercial/Consumer Products - Jefferson County

The 15% ROP plan included the following area source control regulations:

- % Regulation 1.16 *Standards for Volatile Organic Compound Content of Architectural and Industrial Maintenance Coatings*
- % Regulation 6.44 *Standards of Performance for Existing Commercial Motor Vehicle and Mobile Equipment Refinishing Operations*
- % Regulation 7.79 *Standards of Performance for New Commercial Motor Vehicle and Mobile Equipment Refinishing Operations*

Since the submittal of the 15% ROP plan, the APCD has repealed Regulation 1.16 and deferred to the federal architectural and maintenance (AIM) coating regulation, 40 CFR part 59 subpart D, for control of AIM emissions. However, the calculated emission reductions from the federal AIM regulation (20%) was less than the calculated emission reductions from Regulation 1.16 (25%). Therefore, to make up for this shortfall in emission reductions, the APCD identified a portion of the available, but not-yet credited for Jefferson County, VOC emission reduction credits from the federal

consumer and commercial products regulation¹². Subsequently, the APCD identified additional uncredited VOC emission reduction credits from the federal consumer and commercial products regulation to compensate for the loss of VOC emission reductions due to Kentucky statute-mandated changes to the Jefferson County inspection/maintenance (I/M) program. A copy of the documentation of the amount of credit available, and used, for Jefferson County from the federal consumer and commercial products regulation, *Use of VOC Credit from Federal Consumer and Commercial Products Regulation*, is inclosed in *Appendix H: Area Source Emission Reduction Programs*.

With respect to auto body refinishing, Regulation 6.44¹³, adopted February 2, 1994, amended September 20, 1995, and Regulation 7.79¹⁴, adopted February 2, 1994, remain in force in Jefferson County.

6.3.4 Open Burning - Kentucky

In January 1998, Kentucky adopted revisions to the open burning regulation 401 KAR 63:005 *Open Burning*¹⁵ to prohibit most types of open burning in moderate ozone nonattainment areas within Kentucky during the period of May to September, when ozone formation is most likely. The emission reduction credit taken for this control measure is calculated as 80%.

¹² The amount of reduction that could be credited to an area for a 15% ROP plan, 0.8 pound per person annually, was established in the June 21, 1995, memorandum from John S. Seitz, Director, OAQPS, *Regulatory Schedule for Consumer and Commercial Products under Section 183(e) of the Clean Air Act*. A copy of this memorandum is included in *Appendix H: Area Source Emission Reduction Programs*.

¹³ A copy of Regulation 6.44 *Standards of Performance for Existing Commercial Motor Vehicle and Mobile Equipment Refinishing Operations* is included in *Appendix H: Area Source Emission Reduction Programs*.

¹⁴ A copy of Regulation 7.79 *Standards of Performance for New Commercial Motor Vehicle and Mobile Equipment Refinishing Operations* is included in *appendix H: Area Source Emission Reduction Programs*.

¹⁵ A copy of 401 KAR 63:005 *Open Burning* is included in *Appendix H: Area Source Emission Reduction Programs*.

However, in the 15% ROP plan, VOC emission reduction credited was identified in Bullitt County and Oldham County for reductions from the use of architectural and industrial maintenance (AIM) coatings. At that time, guidance provided by the EPA allowed a 25% reduction credit for AIM categories. Notwithstanding this guidance, the preamble to the federal AIM coating regulation, 40 CFR part 59 subpart D (63 FR 48855, September 11, 1998), specified that the federal regulation would result in a 20% VOC emission credit, not the original 25%. The VOC emission reduction shortfall resulting from this lower allowed level of credit amounts to a total of 0.02 tpsd for both nonattainment portions of Bullitt and Oldham Counties.

Further, the 15% ROP plan included a mobile source emissions reduction credit for the nonattainment portions of Bullitt and Oldham Counties resulting from the implementation of the commuter testing program that was a part of Jefferson County's Vehicle Emission Testing (VET) program,. This required vehicle owners working in Jefferson County but residing outside of Jefferson County to comply with the VET program, i.e., test and repair as necessary. This reduced the emissions for the vehicle miles traveled in the nonattainment portions of Bullitt and Oldham Counties. However, recent legislation removed the enforcement mechanism for the VET program and thus the commuter credit for VOC emission reductions was no longer available. This shortfall amounts to a total of 0.20 tpsd for VOC emissions for both nonattainment portions of Bullitt and Oldham Counties. If the federal AIM regulation shortfall is added to the commuter shortfall, the total VOC emission reduction shortfall is 0.22 tpsd.

The 80% reduction that can be taken for open burning emissions more than makes up for this 0.22 tpsd emissions shortfall. The total VOC emission reduction from the open burning regulation is 0.54 tpsd. Thus, the remaining open burning VOC emission reduction credit is 0.32 tpsd.

6.3.5 Solid Waste Landfills - Jefferson County

Regulation 6.45 *Standards of Performance for Existing Solid Waste Landfills*¹⁶ was adopted by the

¹⁶ A copy of Regulation 6.45 *Standards of Performance for Existing Solid Waste Landfills* is included in *Appendix H: Area Source Emission Reduction Programs*.

APCD on February 2, 1994, and remains in force. This regulation applies to the only active solid waste landfill located in Jefferson County.

6.4 Mobile Sources The following information outlines mobile source emission reduction measures that have occurred since 1990.

6.4.1 Federal Motor Vehicle Control Program (FMVCP)

Permanent and enforceable emission reductions have been, and continue to be, achieved each year through this program. In recent years, more strict federal requirements have been imposed on automobile manufacturers for improved fuel-efficiency and extended warranties for emission control devices. Documentation of these emission reductions is contained in the Mobile modeling runs.

6.4.2 Lower Reid Vapor Pressure

As required by section 211(h) of the Clean Air Act, the EPA promulgated a regulation, 40 CFR 80.27 (a)(2), that required the maximum allowed Reid Vapor Pressure (RVP) of gasoline sold during the “high ozone season,” as defined by the EPA, to decrease from 10.5 pounds per square inch (psi) to 9.0 psi, starting with the 1992 the ozone season. Quantification of these reductions is contained in the Mobile modeling.

6.4.3 Fleet Turnover

Permanent and enforceable emission reductions have occurred in the Louisville 1-hour ozone nonattainment area as a result of fleet turnover of automobiles. As older, less efficient automobiles are replaced by newer, more efficient models, the emissions decrease on a per-mile basis. Quantification of these reductions is contained in the Mobile modeling.

6.4.4 Reformulated Gasoline

On September 29, 1993, Brereton C. Jones, Governor of the Commonwealth of Kentucky, requested

that the Kentucky portions of the Louisville and Cincinnati-Hamilton 1-hour ozone nonattainment areas be opted into the federally enforceable reformulated gasoline (RFG) program beginning in 1995. Phase I of the program, which resulted in emission reductions, began January 1, 1995. Phase II of the program, which resulted in further emission reductions, began January 1, 2000. Reductions in VOC emissions from the use of RFG in non-road engines have also occurred. A copy of the RFG opt-in request to the EPA is included in *Appendix I: Mobile Source Emission Reduction Programs*.

6.4.5 Inspection/Maintenance (I/M) Program - Jefferson County

The APCD has operated the Vehicle Emissions Test (VET) program in Jefferson County since 1984. The 15% ROP plan included several enhancements to the VET program that began in 1993, including fuel supply system pressure testing, air pollution control equipment visual inspection, and the testing of commuters to Jefferson County. The VOC emission reduction (1998 basis) attributed to the 1993 VET program enhancements increased by 3.76 tons per summer day (tpsd), from 2.83 tpsd to 6.59. In 1997, the VET program was further enhanced by adding a loaded mode test for vehicles that could be operated on a one-axle dynamometer and increased repair technician training. The loaded mode testing began in April 1998. This increased the VOC emission reduction (1998 basis) attributed to the VET program by an additional 2.43 tpsd, for a total VOC emission reduction of 9.03 tpsd.

In 2000, the Kentucky General Assembly enacted legislation that prohibited the VET program from testing motorcycles, pre-1968 vehicles, buses and certain government-owned/licensed vehicles, and vehicles registered to active military personnel stationed outside of Jefferson County; broadened reciprocity for vehicles tested by another I/M program; and removed the District's enforcement mechanism for commuters, effectively ending the commuter program. These legislative changes took effect in July 2000. This has reduced the VOC emission reduction (1998 basis) attributed to the VET program by 1.26 tpsd. The APCD will offset this loss of VOC emission reduction by using an equivalent amount of VOC emission reduction resulting from the amendment to Regulation 6.18 *Standards of Performance for Existing Solvent Metal Cleaning Equipment*¹⁷ and Regulation 7.18

¹⁷ A copy of Regulation 6.18 *Standards of Performance for Existing Solvent Metal Cleaning Equipment* is included in *Appendix H: Area Source Emission Reduction Programs*.

*Standards of Performance for New Solvent Metal Cleaning Equipment*¹⁸ that established a maximum cold cleaner solvent vapor pressure of 1.0 mm Hg measured at 20EC, effective March 1, 2000. A copy of the documentation showing the VOC emission reduction from implementation of this cold cleaner solvent requirement is included in *Appendix H: Area Source Emission Reduction Programs*.

A copy of the current VET regulations, Regulation 8.01 *Mobile Source Emissions Control Requirements* and Regulation 8.02 *Vehicle Emissions Testing Procedure*, both of which were adopted June 21, 2000, effective July 14, 2000, is included in *Appendix I: Mobile Source Emission Reduction Programs*.

¹⁸ A copy of Regulation 7.18 *Standards of Performance for New Solvent Metal Cleaning Equipment* is included in *Appendix H: Area Source Emission Reduction Programs*.

Kentucky Portion of the Louisville 1-Hour Ozone Nonattainment Area

Request for Redesignation to Attainment

7.0 Maintenance Plan

Criterion 5: The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

The required maintenance plan must become part of the SIP and provide for maintenance of the air quality in the affected area for at least 10 years after redesignation. Kentucky has chosen 2012 as the end year of the maintenance plan for the Louisville area.

The maintenance plan includes the following components:

- % 1999 (attainment year) baseline VOC and NO_x emissions inventories,
- % projected interim VOC and NO_x emissions inventories for generally every three years (2002, 2005, and 2008),
- % projected VOC and NO_x emissions inventories for the out year of the maintenance plan (2012),
- % a commitment to maintain the existing monitoring system, and
- % contingency measures that will become effective should the area experience subsequent violations of the 1-hour ozone standard.

The general approach used for the maintenance plan to demonstrate that attainment of the 1-hour ozone standard will continue to be maintained is based upon restricting the future anthropogenic emissions to a level that is representative of attainment of the standard. If these future emissions are no greater than the actual emissions during a year in which attainment of the standard was monitored, then it is assumed that attainment of the standard will also be achieved in future years.

7.1 1999 Base Year Emissions Inventories

Monitored attainment of the 1-hour standard was achieved for the 1998 to 2000 three-year period. Kentucky has, for several reasons as discussed earlier, chosen to use 1999 as the attainment/base year for the maintenance plan. First, for a practical reason, a complete emissions inventory for 2000 could not be developed until well into 2001 because most of the activity data are not available until at least April. Second, not only are the activity data available for 1999, but also the Agencies were already required to develop a full emissions inventory for 1999 pursuant to the periodic emissions inventory requirement of section 182(a)(3)(A). Thus, the Agencies were already in the process of preparing a full 1999 emissions inventory. Third, during 1999, there was only one exceedance of the 1-hour ozone standard, and this occurred at only one of the seven ozone monitors in the Louisville 1-hour ozone nonattainment area. Thus, the level of emissions during 1999 is clearly reflective of a level at which attainment of the 1-hour ozone standard was achieved, and the use of the 1999 emissions as the base for the maintenance plan is justifiable.

For the purpose of the 1990 emissions inventory requirements of sections 182(a)(1) and 182 (b)(1)(B) of the Clean Air Act and the periodic emissions inventory requirement of section 182(a)(3)(A) of the Clean Air Act, the 1990, 1993, 1996, and 1999 actual emissions inventories that have been developed by the APCD have included banked VOC emission reduction credits (ERCs). The APCD has a banked ERC program; the DAQ does not. However, for the purpose of the 1999 emissions inventories that will be used as the baseline for the maintenance plan, banked ERCs representing reductions that occurred before 1999 will not be included. This change is required by the general approach taken for the maintenance plan; i.e., the monitored levels of ozone are related to the actual emissions during that period. Since the pre-1999 banked ERC emissions were not actually emitted in 1999, the monitored air quality did not reflect the actual emission of the ERCs. Thus, the 1999 periodic emissions inventories and the 1999 maintenance plan baseline emissions inventories will be different by the amount of ERCs that represent emission reductions that occurred before 1999.

Table 7.1 shows a summary of the 1999 actual VOC and NO_x emissions. These emissions inventories shall become the baseline for the maintenance plan for the Louisville 1-hour attainment area. The

details of the 1999 baseline actual emissions inventories are included in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*. Included in this appendix are the following documents:

Jefferson County

1. 1999 and Projected Point Source VOC Emissions (lbs/day) for Jefferson County
2. 1999 and Projected Point Source NO_x Emissions (lbs/day) for Jefferson County
3. 1999 and Projected Stationary Area Source VOC Emissions (lbs/day) for Jefferson County
4. 1999 and Projected Off-Road Mobile Source VOC Emissions (lbs/day) for Jefferson County
5. 1999 and Projected Stationary Area Source NO_x Emissions (lbs/day) for Jefferson County
6. 1999 and Projected Off-Road Mobile Source NO_x Emissions (lbs/day) for Jefferson County
7. 1999 and Projected Mobile Source VOC and NO_x Emissions (tpsd)
8. General Description of the Point Source Inventory
9. Stationary Area and Off-Road Mobile Source Inventories
10. Derivation of Mobile Source Emissions Inventories and Projections
11. VOC Emissions Banking: Post 1999 Credits

Bullitt and Oldham Counties

1. 1999 Baseline Actual and Projected Emissions Inventories and Methodology Documentation

Table 7.1
1999 Baseline Actual VOC and NO_x Emissions Inventories

Area	Source Category	VOC tpsd	NO _x tpsd
Jefferson County	Point - Actual	31.32	116.74
	Point - ERCs	0.00	0.00
	Area	17.18	0.75
	Mobile	38.12	69.15
	Nonroad	13.03	18.40
Total		99.65	205.04
Nonattainment portion of Bullitt County	Point	0.17	0.01
	Area	0.93	0.03
	Mobile	1.66	2.48
	Nonroad	1.06	0.78
Total		3.82	3.30
Nonattainment portion of Oldham County	Point	0.03	0.11
	Area	0.83	0.03
	Mobile	1.35	1.97
	Nonroad	0.98	0.77
Total		3.19	2.88
Total for KY portion of Louisville 1-hr O ₃ nonattainment area	Point	31.52	116.86
	Area	18.94	0.81
	Mobile	41.13	73.60
	Nonroad	15.07	19.95
Total		106.66	211.22

Notes for Table 7.1

1. The VOC "Point - Actual" Source Category number for Jefferson County includes 0.21 tons per summer day of VOC emissions in excess of allowed VOC emissions.
2. Because the maintenance plan is based upon the level of emissions that actually occurred in 1999, and thus the emissions that were actually monitored, the 1999

baseline emissions inventories do not include any banked ERCs.

7.2 Emission Projection Methodology - Bullitt and Oldham Counties

Since the attainment year is designated as 1999, the DAQ used the Periodic Emissions Inventory (PEI) for 1999 to project emissions into the future. This inventory was performed using the same methodology as was used to develop the 1990 Base Year Inventory for the Northern Kentucky (Boone, Campbell, and Kenton Counties) portion of the Cincinnati-Hamilton 1-hour ozone nonattainment area that was approved by the EPA (63 FR 67586 – December 8, 1998). Kentucky believes this inventory to be a comprehensive inventory of actual emissions for the area with the best basis for which to make any future projections. A copy of that inventory is included in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*.

The DAQ adjusted the 1999 attainment year inventory to account for the additional emission reductions that had occurred between 1990 and 1999 and then based future projections on those adjusted 1999 emission levels. Tables detailing the category projection inventory that predicts emissions for VOC, CO, and NO_x for years 2002, 2005, 2008, and 2012 are included for Bullitt and Oldham Counties in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*. Biogenic emissions have been excluded. Based on advice from EPA, these emissions are expected to remain stable throughout the projection period.

The emissions inventory is broken down into four components: point, area, mobile, and non-highway mobile sources. For all point sources for which Standard Industrial Codes (SIC) could be used, emission projections were based on growth factors calculated using Bureau of Economic Analysis (BEA) projection data for employment, as suggested by the EPA. Employment factors are more representative of population trends in the nonattainment area.

Using 1999 as the new base year, the subsequent years were generally chosen at three-year intervals (2002, 2005, 2008, and 2012) that project maintenance for at least a 10-12 year period pending approval of the redesignation request. Necessary calculations for the projections were made using EXCEL[®] software. A description of how growth factors for each emission category were obtained

and used follows. The documentation showing how emissions were grown is included in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*.

7.2.1 Point Sources

For this inventory purpose, point sources are defined as stationary sources that emit greater than 10 tons per year (tpy) of VOCs, or 100 tpy of NO_x or CO. The source emissions are calculated from data collected annually from the sources. This information is stored in an existing Kentucky Emissions Inventory System database and that information has been uploaded into the EPA AIRS.

For point source emission projections, employment projections using BEA data were used. The point source data provided SIC codes, used to determine a short title description that matches the corresponding description found in the BEA data. The application of these growth factors for each projection was then used for point sources. *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories* provides information on how growth was projected for point sources. Each county total is listed in the summary table under point sources.

7.2.2 Area Sources

Area sources can be defined as geographical areas where all similar stationary sources may emit more than 10 tons of VOCs per year. Emissions are estimated by multiplying the base year inventory by a known indicator of collective activity such as number of employees or population.

For area source emission projections, population growth factors for each chosen year were calculated using the before mentioned formula. The application of these growth factors for each projection was then used for area sources. Information used to calculate growth factors, including population information used to project area sources was provided by the University of Louisville Urban Data Center and can be found in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*.

7.2.3 Mobile Sources

To calculate emissions from mobile sources, the division obtained Daily Vehicle Miles Traveled (DVMT) and speed data from the Kentucky Transportation Cabinet. These data can be found in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*, including MOBILE5b input and output files for the attainment and projected years.

7.2.4 Non-Highway Mobile Sources

The non-highway mobile category is broken down into three groups that include 2 and 4-cycle gasoline engines and diesel engines (other non-highway engines), railroad locomotives, and aircraft. Emissions are estimated by multiplying the base year inventory by a known indicator of collective activity such as population. For non-highway emission projections, population growth factors for each chosen year were calculated using the before mentioned formula. The application of these growth factors for each projection was then used for each of the non-highway category sector. Growth factors, including population information used to project these emissions can be found in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*.

7.3 Emission Projection Methodology - Jefferson County

The methodology for projecting future emissions for the Jefferson County portion of the maintenance plan is contained in the various documents included in *Appendix J: Maintenance Plan: 1999 Baseline Actual and Projected Emissions Inventories*. This includes written descriptions as well as the specific growth factors in the emissions inventories tables.

7.3.1 Banked VOC ERCs in Maintenance Plan

The banked VOC ERCs representing emission reductions that occurred after 1999 will be included in the maintenance plan projected emissions inventories. However, these ERCs included in the maintenance plan projected emissions inventories are limited to the level of emissions that actually occurred in 1999. This affects the VOC emission reductions made at Philip Morris and Earthgrains

Bakery. As explained in *Notes for Table 6.1*, banked ERCs can exceed the actual emissions that occurred during the year in which the ERCs are applied for and issued. The total VOC ERCs included in the maintenance plan projected emissions inventories (1999 VOC baseline) is 0.66 tons per summer day (tpsd). Therefore, the use of 0.66 tpsd of banked ERCs is consistent with the maintenance plan because that amount is treated as an actual emission.

However, the pre-1999 ERCs, i.e., the ERCs that represent VOC emission reductions that occurred before 1999, could still be used to the extent that the maintenance plan identifies a VOC growth allowance and the amount of ERCs used does not exceed this identified growth allowance. The available growth allowance is provided in Table 7.2. The list of current banked ERCs pursuant to the Jefferson County Regulation 2.12 *Emissions Trading (Including Banking and Bubble Rules)* is included in *Appendix J: 1999 Baseline Emissions Inventories*. The current total banked VOC ERCs is 10.44 tpsd. Subtracting the 0.66 tpsd of banked ERCs included in the 1999 baseline from the total 10.44 tpsd of banked ERCs gives 9.78 tpsd of banked ERCs the use of which must be carefully tracked.

7.4 Maintenance Plan Projected Emissions Inventories and Growth Allowance

Tables 7.2 and 7.3 show the projection of emissions for the maintenance plan interim years 2002, 2005, and 2008 and the last year of the maintenance plan, 2012. A maintenance demonstration requires a comparison of the projected emissions inventories for each of these years with the baseline emissions inventories. If the projected emissions remain at or below the baseline (attainment year) emissions, then there is a demonstration of maintenance. Also, if the projected emissions are below the baseline emissions, then the difference between the projected emissions and the baseline emissions represents a growth allowance. Emissions would be allowed to grow by that amount and the area would still be in compliance with its maintenance plan. As explained in Section 7.3, banked ERCs, even though they may represent emission reductions that occurred before 1999 (and are thus not included as actual emissions for the 1999 baseline emissions inventories), may be used to the extent that the growth allowance identified in the maintenance plan has not already been used.

If, however, the projected emissions are above the baseline emissions, then additional measures are

required to ensure the projected emissions will remain at or below the baseline level.

It can be seen from Tables 7.2 and 7.3 that there is a calculated growth allowance for both VOC and NO_x for each year in the maintenance plan.

Table 7.2
Louisville 1-Hour Ozone Attainment Area
Maintenance Plan VOC Emissions (tons per summer day)

County	Source Category	1999	2002	2005	2008	2012	
Jefferson County	Point - Actual	31.32	31.06	31.06	30.96	30.65	
	Point - ERCs	0.00	0.66	0.66	0.66	0.66	
	Area	17.18	17.30	17.41	17.51	17.62	
	Mobile	38.12	33.73	27.87	25.31	24.43	
	Nonroad	13.03	12.99	12.94	12.90	12.86	
	Total		99.65	95.74	89.94	87.34	86.22
Nonattainment portion of Bullitt County	Point	0.17	0.18	0.18	0.18	0.18	
	Area	0.93	0.95	0.99	1.05	1.08	
	Mobile	1.66	1.47	1.46	1.51	1.57	
	Nonroad	1.06	1.11	1.16	1.21	1.24	
	Total		3.82	3.71	3.79	3.95	4.07
Nonattainment portion of Oldham County	Point	0.03	0.03	0.03	0.03	0.03	
	Area	0.83	0.85	0.87	0.91	0.94	
	Mobile	1.35	1.18	1.17	1.20	1.23	
	Nonroad	0.98	1.02	1.05	1.09	1.12	
	Total		3.19	3.08	3.12	3.23	3.32
Total for KY portion of Louisville 1-hr O ₃ nonattainment area	Point	31.52	31.93	31.93	31.83	31.52	
	Area	18.94	19.10	19.27	19.47	19.64	
	Mobile	41.13	36.38	30.50	28.02	27.23	
	Nonroad	15.07	15.12	15.15	15.20	15.22	
	Total		106.66	102.53	96.85	94.52	93.61
Maintenance Plan Decrease from 1999 (VOC Growth Allowance)				4.13	9.81	12.14	13.05

Table 7.3
Louisville 1-Hour Attainment Area
Maintenance Plan NO_x Emissions (tons per summer day)

County	Source Category	1999	2002	2005	2008	2012
Jefferson County	Point	116.74	98.95	46.24	47.64	47.85
	Area	0.75	0.75	0.76	0.76	0.76
	Mobile	69.15	63.21	54.56	47.85	39.17
	Nonroad	18.40	18.26	18.07	17.89	17.62
	Total	205.04	181.17	119.63	114.14	105.40
Nonattainment portion of Bullitt County	Point	0.01	0.01	0.01	0.01	0.01
	Area	0.03	0.03	0.03	0.03	0.03
	Mobile	2.48	2.52	2.62	2.70	2.84
	Nonroad	0.78	0.81	0.85	0.88	0.91
	Total	3.30	3.37	3.51	3.62	3.79
Nonattainment portion of Oldham County	Point	0.11	0.12	0.12	0.13	0.13
	Area	0.03	0.03	0.03	0.03	0.03
	Mobile	1.97	1.97	2.04	2.09	2.18
	Nonroad	0.77	0.80	0.82	0.86	0.88
	Total	2.88	2.92	3.01	3.11	3.22
Total for KY portion of Louisville 1-hr O ₃ nonattainment area	Point	116.86	99.08	46.37	47.78	47.99
	Area	0.81	0.81	0.82	0.82	0.82
	Mobile	73.60	67.70	59.22	52.64	44.19
	Nonroad	19.95	19.87	19.74	19.63	19.41
	Total	211.22	187.46	126.15	120.87	112.41
Maintenance Plan Decrease from 1999 (NO_x Growth Allowance)			23.76	85.07	90.35	98.81

7.5 Plan to Maintain Air Quality

The DAQ, APCD, and EPA have instituted programs that will remain enforceable and are hereby submitted as a plan to maintain air quality which meets the 1-hour ozone standard for the Kentucky portion of the Louisville 1-hour ozone attainment area. Sources are prohibited from reducing emission controls following the redesignation of the area unless such a relaxation is first approved by the EPA as a revision to the Kentucky SIP.

The following regulatory programs will remain in place in the Louisville 1-hour ozone attainment area:

- ~ All new major VOC or NO_x sources locating in Kentucky are subject to RACT as well as the BACT requirement of the DAQ and APCD PSD regulations
- ~ All major modifications to existing major VOC or NO_x sources are subject to RACT requirements as well as the BACT requirement of the DAQ and APCD PSD regulations
- ~ All new affected facilities with the potential to emit of more than 5 tons per year of VOC are required to have best available control technology (Jefferson County - Regulation 7.25 *Standard of Performance for New Sources Using Volatile Organic Compounds*)
- ~ Continuation of the rule effectiveness programs to enhance inspection of stationary sources to ensure emission control equipment is functioning properly and compliance is maintained (Jefferson County)
- ~ Requirement for Stage II Vapor Recovery (Jefferson County)
- ~ Federal Motor Vehicle Control Standards apply in Kentucky
- ~ Reformulated Gasoline Phase II in effect since January 1, 2000
- ~ Improved Basic Vehicle Emissions Testing Program (Jefferson County)
- ~ Federal controls on the VOC content for Architectural & Maintenance Paints, Auto Body Shops, and Consumer Products
- ~ Open burning ban during summer ozone season for the portions of Bullitt and Oldham Counties in the Louisville 1-hour ozone attainment area (as well as the year-round open burning ban in Jefferson County)

In addition to these measures, further reductions will be achieved throughout the implementation of new federal regulations to further control the emission of Hazardous Air Pollutants (HAPs) that are VOCs and the emission control programs being imposed as a result of enforcement agreements with some sources in the area. The reductions cannot be quantified at this time, but will be reflected in future triennial assessments.

7.6 Maintain Existing Monitoring Network

In addition to the maintenance plan discussed above, the existing ozone monitoring network located within the Kentucky counties of the Louisville 1-hour ozone attainment area has been approved by the EPA. This monitoring network will continue to remain operational in accordance to 40 CFR 58.

7.7 Contingency Measures

Triennial reviews of actual emissions for the redesignated areas will be performed using the latest emission factors, models, and methodologies. The DAQ and APCD will begin the triennial assessments in 2003 for calendar year 2002. At the time of this periodic inventory, the Agencies will review the assumptions made for the purpose of the maintenance demonstration concerning projected growth of activity levels. If any of these assumptions appear to have changed substantially, then the Agencies will re-project emissions.

In the event that exceedances of the 1-hour ozone standard are measured in any portion of the Louisville 1-hour attainment area, or if periodic emission inventory updates reveal excessive or unanticipated growth greater than 10% in ozone precursor emissions, then the Agencies will evaluate existing control measures to see if any further emission reduction measures should be implemented at that time.

In the event of a monitored violation of the 1-hour ozone standard in the Louisville Moderate nonattainment area, then the Agencies commits to adopt within nine months, and implement the regulatory programs within 18 months, one or more of the following contingency measures to re-attain the standard:

- & Implementation of a program to require additional emission reductions at stationary sources, either for specific types of processes or an across-the-board reduction for the larger stationary sources
- & More restrictive new source review requirements
- & Implementation of a more rigorous vehicle emissions testing program or increase the area subject to the current programs
- & Restriction of certain roads or lanes to, or construction of such roads or lanes for use by, passenger buses or high-occupancy vehicles
- & Trip-reduction ordinances
- & Employer-based transportation management plans, including incentives
- & Programs to limit or restrict vehicle use in downtown areas, or other areas of emission concentration, particularly during periods of peak use
- & Programs for new construction and major reconstructions of paths or tracks for use by pedestrians or by non-motorized vehicles when economically feasible and in the public interest

The Agencies also reserve the right to implement other contingency measures if new control programs should be developed and deemed more advantageous for the area.

7.8 Additional Maintenance Plan

Section 175A(b) of the Clean Air Act requires the State to submit, eight years after formal redesignation to attainment, an additional maintenance plan demonstrating maintenance of the standard for ten years after the expiration of the first maintenance plan. If this requirement remains applicable for this area, the Agencies commit to submit to the EPA a plan for future maintenance of the standard in the Louisville 1-hour ozone attainment area as required.

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8.0 Regional Mobile Source Budgets for Transportation Conformity

The transportation conformity regulation, 40 CFR part 93 subpart A *Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws*, requires that mobile source emissions submitted or approved to a state's SIP be used in determining conformity of transportation plans for that area. In the case of a request to redesignate an area to attainment, the projected mobile emissions budgets found in the maintenance plan which projects those emissions for at least the next ten-year period (2012 for the Louisville 1-hour ozone attainment area) become the mobile emissions budgets.

This regulation, however, allows the addition of a "safety margin" to this out-year projection. A "safety margin" is defined as the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance. In the case of the Louisville 1-hour attainment area, this means that the total mobile source budgets shall not exceed the levels of actual emissions in the 1999 baseline emissions inventories. Future transportation conformity analyses then use these established mobile source budgets to determine whether transportation conformity is met.

The DAQ, APCD, IDEM, KIPDA, and the other agencies involved in the transportation conformity consultation process have agreed with continuing the approach of maintaining regional mobile source emissions budgets that had been used in the last attainment demonstration that was developed in 1999.

Table 8.1 shows a summary of the 1999 actual regional mobile source emissions for VOC and NO_x, the precursor emissions for ozone, the projected emissions for 2012, the out-year of the maintenance plans for both the Kentucky portion and the Indiana portion of the Louisville 1-hour ozone attainment

area, the safety margin that is being added to the projected 2012 emissions, and the total regional mobile source emissions budgets.

Table 8.1
Louisville 1-Hour Ozone Attainment Area
Regional VOC and NO_x Mobile Source Budgets

State	County	1999 VOC Baseline	2012 VOC Budget	1999 NO_x Baseline	2012 NO_x Budget
Kentucky portion of attainment area	Jefferson	38.12	24.43	69.15	39.17
	Bullitt	1.66	1.57	2.48	2.84
	Oldham	1.35	1.23	1.97	2.18
	Total	41.13	27.23	73.60	44.19
Indiana portion of attainment area	Clark	5.69	4.83	11.73	7.70
	Floyd	4.11	3.98	7.60	5.12
	Total	9.80	8.81	19.33	12.82
Safety Margin		N/A	14.89	N/A	35.92
Region Total Baseline/Budget		50.93	50.93	92.93	92.93

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9.0 Public Participation

A public hearing to receive comments on the redesignation request for the Kentucky portion of the Louisville 1-hour ozone nonattainment area [will be] held on May 16, 2001. Documentation of the legal notice and public hearing [will be] included in *Appendix K: Public Review Process*.

A copy of the responses to comments received during the public review process [will be] also included in *Appendix K: Public Review Process*.