



MATTHEW G. BEVIN  
GOVERNOR

CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**  
**DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

DIVISION FOR AIR QUALITY  
200 FAIR OAKS LANE, 1<sup>ST</sup> FLOOR  
FRANKFORT, KENTUCKY 40601-1403  
Web site: air.ky.gov

March 29, 2016

Ms. Heather McTeer Toney  
Regional Administrator  
U.S. EPA, Region 4  
61 Forsyth Street, SW  
Atlanta, Georgia 30303

RE: Revision to the Kentucky State Implementation Plan pertaining to gasoline dispensing facilities – Removal of Stage II Requirements

Dear Ms. McTeer Toney,

The Kentucky Division for Air Quality (Division), on behalf of the Commonwealth of Kentucky, respectfully submits a proposed revision to Kentucky's State Implementation Plan (SIP) in accordance with 40 CFR 51.102(d)(3). Kentucky is requesting the amended administrative regulation, 401 KAR 59:174, to be approved to the Kentucky SIP for the decommissioning and removal of requirements for Stage II vapor recovery systems.

As required by 40 CFR 51.102, a public hearing notice, which indicates the time and location of a public hearing to receive comments on this SIP revision, is enclosed. Your consideration of this request is greatly appreciated. If you have any questions or comments concerning this matter, please contact Ms. Melissa Duff, Program Planning Manager for the Division for Air Quality, at (502) 564-3999.

Sincerely,

Sean Alteri  
Director

SA/Imp

Cc: Beverly Banister, US EPA Region 4  
Scott Davis, US EPA Region 4

**STATE IMPLEMENTATION PLAN REVISION  
TO AMEND 401 KAR 59:174  
STAGE II CONTROLS AT GASOLINE DISPENSING  
FACILITIES**

**BOONE, CAMPBELL, & KENTON COUNTIES, KENTUCKY**



Prepared by the  
Kentucky Division for Air Quality  
Submitted by  
Kentucky Energy and Environment Cabinet  
March 2016

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## **INTRODUCTION**

This document contains technical support for the Kentucky Division for Air Quality's (Division) request to revise Kentucky's State Implementation Plan (SIP) by amending 401 KAR 59:174 to remove Stage II controls from gasoline dispensing facilities (GDF). This submittal demonstrates that removing Stage II equipment from GDF's in Northern Kentucky will not deteriorate the area's air quality and that over time, the removal of Stage II will prevent an increase in volatile organic compound (VOC) emissions due to the incompatibility of Stage II equipment and On-Board Refueling Vapor Recovery (ORVR) systems. This plan focuses on VOC emissions, a precursor in ozone formation, from facilities in the Cincinnati-Hamilton, OH-KY-IN, Metropolitan Statistical Area (MSA) which was previously designated as Moderate Nonattainment for the 1-hour Ozone National Ambient Air Quality Standards (NAAQS).

## **BACKGROUND**

On November 6, 1991, the Environmental Protection Agency (EPA) designated the Cincinnati-Hamilton OH-KY-IN, MSA as Moderate nonattainment for the 1-hour Ozone National Ambient Air Quality Standards (NAAQS). This nonattainment area included the Kentucky counties of Boone, Kenton and Campbell. Section 172(a)(2) of the Clean Air Act (CAA) requires each state with areas failing to meet the NAAQS to develop SIPs to expeditiously attain and maintain the standard. For areas that are designated as a moderate, serious, or severe nonattainment for the ozone NAAQS, states are required to submit revisions to the SIP that include a plan for reducing emissions of VOCs by 15 percent from the 1990 Adjusted Base Year Emissions Inventory. States that were moderate nonattainment for the 1-hour Ozone NAAQS were required to attain the ozone NAAQS by 1999.

Kentucky submitted a 15 Percent Plan to EPA on March 21, 1994 however, by the end of the 1994 ozone season, the monitoring data for the entire Cincinnati area indicated attainment of the ozone NAAQS. Subsequently Kentucky submitted a request to redesignate the area to attainment. EPA determined that the 15 Percent Plan was not necessary at that time since the area had attained the standard. Therefore, Kentucky requested that EPA take no further action on the proposed reduction plan. The Cincinnati area monitoring data recorded a violation during the 1995 ozone season which prompted EPA to deny Kentucky's request to redesignate the area to attainment, thereby making the 15 percent plan an applicable requirement for the area.

On September 11, 1998, Kentucky submitted a 15 Percent Plan to EPA for the Northern Kentucky area. The submittal not only established the necessary reductions required to meet the 1999 target level, it also provided control strategies that would be implemented to assure that progress towards the target level would be effective. Stage II requirements were established as one of the provisions used to meet the required 15 percent reduction. Kentucky adopted 401 KAR 59:174, Stage II Controls at Gasoline Dispensing Facilities on January 12, 1998 and the regulations became part of Kentucky's SIP on February 8, 1999 (63 FR 67586). The regulation applies to 140 facilities in Northern Kentucky that have an average monthly throughput of more than 10,000 gallons/month. The vast majority of Northern Kentucky facilities (138/140) are equipped with vacuum assist Stage II VRS controls. The Cincinnati-Hamilton, OH-KY-IN

nonattainment area was redesignated to attainment for the 1-hour ozone standard on July 5, 2000 (65 FR 37879).

## **STAGE II VAPOR RECOVERY RULE AND ORVR CONTROLS**

VOCs are emitted from the refueling of gasoline vehicles and trucks at gasoline dispensing facilities (GDF). When gasoline is pumped into a vehicle, the empty space in the tank has gasoline vapors that are forced out of the tank. With Stage II vapor recovery systems (VRS), instead of being emitted into the air, those vapors are directed into the underground storage tank (UST).

There are two types of Stage II VRS controls. The first is a balance type of Stage II system. A balance system has a rubber boot around the gasoline nozzle spout that fits snugly up to a vehicle's fill pipe. When the gasoline is pumped into the vehicle, an increase in pressure in the vacant space of the vehicle gas tank, combined with a slight decrease in pressure in the UST from emptying fuel, forces the gasoline vapors from the tank, through the fill pipe into the UST. The second is a vacuum assist system that uses a vacuum pump on the vapor return line to help draw the vapors from the vehicle fill pipe into the UST.

ORVR is a vehicle emission control system that captures fuel vapors from the vehicle gas tank during refueling on the vehicle itself. With ORVR, the gas tank and fill pipe are designed so that when refueling the vehicle, fuel vapors in the gas tank travel to an activated carbon packed canister, which adsorbs the vapor. To prevent vapors from escaping through the fill pipe opening, a seal in the fill pipe allows liquid gasoline to enter, but blocks the vapors from escaping. When the engine is in operation, it draws the gasoline vapors into the engine intake manifold to be used as fuel.

ORVR was first required for all passenger cars starting with model year 2000. Since 2006, all light-duty trucks, sports utility vehicles, and medium-duty vehicles are required to be equipped with ORVR.

According to the federal register promulgated on May 16, 2012, "Stage II and ORVR emission control systems are redundant, and the EPA has determined that emission reductions from ORVR are essentially equal to and will soon surpass the emission reductions achieved by Stage II alone" (77 FR 28772). Where ORVR has been demonstrated to be in "widespread use," Stage II is unnecessary and even incompatible. Incompatibility refers to excess emissions resulting from Stage II VRS and ORVR being used together because the two emission controls together result in extra venting of VOCs from the underground storage tank into the ambient air. This can lead to an increase in emissions. Studies, including one conducted by the California Air Resources Board (CARB), further indicate that incompatibility between the vacuum assist version of the Stage II VRS and ORVR degrade the benefit of keeping the Stage II VRS (CARB, June 1999). This incompatibility is especially important in Kentucky, given the high proportion of facilities with vacuum assist versions of the Stage II VRS controls.

## **WIDESPREAD USE**

Section 202(a)(6) of the CAA details that the EPA can revise or waive the Section 182(b)(3) Stage II vapor recovery requirement for applicable ozone nonattainment areas after the Administrator determines widespread use of ORVR has been demonstrated throughout the motor vehicle fleet. EPA has considered demonstration of widespread use of ORVR in motor vehicle fleets to include:

- 1) Determining the percentage of ORVR-equipped vehicles in service, and
- 2) Determining when VOC emissions resulting from the application of ORVR controls alone equal the VOC emissions when both Stage II vapor recovery systems (VRS) and ORVR controls are used.

Stage II VRS control efficiency is assumed by EPA to be 86 percent from the MOVES 2010b default database (77 FR 28772). The percentage of gasoline pumped into vehicles from GDFs with Stage II control is estimated by EPA to be 90 percent as per EPA guidance. By multiplying these two numbers, the expected area-wide control efficiency of Stage II VRS is 77.4 percent.

A policy memorandum published by EPA entitled, “Removal of a Stage II Vapor Recovery in Situations Where Widespread Use of Onboard Refueling Vapor Recovery is Demonstrated,” determined that if at least 95% of the vehicles in a fleet have ORVR, then widespread use will likely have been demonstrated. Because the percentage of vehicles without ORVR is decreasing on a yearly basis and the amount of gasoline pumped to these vehicles is decreasing as well, EPA could predict a date for ORVR widespread use. EPA considered two different approaches. They first looked at the assumed 98 percent control efficiency of ORVR (77 FR 28775 and EPA guidance), and then used the Motor Vehicle Emissions Simulator (MOVES) 2010 motor vehicle emissions model to determine the number of vehicles with ORVR projected out to the year 2020. Overall ORVR efficiency was determined by multiplying the fraction of gasoline dispensed into vehicles with ORVR by the assumed 98 percent average in-use control efficiency. Using this approach, ORVR control efficiency reached the equivalent Stage II VRS control efficiency of 77.4 percent by May 2013 (77 FR 28778). The second approach used observations from the first approach to determine that by the end of the calendar year 2012; more than 75 percent of gasoline will be dispensed into vehicles with ORVR, resulting in an overall ORVR control efficiency close to the Stage II VRS control efficiency and allowing for a phased-in approach to ORVR. Further information on EPA’s approach for determining widespread use can be found in EPA’s determination (77 FR 28772) and its proposal published in the Federal Register on July 15, 2011 (76 FR 41731).

## **CLEAN AIR ACT PROVISIONS**

EPA can only propose approval of a SIP revision seeking to discontinue an existing SIP-approved Stage II control program if the SIP revision meets the following CAA provisions:

- The requirements of 110(l),
- The requirements of CAA, Section 193 for any current nonattainment area that adopted a Stage II control program into its SIP prior to November 15, 1990, and

- The requirements of CAA, Section 184(b)(2) which applies to any area of the northeast ozone transport region (OTR).

Kentucky is not a part of the northeast OTR and, therefore, CAA Section 184(b)(2) does not apply. Additionally, since Kentucky adopted its Stage II Vapor Recovery Program into its SIP on December 9, 1998 (63 FR 67586), CAA, Section 193 also does not apply. Therefore, the remainder of this section includes a detailed description of the requirements of CAA, Section 110(l).

#### 110(l)

Section 110(l) of the CAA, governs EPA's ability to approve all SIP revisions. Specifically, Section 110(l) states:

*Each revision to an implementation plan submitted by a State under this chapter shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in Section 171 of this title), or any other applicable requirement of this chapter.*

This SIP revision uses the analysis provided by EPA's "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures" to demonstrate that removing Stage II vapor recovery controls by amending 401 KAR 59:174 will not interfere with attainment, reasonable further progress or any other requirement of the Clean Air Act.

#### **EMISSIONS CALCULATIONS**

This section summarizes the results of the emissions calculations located in Appendix B. Using methods described in EPA's Guidance Document, this submittal demonstrates that the emission control gain, identified in the guidance as the "increment" (or incremental benefits), of Stage II VRS controls decreases as ORVR controls are phased-in. The calculations provided in Appendix B show that the incremental benefit of keeping Stage II VRS controls as ORVR controls are phased-in is an ever decreasing benefit, which eventually becomes a disbenefit.

Additionally, Section 110(l) of the CAA requires that a SIP revision does not interfere with any applicable requirement concerning attainment, and reasonable further progress (as defined in CAA, Section 171). EPA states in the "Stage II Removal Guidance Document" that there are circumstances under which a planned phase-out of Stage II would result in an area-wide VOC emissions increase, and yet may still be consistent with the conditions of Section 110(l). This occurs when the phase-out of Stage II would result in a small increase in emissions that diminishes rapidly over time as ORVR is phased in, since the increase will not interfere with attainment or progress toward attainment, especially in areas that are NO<sub>x</sub> limited for the formation of ozone. Kentucky regulation 401 KAR 59:174 go into effect starting in 2016. Table 1 below demonstrates that the decommissioning of Stage II VRS at GDF in 2016 will not create an emissions increase. The impact on the area-wide VOC inventory has been calculated and evaluated to show that it is consistent with Section 110 (l).

Table 1 demonstrates the Stage II in-use control efficiency at 67.5%. The table includes the year with the latest available data, 2014, along with each subsequent year projected out to 2020. For 2016, the far right column, “% increase when Stage II removed,” has a negative percentage. This suggests the operation of the Stage II systems would start resulting in a negative impact on emissions for that particular year due to the increased ORVR vehicle fleet population in the area. By keeping the area’s overall Stage II program in operation, it would make the air quality worse. Therefore, the year in which this negative percentage first appears would be the year to start the decommissioning of Stage II systems in northern Kentucky. Further explanation of the terms and calculations can be found in Appendix B.

**Table 1** Incremental benefit of maintaining Stage II VRS in the Northern Kentucky, Cincinnati-Hamilton MSA with ORVR phase-in.

Years	$Q_{SII}$	$Q_{ORVri}$	$\eta_{iuSII}^*$	$Q_{SIIva}$	$CF_i$	$\eta_{ORVR}$	$i$	% Increase when Stage II removed
2014	0.875	0.8293	<b>0.675</b>	0.986	0.0644	0.98	0.0373	<b>3.73%</b>
2015	0.875	0.8650	<b>0.675</b>	0.986	0.0672	0.98	0.0135	<b>1.35%</b>
<b>2016</b>	0.875	0.8860	<b>0.675</b>	0.986	0.0688	0.98	-0.0005	<b>-0.05%</b>
2017	0.875	0.9030	<b>0.675</b>	0.986	0.0702	0.98	-0.0119	<b>-1.19%</b>
2018	0.875	0.9190	<b>0.675</b>	0.986	0.0714	0.98	-0.0225	<b>-2.25%</b>
2019	0.875	0.9320	<b>0.675</b>	0.986	0.0724	0.98	-0.0312	<b>-3.12%</b>
2020	0.875	0.9430	<b>0.675</b>	0.986	0.0733	0.98	-0.0386	<b>-3.86%</b>

\* $\eta_{iuSII} = 67.5\%$  Stage II In-Use Control Efficiency

## DECOMMISSIONING PROVISIONS

Included in the amendment of the regulation is the process of decommissioning the Stage II VRS controls in such a way that it is done in a safe and environmentally appropriate manner. The owner/operator will follow the decommissioning process as amended in 401 KAR 59:174. These decommissioning procedures follow PEI/RP300-09 recommended practices related to capping and sealing vapor recovery underground piping and vapor recovery dispenser piping, and the associated tests in recommended practices.

Facilities can begin decommissioning January 1, 2016. There is no schedule for facility decommissioning, only the requirement that all facilities must have decommissioning completed by December 31, 2018.

401 KAR 59:174 has been amended to include these requirements pertaining to the decommissioning of the Stage II VRS equipment and can be found in Appendix C.

## CONCLUSION

The Energy and Environment Cabinet is requesting the approval of the SIP revision to implement the amended regulation 401 KAR 59:174, decommissioning and removal of requirements for Stage II vapor recovery systems. The SIP demonstrates that the removal of Stage II VRS controls at gasoline dispensing facilities in Northern Kentucky will result in VOC

emission reductions beginning in 2016. This request to remove Kentucky's Stage II VRS controls is based on EPA's August 7, 2012 Guidance Document, "*Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*". Section 202(a)(6) of the CAA gives EPA discretionary authority to revise or waive the Section 182(b)(3) Stage II requirement by rule after the Administrator determines that ORVR is in widespread use throughout the motor vehicle fleet. EPA can propose approval of a SIP revision seeking to discontinue an existing SIP-approved Stage II control program if Kentucky's SIP revision meets the requirements of 110(l). The Division demonstrates in this SIP revision that removal of Stage II controls by amendment of 401 KAR 59:174 in Kentucky's SIP is consistent with Section 110(l) of the Clean Air Act (CAA) and will not interfere with the attainment of the NAAQS, reasonable further progress towards attainment, or any other applicable requirements.

### **PUBLIC PARTICIPATION**

A public hearing is scheduled, in accordance with 40 CFR 51.102, to be held at the Division for Air Quality offices located at 200 Fair Oaks Lane, Frankfort, KY on April 29, 2016. A copy of the public hearing notice can be found in Appendix D.

# **Appendix A**

## **Federal Registers**

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 51**

[EPA-HQ-OAR-2010-1076; FRL-9671-3]

RIN 2060-AQ97

**Air Quality: Widespread Use for Onboard Refueling Vapor Recovery and Stage II Waiver**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** The EPA has determined that onboard refueling vapor recovery (ORVR) technology is in widespread use throughout the motor vehicle fleet for purposes of controlling motor vehicle refueling emissions, and, therefore, by this action, the EPA is waiving the requirement for states to implement Stage II gasoline vapor recovery systems at gasoline dispensing facilities in nonattainment areas classified as Serious and above for the ozone national ambient air quality standards (NAAQS). This finding will be effective as noted below in the **DATES** section. After the effective date of this notice, a state previously required to implement a Stage II program may take appropriate action to remove the program from its State Implementation Plan (SIP). Phasing out the use of Stage II systems may lead to long-term cost savings for gas station owners and operators while air quality protections are maintained. **DATES:** This rule is effective on May 16, 2012.

**ADDRESSES:** The EPA has established a docket for this rule, identified by Docket ID No. EPA-HQ-OAR-2010-1076. All documents in the docket are listed in [www.regulations.gov](http://www.regulations.gov). Although listed in the index, some information is not publicly available, *i.e.*, confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in [www.regulations.gov](http://www.regulations.gov) or in hard copy at the Air and Radiation Docket and Information Center, EPA Headquarters Library, Room Number 3334 in the EPA West Building, located at 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744.

**FOR FURTHER INFORMATION CONTACT:** Mr. Lynn Dail, Office of Air Quality Planning and Standards, Air Quality Policy Division, Mail code C539-01, Research Triangle Park, NC 27711, telephone (919) 541-2363; fax number: 919-541-0824; email address: [dail.lynn@epa.gov](mailto:dail.lynn@epa.gov).

**SUPPLEMENTARY INFORMATION:**

**I. Purpose of Regulatory Action**

Since 1990, Stage II gasoline vapor recovery systems have been a required emissions control measure in Serious, Severe, and Extreme ozone nonattainment areas. Beginning with model year 1998, ORVR equipment has been phased in for new vehicles, and has been a required control on nearly all new highway vehicles since 2006. Over time, non-ORVR vehicles will continue to be replaced with ORVR vehicles. Stage II and ORVR emission control systems are redundant, and the EPA has determined that emission reductions from ORVR are essentially equal to and will soon surpass the emission reductions achieved by Stage II alone. In this action, the EPA is eliminating the largely redundant Stage II requirement in order to ensure that refueling vapor control regulations are beneficial without being unnecessarily burdensome to American business. This action allows, but does not require, states to discontinue Stage II vapor recovery programs.

**II. Summary of the Major Provisions of This Final Rule**

Clean Air Act (CAA) section 202(a)(6) provides discretionary authority to the EPA Administrator to, by rule, revise or waive the section 182(b)(3) Stage II requirement for Serious, Severe and Extreme ozone nonattainment areas after the Administrator determines that ORVR is in widespread use throughout the motor vehicle fleet. Based on criteria that the EPA proposed last year (76 FR 41731, July 15, 2011), the EPA is determining that ORVR is in widespread use. As of the effective date of today's action, states that are implementing mandatory Stage II programs under section 182(b)(3) of the CAA may submit revisions to their SIPs to remove this program.

The EPA will also be issuing non-binding guidance on developing and submitting approvable SIP revisions.<sup>1</sup>

<sup>1</sup> "Phasing Out Stage II Gasoline Refueling Vapor Recovery Programs: Guidance on Satisfying Requirements of Clean Air Act Sections 110(c), 193, and 184(b)(2) (tentative title)." U.S. EPA Office of Air and Radiation, forthcoming. This guidance will provide the EPA's recommendations for states to consider when developing SIP revisions following today's rulemaking. Unlike the final rule, the

This guidance will address SIP requirements for states in the Ozone Transport Region (OTR), which are separately required under section 184(b)(2) of the CAA to adopt and implement control measures capable of achieving emissions reductions comparable to those achievable by Stage II. The EPA is updating its guidance for estimating what Stage II comparable emissions reductions could be, in light of the ORVR widespread use determination. The EPA now expects Stage II comparable emissions reductions to be substantially less than what was estimated in the past before ORVR use became widespread. Therefore, the EPA encourages states to consult the updated guidance before submitting a SIP revision removing Stage II controls.

**III. Costs and Benefits**

The primary purpose of this final rule is to promulgate a determination that ORVR is in widespread use as permitted in section 202(a)(6) of the CAA. In this final rule, EPA is exercising the authority provided by section 202(a)(6) of the CAA to, by rule, revise or waive the section 182(b)(3) Stage II requirement for Serious, Severe, and Extreme ozone nonattainment areas after the Administrator determines that ORVR is in widespread use throughout the motor vehicle fleet. This in turn gives states that were required to implement Stage II vapor recovery under section 182(b)(3) of the CAA the option to submit for the EPA's review and approval revised ozone SIPs that will remove this requirement. The EPA projects that during 2013-2015, gasoline-dispensing facilities (GDFs) in up to 19 states and the District of Columbia could seek to decommission and remove Stage II systems from their dispensers. There are about 30,600 GDFs with Stage II in these 20 areas. If the states submit and EPA approves SIP revisions to remove Stage II systems from these GDFs, the EPA projects savings of about \$10.2 million in the first year, \$40.5 million in the second year, and \$70.9 million in the third year. Long-term savings are projected to be about \$91 million per year, compared to the current use of Stage II systems in these areas. No significant emission

guidance is not final agency action, and is not binding on or enforceable against any person. Consequently, it is subject to possible revision without additional rulemaking. In addition, the approaches suggested in the guidance (or in any changes thereto) will not represent final agency action unless and until the EPA takes a final SIP approval or disapproval action implementing those approaches.

increases or decreases are expected from this action.

#### IV. General Information

##### A. Does this action apply to me?

Entities directly affected by this action include states (typically state air pollution control agencies) and, in some cases, local governments that develop air pollution control rules that apply to areas classified as Serious and above for nonattainment of the ozone NAAQS. Individuals and companies that operate gasoline dispensing facilities may be indirectly affected by virtue of state action in SIPs that implement provisions resulting from final rulemaking on this action; many of these sources are in the following groups:

Industry group	SIC <sup>a</sup>	NAICS <sup>b</sup>
Gasoline stations	5541	447110, 447190

<sup>a</sup> Standard Industrial Classification.

<sup>b</sup> North American Industry Classification System.

##### B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this notice will be posted at <http://www.epa.gov/air/ozonepollution/actions.html#impl> under "recent actions."

##### C. How is this notice organized?

The information presented in this preamble is organized as follows.

- I. Purpose of Regulatory Action
- II. Summary of the Major Provisions of This Final Rule
- III. Costs and Benefits
- IV. General Information
  - A. Does this action apply to me?
  - B. Where can I get a copy of this document and other related information?
  - C. How is this notice organized?
- V. Background
  - A. What requirements for Stage II gasoline vapor recovery apply for ozone nonattainment areas?
  - B. Stage II Vapor Recovery Systems
  - C. Onboard Refueling Vapor Recovery (ORVR) Systems
  - D. Compatibility Between Some Vapor Recovery Systems
  - E. Proposed Rule to Determine Widespread Use of ORVR
- VI. This Action
  - A. Analytical Rationale for Final Rule
  - B. Updated Analysis of Widespread Use
  - C. Widespread Use Date
  - D. Implementation of the Rule Provisions
  - E. Implementation of Rule Revisions in the Ozone Transport Region
  - F. Comments on Other Waiver Implementation Issues
- VII. Estimated Cost
- VIII. Statutory and Executive Order Reviews

- A. Executive Orders 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review
- B. Paperwork Reduction Act
- C. Regulatory Flexibility Act
- D. Unfunded Mandates Reform Act
- E. Executive Order 13132: Federalism
- F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments
- G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks
- H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use
- I. National Technology Transfer and Advancement Act
- J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations
- K. Congressional Review Act
- IX. Statutory Authority

#### V. Background

##### A. What requirements for Stage II gasoline vapor recovery apply in ozone nonattainment areas?

The requirements in the 1990 CAA Amendments regarding Stage II vapor recovery are contained in Title I: Provisions for Attainment and Maintenance of National Ambient Air Quality Standards. Under CAA section 182(b)(3), Stage II gasoline vapor recovery systems are required to be used at higher throughput GDFs located in Serious, Severe, and Extreme nonattainment areas for ozone.<sup>2</sup> States were required to adopt a Stage II program into their SIPs, and the controls were to be installed according to specified deadlines following state rule adoption.<sup>3</sup> Since the early 1990s, Stage 2 gasoline vapor controls have provided

<sup>2</sup> Originally, the section 182(b)(3) Stage II requirement also applied in all Moderate ozone nonattainment areas. However, under section 202(a)(6) of the CAA, 42 U.S.C. 7521(a)(6), the requirements of section 182(b)(3) no longer apply in Moderate ozone nonattainment areas after the EPA promulgated ORVR standards on April 6, 1994, 59 FR 16262, codified at 40 CFR parts 86 (including 86.098–8), 88 and 600. Under implementation rules issued in 2002 for the 1997 8-hour ozone standard, the EPA retained the Stage II-related requirements under section 182(b)(3) as they applied for the now-revoked 1-hour ozone standard. 40 CFR 51.900(f)(5) and 40 CFR 51.916(a).

<sup>3</sup> This requirement only applies to facilities that sell more than a specified number of gallons per month and is set forth in sections 182(b)(3)(A)–(C) and 324(a)–(c). Section 182(b)(3)(B) has the following effective date requirements for implementation of Stage II after the adoption date by a state of a Stage II rule: 6 months after adoption of the state rule, for GDFs built after the enactment date (which for newly designated areas would be the designation date); 1 year after adoption date, for gas stations pumping at least 100,000 gal/month based on average monthly sales over 2-year period before adoption date; 2 years after adoption, for all others.

substantial emissions reductions and have contributed to improved air quality over time.

##### B. Stage II Vapor Recovery Systems

When a gasoline-powered automobile or other vehicle is brought into a GDF to be refueled, the empty portion of the fuel tank on the vehicle contains gasoline vapors. When liquid gasoline is pumped into the partially empty gas tank, gasoline vapors are forced out of the tank and fill pipe as the tank fills with liquid gasoline. Where air pollution control technology is not used, these vapors are emitted into the ambient air. In the atmosphere, these vapors can react with sunlight, nitrogen oxides and other volatile organic compounds to form ozone.

There are two basic technical approaches to Stage II vapor recovery: A "balance" system, and a vacuum assist system. A balance type Stage II control system has a rubber boot around the gasoline nozzle spout that fits snugly up to a vehicle's gasoline fill pipe during refueling of the vehicle. With a balance system, when gasoline in the underground storage tank (UST) is pumped into a vehicle, a positive pressure differential is created between the vehicle tank and the UST. This pressure differential draws the gasoline vapors from the vehicle fill pipe through the rubber boot and the concentric hoses and underground piping into the UST. This is known as a balance system because gasoline vapors from the vehicle tank flow into the UST tank to balance pressures. About 30 percent of Stage II GDFs nationwide use the balance type Stage II system.

The vacuum assist system is the other primary type of Stage II system currently in operation. This type of Stage II system uses a vacuum pump on the vapor return line to help draw vapors from the vehicle fill pipe into the UST. An advantage of this type of system is that the rubber boot around the nozzle can be smaller and lighter (or not used at all) and still draw the vapors into the vapor return hose. This makes for an easier-to-handle nozzle, which is popular with customers. About 70 percent of Stage II GDFs nationwide use the vacuum assist approach.

New Stage II equipment is normally required to achieve 95 percent control effectiveness at certification. However, studies have shown that in-use control efficiency depends on the proper installation, operation, and maintenance of the control equipment at the GDF.<sup>4</sup>

<sup>4</sup> The Petroleum Equipment Institute has published recommended installation practices (PEI/Continued

Damaged, missing, or improperly operating components or systems can significantly degrade the control effectiveness of a Stage II system.

In-use effectiveness ultimately depends on the consistency of inspections, follow-up review by state agencies, and actions by operators to perform inspections and field tests and conduct maintenance in a correct and timely manner. The EPA's early guidance for Stage II discussed expected training, inspection, and testing criteria, and most states have adopted and supplemented these criteria as deemed necessary for balance and vacuum assist systems.<sup>5</sup> In some cases, states have strictly followed the EPA guidance but other states have required a lesser level of inspection and enforcement efforts. Past EPA studies have estimated Stage II in-use efficiencies of 92 percent with semi-annual inspections, 86 percent with annual inspections and 62 percent with minimal or less frequent state inspections.<sup>6</sup> The in-use effectiveness of Stage II control systems may vary from state to state, and may vary over time within any state or nonattainment area because the in-use efficiency of Stage II vapor recovery systems depends heavily on the ongoing maintenance and oversight by GDF owners/operators and the state/local agencies.

#### C. Onboard Refueling Vapor Recovery (ORVR) Systems

In addition to Stage II controls, the 1990 CAA Amendments required another method of controlling emissions from dispensing gasoline. Section 202(a)(6) of the CAA requires an onboard system of capturing vehicle-refueling emissions, commonly referred to as an ORVR system.<sup>7</sup> ORVR consists of an activated carbon canister installed on the vehicle into which vapors are routed from the vehicle fuel tank during refueling. There the vapors are captured by the activated carbon in the canister. To prevent the vapors from escaping through the fill pipe opening, the vehicle employs a seal in the fill pipe which allows liquid gasoline to enter but blocks vapor escape. In most cases,

RP300-93) and most states require inspection, testing, and evaluation before a system is commissioned for use.

<sup>5</sup> "Enforcement Guidance for Stage II Vehicle Refueling Control Programs," U.S. EPA, Office of Air and Radiation, Office of Mobile Sources, December 1991.

<sup>6</sup> "Technical Guidance—Stage II Vapor Recovery Systems for Control of Vehicle Refueling at Gasoline Dispensing Facilities Volume I: Chapters," EPA-450/3-91-022a, November 1991. This study is a composite of multiple studies.

<sup>7</sup> Unlike Stage II, which is a requirement only in ozone nonattainment areas, ORVR requirements apply to vehicles everywhere. More detail on ORVR is available at <http://www.epa.gov/otaq/orvr.htm>.

these are "liquid seals" created by the incoming liquid gasoline slightly backing near the bottom of the fill pipe. When the engine is started, the vapors are purged from the activated carbon and into the engine where they are burned as fuel.

The EPA promulgated ORVR standards on April 6, 1994 (59 FR 16262). Section 202(a)(6) of the CAA required that the EPA's ORVR standards apply to light-duty vehicles manufactured beginning in the fourth model year after the model year in which the standards were promulgated, and that ORVR systems provide a minimum evaporative emission capture efficiency of 95 percent.

Automobile manufacturers began installing ORVR on new passenger cars in 1998 when 40 percent of new cars were required to have ORVR. The regulation required the percentage of new cars with ORVR increase to 80 percent in 1999 and 100 percent in 2000. The regulation also required that ORVR for light duty trucks and vans (<6000 pounds (lbs) gross vehicle weight rating (GVWR)) was to be phased-in during 2001 with 40 percent of such new vehicles required to have ORVR in 2001, 80 percent in 2002 and 100 percent in 2003. New heavier light-duty trucks (6001–8500 lbs GVWR) were required to have 40 percent with ORVR by 2004, 80 percent by 2005 and 100 percent by 2006. New trucks up to 10,000 lbs GVWR manufactured as a complete chassis were all required to have ORVR by 2006.<sup>8</sup> Complete vehicle chassis for heavy-duty gasoline vehicles between 10,001 and 14,000 lbs GVWR (Class 3) are very similar to those between 8,501 and 10,000 lbs GVWR. For model consistency purposes, manufacturers began installing ORVR on Class 3 complete chassis in 2006 as well. So, after 2006, essentially all new gasoline-powered vehicles less than 14,000 lbs GVWR are ORVR-equipped.

ORVR does not apply to all vehicles, but those not covered by the ORVR requirement comprise a small percentage of the gasoline-powered highway vehicle fleet (approximately 1.5 percent of gasoline consumption). The EPA estimates that by the end of 2012, more than 71 percent of vehicles currently on the road will have ORVR.<sup>9</sup> This percentage will increase over time as older cars and trucks are replaced by

<sup>8</sup> The EPA promulgated ORVR standards for light duty vehicles and trucks on April 6, 1994, 59 FR 16262, codified at 40CFR parts 86 (including 86.098–8), 88 and 600.

<sup>9</sup> See EPA Memorandum "Onboard Refueling Vapor Recovery Widespread Use Assessment." A copy of this memorandum is located in the docket for this action EPA-HQ-OAR-2010-1076.

new models. However, under the current regulatory construct, motorcycles and heavy-duty gasoline vehicles not manufactured as a complete chassis are not required to install ORVR, so it is likely that there will be some very small percentage of gasoline refueling emissions not captured by ORVR controls.

Even prior to the EPA's adoption of ORVR requirements, in 1993 EPA adopted Onboard Diagnostic (OBD) System requirements for passenger cars and light trucks, and eventually did so for heavy-duty gasoline vehicles up to 14,000 lbs GVWR.<sup>10</sup> These systems are designed to monitor the in-use performance of various vehicle emission control systems and components, including protocols for finding problems in the purge systems and large and small vapor leaks in ORVR/evaporative emission controls.<sup>11</sup> OBD II systems were phased in for these vehicle classes over the period from 1994–1996 for lighter vehicles and 2005–2007 for heavy-duty gasoline vehicles, so, during the same time frame that manufacturers were implementing ORVR into their vehicles, they already had implemented or were implementing OBD II systems.

In 2000, the EPA published a report addressing the effectiveness of OBD II control systems.<sup>12</sup> This study concluded that enhanced evaporative and ORVR emission control systems are durable and low emitting relative to the FTP (Federal Test Procedure) enhanced evaporative emission standards, and that OBD II evaporative emissions checks are a suitable replacement for functional evaporative emission tests in state inspection and maintenance (I/M) programs. OBD system codes are interrogated and evaluated in a 30-vehicle emission I/M program. A recent EPA review of OBD data gathered from I/M programs from five states<sup>13</sup> indicated relatively few vehicles had any evaporative system-related OBD codes that would indicate a potential

<sup>10</sup> See *Federal Register* at 58 FR 9468 published February 19, 1993, and subsequent amendments and the latest OBD regulations at 40 CFR part 86.1806–05 for program requirements in various years.

<sup>11</sup> ORVR systems are basically a subset of evaporative emission systems because they share the same vapor lines, purge valves, purge lines, and activated carbon canister.

<sup>12</sup> "Effectiveness of OBD II Evaporative Emission Monitors—30 Vehicle Study," EPA 420-R-00-018, October 2000.

<sup>13</sup> See EPA Memorandum, "Review of Frequency of Evaporative System Related OBD Codes for Five State I/M Programs." A copy of this memorandum is located in the docket for this action EPA-HQ-OAR-2010-1076.

problem with the vapor management system.

Based on emissions tests of over 1,100 in-use ORVR-equipped vehicles, EPA concluded that the average in-use efficiency of ORVR is 98 percent. The legal requirement for ORVR is 95 percent efficiency. Thus, the actual reported control achieved in practice is greater than the statutorily required level of control.

#### *D. Compatibility Between Some Vapor Recovery Systems*

Even though the per-vehicle vapor recovery efficiency of ORVR exceeds that of Stage II, Stage II vapor recovery systems have provided valuable reductions in ozone precursors and air toxics as ORVR has been phased into the motor vehicle fleet. In fact, overall refueling emissions from vehicle fuel tanks are minimized by having both ORVR and Stage II in place, but the incremental gain from retaining Stage II decreases relatively quickly as ORVR penetration surpasses 75 percent of dispensed gasoline. Please see Table 2 below. This occurs not only because of a decreasing amount of gasoline being dispensed to non-ORVR equipped vehicles, but also because differences in operational design characteristics between ORVR and vacuum assist Stage II systems may in some cases cause a reduction in the overall control system efficiency compared to what could have been achieved relative to the individual control efficiencies of either ORVR or Stage II emissions from the vehicle fuel tank. The problem arises because the ORVR canister captures the gasoline vapor emissions from the motor vehicle fuel tank rather than the vapors being drawn off by the vacuum assist Stage II system. This occurs because the fill pipe seal blocks the vapor from reaching the Stage II nozzle. Thus, instead of drawing vapor-laden air from the vehicle fuel tank into the underground storage tank (UST), the vacuum pump of the Stage II system draws mostly fresh air into the UST. This fresh air causes gasoline in the UST to evaporate inside the UST and creates an internal increase in UST pressure. As the proportion of ORVR vehicles increases, the amount of fresh air, void of gasoline vapors, pumped into the UST also increases. Even with pressure/vacuum valves in place this eventually leads to gasoline vapors being forced out of the UST vent pipe

into the ambient air. These new UST vent-stack emissions detract from the overall recovery efficiency at the GDF. As discussed in the proposed rule, the level of these UST vent stack emissions varies based on several factors but can result in a net 1 to 10 percent decrease in overall control efficiency of vehicle fuel tank emissions at any given GDF.<sup>14</sup> The decrease in efficiency varies depending on the vacuum assist technology design (including the use of a mini-boot for the nozzle and the ratio of volume of air drawn into the UST compared to the volume of gasoline dispensed (A/L) ratio), the gasoline Reid vapor pressure, the air and gasoline temperatures, and the fraction of throughput dispensed to ORVR vehicles. There are various technologies that address these UST vent-stack emissions and can extend the utility of Stage II to further minimize the overall control of gasoline vapor emissions at the GDF. These technologies include nozzles that sense when fresh air is being drawn into the UST and stop or reduce the air flow. These ORVR-compatible nozzles are now required in California and Texas. Another solution is the addition of processors on the UST vent pipe that capture or destroy the gasoline vapor emissions from the vent pipe. A number of these systems were presented in comments on the proposed rule. While they may have merit, installing these technologies adds to the expense of the control systems.

#### *E. Proposed Rule To Determine Widespread Use of ORVR*

Section 202(a)(6) of the CAA provides discretionary authority to the EPA Administrator to, by rule, revise or waive the section 182(b)(3) Stage II

<sup>14</sup> See EPA Memorandum "Onboard Refueling Vapor Recovery Widespread Use Assessment." A copy of this memorandum is located in the docket for this action EPA-HQ-OAR-2010-1076. The level of these UST vent stack emissions varies based on several factors; EPA estimates a 5.4 to 6.4 percentage point decrease in Stage II control efficiency in the 2011–2015 time frame at GDFs employing non-ORVR compatible vacuum assist Stage II nozzles. The decrease in efficiency varies depending on the vacuum assist technology design (including the use of a mini-boot for the nozzle and the ratio of volume of air drawn into the UST compared to the volume of gasoline dispensed (A/L) ratio), the gasoline Reid vapor pressure, the air and gasoline temperatures, and the fraction of throughput dispensed to ORVR vehicles. The values will increase over time as the fraction of total gasoline dispensed to ORVR vehicles at Stage II GDFs increases.

requirement for Serious, Severe, and Extreme ozone nonattainment areas after the Administrator determines that ORVR is in widespread use throughout the motor vehicle fleet. The percentage of non-ORVR vehicles and the percentage of gasoline dispensed to those vehicles grow smaller each year as these older vehicles wear out and are replaced by new ORVR-equipped models. Given the predictable nature of this trend, the EPA proposed a date for ORVR widespread use.

In the Notice of Proposed Rulemaking (NPRM) (76 FR 41731, July 15, 2011), the EPA proposed that ORVR widespread use will occur at the midpoint in the 2013 calendar year, relying upon certain criteria outlined in the proposed rule. This date was also proposed as the effective date for the waiver of the CAA section 182(b)(3) Stage II requirements for Serious, Severe and Extreme ozone nonattainment areas.

The EPA used two basic approaches in determining when ORVR would be in widespread use in the motor vehicle fleet. Both approaches focused on the penetration of ORVR-equipped vehicles in the gasoline-powered highway motor vehicle fleet. The first proposed approach focused on the volume of gasoline that is dispensed into vehicles equipped with ORVR, and compared the emissions reductions achieved by ORVR alone to the reductions that can be achieved by Stage II controls alone. The second approach focused on the fraction of highway motor gasoline dispensed to ORVR-equipped vehicles.

In the proposal, the EPA included Table 1 (republished below). This work was based on outputs from EPA's MOVES 2010 motor vehicle emissions model, which showed information related to the penetration of ORVR in the national motor vehicle fleet projected to 2020. These model outputs have been updated for the final rule to be consistent with the latest public release of the model (MOVES 2010a) since that is the version of the model states would use in any future inventory assessment work related to refueling emissions control. Overall, ORVR efficiency was shown in column 5 of Table 1 and was determined by multiplying the fraction of gasoline dispensed into ORVR-equipped vehicles by ORVR's 98 percent in-use control efficiency.

TABLE 1—PROJECTED PENETRATION OF ORVR IN THE NATIONAL VEHICLE FLEET BY YEAR—BASED ON MOVES 2010

Calendar year	Vehicle population percentage	VTM Percentage	Gasoline dispensed percentage	ORVR Efficiency percentage
1	2	3	4	5
2006	39.5	48.7	46.2	45.3
2007	45.3	54.9	52.5	51.5
2008	50.1	60.0	57.6	56.4
2009	54.3	64.5	62.1	60.9
2010	59.0	69.3	66.9	65.6
2011	63.6	73.9	71.5	70.1
2012	67.9	78.0	75.6	74.1
2013	71.7	81.6	79.3	77.7
2014	75.2	84.6	82.6	80.9
2015	78.4	87.2	85.3	83.6
2016	81.2	89.4	87.7	85.9
2017	83.6	91.2	89.7	87.9
2018	85.6	92.7	91.3	89.5
2019	87.5	93.9	92.7	90.8
2020	89.0	94.9	93.9	92.0

See EPA Memorandum "Onboard Refueling Vapor Recovery Widespread Use Assessment" in the docket (number EPA-HQ-OAR-2010-1076) addressing details on issues related to values in this table.

**Note:** In this table, the columns have the following meaning.

1. Calendar year that corresponds to the percentages in the row associated with the year.
2. Percentage of the gasoline-powered highway vehicle fleet that have ORVR.
3. Percentage of vehicle miles traveled (VTM) by vehicles equipped with ORVR.
4. Amount of gasoline dispensed into ORVR-equipped vehicles as a percentage of all gasoline dispensed to highway motor vehicles.
5. Percentage from the same row in column 4 multiplied by 0.98.

In the proposal, the EPA estimated that ORVR would need to achieve in-use emission reductions of about 77.4 percent to be equivalent to the amount of control Stage II alone would achieve. This estimate was based on the in-use control efficiency of Stage II systems and exemptions for Stage II for lower throughput GDFs. In the NPRM, the EPA assumed that in areas where basic Stage II systems are used the control efficiency of Stage II gasoline vapor control systems is 86 percent. The use of this value depends on the assumption that daily and annual inspections, periodic testing, and appropriate maintenance are conducted in a correct and timely manner. In addressing comments, we have stated that this efficiency could be nearer to 60% if inspections testing and maintenance are not conducted and there is minimal enforcement.<sup>15</sup>

In the NPRM, the EPA estimated that the percentage of gasoline dispensed in an area that is covered by Stage II controls is 90 percent. Multiplying the estimated efficiency of Stage II systems (86 percent) by the estimated fraction of gasoline dispensed in nonattainment areas from Stage II-equipped gasoline pumps yielded an estimate of the area-wide control efficiency of Stage II

programs of 77.4 percent ( $0.90 \times 0.86 = 0.774$  or 77.4 percent) for emissions displaced from vehicle fuel tanks.<sup>16 17</sup> Table 1 indicated this level of ORVR control efficiency is expected to be achieved during calendar year 2013.

In the second approach for estimating when ORVR is in widespread use, we also observed from Table 1 that by the end of calendar year 2012 more than 75 percent of gasoline will be dispensed into ORVR-equipped vehicles. As discussed in the NPRM, the EPA believed that this percentage of ORVR coverage ( $\geq 75$  percent) is substantial enough to inherently be viewed as "widespread" under any ordinary

<sup>16</sup> See section 4.4.3 (especially Figure 4-14 and Table 4-4) in "Technical Guidance—Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities, Volume I: Chapters," EPA-450/3-91-022a, November 1991. A copy of this document is located in the docket for this action EPA-HQ-OAR-2010-1076. This is based on annual enforcement inspections and on allowable exemptions of 10,000/50,000 gallons per month as described in section 324(a) of the CAA. The EPA recognizes that these two values vary by state and that in some cases actual in-use efficiencies, prescribed exemption levels, or both may be either higher or lower.

<sup>17</sup> AP-42, The EPA's emission factors document, identifies three sources of refueling emissions: Displacement, spillage, and breathing losses. In the EPA Memorandum "Onboard Refueling Vapor Recovery Widespread Use Assessment" (available in the public docket), the EPA determined that for separate Stage II and ORVR refueling events, spillage and breathing loss emission rates are similar. Thus, this analysis focuses on differences in controlled displacement emissions. Compatibility effects related to ORVR and Stage II vacuum assist systems are addressed separately.

understanding of that term.

Furthermore, in Table 1, the percentage of VMT by ORVR-equipped vehicles (column 3) and the amount of gasoline dispensed into ORVR-equipped vehicles (column 4) reached or exceeded 75 percent between the end of year 2011 and end of 2012. The EPA believed this provided further support for establishing a widespread use date after the end of calendar year 2012. Based on the dates derived from these two basic approaches, the EPA proposed to determine that ORVR will be in widespread use by June 30, 2013, or the midpoint of calendar year 2013.

## VI. This Action

### A. Analytical Rationale for Final Rule

Section 202(a)(6) of the CAA provides discretionary authority to the EPA Administrator to, by rule, revise or waive the section 182(b)(3) Stage II requirement after the Administrator determines that ORVR is in widespread use throughout the motor vehicle fleet. As discussed in the NPRM, the EPA has broad discretion in how it defines widespread use and the manner in which any final determination is implemented. In our review of the public comments received on the proposal, no commenter indicated that a widespread use determination was inappropriate or took issue with the EPA's two-pronged analytical approach. We have integrated responses to many comments throughout the preamble to

<sup>15</sup> See, "Determination of Widespread Use of Onboard Refueling Vapor Recovery (ORVR) and Waiver of Stage II Vapor Recovery Requirements: Summary of Public Comments and Responses," March 2012. Document contained in docket EPA-HQ-OAR-2010-1076.

this final rule. A more detailed set of responses is in a document titled, "Determination of Widespread Use of Onboard Refueling Vapor Recovery (ORVR) and Waiver of Stage II Vapor Recovery, Summary of Public Comments and Responses" that can be found in the docket, EPA-HQ-OAR-2010-1076.

The analytical approaches used by the EPA to determine the widespread use date are influenced by several key input parameters that affect the estimates of the emission reduction benefits of Stage II alone versus the benefits of ORVR alone and the phase-in of ORVR-equipped vehicles. We received several comments on the assumptions and parameters used by the EPA in the NPRM, and in some cases we have updated the information used in calculations that support the final rule, as discussed in the following paragraphs.

#### 1. ORVR Parameters

- *ORVR efficiency.* The EPA used an in-use control efficiency of ORVR of 98 percent in the proposal. This was based on the testing of 1,160 vehicles drawn from the field. EPA has updated its analysis to include an additional 478 refueling emission test results for ORVR-equipped vehicles that were conducted in calendar years 2010 and 2011. The data set, which now includes over 1,600 vehicle tests for vehicles from model years 2000–2010 with mileages ranging from 10,000 to over 100,000, continues to support the conclusion that the 98 percent in-use efficiency values remain appropriate.<sup>18</sup>

- *Modeling program inputs.* The NPRM relied on EPA's MOVES 2010 model for estimating ORVR vehicle fleet penetration, VMT by ORVR vehicles, and gallons of gasoline dispensed to ORVR vehicles. Since the development of the NPRM, the EPA has publicly released MOVES 2010a. The updated model incorporates many improvements. Those relevant here include updates in ORVR vehicle sales, sales projections, scrappage, fleet mix, annual VMT, and fuel efficiency. The EPA believes that the modeling undertaken to determine the widespread use date for the final rule should employ the EPA's latest MOVES modeling program because it contains updated information that bears on the subject of this rulemaking, and because the EPA expects states to also use it in any state-specific demonstrations

<sup>18</sup> See the EPA memorandum "Updated ORVR In-Use Efficiency." A copy of this memorandum is located in the docket for this action EPA-HQ-OAR-2010-1076.

supporting future SIP revisions, including revisions that seek to remove Stage II programs.

#### 2. Stage II Parameters

- *Stage II efficiency.* The EPA used an in-use control efficiency of 86 percent for Stage II in the proposal. As discussed above, Stage II control efficiency depends on inspection, testing, and maintenance by GDF owner/operators, and inspection and enforcement by state/local agencies. Typical values range from 62 percent to 86 percent. The public comments referred the EPA to additional reported information directly related to in-use effectiveness of Stage II vapor recovery.<sup>19</sup> The reports indicate that for balance and vacuum-assist type Stage II systems in use in many states today, the in-use effectiveness of Stage II is typically near 70 percent. Nonetheless, the EPA has elected to retain the use of an 86 percent efficiency value in the analyses supporting the final rule. This is because many state programs have included the maintenance and inspection provisions recommended by EPA to achieve this level of efficiency in their initial SIPs that originally incorporated Stage II controls.<sup>20</sup> Current in-use efficiency values may well be lower based on the performance of the Stage II technology itself or for other reasons related to maintenance and enforcement. We are not rejecting the additional information from commenters or the possibility that Stage II efficiency may be lower in some states or nonattainment areas. However, the EPA believes these issues are best examined in the SIP review process. If real in-use efficiency across all existing Stage II programs is, in fact, lower than 86 percent, the EPA's final analysis overestimates the length of time required for emissions reductions from ORVR alone to eclipse the reductions that can be achieved by Stage II alone.

- *Stage II exemption rate.* In sections 182(b)(3) and 324 of the CAA, Congress permitted exemptions from Stage II controls for GDFs of less than 10,000 gallons/month (privates) and 50,000 gallons/month (independent small

<sup>19</sup> See "Draft Vapor Recovery Test Report," April 1999 by CARB and CAPCOA (now cleared for public use), and "Performance of Balance Vapor Recovery Systems at Gasoline Dispensing Facilities", prepared by the San Diego Air Pollution Control District, May 18, 2000. Both reports are available in the public docket.

<sup>20</sup> The EPA report, "Enforcement Guidance for Stage II Vehicle Refueling Control Programs," U.S. EPA, Office of Air and Radiation, Office of Mobile Sources, December 1991, provides basic EPA guidance on what a state SIP and accompanying regulations should include to achieve high efficiency.

business marketers). The EPA analysis indicated that these GDF throughput values exempted about 10 percent of annual throughput in any given area. Some states included more strict exemption rates, most commonly 10,000 gallons per month (3 percent of throughput) for both privates and independent small business marketers. A few other states' exemption provisions used values that fell within or outside this range.<sup>21</sup> Of the 21 states and the District of Columbia with areas classified as Serious, Severe, or Extreme for ozone and/or within the Ozone Transport Region, the plurality incorporated exemption provisions in their state regulations, which exempted about 10 percent of throughput.<sup>22</sup> Therefore, we believe it remains reasonable to use that value within this analysis.

- *Compatibility factor for vacuum assist Stage II systems.* The EPA discussed the compatibility factor at length in the NPRM and provided relevant materials in the docket. Several commenters asked that the EPA provide guidance on how the compatibility factor should be incorporated into any similar analysis conducted by a state for purposes of future SIP revisions involving Stage II programs. The magnitude of the compatibility factor for any given area varies depending on ORVR penetration, fraction of vacuum assist nozzles relative to balance nozzles, and excess A/L for vacuum assist nozzles. Two states have adopted measures to reduce this effect through the use of ORVR-compatible nozzles and one state prohibits vacuum assist nozzles completely. Due to these significant variables, the EPA is electing not to include the compatibility factor in the widespread use date determination analysis, but will provide the guidance requested by the commenters for use in making future SIP revisions. To the extent that compatibility emissions across all existing Stage II programs as a whole are significant, the EPA's final analysis overestimates the length of time required for emissions reductions from ORVR alone to eclipse the reductions that can be achieved by Stage II alone.

#### B. Updated Analysis of Widespread Use

As discussed previously, the EPA has used two approaches for determining

<sup>21</sup> There are a few states that limit Stage II exemptions to only GDFs with less than 10,000 gpm throughput, which would exempt about three to five percent of area-wide throughput.

<sup>22</sup> See the EPA memorandum "Summary of Stage II Exemption Program Values." A copy of this memorandum is located in the docket for this action in EPA-HQ-OAR-2010-1076.

when ORVR is in widespread use on a nationwide basis. After reviewing our methodology and reviewing the related comments on the NPRM, we are retaining three of the four basic

analytical input parameters and updating one. The in-use ORVR efficiency, the in-use Stage II efficiency, and the Stage II exemption rate parameters are the same as in the

NPRM. However, we have updated the modeling program inputs as discussed previously, and the results are reflected in Table 2.

TABLE 2—PROJECTED PENETRATION OF ORVR IN THE NATIONAL VEHICLE FLEET BY YEAR—BASED ON MOVES 2010(a)

End of calendar year	Vehicle population percentage	VMT Percentage	Gasoline dispensed percentage	ORVR Efficiency percentage
1	2	3	4	5
2006	42.6	51.2	49.2	48.2
2007	48.4	57.3	55.5	54.4
2008	53.3	62.3	60.5	59.2
2009	57.7	66.8	64.8	63.5
2010	62.4	71.6	69.5	68.1
2011	67.1	76.0	73.9	72.4
2012	71.4	80.0	77.7	76.1
2013	75.3	83.4	81.0	79.4
2014	78.7	86.3	84.0	82.3
2015	81.8	88.8	86.5	84.8
2016	84.5	90.9	88.6	86.8
2017	86.8	92.5	90.3	88.5
2018	88.8	93.9	91.9	90.0
2019	90.5	95.0	93.2	91.3
2020	92.0	95.9	94.3	92.4

See EPA Memorandum "Onboard Refueling Vapor Recovery Widespread Use Assessment" in the docket (number EPA-HQ-OAR-2010-1076) addressing details on issues related to values in this table.

Note: In this table, the columns have the following meaning.

1. Calendar year that corresponds to the percentages in the row associated with the year.
2. Percentage of the gasoline-powered highway vehicle fleet that have ORVR.
3. Percentage of vehicle miles traveled (VMT) by vehicles equipped with ORVR.
4. Amount of gasoline dispensed into ORVR-equipped vehicles as a percentage of all gasoline dispensed to highway motor vehicles.
5. Percentage from the same row in column 4 multiplied by 0.98.

The results in Table 2 are applied in the context of the two basic analytical approaches used in the NPRM for supporting the final date associated with the EPA's widespread use determination. First, using the analysis based on equal reductions for Stage II and ORVR, the 77.4 percent in-use emission reduction efficiency for ORVR will occur in May 2013 (See column 5 of Table 2). Second, 75 percent of gasoline will be dispensed to ORVR-equipped vehicles by April 2012 (See column 4 of Table 2).

#### C. Widespread Use Date

The updated analysis indicates that the two benchmarks will occur about a year apart, and that one benchmark of April 2012 has already passed. At the time of the NPRM, both of the benchmark dates for the ORVR widespread use determination were in the future, many months after the EPA's expected final action. Thus, given the basic merits of both approaches, the EPA believed it was reasonable to propose a date between the dates associated with the two analytical approaches.

The EPA's updated analysis presents a somewhat different picture. The April 2012 benchmark date has already

passed, and the May 2013 benchmark date is less than 1 year away. We believe it is reasonable for the EPA Administrator to determine that ORVR is in widespread use in the motor vehicle fleet as of the date this final action is published in the **Federal Register** because this final rule is being promulgated within the window bounded by the two benchmark dates derived from the updated analyses.

As discussed previously in this notice and in the NPRM, the EPA has discretion in setting the widespread use date. It is evident from the public comments on the NPRM from states and members of the regulated industry, and from recent state actions, that there is a desire to curtail Stage II installations at newly constructed GDFs, and to initiate an orderly phase-out of Stage II controls at existing GDFs.<sup>23</sup> Since one of the two analytical benchmark dates (April 2012)

<sup>23</sup> For example, in November 2011, New Hampshire put new regulations in place that eliminate the need for new GDFs to install Stage II, allows current GDFs with Stage II to decommission the systems, and requires all systems to be decommissioned by December 22, 2015. In May of 2011, New York issued an enforcement discretion directive which curtailed the need for new stations to install Stage II and permitted current installations to be decommissioned. These actions remain under review of EPA.

has passed, and we expect in most cases the second analytical benchmark date (May 2013) will have passed by the time the EPA is able to complete approvals of SIP revisions removing Stage II programs and pass any revised regulations, then in response to comments asking us to expedite the ORVR widespread use finding, the EPA Administrator is determining that ORVR is in widespread use in the motor vehicle fleet as of May 16, 2012. Accordingly, as of May 16, 2012 the requirement to implement a Stage II emissions control program under section 182(b)(3) of the CAA is waived.

#### D. Implementation of the Rule Provisions

In this final action, the ORVR widespread use determination and waiver of the section 182(b)(3) requirement applies to the entire country. This includes areas that are now classified as Serious or above for ozone nonattainment, as well as those that may be classified or reclassified as Serious or above in the future.

In the NPRM, we indicated that states could potentially demonstrate that ORVR was in widespread use in specific areas sooner than the general, national date. Such a provision is no longer

needed because today's action provides for a nationwide determination of widespread use effective on May 16, 2012.

As stated in this final action and as pointed out by several commenters, the ORVR widespread use determination and section 182(b)(3) waiver determination does not obligate states to remove any existing Stage II vapor recovery requirements. It is possible that a state would determine it beneficial to continue implementation of a Stage II program. For example, in an area where ORVR-equipped fleet penetration is considerably less than the national average, or where Stage II exemptions are significantly more restrictive than the national assumptions used in this analysis, a state may determine that it would not be appropriate to modify its program immediately, but that it would be more appropriate to do so at a later date. In assessing whether and how to phase out Stage II requirements, states are encouraged to review, and as needed revise the area-specific assumptions about taking into consideration their inspection and enforcement resource commitments as well as ORVR/vacuum-assist Stage II compatibility.

A state that chooses to remove the program must submit a SIP revision requesting EPA to approve such action and provide, as appropriate, a demonstration that the SIP revision is consistent with CAA section 110(1), and in some cases consistent with CAA section 193. The EPA will provide additional guidance on conducting assessments to support Stage II-related SIP revisions.<sup>24</sup> The EPA encourages states to review this guidance and consult with the EPA Regional Offices on developing SIP revisions seeking EPA approval for phasing out existing Stage II programs in a manner that ensures air quality protections are maintained.

Section 110(l) precludes the Administrator from approving a SIP revision if it would interfere with applicable CAA requirements (including, but not limited to, attainment and maintenance of the ozone NAAQS and achieving reasonable further progress). A state may demonstrate through analysis that removing a Stage II program in an area as of a specific date will not result in an emissions increase in the area, or that the small and ever-declining increase is offset by other simultaneous changes in the implementation plan. However, a

state may find that by removing Stage II requirements, they are reducing the overall level of emissions reductions they have previously applied toward meeting CAA rate of progress (ROP) or reasonable further progress (RFP) requirements, or demonstrating attainment. If so, the state should explain how removing Stage II controls in the area would not interfere with attaining and maintaining the ozone NAAQS in the area. In such circumstances, it is possible that additional emissions reductions from other measures may be needed to offset the removal of Stage II.

If EPA has approved a state's adoption of Stage II requirements into a SIP before November 15, 1990, section 193 would also apply. Section 193 provides that removal of an emissions control program cannot result in any emissions increase unless the increase is offset. Section 193 only applies if an area is nonattainment for the standard.

State and local agencies should also consider any transportation conformity impacts related to removing Stage II if emissions reductions from Stage II are included in a SIP-approved on-road motor vehicle emissions budget. States may need to adjust conformity budgets or the components of the budget if removing Stage II requirements would alter expected air quality benefits.

In previous memoranda, the EPA provided guidance to states on removing Stage II at refueling facilities dedicated to certain segments of the motor vehicle fleet (e.g., new automobile assembly plants, rental car facilities, E85 dispensing pumps, and corporate fleet facilities). In these specific cases where all or nearly all of the vehicles being refueled are ORVR-equipped, the EPA could conservatively conclude that widespread use of ORVR had occurred in these fleets.<sup>25</sup>

#### *E. Implementation of Rule Provisions in the Ozone Transport Region*

States and the District of Columbia in the OTR in the northeastern U.S. are also subject to a separate Stage II-related requirement. Under section 184(b)(2) of the CAA (42 U.S.C. 7511c(b)(2)), all areas in the OTR, both attainment and nonattainment areas, must implement control measures capable of achieving emissions reductions comparable to those achievable through Stage II controls. The CAA does not contain specific provisions giving authority to the EPA Administrator to waive this

independent requirement. The section 184(b)(2) requirement does not impose Stage II *per se*, but rather is a requirement that OTR states achieve an amount of emissions reductions comparable to the amount that Stage II would achieve. Moreover, section 202(a)(6), in allowing for a waiver of the section 182(b)(3) Stage II requirement for nonattainment areas, does not refer to the independent section 184(b)(2) requirements. Therefore, the section 184(b)(2) Stage II-related requirement for the OTR will continue to remain in place even after the ORVR widespread use determination and section 182(b)(3) waiver effective date.

In the mid-1990s, the EPA issued guidance on estimating what levels of emissions reductions would be "comparable" to those reductions achieved by Stage II.<sup>26</sup> In response, most OTR states simply adopted Stage II programs rather than identify other measures that got the same degree of emissions reductions. Given the continued penetration of ORVR-equipped vehicles into the overall vehicle fleet, Stage II-comparable emissions are significantly less than in the past, and continue to decline. Accordingly, the EPA is issuing updated guidance on determining "comparable measures." States in the OTR should refer to that guidance if preparing a SIP revision to remove Stage II programs in areas of the OTR.<sup>27</sup>

Commenters on the NPRM urged the EPA to revise its previous interpretation of section 184(b)(2) to permit ORVR to be recognized as a Stage II comparable emission reduction measure. This issue is not within the scope of this rulemaking, and EPA is not taking final agency action implementing section 184(b)(2) or an interpretation thereof. However, for informational purposes, we point out that simply treating the ORVR requirements under section 202(a)(6) as a comparable measure that an OTR SIP must additionally contain would arguably render the 184(b)(2) requirement a nullity, which could be an impermissible statutory interpretation. If commenters wish to further address this issue, we ask that they raise their concerns in any future SIP actions under section 184(b)(2) regarding OTR states that may affect them. In addition, we note that the expected level of emissions reductions

<sup>26</sup> "Stage II Comparability Study for the Northeast Ozone Transport Region," (EPA-452/R-94-011; January 1995).

<sup>27</sup> "Phasing Out Stage II Gasoline Refueling Vapor Recovery Programs: Guidance on Satisfying Requirements of Clean Air Act Sections 110(l), 193, and 184(b)(2) (tentative title)." U.S. EPA Office of Air and Radiation, forthcoming.

<sup>24</sup> "Phasing Out Stage II Gasoline Refueling Vapor Recovery Programs: Guidance on Satisfying Requirements of Clean Air Act Sections 110(l), 193, and 184(b)(2) (tentative title)." U.S. EPA Office of Air and Radiation, forthcoming.

<sup>25</sup> "Removal of Stage II Vapor Recovery in Situation where Widespread Use of Onboard Refueling Vapor Recovery is Demonstrated," from Stephen D. Page and Margo Tsirigotis Oge, EPA, December 12, 2006.

that Stage II programs can obtain has changed significantly in the past 15 years with ORVR-equipped vehicles phasing in at the rate of 3–4 percent of the fleet each calendar year. Therefore, the EPA is issuing updated guidance on estimating the emissions reductions needed to be comparable to those achievable through Stage II controls. Theoretically, comparable measures could in some areas mean no additional control beyond ORVR is required if Stage II is achieving no additional emission reduction benefit in the area, or has reached a point of providing only a declining *de minimis* benefit.

#### *F. Comments on Other Waiver Implementation Issues*

Numerous commenters on the NPRM urged the EPA to adopt provisions in the final rule that would exempt new gasoline dispensing facilities with construction occurring between the final rule publication and the effective Stage II waiver date from installing Stage II equipment. The timing issue is now largely moot since widespread use is deemed to have occurred on the effective date of this action. However, under the CAA, states adopt state-specific or area-specific rules, which are then submitted to the EPA for approval into the SIP. These rules are independently enforceable under state law, and also become federally enforceable when the EPA approves them into the SIP. The EPA cannot unilaterally change legally-adopted state statutes or rules or otherwise revise an approved SIP that was not erroneously approved. The EPA's only authority to establish requirements that would apply in lieu of approved SIPs is its authority under CAA section 110(c) to promulgate a Federal Implementation Plan (FIP). To trigger FIP authority, the EPA must first determine that a state has failed to submit a required SIP or that the state's SIP must be disapproved. The circumstances of this ORVR widespread use finding and waiver of the section 182(b)(3) Stage II requirement to do not present either of those situations. According to requirements established by the CAA that are applicable here, states will need to develop and submit SIP revisions to the EPA in order to change or eliminate SIP-approved state rules that set forth the compliance dates for newly constructed GDFs.

Commenters also urged EPA to simply allow states to eliminate all active Stage II programs from certain nonattainment areas after the widespread use date, without requiring SIP revisions from states. While the EPA has discretion to determine the widespread use date, the EPA cannot simply nullify states' rules

that are binding and enforceable under state law. In order to change the federal enforceability of SIPs, states must go through the SIP revision process, and the EPA can approve the SIP revision only if the provisions of section 110(l) and any other applicable requirements, such as the requirements of section 193 and the comparable measures requirement for OTR states, are satisfied. Today's final rule takes no action in implementing CAA sections 110(l), 193, or 184(b)(2), and any future final actions regarding "comparable measures" SIPs will be fact-specific in response to individual state submissions. Also, subsequent to the effective waiver date of the section 182(b)(3) Stage II requirements, areas currently implementing the EPA-approved Stage II programs in their SIPs as a result of obligations under the 1-hour or 1997 8-hour ozone NAAQS, would be required to continue implementing these programs until the EPA approves a SIP revision adopted under state law removing the requirement from the state's ozone implementation plan.

#### **VII. Estimated Cost**

As part of the NPRM, the EPA conducted an initial assessment of the costs and savings to gasoline dispensing facility owners related to this proposed action. The report titled, "Draft Regulatory Support Document, Decommissioning Stage II Vapor Recovery, Financial Benefits and Costs," is available in the public docket for this action. The report examines the initial costs and savings to facility owners incurred in the decommissioning of Stage II vapor recovery systems, as well as changes in recurring costs associated with above ground hardware maintenance, operations, and administrative tasks. The EPA received no substantive comment on the draft report, other than a concern that the savings identified therein may not come to pass as quickly as envisioned in the draft report if the EPA does not provide updated guidance on comparable measures for the OTR states. We intend to address this concern by issuing separate guidance for the states.<sup>28</sup> EPA will post this action at the following web site address: <http://www.epa.gov/glo/actions.html>.

As part of the re-analysis following the NPRM, the EPA reviewed the input values used for the proposal draft. Most input values were confirmed as

<sup>28</sup> "Phasing Out Stage II Gasoline Refueling Vapor Recovery Programs: Guidance on Satisfying Requirements of Clean Air Act Sections 110(l), 193, and 184(b)(2) (tentative title)." U.S. EPA Office of Air and Radiation, forthcoming.

reasonable and representative but it was concluded that two of the values should be updated. These include: (1) The pre-tax price of gasoline used in the foregone vapor recovery savings calculation, which increased from \$2.30 in 2010 to \$3.04 in 2011 (average price per gallon), and (2) the number of Stage II facilities potentially affected by SIP revisions removing Stage II requirements in non-California Serious, Severe and Extreme ozone nonattainment areas which increased from 26,900 to 30,600 in 19 states and the District of Columbia. As discussed in our final regulatory support document, the EPA estimates recurring cost savings of about \$3,000 per year for a typical gasoline dispensing facility, and an annual nationwide savings of up to \$91 million if Stage II is phased out of the approximately 30,600 dispensing facilities outside of California that are required to have Stage II vapor recovery systems under section 182(b)(3) of the CAA.<sup>29</sup> This analysis assumes that Stage II is removed from GDFs over a three year time frame in an equal number each year. What actually occurs will depend on actions by the individual states. If the states submit and EPA approves SIP revisions to remove Stage II systems from these GDFs, the EPA projects savings of about \$10.2 million in the first year, \$40.5 million in the second year, and \$70.9 million in the third year. Long term savings are projected to be about \$91 million per year, compared to the current use of Stage II systems in these areas.

#### **VIII. Statutory and Executive Order Reviews**

##### *A. Executive Orders 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is a "significant regulatory action" because it raises novel legal or policy issues arising out of legal mandates. Accordingly, the EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action.

<sup>29</sup> See "Final Regulatory Support Document, Decommissioning Stage II Vapor Recovery, Financial Benefits and Costs," available in public docket, EPA-HQ-OAR-2010-1076.

### B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. Burden is defined at 5 CFR 1320.3(b). It does not contain any recordkeeping or reporting requirements.

### C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this action on small entities, small entity is defined as: (1) A small business as defined in the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This rule will not impose any new requirements on small entities. Rather, it provides criteria for reducing existing regulatory requirements on gasoline dispensing facilities, some of which may qualify as small businesses.

### D. Unfunded Mandates Reform Act

This action contains no federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for state, local, or tribal governments or the private sector. The action imposes no enforceable duty on any state, local or tribal governments, or the private sector. Therefore, this action is not subject to the requirements of sections 202 and 205 of the UMRA.

This action is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. This action addresses the removal of a requirement regarding gasoline vapor

recovery equipment, but does not impose any obligations to remove these programs.

### E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This action does not impose any new mandates on state or local governments. Thus, Executive Order 13132 does not apply to this rule.

### F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). It will not have substantial direct effects on tribal governments, on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this rule.

### G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

The EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the Executive Order has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it does not establish an environmental standard intended to mitigate health or safety risks.

### H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a “significant energy action” as defined in Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. It does not impose additional costs on gasoline distribution, but rather promises to lower operating and maintenance costs for gasoline dispensing facilities by facilitating removal of redundant gasoline refueling vapor controls.

### I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (“NTTAA”), Public Law 104–113, 12(d), (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

### J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

The EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not directly affect the level of protection provided to human health or the environment under the EPA's NAAQS for ozone. This action proposes to waive the requirement for states to adopt largely redundant Stage II programs, based on a determination of widespread use of ORVR in the motor vehicle fleet.

### K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the

Congress and to the Comptroller General of the United States. The EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective upon publication in the **Federal Register**.

#### IX. Statutory Authority

The statutory authority for this action is provided by the CAA, as amended (42 U.S.C. 7401, et seq.); relevant provisions of the CAA include, but are not limited to sections 182(b)(3), 202(a)(6), 301(a)(1), and 307(b), and 307(d)(4) U.S.C. 7511a(b)(3), 7521(a)(6), 7601(a)(1), 7607(b), and 7607(d)).

#### List of Subjects in 40 CFR Part 51

Environmental protection, Administrative practice and procedure, Air pollution control, Ozone, Particulate matter, Volatile organic compounds.

Dated: May 9, 2012.

**Lisa P. Jackson**,  
Administrator.

For reasons set forth in the preamble, part 51 of chapter I of title 40 of the Code of Federal Regulations is amended as follows:

#### PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS.

■ 1. The authority citation for part 51 continues to read as follows:

**Authority:** 23 U.S.C. 101; 42 U.S.C. 7401–7671q.

#### Subpart G—[Amended]

■ 2. Section 51.126 is added to read as follows:

##### § 51.126 Determination of widespread use of ORVR and waiver of CAA section 182(b)(3) Stage II gasoline vapor recovery requirements.

(a) Pursuant to section 202(a)(6) of the Clean Air Act, the Administrator has determined that, effective May 16, 2012, onboard refueling vapor recovery (ORVR) systems are in widespread use in the motor vehicle fleet within the United States.

(b) Effective May 16, 2012, the Administrator waives the requirement of Clean Air Act section 182(b)(3) for Stage II vapor recovery systems in ozone nonattainment areas regardless of

classification. States must submit and receive EPA approval of a revision to their approved State Implementation Plans before removing Stage II requirements that are contained therein.

[FR Doc. 2012–11846 Filed 5–15–12; 8:45 am]  
BILLING CODE 6560–50–P

#### ENVIRONMENTAL PROTECTION AGENCY

#### 40 CFR Part 52

[EPA–R03–OAR–2011–0714; FRL–9670–3]

#### Approval and Promulgation of Air Quality Implementation Plans; Delaware, New Jersey, and Pennsylvania; Determinations of Attainment of the 1997 Annual Fine Particulate Standard for the Philadelphia-Wilmington Nonattainment Area

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** EPA is making two determinations regarding the Philadelphia-Wilmington, PA-NJ-DE fine particulate (PM<sub>2.5</sub>) nonattainment area (the Philadelphia Area). First, EPA is making a determination that the Philadelphia Area has attained the 1997 annual PM<sub>2.5</sub> national ambient air quality standard (NAAQS) by its attainment date of April 5, 2010. This determination is based upon quality assured and certified ambient air monitoring data that show the area monitored attainment of the 1997 annual PM<sub>2.5</sub> NAAQS for the 2007–2009 monitoring period. Second, EPA is making a clean data determination, finding that the Philadelphia Area has attained the 1997 PM<sub>2.5</sub> NAAQS, based on quality assured and certified ambient air monitoring data for the 2007–2009 and 2008–2010 monitoring periods. In accordance with EPA's applicable PM<sub>2.5</sub> implementation rule, this determination suspends the requirement for the Philadelphia Area to submit an attainment demonstration, reasonably available control measures/reasonably available control technology (RACM/RACT), a reasonable further progress (RFP) plan, and contingency measures related to attainment of the 1997 annual PM<sub>2.5</sub> NAAQS for so long as the area continues to attain the 1997 annual PM<sub>2.5</sub> NAAQS. These actions are being taken under the Clean Air Act (CAA).

**DATES:** This rule is effective on June 15, 2012.

**ADDRESSES:** EPA has established a docket for this action under Docket ID

Number EPA–R03–OAR–2011–0714. All documents in the docket are listed in the [www.regulations.gov](http://www.regulations.gov) Web site. Although listed in the electronic docket, some information is not publicly available, i.e., confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through [www.regulations.gov](http://www.regulations.gov) or in hard copy for public inspection during normal business hours at the Air Protection Division, U.S. Environmental Protection Agency, Region III, 1650 Arch Street, Philadelphia, Pennsylvania 19103.

**FOR FURTHER INFORMATION CONTACT:** If you have questions concerning EPA's action related to Delaware or Pennsylvania, please contact Maria A. Pino, (215) 814–2181, or by email at [pino.maria@epa.gov](mailto:pino.maria@epa.gov). If you have questions concerning EPA's action related to New Jersey, please contact Henry Feingersh, (212) 637–3382, or by email at [feingersh.henry@epa.gov](mailto:feingersh.henry@epa.gov). **SUPPLEMENTARY INFORMATION:** The following outline is provided to aid in locating information in this action.

- I. Background
- II. Summary of Actions
- III. Summary of Public Comments and EPA Responses
- IV. Final Actions
- V. Statutory and Executive Order Reviews

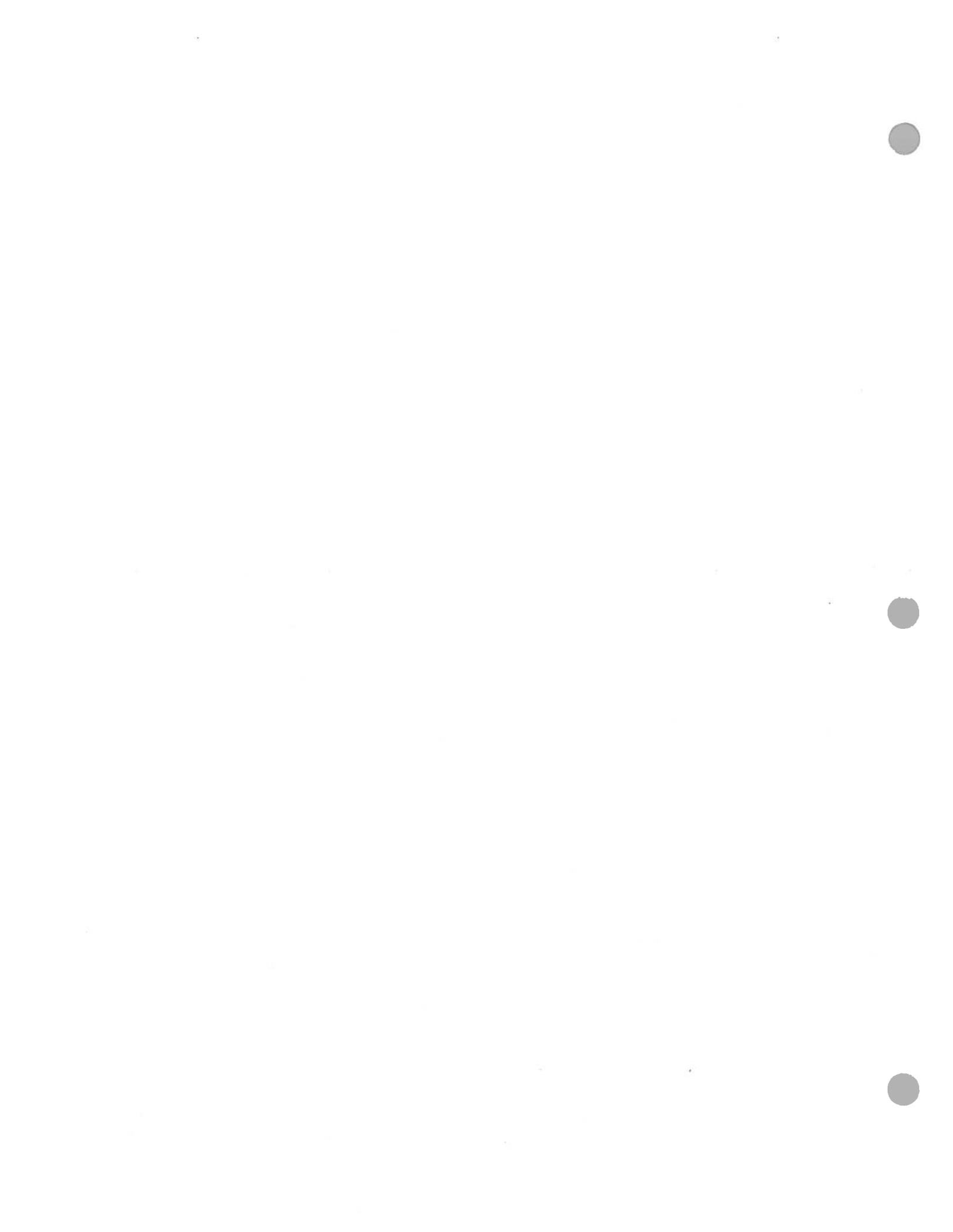
#### I. Background

On January 23, 2012, EPA published a direct final rulemaking (77 FR 3147) and companion notice of proposed rulemaking (NPR) (77 FR 3223) for the States of Delaware and New Jersey and the Commonwealth of Pennsylvania (the States). In the January 23, 2012 rulemaking action, EPA proposed to determine that the Philadelphia Area attained the 1997 PM<sub>2.5</sub> NAAQS by its attainment date, April 5, 2010. EPA also proposed to make a clean data determination, finding that the Philadelphia Area has attained the 1997 PM<sub>2.5</sub> NAAQS.

Because EPA received adverse comment, EPA withdrew the direct final rule on March 13, 2012 (77 FR14697), and the direct final rule was converted to a proposed rule.

#### II. Summary of Actions

These actions do not constitute a redesignation to attainment under section 107(d)(3) of the CAA. The designation status of the Philadelphia Area will remain nonattainment for the 1997 annual PM<sub>2.5</sub> NAAQS until such



("Unfunded Mandates Act"), signed into law on March 22, 1995, EPA must prepare a budgetary impact statement to accompany any proposed or final rule that includes a Federal mandate that may result in estimated annual costs to State, local, or tribal governments in the aggregate; or to private sector, of \$100 million or more. Under section 205, EPA must select the most cost-effective and least burdensome alternative that achieves the objectives of the rule and is consistent with statutory requirements. Section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly or uniquely impacted by the rule.

EPA has determined that the approval action promulgated does not include a Federal mandate that may result in estimated annual costs of \$100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector. This Federal action approves pre-existing requirements under State or local law, and imposes no new requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this action.

*G. Submission to Congress and the Comptroller General*

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. This rule is not a "major rule as defined by 5 U.S.C. 804(2).

*H. Petitions for Judicial Review*

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by February 8, 1999. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not

be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

**List of Subjects in 40 CFR Part 52**

Environmental protection, Air pollution control, Incorporation by reference, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements.

Dated: November 23, 1998.

**A. Stanley Meiburg,**  
*Acting Regional Administrator, Region 4.*

Part 52 of chapter I, title 40, *Code of Federal Regulations*, is amended as follows:

**PART 52—[AMENDED]**

1. The authority citation for part 52 continues to read as follows:

**Authority:** 42.U.S.C. 7401–7671q.

**Subpart PP—South Carolina**

2. In Section 52.2120, the entry for Regulation number 62.1 Section I Definitions in the "EPA Approved South Carolina Regulations" table in paragraph (c) is revised to read as follows:

**§ 52.2120 Identification of plan.**

\* \* \* \* \*

(c) EPA approved regulations.

**AIR POLLUTION CONTROL REGULATIONS FOR SOUTH CAROLINA**

State citation	Title/subject	State effective date	EPA approval date	Federal register notice
Regulation No. 62.1	Definitions, Permits Requirements, and Emissions Inventory			
Section I	Definitions	5/25/90	2/8/99	

\* \* \* \* \*  
[FR Doc. 98–32341 Filed 12–7–98; 8:45 am]  
BILLING CODE 6560–50–P

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 52**

[KY–102–106–9903a; FRL–6192–1]

**Approval and Promulgation of Implementation Plans; Commonwealth of Kentucky**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Direct final rule.

**SUMMARY:** The Commonwealth of Kentucky, through the Kentucky Natural Resources and Environmental

Protection Cabinet (KNREPC), submitted to EPA on February 3, 1998, revisions to the Kentucky State Implementation Plan (SIP) adding Stage II controls at certain gasoline dispensing facilities. Subsequently, on September 11, 1998, the Commonwealth submitted the 15 Percent Volatile Organic Compound (VOC) Reduction Plan (15 Percent Plan) and the Vehicle Inspection and Maintenance (I/M) program.

EPA is approving the Kentucky 15 Percent Plan, the I/M program and the 1990 baseline emissions inventory. The adoption of a 15 Percent Plan, an I/M program, and a baseline emissions inventory are required by the 1990 Clean Air Act Amendments for the Northern Kentucky Counties of Boone, Campbell, and Kenton which are a part of the Cincinnati-Hamilton moderate

nonattainment area for the one-hour ozone National Ambient Air Quality Standard (NAAQS). In addition, in this document, EPA is approving the revisions to the Kentucky SIP for the implementation of the rule regarding Stage II control at gasoline dispensing facilities and revisions to the existing open burning rule which provide a portion of the VOC emission reductions included in the 15 Percent Plan.

**DATES:** This direct final rule is effective on February 8, 1999 without further notice, unless EPA receives adverse comments by January 7, 1999. If adverse comment is received, EPA will publish a timely withdrawal of the direct final rule in the **Federal Register** and inform the public that the rule will not take effect.

**ADDRESSES:** All comments should be addressed to Randy Terry at the Environmental Protection Agency, Region 4, Air Pesticides and Toxics Management Division, Air Planning Branch, 61 Forsyth Street, SW, Atlanta, Georgia 30303. Copies of documents relative to this action are available for public inspection during normal business hours at the following locations. The interested persons wanting to examine these documents should make an appointment with the appropriate office at least 24 hours before the visiting day. Reference file KY-102-106-9903. The Region 4 Office may have additional background documents not available at the other locations.

Air and Radiation Docket and Information Center (Air Docket 6102), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460.

Environmental Protection Agency, Region 4 Air Pesticides & Toxics Management Division, Air Planning Branch, 61 Forsyth Street, SW, Atlanta, Georgia 30303.

Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet, 803 Schenkel Lane, Frankfort, Kentucky 40601.

**FOR FURTHER INFORMATION CONTACT:** Randy Terry at 404/562-9032, or Karla McCorkle at 404/562-9043. For additional information concerning the Inspection/Maintenance Program contact Dale Aspy at 404/562-9041.

**SUPPLEMENTARY INFORMATION:** On November 15, 1990, the President signed into law the Clean Air Act Amendments of 1990. The Clean Air Act as amended in 1990 (CAA) includes new requirements for the improvement of air quality in nonattainment areas for the ozone NAAQS. Under section 181(a) of the CAA, nonattainment areas were categorized by the severity of the area's ozone problem, and progressively more stringent control measures were required for each category of higher ozone concentrations. The EPA, in response to requirements of the CAA, designated the Cincinnati area as a moderate interstate ozone nonattainment area. This designation includes the Northern Kentucky Counties of Boone, Campbell, and Kenton and the Ohio Counties of Hamilton, Warren, Butler, and Clermont. The basis for classifying an area in a specific category was the ambient air quality data obtained in the three year period 1987-1989. The CAA requires states to submit revisions to the SIP that include a plan for reducing

emissions of VOCs by 15 percent from the 1990 Adjusted Base Year Emissions Inventory. The 15 Percent Plan was required by the CAA to be effective for the 1996 ozone season (April 1 through October 30). The CAA delineates in section 182 the SIP requirements for ozone nonattainment areas based on their classifications.

Kentucky submitted a plan in November 1993, to achieve the 15 percent emission reduction and subsequently revised and resubmitted the plan in March 1994. By the end of the 1994 ozone season, air quality monitoring data for the entire Cincinnati area showed attainment of the NAAQS for ozone and both Ohio and Kentucky requested redesignation of the respective portions of the area to attainment. On February 22, 1995, EPA Region 4 responded to an inquiry from Kentucky, and stated that if an area had reached attainment without the implementation of the emission reduction programs outlined in the proposed 15 percent emission reduction program, then those programs need not be implemented unless necessary to offset growth of emissions in future years. On June 29, 1995, in a letter signed by the Secretary of the KNREPC, the Commonwealth requested that EPA take no further action on Kentucky's proposed 15 Percent Plan for Northern Kentucky. A subsequent violation of the NAAQS for ozone in 1995 in the nonattainment area prompted the EPA to deny Kentucky's request to redesignate the area to attainment, thereby making the 15 Percent Plan again an applicable requirement for the area. On September 11, 1998, the KNREPC submitted a revision to the Kentucky SIP for reducing the emissions of VOCs by 15 percent in the Northern Kentucky portion of the Cincinnati-Hamilton area.

The CAA also included limitations on the credibility of certain types of reductions. Specifically, a state cannot take credit for reductions achieved by Federal Motor Vehicle Control Program (FMVCP) measures promulgated prior to 1990, or for reductions resulting from requirements to lower the Reid Vapor Pressure (RVP) of gasoline promulgated prior to 1990 or required under section 211(h) of the CAA. Furthermore, the CAA does not allow credit for corrections to motor vehicle I/M Programs or Reasonably Available Control Technology (RACT) rules as these programs were required prior to 1990.

**1990 Baseline Emissions Inventory**

In this action, the EPA is approving the 1990 baseline emissions inventory for the Northern Kentucky portion of the Cincinnati-Hamilton ozone nonattainment area. This inventory satisfies the requirements of section 182(a)(1) of the CAA. Detailed information on the emissions calculations can be obtained at the Regional Office address above. The following table is a summary of the baseline emissions inventory.

**CINCINNATI 1990 BASELINE EMISSIONS INVENTORY**  
(Tons/day)

Source category	1990 emissions (tons per day)	Percent of total VOC emissions
Point Sources .....	3.90	5.57
Area Sources .....	13.20	18.86
Mobile Sources .....	17.54	25.06
Non-Highway Mobile sources .....	8.60	12.29
Biogenic Emissions ...	26.75	38.22
<b>Total .....</b>	<b>69.99</b>	<b>100.0</b>

The adjusted base year inventory requires exclusion of emission reductions that would occur by 1996 as a result of the FMVCP and the RVP promulgated prior to 1990. The following table is a summary of the adjusted base year inventory.

**CINCINNATI 1990 ADJUSTED BASELINE INVENTORY**  
(Tons/day)

Source category	1990 base year emissions (TPD)	1990 adjusted emissions (TPD)
Point Sources .....	3.90	3.9
Area Sources .....	13.20	12.6
Mobile Sources .....	17.54	13.9
Non-Highway Mobile sources .....	8.60	8.6
<b>Total .....</b>	<b>43.24</b>	<b>39.0</b>

**1990 Rate-of-Progress Inventory**

The Rate-of-Progress Inventory is comprised of the anthropogenic stationary (point and area) and mobile sources in the nonattainment area with all biogenic emissions removed from the baseline inventory. The following table is a summary of the Rate-of-Progress baseline inventory.

**CINCINNATI 1990 RATE-OF-PROGRESS  
BASELINE  
(Tons/day)**

Source category	1990 emissions (tons per day)	Percent of total VOC emissions
Point Sources .....	3.90	9.0
Area Sources .....	13.20	30.5
Mobile Sources .....	17.54	40.6
Non-Highway Mobile sources .....	8.60	19.8
<b>Total .....</b>	<b>43.24</b>	<b>100.0</b>

**15 Percent Plan**

The Commonwealth of Kentucky submitted a 15 Percent Plan for the Northern Kentucky portion of the nonattainment area on September 11, 1998. This submittal is required in section 182(b)(2) in order to demonstrate reasonable further progress toward attainment of the NAAQS for ozone. The CAA required moderate ozone nonattainment areas to submit a plan by November 15, 1993, and to attain the ozone NAAQS by 1999. In order to demonstrate progress, the area must achieve actual VOC emission reductions of at least 15 percent from the baseline and account for growth during the first six years after enactment

of the CAA. The 15 percent reduction must be based on a decrease from the 1990 baseline emissions, excluding emissions from other reductions programs and emission sources outside the nonattainment area.

**Creditable 15% Reduction**

The adjusted base year inventory of 39.0 tons/day is multiplied by 0.15 to calculate the creditable 15 percent reduction in tons/day. Kentucky needs a reduction of 5.85 tons/day to obtain the creditable 15 percent reduction.

**Total Expected Reductions by 1999**

The total expected reductions by 1999 include the required 15 percent (5.85 tons/day), the reductions from FMCVP and RVP (3.65 tons/day), and the reductions from the I/M program (0.55 tons/day). Kentucky expects to have a total of 10.05 tons/day of reductions by 1999.

**Target Level Emissions for 1999**

To calculate the 1999 target emissions level, the total expected reductions (10.05 tons/day) are subtracted from the 1990 Rate-of-Progress baseline inventory (43.24 tons/day) for the Cincinnati nonattainment area. The resulting 1999 target level emissions are 33.19 tons/day.

**Reductions Needed by 1999 to Achieve 15 Percent Emission Reduction Accounting for Growth**

The reductions needed to achieve 15 percent net growth are determined by subtracting the target level emissions (33.19 tons/day) from the 1999 estimated emissions (41.53 tons/day) giving a total of 8.34 tons/day in additional reductions needed.

**Reductions Required by 1999**

In order to meet the target level required for 1999, Kentucky must reduce VOC emissions by an additional 8.34 tons/day. The 1990 Rate-of-Progress Baseline Inventory is the base inventory from which the 15 percent reduction on existing sources and the reduction from growth by 1999 must be calculated to meet requirements of the CAA.

The following is a summary of the reductions Kentucky will obtain to meet this requirement and the projected emissions for 1999. The projected emissions for 1999 have been calculated by applying the control measures discussed below to the 1999 estimated emissions. More detailed information can be found in the Technical Support Document (TSD) located at the Regional EPA address listed above.

**ANTICIPATED EMISSIONS AFTER PLAN IMPLEMENTATION**

Source category	1999 projected emissions	Anticipated emissions after plan	Tons reduced
Point Sources .....	3.28	3.09	0.19
Area Sources .....	13.62	11.13	2.49
Mobile Sources .....	15.25	9.94	5.31
Non-Highway Mobile Sources .....	9.38	9.17	0.21
<b>Total .....</b>	<b>41.53</b>	<b>33.33</b>	<b>8.20</b>

The 1999 Target Level Emissions are 33.19 tons/day. The 1999 Projected Emissions after plan implementation are 33.33 tons/day, which provides a 15 percent emission reduction.

**Control Strategies**

*Point Source Control Measures*

Point Source Rule Effectiveness Improvements

Kentucky documented that creditable reductions of VOC emissions have occurred since 1990 due to facilities that improved technology and ceased operation. Additionally, the Cabinet implemented a program to increase the rule effectiveness of emission controls at facilities within this region from the default 80 to 95 percent. This program

increased frequency of inspections at point source facilities to improve the existing emission controls. The increased inspections are expected to account for a 0.19 tons/day reduction from point sources. The projected inventory for 1999 shows emissions of 3.28 tons/day. Documentation of these projected emission reductions are included in the Technical Support Document (TSD).

**Area Source Control Measures**

*Stage I Vapor Control—Increased Rule Effectiveness*

Kentucky implemented a program to increase the rule effectiveness of the Stage I gasoline vapor control program. This program increased the frequency of inspections at gasoline facilities to

guarantee that State I vapor controls work properly. The program is projected to increase the rule effectiveness of Stage I controls from the default 80 to 95 percent, and create an emissions reduction of 0.57 tons/day. Documentation of how the projected emission reductions were calculated is included in the TSD.

*Architectural Coatings, Traffic Paints, Auto Body Refinishing, and Commercial/Consumer Products*

The EPA has determined that implemented or forthcoming federal guidance or regulation will reduce the amount of VOC emissions from Architectural and Industrial Maintenance Coatings, Auto Body Refinishing, and Commercial Consumer

Products. Credit for these reductions can be utilized by state and local agencies in developing plans to achieve the 15 percent VOC emission reduction. The amount of reduction which can be assumed in the plan is 20 percent for application of architectural coatings, 27 percent from auto body refinishing, and 20 percent from Consumer Commercial Products. The emission reduction from these area source programs will result in 1.59 tons/day reduction. The guidance and equations used in these reductions calculations are included in the TSD.

#### Open Burning

On February 3, 1998, the KNREPC, submitted revisions to rule 401 KAR 63:005 Open burning for adoption into the Kentucky SIP.

Section 1-2—The order of Section 1 Applicability and Section 2 Definitions was changed to Section 1 Definitions and Section 2 Applicability.

Section 1—A reference to 401 KAR 63:001 for terms not defined in this section was added.

Section 1(3)—The definition of "Open burning" was amended for clarity to include the burning of any matter without an approved burn chamber with a stack or chimney and approved control devices as open burning.

Section 1(4)—The definition of "Priority I Region" was added for region classification according to Priority I in 401 KAR 50:020 Appendix A.

Section 2—A statement was added that applies to all open burning that is not subject to another regulation in 401 KAR Chapters 50 and 65.

Section 3—Various word structure changes were made to add clarity.

Section 4—The revised restrictions for the three Northern Kentucky counties exceed those that apply to the remainder of the Commonwealth, and will be in effect from May through September on an annual basis.

Previously allowed activities which these amendments will prohibit during the specified time period include:

- Fires set for cooking of food for human consumption,
- Fires set for prevention of fire hazard, including disposal of dangerous materials if there is no safe alternative,
- Fires set for instruction and training in the methods of fire fighting,
- Fires set for recognized agricultural, silvicultural, range, and wildlife management,
- Fires set to dispose of accidental spills and the disposal of absorbent material used in their removal, and
- Fires set for recreational and ceremonial purposes.

The restriction of burning activities in ozone nonattainment areas and ozone

maintenance areas during the peak ozone season will result in a reduction of volatile organic compound emissions. The emission reduction credit taken for these rule modifications was 0.90 tons per day. Emissions calculations for this reduction are included in the TSD.

#### Mobile Sources

##### *Inspection/Maintenance (I/M) Program Background*

The CAA requires states to make changes to improve existing I/M programs or to implement new ones for certain nonattainment areas. Section 182(b)(4) of the CAA requires moderate ozone nonattainment areas to develop and implement a basic I/M program. Additionally, section 182(a)(2)(B) of the CAA directed EPA to publish updated guidance for state I/M programs, taking into consideration findings of the Administrator's audits and investigations of these programs. EPA promulgated I/M regulations on November 5, 1992 (57 FR 52950, codified at 40 Code of Federal Regulations (CFR) 51.350-51.373).

The I/M regulation establishes minimum performance standards for I/M programs as well as requirements for the following: network type and program evaluation; adequate tools and resources; test frequency and convenience; vehicle coverage; test procedures and standards; test equipment; quality control; waivers and compliance via diagnostic inspection; motorist compliance enforcement; motorist compliance enforcement program oversight; quality assurance; enforcement against contractors, stations and inspectors; data collection; data analysis and reporting; inspector training and licensing or certification; public information and consumer protection; improving repair effectiveness; compliance with recall notices; on-road testing; SIP revisions; and implementation deadlines. The performance standard for basic I/M programs remains the same as it has been since initial I/M policy was established in 1978, pursuant to the 1977 amendments to the CAA.

On September 11, 1998, the Commonwealth of Kentucky submitted to EPA a basic I/M program for incorporation into the SIP. The program meets the requirements of EPA's rule for a basic I/M program. The basic components of the Kentucky I/M program are listed below.

- Idle test for all vehicles.
- Anti-tampering/anti-misfueling checks on all 1975 and newer vehicles.

- Registration denial for vehicles that do not comply with program requirements.

- Training program for mechanics servicing vehicles in the area.
- Pressure check on 1981 and newer vehicles.

- Opacity check for diesel vehicles.

The full description of the Kentucky I/M program can be found in rule 401 KAR 65:010 of the Kentucky SIP and in Appendix K of the Kentucky 15 percent plan submittal.

##### *Reformulated Gasoline (RFG)*

Kentucky requested to opt-in to the federal RFG program in moderate ozone nonattainment areas within Kentucky beginning in 1995. This program included the three northern Kentucky Counties of Boone, Campbell, and Kenton. In addition, Kentucky has opted to remain in the federal RFG program for this area as it goes into phase II in 2000, which will provide additional VOC reductions.

#### Stage II

On February 3, 1998, Kentucky, submitted rule 401 KAR 59:174 Stage II Controls at Gasoline Dispensing Facilities for adoption into the Kentucky SIP.

The provisions in this regulation meet EPA requirements for gasoline dispensing facilities that install and operate vapor recovery systems that capture gasoline vapors displaced from motor vehicle gasoline tanks during refueling (i.e., Stage II). The reductions due to the installation of Stage II are needed for the required 15 percent reduction in dispensing facilities, which are located in an area that is designated moderate, serious, or severe nonattainment for the ozone NAAQS, and which have an average monthly gasoline throughput of greater than 10,000 gallons, install Stage II vapor recovery systems. Independent small business marketers with an average monthly throughput of 50,000 gallons or less and all other gasoline dispensing facilities with an average monthly throughput of 10,000 gallons or less have been exempted from this regulation. These facilities are required to maintain current records covering a two year period which demonstrate that the applicable throughput limits have not been exceeded.

The CAA specifies that Stage II regulations must apply to any facility that dispenses more than 10,000 gallons of gasoline per month or, in the case of an independent small business marketer (ISBM), any facility that dispenses more than 50,000 gallons of gasoline per

month. Section 324 of the CAA defines an ISBM.

Consistent with EPA's guidance, the regulation requires that Stage II systems be tested and certified to meet a 95 percent emission reduction efficiency by using a system approved by the California Air Resources Board (CARB). The regulation requires sources to verify proper installation and function of Stage II equipment through use of a liquid blockage test and a leak test prior to system operation and every five years or upon major modification of a facility (i.e., 75 percent or more equipment change). Kentucky has also established procedures for enforcing violations of the Stage II requirements.

Kentucky expects a 5.31 ton/day reduction from these mobile source controls.

#### *Non-Highway Mobile Sources*

Kentucky is using a method developed by EPA to use RFG in non-highway mobile sources. The method was described in an August 18, 1993 memo from Phil Lorang, Director of Emission Planning and Strategies Division, of EPA's Office of Mobile Sources. This method provides approximately one-half the on-highway mobile source credit for non-highway mobile sources. Using this method, a 0.21 ton per day reduction is calculated for non-highway mobile sources. Further emission reductions will be realized after Phase II RFG is implemented.

EPA is approving Kentucky's 15 percent plan and the underlying regulations (Stage II and Open Burning), the I/M Program, and the 1990 baseline emissions inventory because they are consistent with EPA guidance and the requirements set forth in the CAA.

#### **Final Action**

The EPA is approving the aforementioned changes to the SIP. The EPA is publishing this rule without prior proposal because the Agency views this as a noncontroversial submittal and anticipates no adverse comments. However, in the proposed rules section of this **Federal Register** publication, EPA is publishing a separate document that will serve as the proposal to approve the SIP revision should relevant adverse comments be filed. This rule will be effective February 8, 1999 without further notice unless the Agency receives adverse comments by January 7, 1999.

If the EPA receives such comments, then EPA will publish a notice withdrawing the final rule and informing the public that the rule will not take effect. All public comments

received will then be addressed in a subsequent final rule based on the proposed rule. The EPA will not institute a second comment period on the proposed rule. Parties interested in commenting should do so at this time. If no such comments are received, the public is advised that this rule will be effective on February 8, 1999 and no further action will be taken on the proposed rule.

#### **Administrative Requirements**

##### *A. Executive Order 12866*

The Office of Management and Budget (OMB) has exempted this regulatory action from review under Executive Order 12866, entitled "Regulatory Planning and Review."

##### *B. Executive Order 12875*

Under Executive Order 12875, EPA may not issue a regulation that is not required by statute and that creates a mandate upon a State, local or tribal government, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by those governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 12875 requires EPA to provide to the Office of Management and Budget a description of the extent of EPA's prior consultation with representatives of affected State, local and tribal governments, the nature of their concerns, copies of any written communications from the governments, and a statement supporting the need to issue the regulation. In addition, Executive Order 12875 requires EPA to develop an effective process permitting elected officials and other representatives of State, local and tribal governments "to provide meaningful and timely input in the development of regulatory proposals containing significant unfunded mandates."

Today's rule does not create a mandate on State, local or tribal governments. The rule does not impose any enforceable duties on these entities. Accordingly, the requirements of section 1(a) of Executive Order 12875 do not apply to this rule.

##### *C. Executive Order 13084*

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal

governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule does not significantly or uniquely affect the communities of Indian tribal governments. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

##### *D. Executive Order 13045*

Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997), applies to any rule that: (1) is determined to be "economically significant" as defined under E.O. 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This rule is not subject to E.O. 13045 because it does not involve decisions intended to mitigate environmental health or safety risks.

##### *E. Regulatory Flexibility Act*

The Regulatory Flexibility Act (RFA) generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions. This final rule will not have a significant impact on a substantial number of small entities because SIP approvals under section 110 and subchapter I, part D of the Clean Air Act do not create any new

requirements but simply approve requirements that the State is already imposing. Therefore, because the Federal SIP approval does not create any new requirements, I certify that this action will not have a significant economic impact on a substantial number of small entities. Moreover, due to the nature of the Federal-State relationship under the Clean Air Act, preparation of flexibility analysis would constitute Federal inquiry into the economic reasonableness of state action. The Clean Air Act forbids EPA to base its actions concerning SIPs on such grounds. *Union Electric Co., v. U.S. EPA*, 427 U.S. 246, 255-66 (1976); 42 U.S.C. 7410(a)(2).

#### F. Disclaimer Language Approving SIP Revisions in Audit Law States

Nothing in this action should be construed as making any determination or expressing any position regarding Kentucky's audit privilege and penalty immunity law KRS-224.01-040 or its impact upon any approved provision in the SIP, including the revision at issue here. The action taken herein does not express or imply any viewpoint on the question of whether there are legal deficiencies in this or any other Clean Air Act program resulting from the effect of Kentucky's audit privilege and immunity law. A state audit privilege and immunity law can affect only state enforcement and cannot have any impact on federal enforcement authorities. EPA may at any time invoke its authority under the Clean Air Act, including, for example, sections 113, 167, 205, 211 or 213, to enforce the requirements or prohibitions of the state plan, independently of any state enforcement effort. In addition, citizen enforcement under section 304 of the Clean Air Act is likewise unaffected by a state audit privilege or immunity law.

#### G. Unfunded Mandates

Under Section 202 of the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Act"), signed into law on March 22, 1995, EPA must prepare a budgetary impact statement to accompany any proposed or final rule that includes a Federal mandate that may result in estimated costs to State, local, or tribal governments in the aggregate; or to private sector, of \$100 million or more. Under Section 205, EPA must select the most cost-effective and least burdensome alternative that achieves the objectives of the rule and is consistent with statutory requirements. Section 203 requires EPA to establish a plan for informing and advising any small governments that

may be significantly or uniquely impacted by the rule.

EPA has determined that the approval action promulgated does not include a Federal mandate that may result in estimated costs of \$100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector. This Federal action approves pre-existing requirements under State or local law, and imposes no new requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this action.

#### H. Submission to Congress and the Comptroller General

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. This rule is not a "major rule" as defined by 5 U.S.C. 804(2).

#### I. Petitions for Judicial Review

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by February 8, 1999. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

#### List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Hydrocarbons, Incorporation by reference, Intergovernmental relations, Ozone, Reporting and recordkeeping requirements.

Dated: November 13, 1998.

**Michael V. Peyton,**

*Acting Regional Administrator, Region 4.*

Part 52 of chapter I, title 40, *Code of Federal Regulations*, is amended as follows:

#### PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

#### Subpart S—Kentucky

2. Section 52.920, is amended by adding paragraph (c)(92) to read as follows:

#### § 52.920 Identification of plan.

\* \* \* \* \*

(c) \* \* \*

(92) Revisions to the Kentucky State Implementation Plan submitted by the Natural Resources and Environmental Protection Cabinet on February 3, 1998. The regulations being revised are 401 KAR 59:174 Stage II control at gasoline dispensing facilities, 401 KAR 63:005 Open burning, and 401 KAR 65:010 Vehicle emission control programs rules. Adoption of the Kentucky 15 Percent Plan, the I/M program and the 1990 baseline emissions inventory.

(i) Incorporation by reference.

(A) Division of Air Quality regulations 401 KAR 59:174 Stage II control at gasoline dispensing facilities, 401 KAR 63:005 Open burning, and 401 KAR 65:010 Vehicle emission control programs rules are effective January 12, 1998.

(B) Tables showing the Cincinnati 1990 Baseline Emissions Inventory, 1990 Adjusted Baseline Inventory, and 1990 Rate of Progress Inventory, Summary of Biogenic Emissions and Anticipated Emissions after Plan Implementation which are effective September 11, 1998.

(ii) Other material. None.

[FR Doc. 98-32423 Filed 12-7-98; 8:45 am]

BILLING CODE 6560-50-P

#### ENVIRONMENTAL PROTECTION AGENCY

#### 40 CFR Part 52

[Region VII Docket No. MO-057-1057a; FRL-6197-1]

#### Approval and Promulgation of Implementation Plans; State of Missouri

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Direct final rule.

**SUMMARY:** The Environmental Protection Agency (EPA) is announcing a revision to the State Implementation Plan (SIP) which incorporates new Missouri rule 10 CSR 10-6.330 entitled "Restriction of Emissions from Batch-Type Charcoal Kilns." Missouri's rule requires a

# **Appendix B**

## **Emissions Calculations**

## EMISSIONS CALCULATIONS

Calculation methodologies were performed using the U.S. EPA guidance titled, “*Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*” (August 7, 2012).

From the EPA guidance, the suggested range of the in-use control efficiency percentage for Stage II vapor recovery systems is from 60 to 75%. The percentage is identified in the guidance as  $\eta_{iuSII}$ . For a good representation of EPA suggested range, the Division for Air Quality (Division) considered three different control efficiencies. They are 60% (Table 3), 67.5% (Table 4), and 75% (Table 5). The EPA guidance was also used to determine a representative in-use control efficiency percentage since Kentucky does not collect data in regards to the Stage II vapor recovery program. The Division decided to use the 67.5% control efficiency for three reasons. First, a side-by-side comparison was performed using the three efficiencies mentioned above. Second, this control efficiency represented the average of EPA’s suggested range. And finally, KYDAQ obtained concurrence by EPA for using this control efficiency.

As part of the ORVR widespread use calculations, specific years were used to determine which year Stage II emission reduction benefits would start having a negative impact on the local air quality. The years are 2014, 2015, 2016, 2017, 2018, 2019, and 2020.

### TABLE TERMINOLOGY

Table 1 provides a brief description of the terminology for the ORVR widespread use calculations. These terms are detailed in the EPA guidance cited on Page 1.

**Table 1**  
**Terminology of Factors for ORVR Widespread Use Calculations**

<b>Factor</b>	<b>Definition</b>
$Q_{SII}$	Fraction of highway gasoline throughput covered by the Stage II vapor recovery system
$Q_{ORVRi}$	Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles
$\eta_{iuSII}$	Stage II vapor recovery system in-use control efficiency
$Q_{SIIva}$	Fraction of highway gasoline throughput dispensed through a vacuum-assist type Stage II vapor recovery system
$CF_i$	Compatibility factor, which is $0.0777 \times Q_{ORVR}$
$\eta_{ORVR}$	In-use control efficiency for ORVR
$i$	Overall Stage II-ORVR increment that identifies the annual area-wide emission control gain from Stage II installations at gasoline dispensing facilities as ORVR technology is phased in

## CALCULATIONS USING 67.5% CONTROL EFFICIENCY IN 2016

Table 2 summarizes the factors used for a 67.5% control efficiency in 2016.

**Table 2**  
**Factors Used for ORVR Widespread Use Calculations in the Year 2016**

Factor	Value
$Q_{SII}$	0.875
$Q_{ORVRi}$	0.8860
$\eta_{iuSII}$	0.675
$Q_{SIIva}$	0.986
$CF_i$	0.0688
$\eta_{ORVR}$	0.98

There are two equations to help determine if ORVR is in widespread use for northern Kentucky.

### EQUATION 1: OVERALL STAGE II MINUS ORVR INCREMENT

This equation indicates the emission reduction potential loss from removing Stage II in the year 2016.

$$Q_{SII} \times (1 - Q_{ORVRi}) \times \eta_{iuSII} - (Q_{SIIva} \times CF_i) = \text{Overall Stage II} - \text{ORVR Increment} =$$

$$0.875 \times (1 - 0.8860) \times 0.675 - (0.986 \times 0.0688) = \textit{increment}_{2016} = \underline{\underline{-0.0005}}$$

This result means that -0.05 percentage points in 2016 and would decrease over time. And based on the subject EPA guidance, removing Stage II would not increase the emissions inventory.

### EQUATION 2: OVERALL STAGE II MINUS ORVR DELTA

This equation compares Stage II efficiency and ORVR efficiency using both technologies in the year 2016.

$$(Q_{SII} \times \eta_{iuSII}) - (Q_{SIIva} \times CF_i) - (Q_{ORVRi} \times \eta_{ORVR}) = \text{Overall Stage II} - \text{ORVR Delta} =$$

$$(0.875 \times 0.675) - (0.986 \times 0.0688) - (0.8860 \times 0.98) = \textit{delta}_{2016} = \underline{\underline{-0.3455}}$$

This result means that ORVR provides 34.55 percent greater emission reduction benefits than with Stage II alone in 2016. According to the EPA guidance, this equation considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**RESULTS: TABLES COMPARING STAGE II IN-USE CONTROL EFFICIENCY**

The tables below compare the different Stage II in-use control strategies within EPA’s recommended range: 60%, 67.5%, and 75%. Each table includes the year with the latest available data, 2014, along with each subsequent year projected out to 2020. In the far right column, “% increase when Stage II removed,” a negative percentage will appear. This suggests the operation of the Stage II systems would start resulting in a negative impact on emissions for that particular year due to the increased ORVR vehicle fleet population in the area (see “*i*” description below). By keeping the area’s overall Stage II program in operation, it would make the air quality worse. Therefore, the year in which this negative percentage first appears would be the year to start the decommissioning of Stage II systems in northern Kentucky.

**Table 3: 60% Stage II In-Use Control Efficiency**

Years	$Q_{SII}$	$Q_{ORVRI}$	$\eta_{iuSII}$	$Q_{SIIva}$	$CF_i$	$\eta_{ORVR}$	$I$	% increase when Stage II removed
2014	0.875	0.8293	<b>0.600</b>	0.986	0.0644	0.98	0.0261	2.61%
2015	0.875	0.8650	<b>0.600</b>	0.986	0.0672	0.98	0.0046	0.46%
<b>2016</b>	0.875	0.8860	<b>0.600</b>	0.986	0.0688	0.98	-0.0080	<b>-0.80%</b>
2017	0.875	0.9030	<b>0.600</b>	0.986	0.0702	0.98	-0.0182	<b>-1.82%</b>
2018	0.875	0.9190	<b>0.600</b>	0.986	0.0714	0.98	-0.0279	<b>-2.79%</b>
2019	0.875	0.9320	<b>0.600</b>	0.986	0.0724	0.98	-0.0357	<b>-3.57%</b>
2020	0.875	0.9430	<b>0.600</b>	0.986	0.0733	0.98	-0.0423	<b>-4.23%</b>

**Table 4: 67.5% Stage II In-Use Control Efficiency**

Years	$Q_{SII}$	$Q_{ORVRI}$	$\eta_{iuSII}$	$Q_{SIIva}$	$CF_i$	$\eta_{ORVR}$	$i$	% increase when Stage II removed
2014	0.875	0.8293	<b>0.675</b>	0.986	0.0644	0.98	0.0373	3.73%
2015	0.875	0.8650	<b>0.675</b>	0.986	0.0672	0.98	0.0135	1.35%
<b>2016</b>	0.875	0.8860	<b>0.675</b>	0.986	0.0688	0.98	-0.0005	<b>-0.05%</b>
2017	0.875	0.9030	<b>0.675</b>	0.986	0.0702	0.98	-0.0119	<b>-1.19%</b>
2018	0.875	0.9190	<b>0.675</b>	0.986	0.0714	0.98	-0.0225	<b>-2.25%</b>
2019	0.875	0.9320	<b>0.675</b>	0.986	0.0724	0.98	-0.0312	<b>-3.12%</b>
2020	0.875	0.9430	<b>0.675</b>	0.986	0.0733	0.98	-0.0386	<b>-3.86%</b>

**Table 5: 75% Stage II In-Use Control Efficiency**

Years	$Q_{SII}$	$Q_{ORVRI}$	$\eta_{iuSII}$	$Q_{SIIva}$	$CF_i$	$\eta_{ORVR}$	$i$	% increase when Stage II removed
2014	0.875	0.8293	<b>0.750</b>	0.986	0.0644	0.98	0.0485	<b>4.85%</b>
2015	0.875	0.8650	<b>0.750</b>	0.986	0.0672	0.98	0.0223	<b>2.23%</b>
2016	0.875	0.8860	<b>0.750</b>	0.986	0.0688	0.98	0.0070	<b>0.70%</b>
<b>2017</b>	0.875	0.9030	<b>0.750</b>	0.986	0.0702	0.98	-0.0055	<b>-0.55%</b>
2018	0.875	0.9190	<b>0.750</b>	0.986	0.0714	0.98	-0.0172	<b>-1.72%</b>
2019	0.875	0.9320	<b>0.750</b>	0.986	0.0724	0.98	-0.0268	<b>-2.68%</b>
2020	0.875	0.9430	<b>0.750</b>	0.986	0.0733	0.98	-0.0348	<b>-3.48%</b>

As previously indicated, a negative percentage in the far right column of the tables on page 3 suggests the Stage II program would result in a negative impact on emissions for that particular year due to the increased ORVR vehicle fleet population in the area. In the three scenarios with the only difference being the different Stage II in-use control efficiencies, the first year in which a negative percentage would result is either in 2016 or 2017. As indicated in Table 3, the use of a 67.5% control efficiency results in a negative impact on emissions from Stage II vapor recovery controls starting in the year 2016.

**STAGE II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA -- SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F).

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 2015-2020 data from the EPA guidance, Table A-1, Column 4, page 25\*.  

$$Q_{ORVR\ 2014} = 0.8293$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{iUSII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{SIIva} = 0.986$$
- E) Compatibility factor.  $\longrightarrow 0.0777 \times Q_{ORVR2014} = CF_{2014} = 0.0644$
- F) In use control efficiency for ORVR.  $\longrightarrow \eta_{ORVR} = 0.98$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 11, August 7, 2012.
- Kentucky Administrative Regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
- Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
- B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
- C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," pages 10- 11, August 7, 2012. EPA guidance was used since no local data were available.
- D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
- E) Based on MOVES model output data specific to the northern Kentucky area
- F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 13, August 7, 2012.

Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," pages 13 and 14. Below are the equations, where,

A = Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  
 B = Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 C = Stage II VRS in use control efficiency: Average of EPA's suggested range.  
 D = Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  
 E = Compatibility factor.  
 F = In use control efficiency for ORVR.

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

Equation Variable	Letter Identification	Equation Result	Cell Location
QSH	A	0.875	J10
QORVR	B	0.8293	J15
η <sub>VRSII</sub>	C	0.675	J17
QSH <sub>VAC</sub>	D	0.986	J22
CFI	E	0.0644	J24
η <sub>ORVR</sub>	F	0.98	J26

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON DATA FROM: 2014

This formula indicates the emission reduction potential loss from removing Stage II during this year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment}$$

$$0.875 \times (1 - 0.8293) \times 0.675 = \text{increment}_{2014}$$

$$- (0.986 \times 0.0644) = 0.0373$$

WHAT DOES THIS RESULT MEAN?

This result means 3.73 percentage points in 2014 and would decrease over time.

And according to page 14 of the U.S. EPA guidance, there is a remaining benefit for Stage II relative to ORVR.

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM: 2014

This formula compares Stage II efficiency and ORVR efficiency using both technologies during this year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta}$$

$$(0.875 \times 0.675) - (0.986 \times 0.0644) - (0.8293 \times 0.98) = \text{delta}_{2014}$$

$$- (-0.2856)$$

WHAT DOES THIS RESULT MEAN?

ORVR provides 28.56 percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**Stage II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA -- SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F).

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 2015-2020 data from the EPA guidance, Table A-1, Column 4, page 25\*.  

$$Q_{ORVR\ 2015} = 0.8650$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{iSII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{SIIva} = 0.986$$
- E) Compatibility factor.  

$$0.0777 \times Q_{ORVR\ 2015} = CF_{2015} = 0.0672$$
- F) In use control efficiency for ORVR.  

$$\eta_{ORVR} = 0.98$$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", page 11, August 7, 2012.
- Kentucky Administrative Regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
- Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
- B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
- C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", pages 10- 11, August 7, 2012. EPA guidance was used since no local data were available.
- D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
- E) Based on MOVES model output data specific to the northern Kentucky area
- F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", page 13, August 7, 2012.

Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," pages 13 and 14. Below are the equations, where,

A = Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  
 B = Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 C = Stage II VRS in use control efficiency: Average of EPA's suggested range.  
 D = Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  
 E = Compatibility factor.  
 F = In use control efficiency for ORVR.

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

Equation Variable	Letter Identification	Equation Result	Cell Location
Q <sub>SH</sub>	A	0.875	J10
Q <sub>ORVR</sub>	B	0.8650	J15
η <sub>VRSI</sub>	C	0.675	J17
Q <sub>SHVA</sub>	D	0.986	J22
CF <sub>I</sub>	E	0.0672	J24
η <sub>ORVR</sub>	F	0.98	J26

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON PROJECTED DATA FOR:  $\longrightarrow$  2015

This formula indicates the emission reduction potential loss from removing Stage II in this projected year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment}$$

$$\begin{aligned} & 0.875 \times (1 - 0.8650) \times 0.675 = \text{increment}_{2015} \\ & - (0.986 \times 0.0672) = 0.0135 \end{aligned}$$

WHAT DOES THIS RESULT MEAN?

This result means 1.35 percentage points in 2015 and would decrease over time.

And according to page 14 of the U.S. EPA guidance, there is a remaining benefit for Stage II relative to ORVR.

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM:  $\longrightarrow$  2015

This formula compares Stage II efficiency and ORVR efficiency using both technologies in this projected year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta}$$

$$\begin{aligned} & (0.875 \times 0.675) - (0.986 \times 0.0672) - (0.8650 \times 0.98) = \text{delta}_{2015} \\ & - (-0.3233) = -0.3233 \end{aligned}$$

WHAT DOES THIS RESULT MEAN?

ORVR provides 32.33 percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**STAGE II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA -- SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F).

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 2015-2020 data from the EPA guidance, Table A-1, Column 4, page 25\*.  

$$Q_{ORVR\ 2016} = 0.8860$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{USII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{SIIva} = 0.986$$
- E) Compatibility factor.  

$$\longrightarrow 0.0777 \times Q_{ORVR\ 2016} = CF_{2016} = 0.0688$$
- F) In use control efficiency for ORVR.  

$$\longrightarrow \eta_{ORVR} = 0.98$$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", page 11, August 7, 2012.
  - Kentucky Administrative Regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
  - Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
  - B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
  - C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", pages 10- 11, August 7, 2012. EPA guidance was used since no local data were available.
  - D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
  - E) Based on MOVES model output data specific to the northern Kentucky area
  - F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", page 13, August 7, 2012.
- Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation

Equation Variable	Letter Identification	Equation Result	Cell Location
QSH	A	0.875	J10
QORVR	B	0.8860	J15
PIUSH	C	0.675	J17
QSHVA	D	0.986	J22
CFI	E	0.0688	J24
ORVR	F	0.98	J26

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON PROJECTED DATA FOR:  $\longrightarrow$  2016

This formula indicates the emission reduction potential loss from removing Stage II in this projected year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment} = \text{increment}_{2016}$$

$$0.875 \times (1 - 0.8860) \times 0.675 = \text{increment}_{2016}$$

$$- (0.986 \times 0.0688) = -0.0005$$

WHAT DOES THIS RESULT MEAN?

This result means **-0.05** percentage points in **2016** and would decrease over time.

And according to page 14 of the U.S. EPA guidance, **removing Stage II would not increase the emissions inventory.**

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM:  $\longrightarrow$  2016

This formula compares Stage II efficiency and ORVR efficiency using both technologies in this projected year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta} = \text{delta}_{2016}$$

$$(0.875 \times 0.675) - (0.986 \times 0.0688) = \text{delta}_{2016}$$

$$- (0.8860 \times 0.98) = -0.3455$$

WHAT DOES THIS RESULT MEAN?

ORVR provides **34.55** percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**STAGE II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA -- SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F).

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 2015-2020 data from the EPA guidance, Table A-1, Column 4, page 25\*.  

$$Q_{ORVR\ 2017} = 0.9030$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{USII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{SIIva} = 0.986$$
- E) Compatibility factor.  

$$\longrightarrow 0.0777 \times Q_{ORVR\ 2017} = Cf_{2017} = 0.0702$$
- F) In use control efficiency for ORVR.  

$$\longrightarrow \eta_{ORVR} = 0.98$$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 11, August 7, 2012.
  - Kentucky Administrative Regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
  - Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
  - B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
  - C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," pages 10- 11, August 7, 2012. EPA guidance was used since no local data were available.
  - D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
  - E) Based on MOVES model output specific to the northern Kentucky area
  - F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 13, August 7, 2012.
- Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation

Plans and Assessing Comparable Measures," pages 13 and 14. Below are the equations, where,	Equation Variable	Letter Identification	Equation Result	Cell Location
A = Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).	Qsr	A	0.875	J10
B = Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.	Qorvr	B	0.9030	J15
C = Stage II VRS in use control efficiency: Average of EPA's suggested range.	ηvrsi	C	0.675	J17
D = Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.	Qstiva	D	0.986	J22
E = Compatibility factor.	CFi	E	0.0702	J24
F = In use control efficiency for ORVR.	ηorvr	F	0.98	J26

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON PROJECTED DATA FOR:  $\xrightarrow{\text{2017}}$

This formula indicates the emission reduction potential loss from removing Stage II in this projected year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment} = \text{increment}_{2017}$$

$$0.875 \times (1 - 0.9030) \times 0.675 = \text{increment}_{2017}$$

$$- (0.986 \times 0.0702) = -0.0119$$

WHAT DOES THIS RESULT MEAN?

This result means **-1.19** percentage points in **2017** and would decrease over time.

And according to page 14 of the U.S. EPA guidance, **removing Stage II would not increase the emissions inventory.**

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM:  $\xrightarrow{\text{2017}}$

This formula compares Stage II efficiency and ORVR efficiency using both technologies in this projected year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta} = \text{delta}_{2017}$$

$$(0.875 \times 0.675) - (0.986 \times 0.0702) - (0.9030 \times 0.98) = \text{delta}_{2017}$$

$$-0.3635$$

WHAT DOES THIS RESULT MEAN?

ORVR provides **36.35** percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**STAGE II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA – SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F).

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 2015–2020 data from the EPA guidance, Table A-1, Column 4, page 25\*.  

$$Q_{ORVR\ 2018} = 0.9190$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{idSII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{SIIva} = 0.986$$
- E) Compatibility factor.  

$$\rightarrow 0.0777 \times Q_{ORVR2018} = CF_{2018} = 0.0714$$
- F) In use control efficiency for ORVR.  

$$\rightarrow \eta_{ORVR} = 0.98$$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", page 11, August 7, 2012.
  - Kentucky Administrative regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
  - Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
  - B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
  - C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", pages 10- 11, August 7, 2012. EPA guidance was used since no local data were available.
  - D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
  - E) Based on MOVES model output data specific to the northern Kentucky area
  - F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures", page 13, August 7, 2012.
- Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation

Plans and Assessing Comparable Measures , "	pages 13 and 14. Below are the equations, where,	Equation Variable	Letter Identification	Equation Result	Cell Location
A =	Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).	Q <sub>SH</sub>	A	0.875	J10
B =	Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.	Q <sub>ORVR</sub>	B	0.9190	J15
C =	Stage II VRS in use control efficiency: Average of EPA's suggested range.	η <sub>VRSI</sub>	C	0.675	J17
D =	Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.	Q <sub>SHVA</sub>	D	0.986	J22
E =	Compatibility factor.	CF <sub>I</sub>	E	0.0714	J24
F =	In use control efficiency for ORVR.	η <sub>ORVR</sub>	F	0.98	J26

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON PROJECTED DATA FOR: 2018

This formula indicates the emission reduction potential loss from removing Stage II in this projected year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment} = \text{Increment}_{2018}$$

$$0.875 \times (1 - 0.9190) \times 0.675 = \text{Increment}_{2018}$$

$$- ( 0.986 \times 0.0714 ) = -0.0225$$

WHAT DOES THIS RESULT MEAN?

This result means -2.25 percentage points in 2018 and would decrease over time.

And according to page 14 of the U.S. EPA guidance, **removing Stage II would not increase the emissions inventory.**

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM: 2018

This formula compares Stage II efficiency and ORVR efficiency using both technologies in this projected year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta} = \text{delta}_{2018}$$

$$( 0.875 \times 0.675 ) - ( 0.986 \times 0.0714 ) - ( 0.9190 \times 0.98 ) = \text{delta}_{2018}$$

$$= -0.3804$$

WHAT DOES THIS RESULT MEAN?

ORVR provides 38.04 percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**STAGE II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA -- SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F.

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  
 2015-2020 data from the EPA guidance, Table A-1, Column 4, page 25\*.  

$$Q_{ORVR, 2019} = 0.9320$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{USII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{Silva} = 0.986$$
- E) Compatibility factor.  

$$\longrightarrow 0.0777 \times Q_{ORVR, 2019} = CF_{2019} = 0.0724$$
- F) In use control efficiency for ORVR.  

$$\longrightarrow \eta_{ORVR} = 0.98$$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 11, August 7, 2012.
  - Kentucky Administrative Regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
  - Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
  - B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
  - C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," pages 10-11, August 7, 2012. EPA guidance was used since no local data were available.
  - D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
  - E) Based on MOVES model output data specific to the northern Kentucky area
  - F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 13, August 7, 2012.
- Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation

Equation Variable	Letter Identification	Equation Result	Cell Location
QSH	A	0.875	J10
QORVR	B	0.9320	J15
η <sub>MSH</sub>	C	0.675	J17
Q <sub>SHva</sub>	D	0.986	J22
CF <sub>i</sub>	E	0.0724	J24
n <sub>ORVR</sub>	F	0.98	J26

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON PROJECTED DATA FOR:  $\xrightarrow{\hspace{2cm}}$  2019

This formula indicates the emission reduction potential loss from removing Stage II in this projected year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment} = \text{increment}_{2019}$$

$$\begin{pmatrix} 0.875 & \times & (1 - 0.9320) & \times & 0.675 \\ - & ( & 0.986 & \times & 0.0724 & ) & = & \text{increment}_{2019} \end{pmatrix} = -0.0312$$

WHAT DOES THIS RESULT MEAN?

This result means -3.12 percentage points in 2019 and would decrease over time.

And according to page 14 of the U.S. EPA guidance, removing Stage II would not increase the emissions inventory.

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM:  $\xrightarrow{\hspace{2cm}}$  2019

This formula compares Stage II efficiency and ORVR efficiency using both technologies in this projected year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta} = \text{delta}_{2019}$$

$$\begin{pmatrix} 0.875 & \times & 0.675 & ) \\ - & ( & 0.986 & \times & 0.0724 & ) \\ - & ( & 0.9320 & \times & 0.98 & ) & = & \text{delta}_{2019} \end{pmatrix} = -0.3941$$

WHAT DOES THIS RESULT MEAN?

ORVR provides 39.41 percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

**STAGE II / ORVR CALCULATIONS: NKY (Boone, Campbell, Kenton Counties)**

THE FOLLOWING CALCULATIONS ARE BASED ON ACTUAL 2014 DATA -- SEE REFERENCES BELOW FOR MORE DETAILS.

To calculate whether or not ORVR (onboard refueling vapor recovery) is in widespread use in an area, the following data will be needed. For simplicity, these variables are also identified as letters A through F).

- A) Fraction of highway gasoline throughput covered by Stage II vapor recovery system (VRS).  

$$\frac{140 \text{ regulated stations}}{160 \text{ total stations}} = Q_{SII} = 0.875$$
- B) Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles.  

$$2015\text{-}2020 \text{ data from the EPA guidance, Table A-1, Column 4, page 25}^* = Q_{ORVR\ 2020} = 0.9430$$
- C) Stage II VRS in use control efficiency: Average of EPA's suggested range.  

$$\eta_{iUSII} = 0.675$$
- D) Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS.  

$$\frac{138 \text{ vacuum-assist}}{140 \text{ Total facilities}} = Q_{SIIva} = 0.986$$
- E) Compatibility factor.  

$$\longrightarrow 0.0777 \times Q_{ORVR\ 2020} = CF_{2020} = 0.0733$$
- F) In use control efficiency for ORVR.  

$$\longrightarrow \eta_{ORVR} = 0.98$$

**References:**

- A) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 11, August 7, 2012.
  - Kentucky Administrative Regulation 401 KAR 59:174, Stage II Controls at gasoline dispensing facilities.
  - Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of 160 stations in northern Kentucky, 140 of them are regulated.
  - B) - Kentucky Transportation Cabinet, 2014 VIN data (for Calendar Year 2014, per KYTC's Justin Harrod on May 21, 2015 and May 22, 2015). \* Actual 2014 data for  $Q_{ORVR}$  provided by KYTC.
  - C) - From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," pages 10- 11, August 7, 2012. EPA guidance was used since no local data were available.
  - D) Per e-mail correspondence from Clay Redmond (Florence Field Office) to Chris Ewing (DAQ Central Office) on August 17, 2012. Out of the 140 Stage II facilities regulated, 138 have vacuum-assist systems.
  - E) Based on MOVES model output data specific to the northern Kentucky area
  - F) From EPA guidance titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," page 13, August 7, 2012.
- Two equations help determine if ORVR is in widespread use for northern Kentucky. They are found in the EPA document titled, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation

Equation Variable	Letter Identification	Equation Result	Cell Location
QSH	A	0.875	J10
QORVR	B	0.9430	J15
PIUSHI	C	0.675	J17
QSHVA	D	0.986	J22
CFI	E	0.0733	J24
nORVR	F	0.98	J26

These shaded cells are used for reference purposes when calculating Equations 1 and 2.

### EQUATION 1: OVERALL STAGE II - ORVR INCREMENT

THE FOLLOWING EQUATION IS BASED ON PROJECTED DATA FOR:  $\xrightarrow{\hspace{2cm}}$  2020

This formula indicates the emission reduction potential loss from removing Stage II in this projected year.

$$A \times (1-B) \times C - (D \times E) = \text{Overall Stage II - ORVR Increment} = \text{increment}_{2020}$$

$$0.875 \times (1 - 0.9430) \times 0.675 = \text{increment}_{2020}$$

$$- (0.986 \times 0.0733) = \text{increment}_{2020}$$

$$= -0.0386$$

WHAT DOES THIS RESULT MEAN?

This result means -3.86 percentage points in 2020 and would decrease over time.

And according to page 14 of the U.S. EPA guidance, removing Stage II would not increase the emissions inventory.

### EQUATION 2: OVERALL STAGE II - ORVR DELTA

THE FOLLOWING EQUATION IS BASED ON DATA FROM:  $\xrightarrow{\hspace{2cm}}$  2020

This formula compares Stage II efficiency and ORVR efficiency using both technologies in this projected year.

$$(A \times C) - (D \times E) - (B \times F) = \text{Overall Stage II - ORVR Delta} = \text{delta}_{2020}$$

$$(0.875 \times 0.675) - (0.986 \times 0.0733) - (0.9430 \times 0.98) = \text{delta}_{2020}$$

$$= -0.4057$$

WHAT DOES THIS RESULT MEAN?

ORVR provides 40.57 percent greater emission reduction benefits than with Stage II alone.

According to page 14 of the U.S. EPA guidance, Equation 2 considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II-equipped gasoline dispensing facilities.

# SUMMARY OF STAGE II / ORVR CALCULATIONS FOR NORTHERN KENTUCKY

## Boone, Campbell, and Kenton Counties

Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2014</sub>	delta <sub>2014</sub>	2014
2014	0.875	0.8293	0.675	0.986	0.0644	0.98	0.0373	-0.2856	
<b>increment<sub>2014</sub></b> : there is a remaining benefit for Stage II relative to ORVR. This means if Stage II were removed in <b>2014</b> , emissions would <b>increase</b> by <b>3.73%</b>									
<b>delta<sub>2014</sub></b> : ORVR provides <b>28.56</b> percent greater emission reduction benefits than with Stage II alone.									
Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2015</sub>	delta <sub>2015</sub>	2015
2015	0.875	0.8650	0.675	0.986	0.0672	0.98	0.0135	-0.3233	
<b>increment<sub>2015</sub></b> : there is a remaining benefit for Stage II relative to ORVR. This means if Stage II were removed in <b>2015</b> , emissions would <b>increase</b> by <b>1.35%</b>									
<b>delta<sub>2015</sub></b> : ORVR provides <b>32.33</b> percent greater emission reduction benefits than with Stage II alone.									
Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2016</sub>	delta <sub>2016</sub>	2016
2016	0.875	0.8860	0.675	0.986	0.0688	0.98	-0.0005	-0.3455	
<b>increment<sub>2016</sub></b> : removing Stage II would not increase the emissions inventory. This means if Stage II were removed in <b>2016</b> , emissions would <b>increase</b> by <b>-0.05%</b>									
<b>delta<sub>2016</sub></b> : ORVR provides <b>34.55</b> percent greater emission reduction benefits than with Stage II alone.									
Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2017</sub>	delta <sub>2017</sub>	2017
2017	0.875	0.9030	0.675	0.986	0.0702	0.98	-0.0119	-0.3635	
<b>increment<sub>2017</sub></b> : removing Stage II would not increase the emissions inventory. This means if Stage II were removed in <b>2017</b> , emissions would <b>increase</b> by <b>-1.19%</b>									
<b>delta<sub>2017</sub></b> : ORVR provides <b>36.35</b> percent greater emission reduction benefits than with Stage II alone.									
Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2018</sub>	delta <sub>2018</sub>	2018
2018	0.875	0.9190	0.675	0.986	0.0714	0.98	-0.0225	-0.3804	
<b>increment<sub>2018</sub></b> : removing Stage II would not increase the emissions inventory. This means if Stage II were removed in <b>2018</b> , emissions would <b>increase</b> by <b>-2.25%</b>									
<b>delta<sub>2018</sub></b> : ORVR provides <b>38.04</b> percent greater emission reduction benefits than with Stage II alone.									
Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2019</sub>	delta <sub>2019</sub>	2019
2019	0.875	0.9320	0.675	0.986	0.0724	0.98	-0.0312	-0.3941	
<b>increment<sub>2019</sub></b> : removing Stage II would not increase the emissions inventory. This means if Stage II were removed in <b>2019</b> , emissions would <b>increase</b> by <b>-3.12%</b>									
<b>delta<sub>2019</sub></b> : ORVR provides <b>39.41</b> percent greater emission reduction benefits than with Stage II alone.									
Year	Q <sub>SII</sub>	Q <sub>ORVR<sub>i</sub></sub>	η <sub>iuSII</sub>	Q <sub>Silva</sub>	CF <sub>i</sub>	η <sub>ORVR</sub>	increment <sub>2020</sub>	delta <sub>2020</sub>	2020
2020	0.875	0.9430	0.675	0.986	0.0733	0.98	-0.0386	-0.4057	
<b>increment<sub>2020</sub></b> : removing Stage II would not increase the emissions inventory. This means if Stage II were removed in <b>2020</b> , emissions would <b>increase</b> by <b>-3.86%</b>									
<b>delta<sub>2020</sub></b> : ORVR provides <b>40.57</b> percent greater emission reduction benefits than with Stage II alone.									

# **Appendix C**

**Amendment to 401 KAR 59:174**

**401 KAR 59:174. Stage II controls at gasoline dispensing facilities.**

RELATES TO: KRS 224.01-010, 224.10-100, 224.20-100, 224.20-110, 224.20-120, 40 C.F.R. 51.126, 42 U.S.C. 7511a(b)(1)(A)

STATUTORY AUTHORITY: KRS 224.10-100(5), 42 U.S.C. 7409, 7410, 7511a(b)(3), 7521(a)(5), 7624, 7625, 40 C.F.R. 51.126

NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100(5) requires the Energy and Environment Cabinet to promulgate administrative regulations for the prevention, abatement, and control of air pollution. This administrative regulation establishes requirements for the control of emissions from gasoline dispensing facilities and the decommissioning of existing controls at gasoline dispensing facilities that are no longer environmentally beneficial.

Section 1. Definitions. Terms not defined in this section shall have the meaning established in 401 KAR 59:001. (1) "Average monthly throughput" means the total gallons of gasoline dispensed during the months of operation in the previous twelve (12) months, divided by the number of months of operation during those twelve (12) months.

(2) "Balance system" means a Stage II vapor recovery system that uses direct displacement to force vapor out of the receiving container and back into the space of the container from where the liquid product was withdrawn.

(3) "Boot" means an accordion-like tubular cover used over the spout of a gasoline nozzle to provide a return-path for gasoline vapors displaced during refueling.

(4) "CARB" means the California Air Resources Board.

(5) "CARB certification" means a document such as an executive order or approval letter provided by CARB or by an equivalent authority that certifies that a vapor recovery system or system components achieve at least a ninety-five (95) percent reduction in the VOC emissions during refueling, and that identifies the performance standards required for the system or system components. An executive order may also identify the range of permissible components, permissible construction configurations, and the required tests for compliance.

(6) "Coaxial hose" means a hose-within-a-hose that provides separate passages for the flow of gasoline and vapor return.

(7) "Decommission" means to render inoperable a stage II vapor recovery system.

(8) "Dry break" means a spring-loaded valve that prevents vapor from escaping through the vapor recovery riser pipe opening of a storage tank.

(9) "Equivalent authority" means an authority recognized by the cabinet and by the U.S. EPA as having a program for certification of vapor recovery systems equivalent to that of CARB.

(10) "Existing gasoline dispensing facility" means a facility that commenced dispensing gasoline prior to January 1, 2016.

(11) "Faceplate" means a soft, donut-shaped device attached to the boot of a balance nozzle that forms a tight seal with the vehicle fill pipe during refueling.

(12) "Facility" or "gasoline dispensing facility" means a site, except a farm not engaged in the sale of gasoline, where gasoline is transferred from a stationary storage tank to a motor vehicle fuel tank.

(13) "Facility representative" means a facility employee who has been trained to serve at that facility as prescribed in Section 5 of this administrative regulation.

(14) "Flexible cone" means a cone-shaped device attached to the boot of a vacuum-assist nozzle that prevents too low a vacuum from forming in the vehicle fuel tank.

(15) "Leak" means liquid or vapor loss from the gasoline dispensing system or vapor recovery system as determined by visual inspection or operation of the equipment.

(16) "Modification" or "modify" means:

(a) The repair, replacement, or upgrade of a facility's Stage II equipment at a cost equal to seventy-five (75) percent or more of the cost of a total system replacement at modification; or

(b) A change, such as the removal of a CARB certified component and the addition or removal of piping or fittings, which may cause the vapor recovery system to be incapable of maintaining an overall control efficiency of at least a ninety-five (95) percent reduction in the VOC emissions.

(17) "Month" means calendar month.

(18) "Month of operation" means a month during which a facility is not closed for the purpose of dispensing gasoline for more than four (4) consecutive days.

(19) "Motor vehicle" means a vehicle, machine, or mechanical contrivance propelled by an internal combustion engine and licensed for operation and operated upon the public highways.

(20) "New gasoline dispensing facility" means a facility that commenced dispensing gasoline on or after January 1, 2016.

(21) "Stage I vapor recovery system" means a vapor recovery system certified by CARB or by an equivalent authority to reduce the emissions of VOCs by ninety-five (95) percent or more during the transfer of gasoline to a stationary storage tank at a facility.

(22) "Stage II vapor recovery system" means a vapor recovery system certified by CARB or by an equivalent authority to reduce the emissions of VOCs during the refueling of a motor vehicle at a facility by ninety-five (95) percent or more.

(23) "Storage tank" means a tank at a gasoline dispensing facility that is used for the storage of gasoline.

(24) "Vacuum assist system" means a Stage II vapor recovery system that uses a vacuum inducing device to collect vapor from the receiving container and direct it back into the space of the container from where the liquid product was withdrawn.

Section 2. Applicability. (1) This administrative regulation shall apply to the owner or operator of a gasoline dispensing facility located in a county in which the entire county, as of January 12, 1998, was designated severe, serious, or moderate nonattainment for ozone pursuant to 401 KAR 51:010, Attainment status designations, except as exempted in Section 9 of this administrative regulation.

(2) Subject to the compliance timetable specified in Section 8 of this administrative regulation, an owner or operator of an existing gasoline dispensing facility shall not transfer or allow the transfer of gasoline from a storage tank at that facility into a motor vehicle fuel tank unless the displaced vapors are collected by a Stage II vapor recovery system and the requirements of this administrative regulation are met.

(3) A new gasoline dispensing facility, and an existing gasoline dispensing facility after decommissioning has been completed, shall not be subject to the requirements of Sections 3 through 10 of this administrative regulation.

Section 3. Registration and Notification Requirements. The owner or operator shall submit registration and notification forms to the Division of Air Quality as specified in this section. (1) Registration of facilities. DEP 7105, Gasoline Dispensing Facility Registration Form, shall be submitted at least thirty (30) days prior to installing or modifying a Stage II vapor recovery system.

(2) Compliance test notification. DEP 7105A, Compliance Test Notification Form, shall be submitted at least thirty (30) days prior to the performance of the compliance tests required in Section 6 of this administrative regulation.

(3) Stage II post inspection report. DEP 7105B, Stage II Post Inspection Form, shall be submitted within ten (10) work days after the applicable compliance tests have been performed.

(4) Notice of Intent to Decommission Stage II Controls and Decommission Plan Form. A completed DEP 7105C, Notice of Intent to

Decommission Stage II Controls and Decommission Plan Form shall be filed at least thirty (30) calendar days prior to commencing any decommissioning activity. If a change occurs to the submitted plan, a revision shall be filed at least ten (10) calendar days prior to commencing any decommissioning activities.

(5) Notice of Status of Decommissioning of Stage II Control Form. A completed DEP 7105D, Notice of Status of Decommissioning of Stage II Controls Form, shall be filed within ten (10) days after commencing decommissioning. If decommissioning is not completed within ten (10) days after commencing, an additional DEP 7105D form shall be submitted.

Section 4. Control Measures and Operating Requirements. (1) The Stage II vapor recovery system shall:

- (a) Be designed and operated to be at least ninety-five (95) percent effective in recovering displaced vapors;
- (b) Be certified by CARB or an equivalent authority;
- (c) Employ only coaxial hoses at the dispensers;
- (d) Contain no components that would impede the performance of the functional or compliance tests of the system;
- (e) Be integrated with a Stage I vapor recovery system; and
- (f) Meet the testing requirements contained in Section 6 of this administrative regulation.

(2) The owner or operator shall comply with the operational restrictions established in paragraphs (a) through (d) of this subsection for the Stage II vapor recovery system.

(a) The system shall be installed, operated, and maintained in accordance with the manufacturer's specifications and the applicable certification granted by CARB.

(b) The system shall be free of defects listed in this subsection. The facility representative shall inspect the equipment daily for these defects. If a defect is discovered, through this inspection or otherwise, an "Out of Order" sign shall be posted, and the defective equipment shall be rendered inoperable. Defects shall include:

1. The absence or disconnection of any component that is part of the Stage II vapor recovery system;
2. The use of equipment not in accord with the system certification;
3. A vapor hose that is crimped or flattened so that:
  - a. The vapor passage is completely blocked; or
  - b. The pressure drop through the vapor hose is greater than two (2) times the certification requirements;
4. A boot that is torn in one (1) or more of the following ways:
  - a. A triangular shaped or similar tear more than one-half (1/2) inch on a side;
  - b. A hole more than one-half (1/2) inch in diameter; or
  - c. A slit more than one (1) inch in length;
5. A faceplate or flexible cone on a boot that is damaged so that the ability to achieve a seal with a fill pipe interface is impaired for at least one-quarter (1/4) of the total circumference of the faceplate or flexible cone;
6. A malfunctioning nozzle shutoff mechanism;
7. Vapor return lines, including components such as swivels, antirecirculation valves, and underground piping, that malfunction or are blocked, or are restricted so that the pressure drop through the line is greater than two (2) times the certification requirement;
8. An inoperative vapor processing unit;
9. An inoperative vacuum producing device;
10. An inoperative pressure/vacuum relief valve, vapor check valve, or dry break;
11. Leaks; and
12. An equipment defect that substantially impairs the control efficiency of the system.

(c) A defect in a component of the Stage II vapor recovery system that is not listed in paragraph (b) of this subsection shall not prevent operation but shall be repaired or replaced within fifteen (15) days after being identified as defective.

(d) If the cabinet identifies a defect specified in paragraph (b) of this subsection, the cabinet shall affix a tag to the defective equipment stating that the equipment is out of order. The tag shall not be removed until the cabinet has been notified that the defect has been corrected, and the tagged equipment has been approved for use by the cabinet pursuant to paragraph (b) of this subsection.

(3) The owner or operator shall ensure that safe access to the system components and monitoring equipment is maintained for inspection and compliance determination by the cabinet.

(4) The owner or operator shall display instructions for dispensing gasoline on or near each dispenser, in a print type and size that is easily readable, which include at a minimum:

- (a) A description of how to use the equipment;
  - (b) A warning not to dispense fuel after automatic shutoff; and
  - (c) A telephone number established by the cabinet to report problems with equipment.
- (5) At least one (1) person at the facility shall be trained pursuant to Section 5 of this administrative regulation.

Section 5. Training of Facility Representative. (1) The owner or operator shall ensure that at least one (1) person at the facility is trained to operate the vapor recovery system. The facility representative shall not be required to be present at the facility at all times, but shall perform or oversee the daily inspection of vapor recovery equipment for the defects listed in Section 4(1)(b) of this administrative regulation.

(2) Training may be provided by the vapor recovery equipment manufacturer or distributor, by the person constructing or modifying the Stage II vapor recovery system, by a trained facility representative, or by training manuals provided by the manufacturer, distributor, or the person constructing or modifying the Stage II vapor recovery system. If training manuals are used, they shall be kept at the facility and made available to the cabinet upon request.

(3) Training shall include the following topics:

- (a) Purposes of the Stage II vapor recovery program;
- (b) Operation of the vapor recovery system at that facility;
- (c) Daily equipment inspections;
- (d) How to repair or replace faulty equipment without voiding the equipment warranties;
- (e) Procedures for posting and removing "Out of Service" signs;
- (f) The executive orders of CARB (or the equivalent authority certifying the system), the range of components certified for use in the system, and the requirements placed on the owner or operator;
- (g) Maintenance schedules and requirements for the system and its components; and
- (h) Equipment warranties.

(4) The training shall include a practical demonstration on how to operate and inspect the equipment and how to perform a start-up and shut-down of the facility.

- (a) This demonstration may be performed at another facility with a similar vapor recovery system.
  - (b) The cabinet may require that this demonstration be witnessed by the cabinet as a condition for compliance.
- (5) The owner or operator shall maintain a record for each facility representative that includes:

- (a) The name of the facility representative and the date training was received;
- (b) Proof of attendance and successful completion of training; and
- (c) If applicable, the date the facility representative left the employ of the owner or operator.
- (6) The owner or operator shall not operate the facility for more than thirty (30) consecutive days without a facility representative.

Section 6. Compliance Demonstration Test. (1) Within sixty (60) days after the installation or modification of a Stage II vapor recovery system, the owner or operator shall comply with the applicable test procedures specified in this subsection. The methods by which the tests specified in this subsection are to be conducted are set forth in Stationary Source Test Methods, Volume 2, Certification and Test Procedures for Vapor Recovery Systems, April 12, 1996.

(a) A leak test shall be performed in accordance with the applicable procedure specified in this paragraph. The vapor recovery system shall comply with the leak rate criteria specified in the applicable test procedure.

1. Vapor Recovery Test Procedure TP-201.3, Determination of Two (2) Inch (WC) Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities;

2. Vapor Recovery Test Procedure TP-201.3A, Determination of Five (5) Inch (WC) Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities; or

3. Vapor Recovery Test Procedure TP-201.3B, Determination of Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities with Above-ground Storage Tanks.

(b) A dynamic back pressure test shall be performed in accordance with Vapor Recovery Test Procedure TP-201.4, Determination of Dynamic Pressure Performance of Vapor Recovery Systems of Dispensing Facilities.

1. The cabinet may require that this test be conducted simultaneously on all the nozzles of a dispenser for which gasoline can be dispensed simultaneously.

2. The vapor recovery system shall comply with the maximum allowable average dynamic pressures given in the test procedure.

(c) Vapor Recovery Test procedure TP-201.5, Determination (by Volume Meter) of Air to Liquid Volume Ratio of Vapor Recovery Systems of Dispensing Facilities, shall be performed for a system if required by the applicable CARB certification. The vapor recovery system shall comply with the criteria specified in the test procedure.

(d) Vapor Recovery Test Procedure TP-201.6, Determination of Liquid Removal of Phase II Vapor Recovery Systems of Dispensing Facilities, shall be performed for a system if required by the applicable CARB certification. The vapor recovery system shall comply with the criteria specified in the test procedure.

(2) At intervals not to exceed five (5) years, the owner or operator shall demonstrate compliance with the requirements of the applicable test procedure specified in subsection (1)(a) of this section. The notification requirements of Section 3(2) of this administrative regulation shall apply for these tests.

(3) The cabinet may require the owner or operator to perform other tests if necessary to demonstrate the adequacy of a vapor recovery system.

Section 7. Recordkeeping Requirements. (1) The owner or operator shall maintain the following documents:

(a) Current CARB certification for the Stage II vapor recovery system installed at the facility;

(b) Proof of training for the current facility representative; and

(c) Test results that verify that the vapor recovery system meets or exceeds the requirements of the compliance tests required in Section 6 of this administrative regulation.

(2) The following records shall be maintained for a period not less than three (3) years:

(a) A log of the quantity of gasoline delivered to the facility during each month;

(b) A log of maintenance records including any repaired or replacement parts and description of the problem;

(c) Inspection reports issued by the cabinet, kept in chronological order;

(d) Compliance records including warnings or notices of violation issued by the cabinet, kept in chronological order; and

(e) The facility representative record specified in Section 5(3) of this administrative regulation.

(3) Records shall be kept current and made available to the cabinet upon request.

Section 8. Compliance Timetable. The owner or operator of an existing gasoline dispensing facility that is not exempt from this administrative regulation pursuant to Section 9 of this administrative regulation shall comply with this administrative regulation as established in this section. (1) The owner or operator shall commence decommissioning of the facility's Stage II vapor recovery system pursuant to Section 10 of this administrative regulation on or after January 1, 2016.

(2) The owner or operator shall complete decommissioning of the facility's Stage II vapor recovery system on or before December 31, 2018.

(3) The owner or operator shall comply with all sections of this administrative regulation unless and until the decommissioning of the facility's Stage II vapor recovery system is complete.

Section 9. Exemptions. (1) The fuels and facilities specified in this subsection shall be exempt from this administrative regulation.

(a) Diesel fuel and kerosene. These fuels shall not be used in calculating the average monthly throughput to determine the applicability of this administrative regulation.

(b) A facility with an average monthly throughput of 25,000 gallons or less. This exemption shall cease to apply if the average monthly throughput exceeds 25,000 gallons prior to January 1, 2016, at which time facilities that were exempt before January 1, 2016, based on their average monthly throughput, shall continue to be exempt from this administrative regulation, and the throughput limitation shall no longer apply.

(c) A facility located in an air quality control region which has implemented a Stage II program that has been approved by the U.S. EPA.

(2) Recordkeeping for exempted facilities. An exempted facility shall maintain records for a period not less than two (2) years that demonstrate that the facility's average monthly throughput has not exceeded the applicable throughput limit until January 1, 2016, after which time exempted facilities shall no longer be required to maintain records that demonstrate that the facility's average monthly throughput has not exceeded the applicable throughput limit.

Section 10. Decommissioning. (1) The decommissioning procedure for a Stage II vapor recovery system shall be consistent with the procedure as described in Chapter 14 of the Petroleum Equipment Institutes Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Refueling Sites, PEI/RP300-09.

(2) The decommissioning procedure shall include:

(a) Initiating safety procedures;

(b) Relieving pressure in the tank ullage;

(c) Draining all liquid collection points;

(d) Protecting against electrical hazards by disconnecting all Stage II electrical components;

- (e) Reprogramming the electronics in the dispenser to indicate that Stage II vapor recovery is not in service;
  - (f) Sealing off vapor piping located below grade and below the level of the dispenser base in a secure manner;
  - (g) Sealing off vapor piping located below grade at the tank end, if reasonably accessible, in a secure manner;
  - (h) Sealing of vapor piping located inside the dispenser cabinet in a secure manner;
  - (i) Replacing Stage II vapor recovery-type hanging hardware with conventional-type hanging hardware;
  - (j) Installing pressure and vacuum vent valves as appropriate;
  - (k) Removing all Stage II instructions from all dispenser cabinets;
  - (l) Conducting appropriate testing, including pressure decay and tie-tank tests;
  - (m) Verifying that all visible storage system components will not release any vapors or liquids; and
  - (n) Restoring the gasoline dispensing facility back to operational status.
- (3) Decommissioning, including all required testing, shall be completed within sixty (60) days of commencement of decommissioning.
- (a) If decommissioning, including all required testing, is not completed within sixty (60) days of commencing decommissioning, lock-outs and "Out of Service" tags shall be installed on all gasoline dispensers that have not been decommissioned until decommissioning is completed.

Section 11. Incorporation by Reference. (1) The following material is incorporated by reference:

- (a) "DEP 7105, Gasoline Dispensing Facility Registration", August 1997;
  - (b) "DEP 7105A, Compliance Test Notification", August 1997;
  - (c) "DEP 7105B, Stage II Post Inspection Form", August 1997;
  - (d) "DEP 7105C, Notice of Intent to Decommission Stage II Controls and Decommission Plan Form", May 2015;
  - (e) "DEP 7105D, Notice of Status of Decommissioning of Stage II Controls Form", May 2015;
  - (f) "Petroleum Equipment Institute's Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Refueling Sites, PEI/RP300-09", 2009; and
  - (g) "Stationary Source Test Methods, Volume 2, Certification and Test Procedures for Vapor Recovery Systems", April 12, 1996. This document is also available from the California Air Resources Board, P.O. Box 2815, 2020 L St., Sacramento, California 95812, Phone: (916) 322-2990.
- (2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Division for Air Quality, 200 Fair Oaks Lane, First Floor, Frankfort, Kentucky 40601, Monday through Friday, 8 a.m. to 4:30 p.m. (24 Ky.R. 802; Am. 1295; 1503; eff. 1-12-98; TAm eff. 12-5-2006; TAm eff. 8-9-2007, TAm eff. 5-20-2010; 42 Ky.R. 1341; 2327; eff. 3-4-2016.)

**401 KAR 59:174**  
**Stage II Controls at Gasoline**  
**Dispensing Facilities**

**Notice of Public Hearing**  
**&**  
**Statement of Consideration**

### **PUBLIC HEARING AND COMMENT PERIOD:**

A public hearing on this administrative regulation will be held on October 22, 2015, at 10:00 a.m. (Eastern Time) in Conference Room 201B of the Division for Air Quality at 200 Fair Oaks Lane, 1<sup>st</sup> Floor, Frankfort, Kentucky. Individuals interested in being heard at this hearing shall notify this agency in writing by October 15, 2015, five workdays prior to the hearing of their intent to attend. If no notification of intent to attend the hearing is received by that date, the hearing shall be cancelled, and notification of the cancellation shall be posted at <http://air.ky.gov/pages/publicnoticesandhearings.aspx>. A transcript of the public hearing will not be made unless a written request for a transcript is made. If you do not wish to be heard at the public hearing, you may submit written comments on the proposed administrative regulation. Written comments shall be accepted until close of business, November 2, 2015. Send written notification of intent to be heard at the public hearing or written comments on the proposed administrative regulation to the contact person.

The hearing facility is accessible to persons with disabilities. Requests for reasonable accommodations, including auxiliary aids and services necessary to participate in the hearing, may be made to the contact person at least five (5) workdays prior to the hearing.

### **CONTACT PERSON:**

William Gooch  
Division for Air Quality  
200 Fair Oaks Lane, 1<sup>st</sup> Floor  
Frankfort, KY 40601  
Phone: (502) 564-3999  
Fax: (502) 564-4666  
E-mail: [William.Gooch@ky.gov](mailto:William.Gooch@ky.gov)

FILED WITH LRC  
TIME: 10 a.m.  
DEC - 4 2015  
Donna Little  
REGULATIONS COMPILER

STATEMENT OF CONSIDERATION  
Relating to 401 KAR 59:174  
Energy and Environment Cabinet  
Kentucky Department for Environmental Protection  
Division for Air Quality

(Not Amended After Comments)

I. The public hearing on 401 KAR 59:174, scheduled for October 22, 2015, at 10:00 a.m. at the Division for Air Quality (Division) was canceled; however, written comments were received during the public comment period ending on November 2, 2015.

II. The following person submitted written comments:

Name and Title

Agency/Organization/Entity, Other

Brian Clark, Executive Director

Kentucky Petroleum Marketers Association  
(KPMA)

III. The following person from the promulgating administrative body responded to the written comments:

Name and Title

William Gooch, Internal Policy Analyst I

IV. Summary of Comments and Responses

(1) Subject Matter: Cost of decommissioning.

(a) Commenter: Brian Clark

Comment: The commenter expresses concerns relating to the Division's estimate of costs to change out equipment; "that replacement of just hoses would cost approximately \$2,300 versus the state's estimate of \$1,980 for a ten-hose set-up."

(b) Response: The Division acknowledges the KPMA's concerns regarding the cost of decommissioning. As stated by the Division in the Regulatory Impact Analysis and Tiering Statement (RIA), the cost estimates referenced in the RIA were obtained from a final regulatory support document issued by the EPA on May 8, 2012, and were based on decommissioning a gasoline dispensing facility with five (5) multiproduct dispensers; whereas, the KPMA's estimate is for ten (10) hoses. Additionally, the KPMA's comment appears to be referring to low permeations hoses, which are not required by the proposed amendment to the regulation and are significantly more expensive than conventional hoses. After conducting research of more recent cost estimates, the Division determines that the information provided by the commenter is accurate.

However, the RIA has been supplemented with clarifying information, but no regulatory requirement is amended as a result of this comment.

- (2) Subject Matter: Decommissioning procedure involving hose setup.
  - (a) Commenter: Brian Clark  
Comment: The commenter seeks clarification whether or not the regulation assumes "a standard hose setup or low-permeation hose setup in the decommissioning process?"
  - (b) Response: The Division acknowledges the KPMA's concerns regarding the decommissioning procedure involving hose setup. As addressed in Section 14.6.9 of the "Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-09" referenced in Section 10(1) of the proposed amendment to the administrative regulation and also incorporated by reference in Section 11(1)(f), the proposed amendment to the administrative regulation clearly requires that all Stage II hanging hardware be replaced with "conventional (non-Stage II) hanging hardware" and does not specify the use of a low-permeation hose set-up. Therefore, the proposed amendment to the administrative regulation has not been amended as a result of this comment.
  
- (3) Subject Matter: Decommissioning procedure involving dropout in vapor line.
  - (a) Commenter: Brian Clark  
Comment: The commenter seeks clarification on "the requirements if there is a dropout in the vapor line?"
  - (b) Response: The Division acknowledges the KPMA's concerns regarding the decommissioning procedure involving a dropout in the vapor line. Assuming that the term "dropout in the vapor line" is referring to a "drain liquid-collection point", the requirements are clearly set forth in Section 14.6.3 of the "Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-09" referenced in Section 10(1) of the proposed amendment to the administrative regulation and also incorporated by reference in Section 11(1)(f). Therefore, the proposed amendment to the administrative regulation has not been amended as a result of this comment.
  
- (4) Subject Matter: Decommissioning procedure involving pressure decay test.
  - (a) Commenter: Brian Clark  
Comment: The commenter seeks clarification as to whether there is "a requirement for a pressure decay test, following the decommissioning process?"
  - (b) Response: To clarify, there is a requirement for a pressure decay test as set forth in Section 14.6.12 of the "Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-09" referenced in Section 10(1) of the proposed amendment to the administrative regulation and also incorporated by reference in Section 11(1)(f). Therefore, the proposed amendment to the administrative regulation has not been amended as a result of this comment.

#### V. Summary of Statement of Consideration and Action Taken by Administrative Body

The public hearing on this administrative regulation was cancelled; however, written comments were received. After consideration of comments received during the public comment period by

the Cabinet, the proposed amendment to the administrative regulation was not amended after comments.



REPRESENTING KENTUCKY'S FUEL INDUSTRY SINCE 1926

November 2, 2015

Mr. William Gooch  
Division of Air Quality  
200 Fair Oaks Lane  
Frankfort, KY 40601

Dear Mr. Gooch,

On behalf of the Kentucky Petroleum Marketers Association, I am submitting the following written comments to 401 KAR 59:174, which outlines the process for decommissioning of Stage II controls in Boone, Kenton, and Campbell counties.

After speaking to KPMA members with experience in the decommissioning process of Stage II in multiple counties in Ohio, several questions have been raised related to the state's estimate for costs to change out the equipment. These members indicate that replacement of just the hoses would cost approximately \$2300 versus the state's estimate of \$1980 for a ten hose set-up. Please see the following questions, as we seek clarification for KMPA members.

- Does the Division of Air quality assume a standard hose setup or low-permeation hose setup in the decommissioning process?
- What are the requirements if there is a dropout in the vapor line?
- Is there a requirement for a pressure decay test, following the decommissioning process?

Thank you for the opportunity to comment and I look forward to your response. Don't hesitate to contact me if you have any questions or concerns.

Sincerely,

Brian Clark  
Executive Director  
Kentucky Petroleum Marketers Association

# **Appendix D**

## **Notice of Public Hearing**

**KENTUCKY DIVISION FOR AIR QUALITY  
NOTICE OF PUBLIC HEARING  
AMENDMENTS TO KENTUCKY'S STATE IMPLEMENTATION PLAN PERTAINING TO  
GASOLINE DISPENSING FACILITIES— DECOMMISSIONING STAGE II VAPOR  
RECOVERY SYSTEMS**

The Kentucky Energy and Environment Cabinet will conduct a public hearing on April 29, 2016 at 10:00 a.m. (EST) in the Conference Room of the Division for Air Quality, 200 Fair Oaks Lane, 1<sup>st</sup> Floor, Frankfort, Kentucky. This hearing is being held to receive comments on an amendment to Kentucky's State Implementation Plan (SIP) pertaining to 401 KAR 59:174, decommissioning of Stage II Vapor Recovery Systems (VRS) controls of gasoline dispensing facilities in Boone, Campbell, and Kenton Counties.

This hearing is open to the public and all interested persons will be given the opportunity to present testimony. The hearing will be held, at the date, time and place given above. It is not necessary that the hearing be attended in order for persons to comment on the proposed submittal to EPA. To assure that all comments are accurately recorded, the Division requests that oral comments presented at the hearing also be provided in written form, if possible. To be considered part of the hearing record, written comments must be received by the close of the hearing. Written comments should be sent to the contact person. All comments must be submitted no later than April 29, 2016.

The full text of the proposed SIP revision is available for public inspection and copying during regular business hours (8:00 a.m. to 4:30 p.m.) at the Division for Air Quality, 200 Fair Oaks, 1<sup>st</sup> Floor, Frankfort, Kentucky. Any individual requiring copies may submit a request to the Division for Air Quality in writing, by telephone, or by fax. Requests for copies should be directed to the contact person. In addition, an electronic version of the proposed SIP revision document and relevant attachments can be downloaded from the Division for Air Quality's website at:

<http://air.ky.gov/Pages/PublicNoticesandHearings.aspx>.

The hearing facility is accessible to people with disabilities. An interpreter or other auxiliary aid or service will be provided upon request. Please direct these requests to the contact person.

**CONTACT PERSON:** Leslie Poff, Environmental Control Supervisor, Evaluation Section, Division for Air Quality, 200 Fair Oaks Lane, Frankfort, Kentucky 40601. Phone (502) 564-3999; Fax (502) 564-4666; E-mail [lesliem.poff@ky.gov](mailto:lesliem.poff@ky.gov).

The Energy and Environment Cabinet does not discriminate on the basis of race, color, national origin, sex, age, religion, or disability and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in all services, programs, and activities.