

**Commonwealth of Pennsylvania**



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

**Proposed State Implementation Plan Revision:**

**Repeal of the Pennsylvania Portable Fuel Container  
Requirements**

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## **Purpose of Document**

The Pennsylvania Department of Environmental Protection (Department) requests through this revision to the State Implementation Plan (SIP) that the Administrator of the United States Environmental Protection Agency (EPA) remove the Commonwealth's 2002 portable fuel containers (PFC) regulation from the Commonwealth's approved SIP. The Commonwealth's PFC regulation was repealed, effective July 14, 2012, because PFCs are regulated nationwide by more stringent federal requirements passed in 2007 (42 *Pa.B.* 4463).

The Department demonstrates in this SIP revision that removing the Commonwealth's PFC regulation from the SIP will not cause backsliding of volatile organic compound (VOC) emission reductions necessary in attaining and maintaining the ozone air quality standards. The Department has compared the VOC emission reductions achieved by the Commonwealth's PFC regulation to the VOC emission reductions achieved by the Federal PFC regulation. The Department's comparison demonstrates that the Federal PFC requirements achieve VOC emission reductions equal to or greater than the Commonwealth's PFC regulation.

## **Overview of Final-Omitted Rulemaking Process**

The Pennsylvania Environmental Quality Board (EQB) amended 25 *Pa. Code* Chapter 130 (relating to standards for products) as set forth in the "final-omitted" rulemaking published at 42 *Pa.B.* 4463 (July 14, 2012). The final-omitted rulemaking rescinded the requirements that applied under 25 *Pa. Code* §§ 130.101—130.108 (relating to portable fuel containers) for the sale, supply, offer for sale and manufacture of PFCs and spouts for sale and for use in this Commonwealth on or after January 1, 2003. The Commonwealth notice of proposed rulemaking was omitted under section 204(3) of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. § 1204(3)), known as the Commonwealth Documents Law. That section of the Commonwealth Documents Law provides that an agency may omit the notice of proposed rulemaking if the agency, for good cause, finds that the notice of proposed rulemaking procedure is, in the circumstances impracticable, unnecessary or contrary to the public interest. Omission of notice of proposed rulemaking for the rescission of the PFC regulation, §§ 130.101—130.108, was appropriate because the notice of proposed rulemaking procedure in sections 201 and 202 of the Commonwealth Documents Law (45 P. S. §§ 1201 and 1202) was, in this instance, impractical, unnecessary and contrary to the public interest. The Commonwealth PFC regulation was superseded by the more stringent Federal PFC requirements, applicable nationwide, that apply to portable fuel, diesel and kerosene containers and spouts manufactured in or imported into the United States for use in the United States beginning January 1, 2009.

For the Commonwealth to submit a request to the EPA for a revision of approved control measures in the federally-enforceable SIP, the Department must provide a public comment period and hold a public hearing with adequate public notice to comply with section 110(a)(2) of the Clean Air Act (CAA) (42 USCA § 7410(a)(2)) and regulations promulgated thereunder at 40 CFR 51.102(d). The Department published a notice of a 30-day public comment period and

an opportunity for a public hearing on Tuesday, January 14, 2014, at 1 p.m. at the Department's Southcentral Regional Office, 909 Elmerton Avenue, Harrisburg, PA 17110.

The Department is seeking comment on these three items:

- The request to the EPA to remove the Commonwealth PFC regulation from the approved Commonwealth SIP.
- The demonstration that reliance on the national Federal PFC requirements provides VOC emission reductions equal to or greater than VOC emission reductions achieved under the Commonwealth's PFC regulations.
- The use, going forward, of VOC emission reductions achieved under Federal PFC requirements in the Commonwealth's specific action plan to attain and maintain the National Ambient Air Quality Standards (NAAQS) for ground-level ozone as applicable and necessary.

## **Legal Authority**

The repeal of the Commonwealth's PFC regulation was authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the EQB the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Section 5(a)(8) of the APCA (35 P.S. § 4005(a)(8)) also grants the EQB the authority to adopt rules and regulations designed to implement the provisions of the CAA.

## **Repeal of the Commonwealth Portable Fuel Container Regulation**

### **1.1 Background**

Attaining and maintaining concentrations of ground-level ozone below the health-based 8-hour ozone NAAQS is important because ozone is a serious human health threat and can cause damage to important food crops, forests, and wildlife. Repeated exposure to ground-level ozone pollution may cause a variety of adverse health effects for both healthy individuals and those with existing conditions, including difficulty breathing, chest pains, coughing, nausea, throat irritation and congestion. Exposure to ground-level ozone can exacerbate bronchitis, heart disease, emphysema, asthma and reduce lung capacity. Asthma is a significant and growing threat to children and adults, which is aggravated by exposure to high concentrations of ground-level ozone, leading to increases in asthma attacks, use of medication, medical treatment and instances of hospitalization. Ozone pollution usually forms in hot weather; anyone spending a significant amount of time outdoors in the summer may be affected, particularly children, the elderly, outdoor workers and people exercising. Children are most at risk from exposure to ground-level ozone because they are active outside during the summertime when ground-level ozone concentrations are highest.

The Commonwealth's PFC regulation, published October 5, 2002 (32 *Pa.B.* 4819), limited emissions of VOCs into the atmosphere from the use of PFCs designed to hold gasoline. The regulation restricted the sale, supply, offer for sale and manufacture of PFCs and spouts for sale and for use in this Commonwealth on or after January 1, 2003. The regulation was part of the Commonwealth's specific action plan to attain and maintain the NAAQS for ground-level ozone in this Commonwealth, because VOCs are a precursor to the formation of ground-level ozone and high concentrations of ground-level ozone are a serious public health and welfare threat (32 *Pa.B.* 4819). The PFC regulation was approved as a revision to the SIP by the EPA on December 8, 2004 (69 FR 70893), and is codified at 40 CFR 52.2063(c)(229) (relating to original identification of plan section).

Following approval and incorporation of 25 *Pa. Code* §§ 130.101—130.108 by the EPA as a revision to the Commonwealth's SIP, the PFC regulation was included as a VOC control measure in a number of approved revisions to the SIP, including the Redesignation Requests and Maintenance Plans for the 1997 8-hour Ozone NAAQS for 15 different areas and the Attainment Demonstration for the Philadelphia Area 8-hour Ozone Nonattainment Area. The Department also based emission estimates submitted to the National Emissions Inventory (NEI) on the Commonwealth's regulatory requirements for PFCs.

On February 26, 2007, the EPA promulgated Federal PFC requirements, applicable nationwide (72 FR 8428). The federal requirements, codified at 40 CFR 59.600—59.699 (relating to control of emissions from new and in-use portable fuel containers), were effective nationwide beginning January 1, 2009. The Federal PFC emission reduction requirements apply to more types of portable containers. The Federal PFC requirements also have more stringent permeation and evaporation standards and eliminate problematic auto shut-off spouts. Finally, the Federal requirements are effective nationwide and eliminate non-compliant cross-state border sales.

## **1.2 Non-Interference Analysis**

Section 110(l) of the CAA states that the EPA Administrator may not approve a revision to a SIP if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress or any other applicable requirement of the CAA. The following analysis demonstrates that repealing the Commonwealth's regulatory requirements and relying on the federal requirements for portable fuel containers does not run contrary to section 110(l). Replacing the Commonwealth requirements with the Federal requirements creates a greater than one to one reduction in projected VOC emissions for the same time period. Table 1.1 compares the PFC requirements that existed in the Commonwealth regulation and the PFC requirements in the Federal regulation.

**Table 1.1: Requirements of Commonwealth PFC Regulation Compared with Federal PFC Requirements**

<b>Applicable VOC Emission Control Requirement</b>	<b>Commonwealth Requirements</b>	<b>Federal Requirements</b>
One Opening per Container	Required	Required
Spout: Auto Close and Seal	Required	Required
Spout: Automatic Shut-off	Required	Not Required
Warranty	Required	Required
Permeation Barrier Seal	Less than 0.4 grams hydrocarbons/gallon/day	Less than 0.3 grams hydrocarbons/gallon/day (includes evaporation from all parts of the PFC)
Non-gasoline PFC Affected	No	Yes
Applicable to All 50 States	No	Yes

The Federal PFC requirements codified at 40 CFR 59.600—59.699 achieve greater emission reductions than the Commonwealth PFC regulation for four reasons:

1. The Federal PFC emission reduction requirements apply to portable containers for diesel and kerosene in addition to portable containers for gasoline fuels. The Commonwealth requirements applied only to portable containers for gasoline fuels.
2. The Federal PFC emission reduction requirements do not require automatic shut-off spouts. The Commonwealth PFC regulation required automatic shut-off spouts. In 72 FR 8428, at page 8500, the EPA writes that automatic shut-off spouts actually increase spillage and emissions due to the wide variety of fill-hole designs on the receiving fuel tanks. As a result, the auto shut-off spouts do not work well with a variety of equipment types.
3. The federal permeation and evaporation standard for PFCs of less than 0.3 grams hydrocarbons per gallon of fuel per day is 25% more stringent than the permeation standard of less than 0.4 grams per gallon of gasoline per day in the Commonwealth regulation.
4. The Federal requirements apply to all PFCs manufactured in or imported into the United States for use in the United States beginning January 1, 2009. This reduces the opportunity for cross-state border sales of non-compliant PFCs. The Commonwealth PFC regulation did not prevent cross-state border sales of non-compliant PFCs.

Each of the Federal requirements in Table 1.1 is equally as stringent as, or more stringent than, the corresponding Commonwealth PFC requirement. Substitution of the Federal PFC rule will provide equal or greater VOC reductions than the reductions achieved under the Commonwealth regulation in each of the 1997 ozone maintenance plans, approved by EPA as SIP revisions.

## Calculations

### 2.1 Emission Estimate Calculation Methodology for Federal PFC Requirements

The Department estimated statewide VOC emissions using the control factors associated with the Federal PFC requirements. In addition, the Department estimated emissions for Lancaster County to demonstrate that emission reductions will be achieved in smaller geographic areas within the Commonwealth. Similar percent reductions will occur in all individual counties, and in all other groups of counties such as attainment and maintenance areas, statewide because the requirements are being applied consistently in all counties in the same time frames. Emission estimates were calculated for 2002, 2009 and 2018. Because the Commonwealth PFC requirements went into effect in January 2003 and the Federal PFC requirements were effective January 2009, the rule penetration resulting from both effective dates was taken into account when calculating the emissions for the Federal PFC requirements. Rule penetration is an estimate of the percentage of emissions emitted by a facility or activity covered by a regulation. As older non-complying containers were replaced by Commonwealth-compliant containers and then with federally-compliant containers, the mix of container types changed. By 2020, all PFCs used in the Commonwealth are expected to be federally-compliant containers.

#### 2002 Statewide Emissions

The 2002 actual VOC emissions estimate of 12,255.32 tons per year was originally calculated for the Department by E.H. Pechan & Associates, Inc. The Pechan calculations are documented in the Mid-Atlantic Regional Air Management Association, (MARAMA) file MANEVU\_2002\_Area\_040606.mdb, located at the MARAMA website [www.marama.org](http://www.marama.org). The Department included all relevant MARAMA emissions estimates used in calculations in this revision in the appendix. The 2002 actual VOC emissions estimate was used as the basis for the demonstration for both the Commonwealth and the Federal calculations because neither the Federal nor the Commonwealth regulation was in effect in 2002.

#### Calculating the 2009 Statewide Uncontrolled VOC Emissions from PFCs

The 2009 statewide projected VOC emissions of 8,923.08 tons per year came from MARAMA's controlled, grown estimate contained in the file MANEVU2009AreaV3\_1.mdb. The 2009 MARAMA emission estimate was calculated using a control factor. To compare the emissions resulting from the two different regulations, the MARAMA number had to first be calculated as uncontrolled emissions. To remove the control factor (control efficiency, rule effectiveness and rule penetration) from the 2009 MARAMA emission estimate, the estimate was divided by the control factor MARAMA had originally applied, as shown below.

## PA DEP Portable Fuel Containers SIP Revision Demonstration

Commonwealth Control Factor = Rule Effectiveness \* Rule Penetration \* Control Efficiency

Where:

Rule Effectiveness = 0.80  
Control Efficiency = 0.55  
Rule Penetration = 0.65

$$0.29 = 0.80 * 0.55 * 0.65$$

Statewide Uncontrolled VOC Emission = Controlled Emissions ÷ (1-Control Factor)  
12,567.72 TPY = 8,923.079 TPY ÷ (1-0.29)

### Estimating Statewide Controlled 2009 VOC Emissions with the Federal PFC Requirements Applied

After calculating the uncontrolled emission estimate, the Federal and Commonwealth control factors were applied to the uncontrolled 2009 VOC estimate. Both sets of control factors were applied because in 2009 both the Federal and the Commonwealth requirements were in effect. Where the Federal requirement had not yet penetrated, a portion of the Commonwealth requirement had penetrated, creating a mixture of non-compliant, federally-compliant and Commonwealth-compliant PFCs.

Rule penetration was comprised of Federal plus Commonwealth requirements, as follows.

Federal Rule Control Factor = Rule Effectiveness \* Rule Penetration \* Control Efficiency

Where:

Federal Rule Effectiveness = 1.00  
Federal Control Efficiency = 0.75  
Federal Rule Penetration = 0.10

Combined Control Factor = Commonwealth Control Factor + Federal Control Factor  
= 0.29 + (1.00 \* 0.75 \* 0.10)  
= 0.29 + 0.08  
= 0.37

Controlled Emissions = Uncontrolled VOC Emissions \* (1 – Combined Control Factor)  
7,917.66 TPY VOC = 12,567.72 \* (1 – 0.37)

This same calculation methodology was then used to calculate the 2018 VOC estimate.

## PA DEP Portable Fuel Containers SIP Revision Demonstration

### Calculating the 2018 Statewide Uncontrolled VOC Emissions from PFCs

The 2018 statewide projected VOC emissions of 6,148.05 tons per year came from MARAMA's controlled, grown estimate contained in the file MANEVU2018AreaV3\_1.mdb.

The 2018 MARAMA number was calculated using a control factor. To compare the emissions resulting from the two different regulations, the MARAMA number had to first be calculated as uncontrolled emissions. To remove the control factor (control efficiency, rule effectiveness and rule penetration) from the 2018 MARAMA emission estimate, the estimate was divided by the control factor MARAMA had originally applied, as shown below.

Commonwealth Control Factor = Rule Effectiveness \* Rule Penetration \* Control Efficiency

Where:

Commonwealth Rule Effectiveness = 0.80

Commonwealth Rule Penetration = 1.0

Commonwealth Control Efficiency = 0.65

$0.52 = 0.80 * 1.0 * 0.65$

Statewide Uncontrolled VOC Emission = Controlled Emissions ÷ (1-Control Factor)

$12,808.44 \text{ TPY} = 6,148.049 \text{ TPY} \div (1 - 0.52)$

### Estimating Statewide Controlled 2018 VOC Emissions with the Federal PFC Requirements Applied

Then only the Federal control factor was applied, on the assumption that the Federal regulation had fully penetrated, entirely replacing the Commonwealth-compliant containers.

Federal Control Factor = Rule Effectiveness \* Rule Penetration \* Control Efficiency

Where:

Federal Rule Effectiveness = 1.0

Federal Control Efficiency = 0.75

Federal Rule Penetration = 1.0

$0.75 = 1.0 * 1.0 * 0.75$

Controlled Emissions = Uncontrolled VOC Emissions \* (1 - Control Factor)

$3202.11 \text{ TPY VOC} = 12,808.44 * (1 - 0.75)$

Note: All MARAMA files can be found at the MARAMA website [www.marama.org](http://www.marama.org).

## 2.2 Emission Estimate Calculation Methodology for Commonwealth PFC Requirements

The Commonwealth emission estimate had previously been calculated for all years, and no further calculations or adjustments to the data were necessary.

The 2002 actual emissions were originally calculated for the Department by Pechan and are contained in the MARAMA file MANEVU\_2002\_Area\_040606.mdb.

The 2009 projected emissions came from MARAMA's controlled, grown estimate contained in the file MANEVU2009AreaV3\_1.mdb. As the controls were already applied, this number was left unchanged. The controls assumed a control efficiency of 65 percent, a rule penetration of 55 percent, and rule effectiveness of 80 percent.

The 2018 projected emissions developed by MARAMA are contained in their file MANEVU2018AreaV3\_1.mdb. VOC projected emissions statewide were 6148.0494 tons per year. As controls were already applied, this number was left unchanged. The controls assumed that the control efficiency equaled 65 percent, rule penetration equaled 100 percent, and rule effectiveness equaled 80 percent.

Table 2.1 summarizes the statewide VOC emissions calculated for the Federal Regulation and the Commonwealth Regulation for 2002, 2009 and 2018. The additional VOC reductions that result from the Federal Regulation are also shown below in Table 2.1.

**Table 2.1 Statewide Federal & Commonwealth PFC VOC Emissions**

<b>Year</b>	<b>2002</b>	<b>2009</b>	<b>2018</b>
<b>PA Regulation Only VOC Emissions TPY</b>	12,255.32	8,923.08	6,148.05
<b>Federal Regulation VOC Emissions TPY*</b>	12,255.32	7,917.66*	3202.11*
<b>Total Additional VOC Emissions Reductions in TPY Resulting from the Federal Regulation</b>	N/A	1005.42	2945.94

\*Assumes Commonwealth-compliant PFC containers are in use when Federal-compliant containers are not.

Table 2.2 summarizes the emissions calculated for a single representative county, Lancaster, to demonstrate that the results achieved statewide by replacing the Commonwealth Regulation with the Federal Regulation also hold true at the local level. Table 2.2 shows the VOC emission projections in Lancaster County for both the Federal Regulation and the Commonwealth Regulation in 2002, 2009 and 2018. This table also shows the additional reductions that result from the implementation of the Federal Regulation in Lancaster County.

**Table 2.2 Lancaster County Only, Federal Requirements Compared to Commonwealth Requirements**

<b>Year</b>	<b>2002</b>	<b>2009</b>	<b>2018</b>
<b>Lancaster County 1997 8-hr Ozone Maintenance Plan SIP VOC Emissions TPY*</b>	526.91	410.74	305.97
<b>Federal Regulation VOC Emissions TPY*</b>	526.91	364.46	159.36
<b>Total Additional VOC Emissions Reductions in TPY Resulting from the Federal Regulation</b>	N/A	46.28	146.61

\*Calculated using the same equations and data source as the statewide calculations in Table 2.1.

## **Conclusion**

The Federal PFC requirements achieve greater than 1-to-1 VOC emission reductions than the Commonwealth PFC regulation. Removal of the Commonwealth’s PFC regulation from the Commonwealth’s approved SIP and replacement of the VOC emission reductions with those achieved by the Federal PFC requirements will not adversely affect the Commonwealth’s attainment or maintenance of an ozone national ambient air quality standard, or reasonable further progress with attainment, or any other applicable CAA requirement. By applying the Federal PFC requirements, a representative county, Lancaster County, experiences a 12 percent reduction of VOC emissions in 2009 and a 48 percent reduction of VOC emissions in 2018 as Federally-compliant PFCs replace Commonwealth-compliant PFCs. Other counties in the Commonwealth will also realize identical proportions of VOC emissions reductions as the control efficiency percentages are identical for every county. The projected VOC emission reductions demonstrate that substituting the Federal PFC requirements in the SIP for Pennsylvania’s PFC requirements will not violate the non-interference provisions of the CAA for any attainment or maintenance area.