California Environmental Protection Agency

Air Resources Board

STAFF REPORT
INITIAL STATEMENT OF REASONS FOR PROPOSED AMENDMENTS
TO THE PORTABLE FUEL CONTAINER REGULATIONS

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EXECUTIVE SUMMARY

Staff proposes to amend existing regulations controlling emissions from portable fuel containers (PFCs). PFCs or "gas cans" are used to store and dispense fuel into on-road and off-road mobile sources. While the emissions from a single PFC may be small, Air Resources Board (ARB or Board) staff estimates that the uncontrolled emissions from the nearly 10 million PFCs in California in 1999 resulted in about 100 tons per day (tpd) of reactive organic gases (ROG). By comparison, all the lawn and garden equipment in California emits about the same amount of ROG as the gas cans that fuel them.

The Board adopted regulations to reduce these uncontrolled emissions from PFCs in September 1999. The current regulations reduce emissions from three main processes: evaporation of fuel vapors through PFC openings, permeation of fuel through PFC container walls, and spillage during fueling events. The current PFC regulations were fully implemented in 2001 and were projected to result in a reduction of about 75 tpd of ROG emissions statewide by 2007. However, after four years of implementation and a comprehensive assessment of the program, ARB staff has identified problems that are reducing the effectiveness of the current regulations.

Shortly after implementing the PFC regulations, consumers began to express complaints regarding spillage from the new PFCs. Specifically, ARB staff received complaints expressing dissatisfaction with the design and functionality of the PFC's "spill-proof" spouts. ARB staff researched these complaints and learned that while the regulations have been successful in reducing emissions from evaporation and permeation, emissions from spillage continued to occur. This is a direct result of the spout design.

Current PFC regulations include performance standards for PFCs. Standards exist for fill height, flow rate, pressure maintenance, automatic closure, and automatic shutoff. The automatic shutoff requirement was specifically designed to control spillage by ensuring the flow of gasoline stops when the fuel going into a target fuel tank reached a prescribed level. Consumers have expressed frustration concerning the automatic shutoff feature and generally find the feature difficult to use for the following reasons:

- Use of the automatic shutoff feature is not intuitive;
- Automatic shutoff designs have led to difficulties in fueling, therefore causing spillage; and,
- Non-uniform fuel tank designs and fuel tank openings have rendered the automatic shutoff feature incompatible with some equipment.

Other issues that have emerged from the implementation of the regulations are poor production quality and the use of non-regulated containers for gasoline storage. ARB compliance tests show that many PFCs fail to comply with the original regulations, and the failures commonly result from poor production quality. Also, kerosene containers

that are not subject to the current regulations have become inexpensive PFC substitutes. Additionally, uncontrolled utility jugs are being used to store and transfer gasoline.

ARB staff sponsored two statewide surveys and a consumer focus group to obtain information from consumers concerning their experiences using PFCs, as well as to obtain information relating to the number of PFCs used in California. These studies have provided ARB staff with information about the effectiveness of the current regulations, data to improve emission estimates, and insights to further identify problem areas with the regulations. In response to the issues identified with the current regulations, ARB staff is proposing the following amendments:

- Modify the existing spout regulations to improve spillage control;
- Include a voluntary Consumer Acceptance Program to support and encourage user-friendly PFC designs;
- Establish a certification program for PFCs to improve product quality;
- Expand the definition of a PFC to include presently non-compliant containers;
- Combine the evaporation and permeation standards into a new diurnal standard to simplify certification and compliance testing; and,
- Adopt new PFC test procedures to streamline testing.

Approval of the proposed amendments will reduce ROG emissions by more than 18 tons per day (tpd) by the year 2015. These emission reductions result from removing the automatic shutoff feature, thus reducing emissions from spillage, adding kerosene containers and utility jugs into the regulations, and adopting a more stringent diurnal standard.

These amendments are expected to have little effect on the cost of existing PFCs that meet current standards. However, ARB staff estimates that consumers will pay an additional $8.50 when purchasing a compliant kerosene container or utility jug in lieu of a non-compliant substitute container. The total cost from the proposed amendments will be about $17 million over a five-year period including costs associated with the proposed certification program and new test procedures. The estimated cost-effectiveness for this proposal is about $.40 to $.70 per pound of ROG reduced. This cost-effectiveness figure compares favorably with values for the small off-road engines (SORE) regulations recently adopted by the Board that had a cost-effectiveness range of under $2.00 to over $6.00 per pound of hydrocarbons reduced.

ARB staff conducted five public workshops and had over 60 meetings with manufacturers and other interested parties during development of the proposed amendments. In addition, ARB staff considered alternatives to the proposal including no action, retain the current requirements and add a consumer education program, impose a diurnal standard and certification program, and the current proposal. ARB staff believes the proposal is technologically feasible, cost-effective and provides the greatest benefits to the people of California.

1. INTRODUCTION

PFCs or “gas cans” are made of either high-density polyethylene (HDPE or plastic) or metal and are sold in a variety of shapes and sizes typically ranging from one to five gallons capacity. PFCs are used to store and dispense fuel into on-road and off-road mobile sources, including a broad range of small engines and equipment (e.g., lawnmowers, leaf blowers, personal watercraft, all-terrain vehicles, etc.).

Reactive Organic Gas (ROG) emissions from PFCs come from evaporation, permeation, and spillage of gasoline. Even though the emissions from a single PFC are small, over 10 million PFCs were in use in California in 1999, and emitted over 100 tons per day (tpd) of ROG. The primary source of PFC emissions (about 72 tpd) was associated with fuel evaporation from vents and other types of openings. Permeation contributed about 8 tpd of ROG emissions, as did spillage. Spillage from PFCs occurs when attempting to pour fuel, removing the spout from a target tank, or in some cases, when a tank is overfilled. About 12 tpd came from other sources.

In September 1999, the Board adopted the current PFC regulations to reduce PFC emissions. The regulations were implemented in January 2001. The regulations were expected to reduce over 75 tpd of ROG emissions in 2007, by controlling evaporation, permeation, and spillage from PFCs.

Shortly after implementing the PFC regulations consumers began to express complaints regarding spillage from the new PFCs “spill-proof” spouts and systems. ARB staff researched these complaints and learned that the regulations have been successful in reducing emissions from evaporation and permeation, however emissions from spillage continued to occur. Although, the new PFCs work well with some equipment, there are many instances where the spouts are too large or inflexible to fit into various types of non-standardized tanks. Consumers find some of the features helpful, but others difficult and impractical to use.

Other issues that have emerged from the implementation of the regulations are poor production quality of spouts, and the use of non-regulated containers for gasoline storage. ARB staff randomly tests PFCs for compliance. These tests show that many PFCs fail to comply with the original regulations and the failures commonly result from poor production quality. Also, kerosene containers that were not included in the original regulations have become inexpensive PFC substitutes. In addition, utility jugs that were intended to be included in the regulations are sold with no emission controls due to unclear regulatory language.

In response to the issues encountered with the current regulations, ARB staff is proposing the following amendments:

- Modify the existing spout regulations to improve spillage control;
- Include a voluntary Consumer Acceptance Program to support and encourage user-friendly PFC designs;

- Establish a certification program for PFCs to improve product quality;
- Expand the definition of a PFC to include presently non-compliant containers;
- Combine the evaporation and permeation standards into a new diurnal standard to simplify certification and compliance testing; and,
- Adopt new PFC test procedures to streamline testing.

The amendments included in this document are aimed at maximizing emission reductions from PFCs in a cost-effective manner while improving consumer acceptance of spill-proof systems. This document describes the need for the amendments, provides a summary of the ARB staff's proposal, identifies environmental and economic impacts, and discusses the alternatives that were considered and issues that have not been resolved.

2. BACKGROUND

The background portion of this report includes the legal authority, regulatory history, emissions inventory, related federal programs to control emissions from PFCs, and the public process used in these proceedings.

2.1 Legal Authority

In 1988, the California legislature enacted the California Clean Air Act (CCAA), which declared that attainment of State ambient air quality standards is necessary to promote and protect public health, particularly the health of children, older people, and those with respiratory diseases. The legislature also directed that these standards be attained by the earliest practicable date.

The CCAA as codified in the Health and Safety Code (HSC) Sections 43013 and 43018 grants the ARB authority to regulate off-road mobile sources of emissions and fuels. Such sources include jet skis, all-terrain vehicles, off-road motorcycles and small off-road engines. These sources are often refueled using PFCs, and ARB is therefore authorized to regulate PFCs as adjuncts to existing and proposed off-road engine regulations, as a separate off-road mobile source category, and as an emission source associated with motor vehicle fuel.

2.2 Regulatory History

The current PFC regulations were filed with the Secretary of State on September 11, 1999 and became fully applicable on January 1, 2001.

2.3 Emissions Inventory

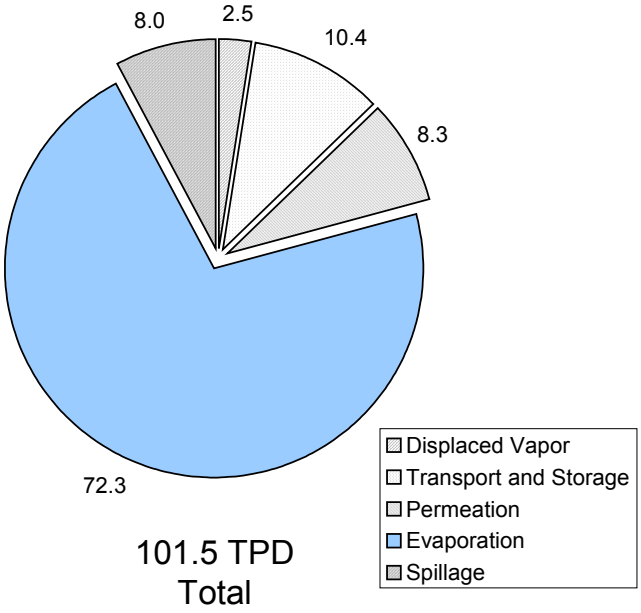
2.3.1 1999 Staff Report

In the1999 PFC rulemaking, ARB staff estimated that if left uncontrolled PFCs in California would emit 101.5 tpd of ROG by the year 2007. As a result of

implementing the 1999 regulations, emissions were projected to be reduced to 25.3 tpd of ROG. Chart 2.1 summarizes the different emission categories and individual contributions as projected for 2007. As can be seen, the largest portion of the emissions comes from the evaporation category.

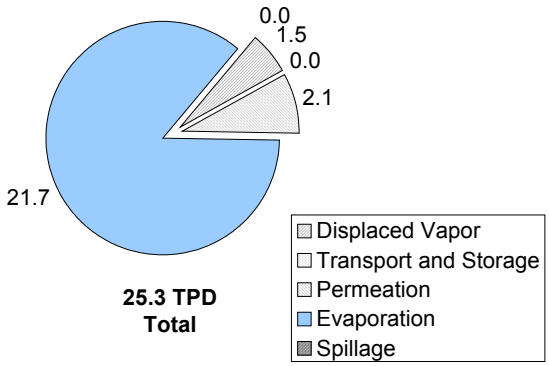
Chart 2.1
1999 Estimate of Emissions

Uncontrolled PFC Emissions - 2007



101.5 TPD
Total

Controlled PFC Emissions - 2007



25.3 TPD
Total

2.3.2 2004 Update

This Section discusses changes and adjustments to our estimate of emissions based on new information and an analysis of the effectiveness of the existing regulations. Between February and December 2004, ARB staff contracted with the California State University, Sacramento to conduct two PFC surveys. The main objective was to obtain information from residential and commercial users about their experiences using PFCs. A secondary objective was to gain information related to the number of kerosene containers and other types of containers used for gasoline but not controlled under the current regulations. In the two surveys, Analysis of 2004 California Household Portable Fuel Container Survey (September 2004) and Analysis of the 2004 California Commercial Portable Fuel Container Survey (January 2005) the results revealed changes in the estimated number of PFCs and the penetration rate of compliant PFCs. The penetration rate is

based on the number of compliant PFCs that have replaced the "old style", non-compliant PFCs. In addition, the surveys identified 590,000 uncontrolled kerosene containers, with 350,000 being used for storage and dispensing of gasoline in California, and 1.4 million uncontrolled utility jugs that are being inappropriately used to store gasoline. Table 2.1 describes the differences between the 1999 and 2004 population estimates.

Table 2.1

Comparison of 1999 and 2004 PFC Population Estimates, For Year 2007				
1999 PFC Estimates			2004 PFC Estimates	
Residential	10,000,000		Residential	9,500,000
Commercial	630,000		Commercial	210,000
			Utility Jugs	1,400,000
			Kerosene	590,000
Total PFCs	10,630,000		Total PFCs	11,700,000

The PFC surveys show that more PFCs are used in California than expected based on the 1999 survey, and there are fewer commercial PFCs than originally estimated. Also, the number of metal PFCs compared to plastic PFCs has decreased, resulting in more emissions from permeation. This is because metal containers permeate less than plastic PFCs.

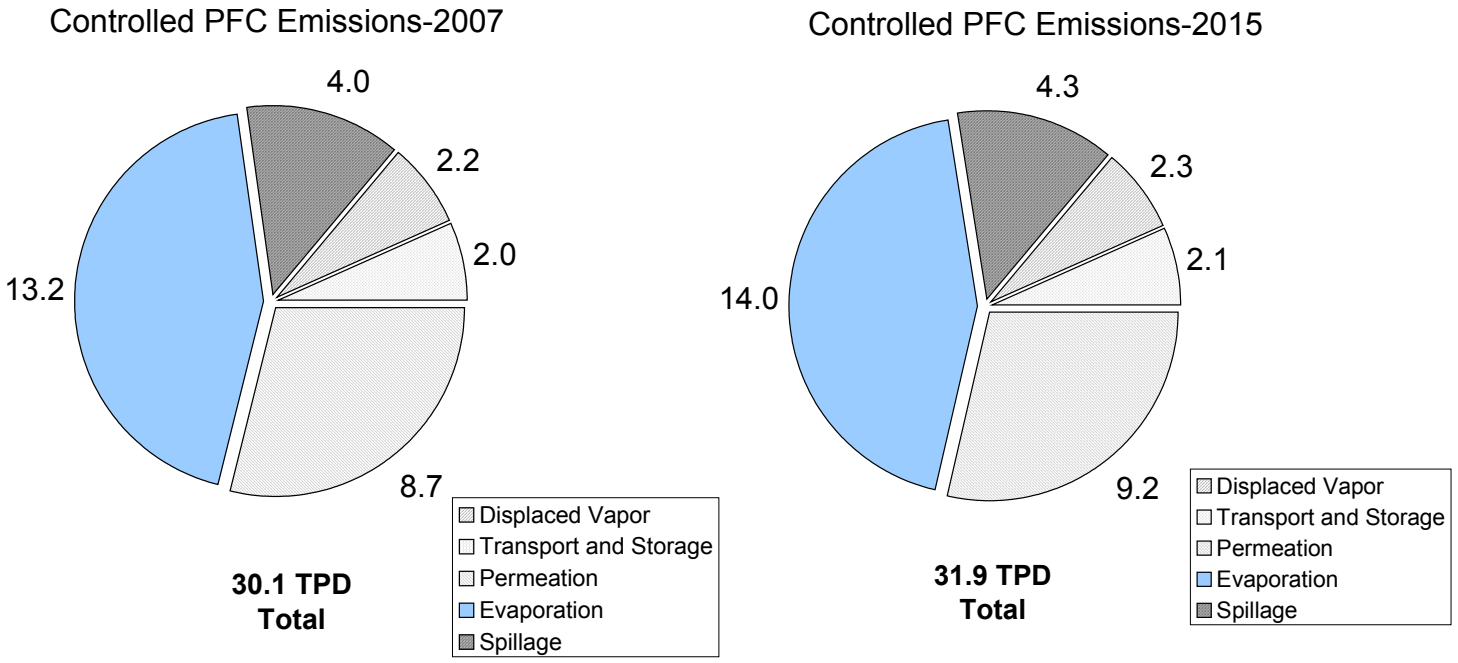
In addition, ARB staff quantified the emissions that occur when the PFCs are vented prior to fueling. The data are included in the report Quantification of Vent Emissions from Portable Fuel Containers Prior to Fueling (May 2005). The changes in population and data on emissions from venting were used to revise our emission estimates. Details regarding the proposed emissions adjustments can be found in the report Revised California's Portable Gasoline Container Emissions Inventory (May 2005). The effects of the changes to the 2007 controlled ROG emissions inventory are shown in Chart 2.2.

As a result of the ARB staff investigation into the numerous consumer complaints regarding spillage and the incompatibility issues resulting from the automatic shutoff feature, ARB staff realized that the 1999 regulations did not achieve all the emission reductions expected. ARB staff had estimated in 1999 that 8 tpd of ROG emissions due to spillage would be fully controlled in 2007. ARB staff now believes the ROG emissions from spillage will only be reduced by about half in 2007. Likewise, ARB staff had expected emissions from utility jugs to be controlled like any other PFC. However, because the definition of a PFC in the regulations was unclear, utility jugs have been sold for use with gasoline without controls. These emissions are estimated to be 14.5 tpd of ROG in 2007. Kerosene containers are also being used

to store gasoline, contributing another 3.4 tpd of ROG in 2007. Also, ARB staff had expected emissions from evaporation to be reduced from 72.3 tpd of ROG in 1999 to 21.7 tpd of ROG in 2007. In fact, ARB staff now believes that by including kerosene containers and utility jugs, evaporation emissions will be reduced to 9.2 tpd ROG in 2007.

The better than expected emission reductions from evaporation, the less than expected emission reductions from spillage, and the uncontrolled emissions from kerosene containers and utility jugs are included in our revised estimate of 2007 emissions. With no additional controls or amendments to these regulations, the effect of the major additions and adjustments to our estimate of ROG emissions will result in 30.1 tpd of ROG emissions in 2007 compared to our 1999 estimate of 23.5 tpd. In 2015 ROG emissions will be 31.9 tpd. The emissions for these two years are very similar. The growth in the number of PFCs and the controls in effect are offsetting. Both the 2007 and 2015 emission estimates are presented in Chart 2.2.

Chart 2.2
2004 Estimate of Emissions



2.4 Related Federal Regulations

There are currently no federal regulations pertaining to controlling emissions from PFCs. However, the U.S. Environmental Protection Agency (EPA) is considering adopting national standards for PFCs. In the prior PFC rulemaking, ARB staff reviewed federal regulations applicable to workers safety and to safety in transporting PFCs to avoid conflicts. The proposed amendments would not effect the federal requirements.

2.5 Public Process

The proposed amendments incorporate comments and suggestions from PFC manufacturers, consultants, consumer groups, the public, and the EPA. Public information concerning the development of this proposal was made available on ARB's web site at www.arb.ca.gov/pfc/pfc.htm. Announcements regarding workshops and the release of regulatory documents were provided to over 290 manufacturers, distributors, dealers and interested parties via email by the ARB Portable Fuel Container list server.

2.6 Workshops

ARB staff conducted five public workshops to aid in developing the proposed amendments. Workshop notices were mailed to over 600 affected stakeholders comprised of PFC and engine manufacturers, recreational marine manufacturers and dealers, trade associations, and other interested public parties. ARB staff carefully considered the verbal and written comments received during this process. As a result of these comments, ARB staff made significant changes to the proposed amendments and certification and test procedures. Many of those changes are reflected in this proposal.

2.7 Meetings

Numerous meetings were conducted with PFC manufacturers as summarized in Table 2.4.

Table 2.4
List of Meetings

Stakeholder	Date(s)
A.S.T.M	02/16/04
Blitz	04/14/04, 05/04/04, 08/25/04, 08/26/04, 09/13/04, 02/22/05
Chilton	09/26/03, 04/14/04
Dupont	01/07/04, 03/16/04, 04/15/04, 04/26/04, 04/29/04, 05/13/04
Flow 'N Go	05/19/04
Mid West Can Company	04/19/04, 05/04/04, 08/25/04, 08/26/04, 09/14/04
No-Spill Research	04/15/04, 05/04/04
Portable Fuel Container Trade Association	07/26/04, 08/25/04, 08/26/04, 9/10/04, 10/27/04, 11/8/04, 12/08/04
Sceptor	02/16/04, 04/16/04, 05/04/04, 08/25/04, 08/26/04, 09/14/04
Scribner	05/04/04, 05/11/04, 05/12/04, 05/13/04, 08/25/04, 08/26/04
Speedy Spout	12/1/03, 01/8/04, 05/04/04, 04/04/05, 04/16/04,

	05/04/05, 08/25/04, 08/26/04, 09/14/04,
EPA	01/20/04, 02/26/04, 03/16/04, 04/27/04, 09/15/04, 01/18/05, 06/06/05
VP Racing	08/25/04, 08/26/04
Wedco	01/13/04, 01/27/04, 04/15/04, 05/04/04, 08/25/04, 08/26/04, 09/22/04, 02/23/05

3. NEED FOR REGULATORY CHANGES

The need for regulatory changes includes a discussion of the State Implementation Plan requirements and issues with the current regulations.

3.1 State Implementation Plan (Ozone)

On November 15, 1994, the ARB adopted the State Implementation Plan (SIP) for ozone that was subsequently approved by the EPA on September 25, 1996. The SIP serves as California's overall strategy for achieving national air quality standards for ozone. The SIP seeks to reduce air pollution in the most cost-effective manner, using a combination of performance standards and market-based programs to promote the introduction of cleaner technologies and expand compliance with existing control strategies. The 1994 SIP includes State measures to control mobile sources (including passenger cars, heavy-duty trucks and off-road equipment), local measures for stationary and area sources, and federal measures for sources under exclusive or practical federal control (such as planes and locomotives). California's SIPs for carbon monoxide and inhalable particulate matter also rely on controlling these sources. In addition, many areas in California still exceed the more stringent State ambient air quality standards for ozone and particulate matter.

Portable fuel containers are a significant source of ROG emissions in California. Reducing ROG emissions from PFCs will help improve California's air quality and are needed to achieve the State and federal air quality standards throughout California.

3.1.1 SIP Settlement

On January 28, 1999, the Board approved a settlement with three Los Angeles based environmental groups regarding the 1994 State Implementation Plan for Ozone (SIP) litigation (Coalition for Clean Air v. South Coast Air Quality Management District). The lawsuit was filed against the South Coast Air Quality Management District, the ARB, and the EPA for failure to implement specific measures contained in the 1994 SIP.

The settlement addressed emission reduction shortfalls in the South Coast Air Basin in 2010. Under the terms of the settlement, ARB is obligated to make up these shortfalls. The PFC control measure adopted in 1999 played a major role in making

up the emission reduction shortfalls in the South Coast Air Basin. This proposal will help assure these anticipated reductions are fully achieved.

3.2 Issues with the Current Regulations

Recognizing the significant ROG emissions from uncontrolled PFCs, the Board adopted regulations to control these emissions in September 1999. The current regulations include requirements to reduce emissions from three main processes: evaporation and permeation (which in this report are considered diurnal emissions) and spillage. The current regulations were fully implemented in 2001, although it will be many years before the controlled PFCs replace all of the non-controlled cans.

Based on our experiences in implementing and enforcing the current regulations, ARB staff has identified several issues relating to spillage and consumer acceptance. One issue is a direct result of the automatic shutoff feature included in the regulations. The automatic shutoff feature is designed to reduce spillage by stopping the flow of gasoline when the target fuel tank reaches a prescribed fill level. Manufacturers designed spouts that met the requirements of ARB regulations, but often the spouts were incompatible with many types of equipment fuel tanks. Consumers have become frustrated because of these incompatibilities. They claim the PFCs are difficult to use.

A second issue is that the current regulations do not impose production line testing or certification requirements on the PFC manufacturers. This has resulted in a high degree of variability with the production parts. As demonstrated through compliance testing, nearly half of the products tested fail to meet the regulations, largely due to poor quality control. Consequently, by the time ARB enforcement staff has identified non-complying PFCs, those PFCs have already been introduced for sale, and measures to recall non-compliant PFCs already in consumer hands are largely ineffective.

A third issue is the sale of non-compliant PFCs. Several manufacturers have been marketing containers used for carrying water and other fluids. These containers are nearly identical to the old, non-compliant PFCs, except in color. They are being sold adjacent to compliant PFCs on the shelves of retail stores. Some consumers are purchasing these non-compliant containers and filling them with gasoline. This slows down the turnover to low emission PFCs.

A final issue involves combining the evaporation and permeation controls into a diurnal standard, and changing the PFC test methods to be consistent with the proposed amendments. Changing the requirements and test methods for permeation and evaporation will simplify and reduce the costs associated with certification and enforcement procedures.

In summary, issues with the current regulations are:

- Low consumer acceptance and spout incompatibility;
- Non-uniform production quality;
- Use of non-regulated containers with gasoline; and,
- Diurnal standard and incompatible test methods.

3.2.1 Low Consumer Acceptance and Spout Incompatibility

Current PFCs are designed to comply with the regulation's automatic closure and automatic shutoff features, as well as fill height, flow rate, pressure and permeation standards. The automatic closure feature is designed to reduce emissions from evaporation and spillage. The automatic shutoff feature is also designed to reduce emissions from spillage. The fill height and flow rate standards are designed to ensure the tank fills fully and at a rate acceptable to consumers. The pressure standard is designed to reduce emissions due to evaporation. The permeation standard is designed to reduce emissions due to permeation.

Some of these features and standards have resulted in significant emission reductions, especially the automatic closure feature. However, ARB staff has learned that other features and standards have indirectly led manufacturers to design PFCs that are difficult to operate or incompatible with many types of equipment fuel tanks. Although the PFCs work well with some equipment, many other types of equipment, such as line trimmers and leaf blowers, cannot be effectively fueled from compliant PFCs. Spillage from compliant PFCs may even occur from users attempting to fuel equipment by manually holding the spout open and attempting to pour fuel. In many instances of incompatible equipment design, this is the only option for a consumer to fuel the equipment.

In other cases, a fuel tank is overfilled due to failures of the PFC automatic shutoff feature. This is usually the result of fuel tanks that are too small to allow sufficient fuel to be dispensed to achieve a vacuum and actuate the automatic shutoff feature.

In the survey, Analysis of 2004 California Household Portable Fuel Container Survey (September 2004, page 4, Table 7), 32 percent of all respondents expressed frustration with using compliant PFCs and reported problems with spillage or usage. ARB staff finds the following features and standard have contributed to the consumer acceptance issues:

- Automatic shutoff;
- Fill height and flow rate; and,
- Pressure standard.

3.2.2.1 Automatic Shutoff

The automatic shutoff feature required by the PFC regulations stops the flow of fuel when a specified fill height is reached in the target tank. In many designs, automatic shutoff is actuated via a vacuum line contained in the spout. This design has resulted in rigid, large diameter spouts that are incompatible with many types of equipment with hard to reach, small diameter fuel necks. In addition, many consumers are unable to understand how the feature works and thus use the PFCs incorrectly, possibly causing more spillage than before the regulations, as reported by consumer complaints. Most PFC manufacturers and ARB staff have concluded that removing the automatic shutoff feature will improve consumer acceptance and reduce spillage.

3.2.2.2 Fill Height and Flow Rate

The fill height and flow rate standards were intended to require manufacturers to design PFCs that would flow and fill in such a way that consumers would find acceptable. These measures were purely consumer acceptance measures included in the previous rulemaking, and no emissions benefits were identified for them. After testing the PFCs and conducting a consumer focus group, ARB staff learned that most consumers were not concerned about these features, and that they cause manufacturers difficulty in designing spouts that meet the other emissions related regulations. Overall, ARB staff has concluded that these standards are unnecessary.

3.2.2.3 Pressure Requirement

The pressure standard in the regulations is intended to control emissions from evaporation while a PFC is stored with gasoline. The current standard is 10 psig. Research conducted by ARB staff revealed that PFCs designed to hold pressure up to 10 psig are difficult to operate. As reported by consumers, an unusually large amount of physical force is required to dispense fuel. The force involved is often enough to tip over equipment, which can result in spillage. ARB staff has shown that reducing the pressure standard will have no effect on emissions and will make it easier for consumers to dispense fuel by requiring less physical force to be applied to the target fuel tank.

3.2.2 Non-uniform Production Quality

ARB staff has conducted compliance testing on over 950 PFCs. Nearly half failed. The test results identify considerable production variability, even among individual product lines leading to non-compliance. In addition, some PFCs are poorly designed and use inferior materials. This is inconsistent with a superior PFC design ARB staff evaluated in the late 1990's while developing the initial regulations. The superior design did not make it into production.

3.2.3 Use of Non-Regulated Containers with Gasoline

Non-regulated containers are being sold that hold fluids other than gasoline. These containers are similar in size, shape and appearance to PFCs. Kerosene containers and utility jugs are examples of such containers. These containers are offered for sale at a number of retail stores and use conventional spouts that do not control evaporation, permeation, or spillage. Since 2001, manufacturers began reporting record sales of non-regulated containers, as they are typically sold adjacent to regulated PFCs, often at a discounted price.

In a usage survey titled Analysis of 2004 California Household Portable Fuel Container Survey (September 2004 page 10, Table 17), it was shown that approximately 350,000 kerosene containers and 1.4 million utility jugs are being used for gasoline in California. Use of these containers decreases the emission reductions provided by the PFC regulations. To a significant extent the compliance by retailers and distributors of PFCs is key to ensuring the emission reductions are achieved.

3.2.4 Diurnal Standard and Incompatible Test Methods

The current regulations include requirements for evaporation and a separate standard for permeation. This approach requires additional testing for manufacturers and ARB staff, adding complexity and cost to testing and enforcement procedures. By combining the evaporation requirements and the permeation standard into a single diurnal standard, certification and enforcement testing will be simplified, testing costs will be reduced, and testing will be consistent with routine use.

The proposed changes related to automatic shutoff, fill height, flow rate, pressure, and the diurnal standard require the need for updated and new test procedures for PFCs. These test procedures and standards are needed to measure and enforce the proposed amendments.

4. SUMMARY OF PROPOSAL

This chapter outlines ARB staff's proposed amendments. This report identifies the major provision of each proposed amendment, explains the rationale for each provision, and discusses its feasibility.

The proposed amendments in this section are ARB staff's response to the issues identified with the current regulations. The following are discussed:

- Modify the existing spout regulations to improve spillage control;
- Include a voluntary Consumer Acceptance Program to support and encourage user-friendly PFC designs;

- Establish a certification program for PFCs to improve product quality;
- Expand the definition of a PFC to include presently non-compliant containers;
- Combine the evaporation and permeation standards into a new diurnal standard to simplify certification and compliance testing; and,
- Adopt new PFC test procedures to streamline testing.

The proposed amendments would apply to PFCs offered for sale after July 1, 2007. Exceptions to this implementation date are the elimination of the fill height and flow rate standards and the new regulatory definition of a PFC. These three amendments are proposed to take effect 30 days from the date of filing these amendments with the Secretary of State.

4.1 Modify the Existing Spout Regulations

The current PFC regulations were designed to eliminate spillage when transferring fuel to a variety of gasoline-powered equipment. In the development of this proposal, ARB staff contracted surveys, performed research, and funded a focus group in an attempt to fully understand consumer usage of PFCs. In the residential survey, Analysis of 2004 Household Portable Fuel Container Survey (September 2004, page 4, Table 7), 32 percent of all respondents reported problems with spillage. In the commercial user survey, Analysis of the 2004 Commercial Portable Fuel Container Survey, (January 2005, page 13, Table 3.6), an average of 17 percent of users also reported problems with filling equipment. The consumer focus group titled State of California Air Resources Board Gas Can Focus Group (August 2004, page 5) and ARB staff's internal studies revealed similar results.

To address these issues, ARB staff is proposing to eliminate the current automatic shutoff feature and the fill height and flow rate standards. This will provide manufacturers with greater design flexibility to produce PFCs that are easier to use and more compatible with many types of vehicles and off-road equipment. The automatic closure feature will remain in effect as it has been shown to effectively reduce emissions from evaporation. ARB staff is proposing to remove the fill height and flow rate standards from the regulations 30 days after the date of filing these amendments with the Secretary of State. ARB staff is also proposing to eliminate the automatic shutoff requirement for newly certified PFCs, to take effect by July 1, 2007. Manufacturers are expected to certify new designs by July 1, 2007.

Because the fill height and flow rate standards are purely consumer acceptance related, no emissions consequences will result from their elimination. The amendments in this proposal also eliminate the automatic shutoff requirement. ARB staff expects manufacturers will redesign spouts so consumers have greater visibility and control of the refueling event. Increased visibility and control includes making the spouts clear and smaller in size so consumers can see into the equipment fuel tanks, and by providing a trigger, lever, or push button that actuates and shuts off the flow of fuel. These features are prohibited in the current regulations due to the automatic shutoff requirement. PFC manufacturers are committed to design spouts that provide

more visibility and control of the fueling event, in order to improve consumer acceptance. ARB staff believes this will reduce the spillage of fuel that is occurring as a result of the automatic shutoff requirement. Because the current automatic shutoff feature often results in spillage, ARB staff estimates that by replacing the feature with increased visibility and control this amendment will reduce ROG emissions from spillage. Some spillage will still occur, but less frequently than with the automatic shutoff feature.

The pressure standard in the current regulations was adopted to ensure PFCs contain emissions from evaporation while PFCs are stored with gasoline. While implementing the current regulations, manufacturers reported that the 10 psig design criteria limited their ability to produce easy-to-use PFCs.

ARB staff preformed research to investigate the actual vapor pressure that develops in a PFC under normal conditions. Actual vapor pressure measurements taken from PFCs exposed to a summertime temperature profile showed that the vapor pressure does not exceed 4.0 psig. These observations are further substantiated by vapor pressure curves for 7 Reid Vapor Pressure (RVP) fuel. The curves predict that the partial pressure of hydrocarbon vapors will rise by no more than 3.9 psig when the fuel temperature rises from 65 to 105 degrees Fahrenheit. This information shows that the design criteria can be lowered while still effectively controlling emissions from evaporation. As a result, ARB staff is proposing to reduce the PFC pressure standard from 10 psig to 5 psig on all PFCs to be certified on or after July 1, 2007.

4.2 Consumer Acceptance and ARB Star Rating

In order to improve PFC usability and consumer acceptance, ARB staff is proposing a voluntary consumer acceptance-labeling program that uses an ARB Star Rating system. This purely optional program is designed to improve existing PFCs by allowing manufacturers to label PFCs rated superior by consumers. The labeling program will enable consumers to easily recognize and purchase PFCs that other users have rated as easy to use. Market competition should lead manufacturers to design quality products that are compatible and easy to use.

Under this program, manufacturers may submit consumer acceptance criteria to ARB staff for approval prior to certification. If ARB staff approves the criteria, the manufacturer would have at least ten consumers evaluate their product on a percentage scale, with 100 percent being the highest possible score. ARB staff would then assign the product one to three stars based upon a minimum evaluation rating of 70 percent or more for one star, 80 percent or more for two stars, or 90 percent or more for three stars. ARB staff may reproduce the evaluation to verify the designated consumer rating.

The consumer acceptance-labeling program would authorize a manufacturer to use the ARB Star Rating to market their product(s). The program would be voluntary but

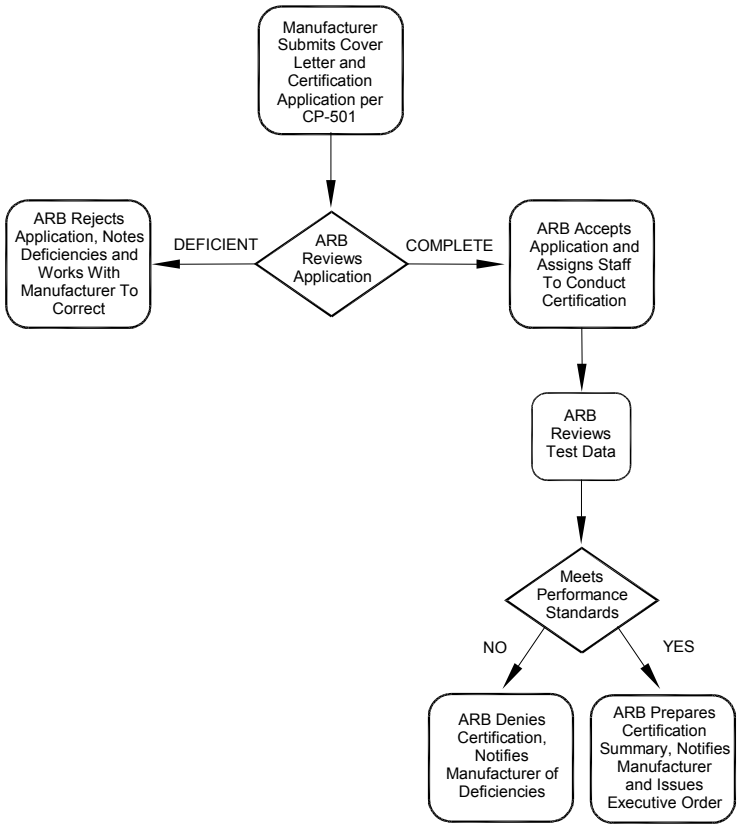
strongly encouraged for all manufacturers, as ARB staff believes this will greatly improve consumer acceptance and public education.

4.3 Establish a Certification Program for PFCs

In order to ensure that PFCs sold in California comply with the PFC regulations prior to their sale in the State, ARB staff is proposing to establish a certification program. The proposed regulations (Appendix A) reference the proposed Certification Procedure "CP-501" (Appendix B).

The proposed certification program requires PFC manufacturers to submit a formal application that includes test data documenting compliance with the specified performance standards, as well as information pertaining to PFC design. An ARB Executive Order certifying PFCs for sale in California will be issued if all of the applicable certification requirements are met. Figure 4.1 describes the certification process.

Figure 4.1
Certification Process for Portable Fuel Containers



4.4 Amendment to PFC Definition

The ARB staff proposes to amend the definition of a PFC to include kerosene containers and make it clear that utility jugs that are sold, advertised, or offered for sale as a PFC are subject to the applicable PFC regulations. The new definition would take effect 30 days from the date of filling the amendments with the Secretary of State. As proposed, all containers labeled or embossed for use with gasoline, diesel, or kerosene are subject to these regulations. Also, all containers that are labeled or embossed for use with some other fluid, such as water, are not subject to these regulations. For those containers that are not labeled or embossed, the marketing strategy of the manufacturers, distributors, and retailers determine if the regulations apply.

4.5 Diurnal Standard

The current regulations include separate standards and test methods to determine evaporation and permeation emissions. This approach requires additional testing for manufacturers and ARB staff, adding complexity and cost to testing and enforcement procedures. By combining the evaporation requirements and the permeation standard into a single diurnal standard and test method, certification and enforcement testing will be simplified, testing costs will be reduced, and testing will be consistent with in-use practices. ARB staff is proposing to combine the evaporation and permeation standards into a single diurnal standard and test method. The implementation schedule is shown in Table 4.1.

Table 4.1
Diurnal Standards and Implementation Schedule

Effective Dates	Diurnal Standards
Initial Std. July 1, 2007	0.4 grams ROG/gallon-day
Final Std. January 1, 2009	0.3 grams ROG/gallon-day

The following subsections describe the sources of diurnal emissions from PFCs, technology to control diurnal emissions, development of a diurnal test procedure, and the testing performed by ARB staff that shows the feasibility of the proposal.

4.5.1 Sources of Diurnal Emissions

Diurnal emissions from PFCs are comprised of two sources, evaporation and permeation. Evaporation occurs as a result of daily temperature fluctuations that cause vapors to expand and escape through openings in the PFC. Permeation occurs when gasoline saturates the walls of a plastic PFC and escapes to the atmosphere.

4.5.2 Technology to Control Diurnal Emissions

4.5.2.1 Evaporative Emissions

The automatic closure feature has been effective in controlling emissions from evaporation. The pressure standard also contributes to reduced emissions from evaporation.

4.5.2.2 Permeation Emissions

Manufacturers have used a variety of technologies to comply with the PFC permeation regulations. Barrier technologies including co-extrusion, special polymers and resins, and surface treatments have been verified to effectively control permeation through ARB staff compliance testing and development of both the PFC and small off-road engine (SORE) regulations.

4.5.3 Development of Diurnal Test Procedure

During development of this proposal, ARB staff developed and validated a new diurnal test that measures both evaporation and permeation emissions. ARB staff test report Quantification of Permeation and Evaporative Losses from Portable Fuel Containers (June 2004, page 3, Figure 1) present the results. ARB staff believes this will not only simplify testing and reduce testing costs, but will also replicate the types of durability encountered during routine use.

4.5.4 Feasibility of Diurnal Standard

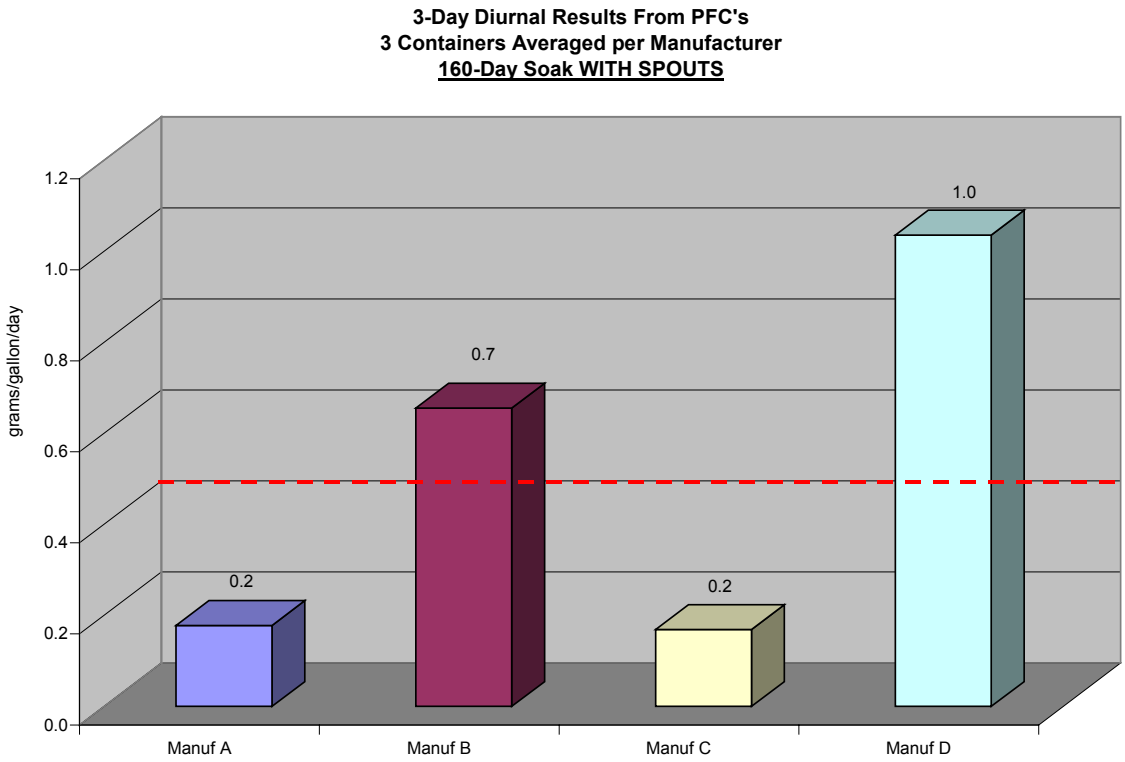
In order to evaluate the feasibility of implementing a combined evaporation and permeation emissions test method, ARB staff tested PFCs using a Sealed Housing for Evaporative Determination (SHED) enclosure. Testing involved an initial preconditioning and durability test period followed by diurnal testing. The durability portion involved repeatedly actuating (500 times) and removing the spouts to simulate in use conditions. After the durability test period, the PFCs were placed in the SHED and subjected to three consecutive California summertime temperature profiles to quantify the diurnal emissions that resulted.

4.5.4.1 Diurnal Results

The diurnal test results (average of three containers per manufacturer) presented in Figure 4.2 show that two manufacturers' PFCs easily met the proposed 2007 and 2009 diurnal standard of 0.4 and 0.3 grams/gal-day, respectfully, and two manufacturers' PFCs failed. One of the manufacturer's PFCs that failed to meet the criteria (manufacturer B) did so because of one problem spout and poor production quality that can be remedied. The other manufacturer's containers that failed (manufacturer D) were utility jugs with no controls. Based on these results,

ARB staff is proposing to establish a 0.4 gram/gal-day standard in 2007, and lower it to 0.3 grams/gal-day in 2009.

Figure 4.2



4.6 Improved PFC Test Procedures

4.6.1 Spill-Proof Spout Test Procedure

ARB staff has conducted extensive compliance testing on a large variety of PFCs. The testing has suggested improvements to the test requirements. The proposed improvements would include removing the test criteria for fill height, flow rate, and automatic shutoff, modify the test criteria for pressure, and impose a new test procedure for diurnal testing. Based on their experiences with testing, ARB staff proposes to replace existing Test Methods 510, 511 and 512 with Test Procedure TP-501 (Appendix C). This change would take effect for PFCs certified by July 1, 2007.

In the interim period prior to July 1, 2007, ARB staff is proposing to amend Test Method 510 and remove Test Method 512, to be effective 30 days after the date of filing of these amendments with the Secretary of State. This will immediately provide manufacturers with greater flexibility related to the fill height and flow rate

standards. The proposed interim amendments to Test Method 510 are in strikeout and underline format in Appendix D of this staff report. The existing Test Method 511 can be found in Appendix E. Appendix F includes the proposed amendments to Test Method 512, also in strikeout format.

4.6.2 Diurnal Emission Test Procedure

ARB staff is proposing to replace existing Test Method 513, the test method for permeation, with a new diurnal test procedure TP-502. This change would take effect for PFCs certified by July 1, 2007. TP-502 includes a durability demonstration. This procedure will measure all PFC emissions except for spillage using one procedure. The results generated from the test would be similar to the emissions from a PFC stored in a garage on a hot summer day. The proposed test procedure, TP-502 can be found in Appendix G of this staff report and Appendix H includes Test Method 513.

4.7 Other Non-Substantive Modifications

ARB staff is proposing to make other non-substantive modifications to the regulations. Some examples are:

- Amend the regulations to allow for secondary openings to allow for technology changes that may reduce the pressure in a PFC;
- Remove the automatic closure by physical force requirement to allow fueling control using a trigger, lever, or push button; and,
- Include an exemption for model airplanes, boats, cars and trucks that use a closed loop fueling system.

5. ENVIRONMENTAL AND ECONOMIC IMPACTS

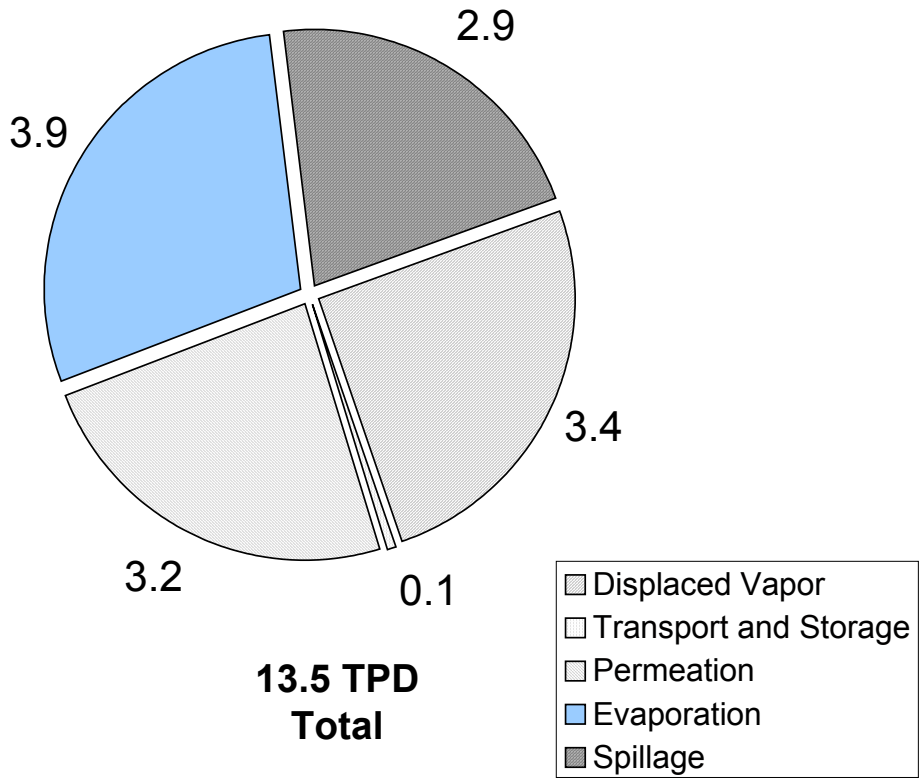
This portion of the ARB staff report discusses environmental and economic impacts.

5.1 Environmental Impact

5.1.1 Emission Reductions

The proposed amendments will reduce ROG emissions from PFCs by 18.4 tpd in 2015 compared to the current regulations. The emission reductions include 1.4 tpd due to reduced spillage, 3.2 tpd due to regulating kerosene containers, 13.3 tpd from assuring utility jugs comply, and 0.5 tpd from the new combined diurnal standard. Chart 5.1 shows the resulting controlled emissions by source for 2015.

Chart 5.1
Expected Emissions in 2015



5.1.2 Reduced Exposure to Toxic Air Pollutants

Benzene, a toxic air contaminant, is present in the emissions associated with evaporation from PFCs. Because the proposed amendments will reduce ROG emissions, they will also reduce the public's exposure to toxic compounds found in gasoline, such as benzene.

5.1.3 Environmental Justice

State law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Senate Bill 115, Solis; Stats 1999, Ch. 690; Government Code § 65040.12(e)). The Board has established a framework for incorporating environmental justice into the ARB's programs consistent with the directives of State law. The policies developed apply to all communities in California, but recognize that environmental justice issues have been raised more often in the context of low income and minority communities, which sometimes experience higher exposures to some pollutants as a result of the

cumulative impacts of air pollution from multiple mobile, commercial, industrial, area wide, and other sources. Over the past twenty years, the ARB, local air districts, and federal air pollution control programs have made substantial progress towards improving the air quality in California. However, some communities continue to experience higher exposures than others as a result of the cumulative impacts of air pollution from multiple mobile and stationary sources and thus may suffer a disproportionate level of adverse health effects. Since the same ambient air quality standards apply to all regions of the State, all communities, including environmental justice communities, will benefit from the air quality benefits associated with the proposal. Alternatives to the proposed recommendations, such as recommending no change to the automatic shutoff requirement, would affect all communities throughout the State. As additional relevant scientific evidence becomes available, the PFC standards will be reviewed again to ensure that the public's health is protected with an adequate margin of safety.

To ensure that everyone has an opportunity to stay informed and participate fully in the development of the amendments to the PFC regulations, ARB staff conducted five public workshops in Sacramento. Information was also distributed by mail and via the Internet, as described in Section 2.5 of this staff report.

5.2 Cost and Cost-Effectiveness

ARB staff evaluated cost information supplied by PFC manufacturers and obtained through two statewide surveys to determine the economic impacts of the proposed amendments. ARB staff relied upon the costs cited in the 1999 PFC Initial Statement of Reasons (ISOR) to estimate the increased retail price for kerosene containers and utility jugs due to the proposed amendments.

5.2.1 Cost Estimates to Reduce Emissions and Implement Certification

5.2.1.1 Cost of Removing the Automatic Shutoff Feature

Designing the automatic shutoff feature has been reported by PFC manufacturers to be one of the most costly aspects of the current PFC regulations. Removing this feature will most likely result in a cost savings. No costs have been attributed to this amendment.

5.2.1.2 Cost of Implementing the Certification Program

To estimate the cost of the proposed certification program ARB staff used data supplied by independent test companies and manufacturers' hourly labor rates. ARB staff estimates that it will cost a typical manufacturer $4,000 to comply with the program. There are currently eight manufacturers producing PFCs for the California market, thus the cost of adding the certification program is $32,000. Assuming that eight manufacturers sell about 1.9 million PFCs in the State each year, certification will cost about $.02 per PFC. These costs would likely be passed on to the consumer.

5.2.1.3 Cost of Regulating Kerosene Containers and Utility Jugs

The proposed amendments would potentially increase the cost of a kerosene container or utility jug by $6.00 to $11.00, or an average of about $8.50 per container. The increased cost is attributed to material and production costs associated with adding control technologies for evaporation, permeation, and spillage. In total, this will result in a cost of approximately $17 million (0.6 million kerosene containers plus 1.4 million utility jugs x $8.50 per container). This amounts to a price increase of about $1.70 per container per year over the estimated five-year useful life of the kerosene container. It is expected that the useful life of a utility jug is more than five years, thus the cost per year would be less.

5.2.1.4 Cost of Implementing the New Diurnal Standard

The cost of complying with the proposed diurnal emission standard is not expected to be substantially different from complying with the existing permeation standard in the PFC regulations. Currently, manufacturers are using control technologies that are capable of reducing emissions sufficiently to meet the proposed diurnal standards. Better engineering and quality control are expected to allow those PFCs that currently exceed the proposed standards to comply. Thus, compliance costs are expected to be minimal, and we have included no additional costs in our assessment.

5.2.2 Cost-Effectiveness of Proposed Amendments

ARB staff used cost information obtained from the 1999 PFC ISOR, manufacturers, and test companies to calculate the cost-effectiveness of this proposal. ARB staff included certification costs and assumed a five-year useful life of PFCs when calculating cost-effectiveness. The certification cost ($32,000) is estimated assuming eight manufacturers producing PFCs for the California market at a testing and processing cost of $4,000 each. The cost for a kerosene container or utility jug is estimated assuming 0.6 million kerosene containers and 1.4 million utility jugs at a per container cost of $8.50 or a total of $17 million. The estimated reductions are 3.2 tpd or nearly 7 million lbs. over five years from kerosene containers and 13.3 tpd or 29 million lbs. from utility jugs. The emission reductions and costs associated with producing compliant PFCs over their useful life are shown in Table 5.1. The other proposed amendments to the PFC regulations are not expected to result in increased costs compared to the existing regulations.

Table 5.1

Cost-Effectiveness of Proposed Amendments			
Category	**Costs Over 5 Years**	**Emission Reductions lbs. Over 5 Years**	**Cost-Effectiveness**
Kerosene Container	$5 million	7 million	$.70 per lb.
Utility Jugs	$12 million	29 million	$.40 per lb.
Spillage	$0	3 million	N/A
Certification	$32,000	N/A	N/A
Diurnal	$0	1 million	N/A
Total	$17 million	60 million	$.40 to $.70 per lb.

5.3 Economic Impact on the Economy of the State

The proposed amendments would have no noticeable impact on the status of California PFC manufacturers. The amendments would potentially increase the cost of kerosene containers and utility jugs by about $6.00 to $11.00 per container. In total, this will result in a total cost of compliance of approximately $17 million. This amounts to a price increase of about $1.70 per year over the five-year useful life of a kerosene container. Utility jugs are expected to have a useful life greater than a PFC, so the annual costs will be less. As mentioned above, the cost of certification is negligible. Consumers are unlikely to alter their purchasing behavior for such a price increase. Also, this price increase accounts for only a small portion of an annual household income.

5.3.1 Legal Requirement

Section 11346.3 of the Government Code requires State agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulations. The assessment shall include a consideration of the impact of the proposed amendments on California jobs, business expansion, elimination or creation, and the ability of California business to compete.

Also, Section 11346.5 of the Government Code requires State agencies to estimate the cost or savings to any State agency, local agency or school district in accordance with instructions adopted by the Department of Finance. The estimate shall include any non-discretionary cost or savings to local agencies and the cost or savings in federal funding to the State.

5.3.2 Businesses Affected

Any business involved in the manufacturing of PFCs and equipment will potentially be affected by the proposed amendments. However, the focus of this analysis will be on the PFC manufacturers because these businesses would be most directly affected by the proposed amendments.

5.3.2.1 Portable Fuel Container Manufacturers

There are currently eight manufacturers that market PFCs in California; most of them do not meet the definition of a "Small Business" as defined in Government Code Section 11342.610. The majority of PFCs are manufactured outside of California.

The affected manufacturers fall into different industry classifications. A list of the industries that ARB staff has been able to identify is provided in Table 5.2.

Table 5.2
Industries with Potentially Affected Manufacturers

SIC Code	Industry
3053	Gaskets, Packing, and Sealing Devices
3087	Custom Compounding of Purchased Plastic Resins
3089	Plastic Products
5261	Lawn and Garden Supply Stores

5.3.3 Impact on Small Businesses

The proposed amendments will have some impact, although not significant, on small businesses that currently buy and sell kerosene containers and utility jugs. For small retailers, during the initial years of implementation, the increased cost of PFCs may lead to a slight drop in demand that could result in lower profits. For example, a small retailer that currently sells 50 containers and utility jugs per year might sell 10 percent fewer or five fewer PFCs during the first year of implementation. Assuming a 20 percent profit on an $11 PFC, the regulations would cost the retailer $11 in profit the first year. In this instance, the retailer would carry over unsold stock to the next year, possibly incurring less profit on the sale of these units.

5.3.4 Potential Impact on Distributors and Dealers

Most PFC manufacturers sell their products through distributors and dealers. Many independently owned dealers are small businesses. The distributors and dealers sell about 1.9 million PFCs per year in California. Although they are not directly affected by the proposed amendments, the amendments may affect them indirectly if an increase in the price of kerosene containers and utility jugs reduces sales volume.

5.3.5 Potential Impact on Business Competitiveness

The proposed amendments would not significantly impact the ability of California PFC manufacturers to compete with manufacturers of similar products in other states. This is because all manufacturers that offer products for sale in California are subject to the proposed amendments, regardless of their location. Furthermore, nearly all of the PFC manufacturers are located outside of California.

5.3.6 Potential Impact on Employment

The proposed amendments are not expected to cause a noticeable reduction in California employment because California accounts for only a small share of the manufacturing employment involving PFCs. However, some small businesses operating outside of California may leave the California market due to cost increases, which may result in a few jobs being eliminated.

6. ALTERNATIVES CONSIDERED

ARB staff evaluated three alternatives to this proposal:

- No action;
- Retain current requirements and add a consumer education program; and,
- Impose a diurnal standard and certification program.

6.1 No Action

The first alternative evaluated was to take no action. Under this alternative, it is unlikely that any PFC manufacturers would voluntarily incorporate consumer acceptance designs or manufacturer products that would be more acceptable to a consumer than the current PFCs. Consumers would continue to spill fuel when fueling equipment and the PFCs would continue to be incompatible with many equipment fuel tanks. Also, no emission reductions associated with non-complying containers would be achieved. ARB staff rejected this alternative, as it provides no benefits and does not address the existing problems.

6.2 Retain Current Regulations and add a Consumer Education Program

The second alternative evaluated was to retain the current requirements, but institute a consumer education program to improve consumer awareness and instruct consumers on proper usage of PFCs. Kerosene containers and utility jugs would not be regulated under this proposal. Under this alternative, it is unlikely that any manufacturers will alter their designs to improve consumer acceptance and compatibility. Also, PFC manufacturers are unlikely to solve spillage issues without regulatory action. The few manufacturers that may elect to redesign their PFCs would be at a competitive disadvantage compared to manufacturers electing not to redesign their PFCs. ARB staff rejected this alternative because it believes that simply educating the public on proper use of PFCs is not sufficient to address the consumer acceptance, non-regulated PFCs, and poor production quality issues.

6.3 Impose a Diurnal Standard and Certification Program

The third alternative evaluated was a proposal to implement a certification program and new diurnal standard. Kerosene containers and utility jugs would not be regulated under this proposal. Under this alternative, PFC manufacturers would only be required to certify their existing PFCs but would not be able to implement changes to further improve issues related to usability or spillage.

This alternative would have a minimal impact on manufacturers and may improve the overall compliance rate for PFCs sold in California. However, manufacturers would still be hampered by the current design requirements for PFCs, including automatic shutoff, fill height, flow rate, and the higher pressure standard. Retaining these regulations would not lead to design changes aimed at improving usability and spillage. Because one of ARB staff's goals was to improve consumer acceptance and reduce spillage, ARB staff rejected this alternative.

7. ISSUES

ARB staff has identified three issues that have not been resolved. These are discussed below.

7.1 Notice to Distributors and Retailers for Newly Regulated PFCs

In the current PFC regulations, utility jugs were intended to be included in the definition of PFCs used for the transport and storage of gasoline. ARB staff has routinely observed utility jugs being used to refuel personal watercraft (Jet Ski's, etc.), off-road motorcycles, and all terrain vehicles. Furthermore, utility jugs are often sold adjacent to PFCs at off-road and small equipment retailer outlets.

The proposed amendments call for the definition of a PFC to include utility jugs, to take effect 30 days after filling with the Secretary of State. Some manufacturers have suggested that the ARB staff needs to notify distributors and retailers of this amendment to ensure no utility jugs are sold for use with gasoline. Accordingly, ARB staff intends to work with industry to provide advisories to distributors, retailers, and consumers.

7.2 Opposition to Removing the Automatic Shutoff Requirement

The automatic shutoff feature was developed to stop the dispensing of fuel when a particular fill height is reached in the target fuel tank. This was intended to reduce emissions associated with spillage.

One manufacturer feels strongly that removing the automatic shutoff feature may seriously jeopardize the safety of consumers and result in increased emissions from spillage. This manufacturer has produced test data concerning the automatic shutoff feature. ARB staff has thoroughly reviewed the data and finds them inconsistent with the other findings included in the surveys, focus group, and ARB staff testing and research. A video made of the consumer focus group study clearly shows that consumers find the automatic shutoff feature difficult to use. Furthermore, other manufacturers believe that removing the automatic shutoff feature will reduce spillage and improve consumer acceptance. ARB staff believes that removing the automatic shutoff feature will improve consumer acceptance and result in greater fuel tank compatibility.

7.3 Coordination with EPA Concerning Proposed Diurnal Test Procedure

Throughout the development of this proposal, ARB staff worked closely with the EPA concerning the regulations and test procedures. The EPA is currently working on national regulations for PFCs and is considering a diurnal standard and test procedure modeled after the proposed regulations and test procedures contained in this staff report. However, there may be some differences between the durability portions of the two regulations and the fuel used for testing. Table 7.1 lists the potential differences. EPA has not yet announced a firm schedule to initiate rulemaking.

Table 7.1
Potential Differences between ARB and EPA Diurnal Regulations

ARB Requirements	Possible EPA Requirements
Non-Alcohol Based Certification Fuel	Alcohol Based Certification Fuel (CE10)
No Pressure/Vacuum Test	Pressure/Vacuum Test Required
No Slosh Test Required	Slosh Test Required
65^{o}F-105^{o}F Temperature Profile	72^{o}F-96^{o}F Temperature Profile

The effect of these differences are that the ARB regulations would be slightly more restrictive with regards to the temperature profile, where the EPA version would be slightly more restrictive in regards to the pressure, slosh, and fuel regulations. ARB staff is continuing to work with the EPA to ensure the differences between the two regulations are minimal.

8. CONCLUSIONS AND RECOMMENDATIONS

The ARB staff proposes amendments to the existing PFC regulations as discussed in this staff report:

- Modify the existing spout regulations to improve spillage control;
- Include a voluntary Consumer Acceptance Program to support and encourage user-friendly PFC designs;
- Establish a certification program for PFCs to improve product quality;
- Expand the definition of a PFC to include presently non-compliant containers;
- Combine the evaporation and permeation standards into a new diurnal standard to simplify certification and compliance testing; and,
- Adopt new PFC test procedures to streamline testing.

In developing this proposal, it has been ARB staff's goal to improve consumer acceptance and achieve the greatest possible emission reductions. The proposed amendments to the existing PFC regulations and test procedures are achievable using existing technology and manufacturing processes. The emission reductions are cost-effective when compared to recent control measures adopted by the Board. The proposed amendments are necessary to meet emission reduction goals and achieve health based ambient air quality standards.

No alternatives considered by the Board would be more effective in achieving the goals of this proposal, nor would be less burdensome to manufacturers or affected private persons.

ARB staff recommends the Board approve its proposal to amend Sections 2467 to 2467.9 of Title 13, California Code of regulations, Test Methods 510, 511, 512 and 513, and adopt Certification Procedure 501 and Test Procedures TP-501 and TP-502 incorporated by reference therein and provided in Appendices A through H of this report.

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