Source Category: Portable Fuel Containers (PFCs)

INTRODUCTION

The purpose of this document is to provide a forum for public review and comment on the evaluation of candidate control measures that may be considered by the States in the Midwest Regional Planning Organization (MRPO) to develop strategies for ozone, PM2.5, and regional haze State Implementation Plans (SIPs). Additional emission reductions beyond those due to mandatory controls required by the Clean Air Act may be necessary to meet SIP requirements and to demonstrate attainment. This document provides background information on the mandatory control programs and on possible additional control measures.

The candidate control measures identified in this document represent an initial set of possible measures. The MRPO States have not yet determined which measures will be necessary to meet the requirements of the Clean Air Act. As such, the inclusion of a particular measure here should not be interpreted as a commitment or decision by any State to adopt that measure. Other measures will be examined in the near future. Subsequent versions of this document will likely be prepared for evaluation of additional potential control measures.

The evaluation of candidate control measures is presented in a series of "Interim White Papers." Each paper includes a title, summary table, description of the source category, brief regulatory history, discussion of candidate control measures, expected emission reductions, cost effectiveness and basis, timing for implementation, rule development issues, other issues, and a list of supporting references. Table 1 summarizes this information for the portable fuel container category.

SOURCE CATEGORY DESCRIPTION

Portable fuel containers (PFCs) are designed for transporting and storing fuel from a retail distribution point to a point of use and eventually dispensing fuel into equipment. Commonly referred to as "gas cans," these products come in a variety of shapes and sizes with nominal capacities ranging in size from less than one gallon to over six gallons. Available in metal or plastic, these products are widely used to refuel residential and commercial equipment and vehicles when the situation or circumstances prohibits direct refueling at a service station. PFCs are used to refuel a broad range of small off-road engines and other equipment (e.g., lawnmowers, chainsaws, personal watercraft, motorcycles, etc.). VOC emissions from PFCs are classified by five different processes:

- PFC refueling vapor displacement and spillage emissions result when fuel vapor is displaced from the gas can and from gasoline spillage/over-filling during refueling at a service station. These emissions may already be accounted for under the Stage II refueling source category.
- Transport-spillage emissions from PFCs occur when fuel escapes from gas cans that are in transit.
- Diurnal emissions result when stored fuel vapors escape to the air through any possible openings while the container is subjected to the daily cycle of increasing and decreasing ambient temperatures. Diurnal emissions depend on the closed- or open- storage condition of the PFC.
- Permeation emissions are produced after fuel has been stored long enough in a container for fuel molecules to infiltrate and saturate the container material, allowing vapors to escape through the walls of containers made from plastic.

TABLE 1 – CONTROL MEASURE SUMMARY FOR PORTABLE FUEL CONTAINERS

Control Measure Summary	**VOC Emissions (tons/year) in 5-State MRPO Region**	
2002 existing measure: None *Emission Reductions*: none *Control Cost*: $0 per ton *Timing of Implementation*: n/a *Implementation Area*: n/a	2002 Base:	50,970
Candidate measure: Adopt OTC Model Rule for PFCs *Measure ID:* SOLV3A *Emission Reductions*: 18% in 2009 (75% control efficiency phased in at 10% turnover per year, with rule effectiveness of 80%), and 54% when fully implemented in 2015 *Control Cost*: $250 per ton to $480 per ton *Timing of Implementation*: Assuming 2007 effective date of rule and 10% per year turnover, full reductions are achieved in 2015 *Implementation Area*: 5-state MRPO region	2002 Base: 2009 Reduction: 2009 Remaining: 2015 Reduction: 2015 Remaining:	50,970 -9,175 41,795 -27,524 23,446
Candidate measure: Adopt Incentive Programs in Nonattainment Areas to Accelerate Phase-In of Compliant PFCs *Measure ID:* SOLV3B *Emission Reductions*: 27% in 2009 (75% from control efficiency phased in at 15% turnover per year, with rule effectiveness of 80%), and 54% when fully implemented in 2015 *Control Cost*: $4,600 per ton *Timing of Implementation*: Assuming 2007 effective date of rule and 15% per year turnover in nonattainment areas and 10% per year in attainment areas, full reductions are achieved in 2015 *Implementation Area*: Nonattainment counties only	2002 Base: 2009 Reduction: 2009 Remaining: 2015 Reduction: 2015 Remaining:	50,970 -12,281 38,690 -27,524 23,446

Notes: 2009 and 2015 emission reductions shown are reductions for 2002 base emissions.

- Equipment refueling vapor displacement and spillage emissions result when fuel vapor is displaced from nonroad equipment (e.g., lawnmowers, chainsaws, personal watercraft, motorcycles, etc.) and from gasoline spillage during refueling of the equipment with PFCs. These VOC emissions are already taken into account in the nonroad equipment emission inventory by the NONROAD model.

Diurnal emissions are the largest category, accounting for roughly two-thirds of the total emissions from these five processes. Transport-spillage, diurnal, and permeation emissions associated with PFCs were estimated to account for about 1.2% of the total anthropogenic VOC emissions in the MRPO region in 2002.

REGULATORY HISTORY

The California Air Resources Board (CARB) adopted a PFC regulation on September 11, 2000. This regulation requires spill-proof containers and spill-proof spouts sold in California after January 1, 2001, to meet performance standards that reduce VOC emissions. The performance standards require all PFCs to have an automatic shut-off feature preventing overfilling and an automatic closing feature so the can will be sealed when it is not being used. The performance standards also eliminate secondary venting holes and require new plastics to reduce vapor permeation through container walls. CARB determined that the performance standards would reduce VOC emissions by 75 percent. There is no requirement for owners of conventional PFCs to modify their gas cans or to scrap them and buy new ones. Compliance will be accomplished primarily through attrition. As containers wear out, are lost, damaged, or destroyed, consumers will purchase new spill-proof containers replace conventional containers. CARB determined that the average useful like of a PFC is five years. With a one-year sell-through period, CARB anticipates that full compliance will be achieved by January 1, 2007.

The Ozone Transport Commission (OTC) developed a Model Rule for PFCs in 2001. The OTC Model Rule is virtually identical to the CARB PFC rule. However, in estimating the emission reductions from the OTC Model Rule, the OTC chose to assume a more conservative ten-year turnover rate, with 100 percent rule penetration occurring 10 years after adoption of the rule. Several states in the Northeast have already adopted the rule.

On September 15, 2005, the California Air Resources Board amended the 1999 clean gas can regulation to address all the problems it had previously identified. Specifically, the amendments were necessary to address: 1) the fact that the original rule did not address the use of utility jugs and kerosene containers that are sometimes offered for sale in place of gasoline cans, and 2) consumers complaints regarding spillage from the new PFCs. In researching the consumer complaints, ARB staff discovered that while the original regulation has been successful in reducing emissions from evaporation and permeation, emissions from spillage continued to occur. These amendments are expected to reduce VOC emissions by an additional 25 percent compared to the current CARB rule.

On February 28, 2006, EPA proposed a national regulation to reduce hazardous air pollutant emissions from mobile sources. Included in the proposed rules are standards that would reduce hydrocarbon emissions PFCs from evaporation, permeation, and spillage. The proposed EPA program is very similar to the revised California program. Although a few aspects of the program are different, EPA believes manufacturers would be able to meet both EPA and California requirements with the same gas can designs. Since the proposed EPA requirements would not go into effect in 2009 and there will be 5-10 year period for the new containers to penetrate the market, only a very small reduction in VOC emissions is expected in 2009.

None of the five MRPO/Midwest RPO States have rules specifically regulating PFCs. Illinois has drafted a PFC rule, but has not proposed the rule pending more information from EPA regarding adoption of a national rule. Some states have initiated public outreach programs to encourage homeowners and recreational vehicle owners to change out their gas cans with lower-polluting cans and nozzles. For example, Illinois has funded "Gas Can Exchange Events" which provides individuals and business with a free, new less-polluting PFC in exchange for an old gas can. The effectiveness of these types of incentive programs depends upon the funding available from the regulatory agency.

CANDIDATE CONTROL MEASURES

In general, VOC emission reductions can be obtained through improved designs for new containers. These design features typically include the following:

- An automatic shut-off to prevent overfill during refueling nonroad equipment; this feature works by venting vapor displaced from the equipment fuel tank into the PFC through the spout, both reducing spillage and recovering displaced vapor from the equipment fuel tank;
- Automatic closing and sealing of the PFC and/or spout when not dispensing a fuel; this feature reduces spillage during transport as well as diurnal evaporative emissions;
- Only one opening for both filling and pouring to allow for proper operation of the automatic shut-off feature and to reduce evaporation from secondary vents;
- A reduced fuel flow rate compared to conventional containers and spouts; and,
- Use of different plastic materials that act as barriers to reduce permeation.

The regulatory approach for reducing emissions is to establish performance standards that PFC manufacturers are required to meet and warranty. Voluntary incentive programs have been used to accelerate turnover to compliant PFCs.

Two specific candidate control measures are discussed below.

Measure SOLV3A – Adopt OTC Model Rule Performance Standards. This measure achieves VOC emission reductions through the adoption of the OTC Model Rule, which is based on the CARB PFC performance standards which include the design features described above. The CARB PFC performance standards were intended to provide a 75 percent reduction in VOC emissions when fully implemented. CARB's 2004 analysis suggests the overall effectiveness is 65 percent. CARB determined that the turnover from old to new containers is expected to take five years. However, Pechan's analyses for the OTC and MRPO assumed a more conservative 10-year turnover rate. As discussed later in the document, we will use a 75 percent control efficiency with a 10-year phase-in period and 80 percent rule effectiveness for this analysis.

Measure SOLV3B – Provide an Incentive Program to Accelerate Turnover to PFCs Meeting the CARB Performance Standards. Emission reductions achieved by the adoption of the CARB PFC performance standards depend on the number of conventional PFCs removed from service and replaced with new, compliant models. An incentive program would encourage residents and commercial operators to remove old containers from service in order to accelerate the timeframe for achieving emission reductions. The emissions reductions expected from an incentive program are dependent on the funding available for implementation. For the purposes of this analysis, we assume a program that would provide a free new gas can when an old one is traded in. We further assume that this incentive program will increase the turnover rate from 10 to 15 percent turnover per year in ozone nonattainment areas in the 5-state region.

EXPECTED EMISSION REDUCTIONS

We calculated the approximate emission reductions expected from adoption of the CARB PFC performance standards and incentive program in the following manner:

- Since the Preliminary 2002 NEI and MRPO 2002 inventory do not contain emissions for this category, we obtained 2002 actual emissions from Illinois, Indiana, and Wisconsin. We prorated emissions for Michigan and Ohio (and missing categories in Indiana and Wisconsin) using population and the Illinois inventory since detailed calculations for these two states are not available. Table 2 summarizes the 2002 inventory for PFCs.
- To calculate emissions in 2009 with the OTC Model Rule, we assumed a 75% control efficiency, a 10% per year turnover rate starting in 2007, and an 80% rule effectiveness. This results in an overall emission reduction in 2009 of 18%. The overall emission reduction after the phase-in period is 54% in 2015
- To calculate emissions in 2009 with the OTC Model Rule and PFC turn-in incentive program, we assumed a 75% control efficiency, 10% per year turnover rate in attainment areas and 15% per year turnover rate in nonattainment areas, and an 80% rule effectiveness. This results in an overall emission reduction in 2009 of 27%. The overall emission reduction after the phase-in period is 54% in 2015.

Current emissions from PFCs and expected emission reductions are summarized in Table 3. If the MRPO States adopt the OTC Model Rule, the incremental reduction of 18 percent would result in a reduction of 8,836 tpy of VOC in 2009 across the 5-state region. If an incentive program (to increase turnover rate to 15 percent in nonattainment areas) is adopted in addition to the OTC Model Rule, there will be an incremental reduction of 2,917 tpy of VOC in 2009 across the 5-state region.

COST EFECTIVENESS AND BASIS

The cost-effectiveness for the OTC Model Rule was estimated to be $450 per ton. This was calculated assuming that PFCs have a useful life of 10 years, the average cost for a non-compliant PFC is $4.25, and the average cost for a compliant PFC is $11.13. The incremental cost for purchasing a compliant PFC is $6.88. In the MRPO region, there were approximately 16 million PFCs in 2002. Assuming a 10 percent annual turnover rate, 1.6 million compliant PFCs will be purchased each year with an incremental cost of $11 million. Since each PFC is assumed to have a 10-year useful life, then the total annual incremental cost for purchasing compliant PFCs is $1.1 million per year. Replacing 1.6 million PFCs per year with compliant PFCs results in 2,290 tpy reduction in VOC emissions. Thus, the cost-effectiveness in the MRPO region is estimated to be about $480 per ton. Illinois EPA, using a different set of assumptions, calculated cost effectiveness of $250 - $400 per ton VOC reduced for a gas can control measure.

The additional costs for an incentive program in nonattainment areas were calculated in the following manner. There are about 10 million PFCs in nonattainment counties in the MRPO region. Assuming a 10 percent turnover rate per year, 1 million new PFCs are purchased per year in nonattainment counties. Further assuming that an incentive program could improve the turnover rate from 10 to 15 percent per year, then 500,000 additional new PFCs would be purchased. Based on their experience conducting four PFC exchange programs in 2004, Illinois EPA estimated a cost of $26.85 per PFC. This estimate includes container costs, advertising, HazMat services, and staff labor. The total costs to exchange 500,000 PFCs at $26.85 per PFC would be $13.4 million dollars per year. The emission reductions are calculated to be 2,917 tons per year, resulting in a cost-effectiveness of about $4,600 per ton of VOC.

TABLE 1 – SUMMARY OF 2002 PFC INVENTORY

		VOC Emissions (tons per year)					
SCC	**Category Description**	**IL**	**IN**	**MI**	**OH**	**WI**	**MRPO**
	Non-attainment Areas						
25-01-011-010	PFC Transport Spillage	*358*	*240*	314	357	*109*	1,377
25-01-011-011	PFC Permeation	*759*	*374*	666	758	*229*	2,786
25-01-011-012	PFC Diurnal Evaporation	*6,577*	*1,762*	5,768	6,567	*2,236*	22,910
25-01-011-015	Equipment Refueling Spillage	*723*	318	634	722	170	2,567
25-01-011-016	Equipment Refueling Displacement	*241*	106	211	241	57	856
	Subtotal Residential	*8,658*	2,800	7,593	8,644	2,801	30,496
25-01-012-010	PFC Transport Spillage	*288*	*139*	253	288	*103*	1,072
25-01-012-011	PFC Permeation	*44*	*25*	38	44	*17*	168
25-01-012-012	PFC Diurnal Evaporation	*577*	*524*	506	576	*370*	2,552
25-01-012-015	Equipment Refueling Spillage	*47*	21	42	47	11	169
25-01-012-016	Equipment Refueling Displacement	*15*	6	13	15	3	52
	Subtotal Commercial	*971*	715	851	969	505	4,011
	Total Nonattainment Areas	***9,629***	**3,515**	**8,444**	**9,613**	**3,305**	**34,507**
	Attainment Areas						
25-01-011-010	PFC Transport Spillage	*168*	*136*	106	115	*123*	648
25-01-011-011	PFC Permeation	*354*	*213*	225	242	*260*	1,293
25-01-011-012	PFC Diurnal Evaporation	*3,077*	*1,003*	1,951	2,101	*2,538*	10,670
25-01-011-015	Equipment Refueling Spillage	*339*	206	215	232	309	1,301
25-01-011-016	Equipment Refueling Displacement	*113*	69	72	77	103	434
	Subtotal Residential	*4,052*	1,626	2,569	2,766	3,333	14,345
25-01-012-010	PFC Transport Spillage	*135*	*72*	86	92	*124*	509
25-01-012-011	PFC Permeation	*22*	*13*	14	15	*24*	88
25-01-012-012	PFC Diurnal Evaporation	*274*	*272*	174	187	*503*	1,409
25-01-012-015	Equipment Refueling Spillage	*22*	13	14	15	20	84
25-01-012-016	Equipment Refueling Displacement	*7*	4	5	5	7	28
	Subtotal Commercial	*460*	375	292	314	678	2,118
	Total Attainment Areas	***4,511***	**2,000**	**2,861**	**3,081**	**4,010**	**16,463**
	All Areas						
25-01-011-010	PFC Transport Spillage	*526*	*376*	420	472	*232*	2,025
25-01-011-011	PFC Permeation	*1,113*	*587*	890	1,000	*489*	4,079
25-01-011-012	PFC Diurnal Evaporation	*9,654*	*2,765*	7,719	8,668	*4,774*	33,580
25-01-011-015	Equipment Refueling Spillage	*1,062*	524	849	953	479	3,867
25-01-011-016	Equipment Refueling Displacement	*354*	175	283	318	160	1,289
	Subtotal Residential	*12,709*	4,426	10,162	11,410	6,133	44,841
25-01-012-010	PFC Transport Spillage	*423*	*212*	339	380	*227*	1,581
25-01-012-011	PFC Permeation	*66*	*38*	52	59	*41*	255
25-01-012-012	PFC Diurnal Evaporation	*850*	*796*	679	763	*873*	3,961
25-01-012-015	Equipment Refueling Spillage	*69*	34	55	62	31	252
25-01-012-016	Equipment Refueling Displacement	*22*	11	17	20	10	80
	Subtotal Commercial	*1,431*	1,090	1,143	1,283	1,182	6,129
	Total All Areas	***14,140***	**5,516**	**11,305**	**12,694**	**7,316**	**50,970**

Note: Numbers shown in italics were provided directly by the State agency. All other numbers for categories where States did not provide emissions were calculated using the Illinois emissions as the basis and prorating based on population.

TABLE 3– COMPARISON OF 2002, CARB PFC PERFORMANCE STANDARDS, AND INCENTIVE PROGRAM

			VOC Emissions (tons/year)				
				With OTC Model Rule 10% annual turnover		With OTC Model Rule and Incentive Program to increase annual turnover to 15% in nonattainment areas	
	SCC	SCC Description	Preliminary 2002 Actual	2009 Emissions Reduction	2009 Emissions Remaining	Incremental 2009 Emissions Reduction	2009 Emissions Remaining
Non-Attainment Counties							
IL	2501011xxx/2501012xxx	Res.&Comm. PFCs	9,629	1,733	7,896	867	7,029
IN	2501011xxx/2501012xxx	Res.&Comm. PFCs	3,515	633	2,883	316	2,566
MI	2501011xxx/2501012xxx	Res.&Comm. PFCs	8,444	1,520	6,924	760	6,164
OH	2501011xxx/2501012xxx	Res.&Comm. PFCs	9,613	1,730	7,883	865	7,018
WI	2501011xxx/2501012xxx	Res.&Comm. PFCs	3,305	595	2,710	297	2,413
		Subtotal for Non-attainment Areas	34,507	6,211	28,296	3,106	25,190
Attainment Counties							
IL	2501011xxx/2501012xxx	Res.&Comm. PFCs	4,511	812	3,699	0	3,699
IN	2501011xxx/2501012xxx	Res.&Comm. PFCs	2,000	360	1,640	0	1,640
MI	2501011xxx/2501012xxx	Res.&Comm. PFCs	2,861	515	2,346	0	2,346
OH	2501011xxx/2501012xxx	Res.&Comm. PFCs	3,081	554	2,526	0	2,526
WI	2501011xxx/2501012xxx	Res.&Comm. PFCs	4,010	722	3,288	0	3,288
		Subtotal for Attainment Areas	16,463	2,963	13,500	0	13,500
		MRPO 5-State Total	**50,970**	**9,175**	**41,795**	**3,106**	**38,690**

Note: the 2009 emission estimates presented here are not growth-adjusted.

TIMING OF IMPLEMENTATION

The estimated useful life of a portable fuel container is an important factor in determining when emission reductions will be achieved. Since the implementation of any PFC rule relies on attrition, the longer the estimated useful life of portable fuel containers, the longer it will take to replace conventional with spill-proof containers. CARB staff selected an average useful life of five years as suggested by several manufacturers. The manufacturers based this estimate on a continuing analysis of both annual sales and percent of repeat business. In developing their Model Rule, the OTC assumed a more conservative estimated useful life of 10 years. Some states have implemented incentive programs to accelerate the replacement of conventional PFCs with spill-proof containers.

CONTROL EFFICIENCY, RULE PENETRATION, AND RULE EFFECTIVENESS

Table 4 shows the control factors that will be applied to simulate the effects of the adoption of the OTC Model Rule. For purposes of modeling, we have assumed that rules will be adopted in 2007. The control efficiency (CE) was determined to be 75 percent in CARB's original analysis. CARB revised that down to 65% because the expected reductions in the permeation and spillage categories have fallen short due to due operator error or equipment malfunction. CARB has also issued an advisory regarding Internet sales of non-compliant PFCs to customers in California. For these reasons, the rule effectiveness (RE) value of 80% may be appropriate since non-compliance may be an issue with this rule. The rule penetration (RP) depends on the assumed PFC estimated useful life and how quickly old non-compliant containers are replaced with new compliant containers. For the OTC Model Rule control measure, the turnover from old to new containers is expected to be 10 percent per year. If the rule is implemented in 2007, then the RP will be 10 percent in 2007, 20 percent in 2008, etc. until 90 percent is reached in 2015. We have capped the RP at 90 percent, since it is unlikely that <u>all</u> PFCs will be replaced within 10 years.

Table 3 shows the control factors that will be applied to simulate the effects of the adoption of the OTC Model Rule plus PFC turn-in incentive program in nonattainment areas. For purposes of modeling, we have assumed that rules will be adopted in 2007. The same assumptions regarding CE and RE as above are used. However, the turnover from old to new containers is assumed to increase to 15 percent per year. If the rule is implemented in 2007, then the RP will be 15 percent in 2007, 30 percent in 2008, etc. until 90 percent is reached in 2012. Again we have capped the RP at 90 percent, since it is unlikely that <u>all</u> PFCs will be replaced within 10 years.

RULE DEVELOPMENT ISSUES

States could choose to develop state regulations (based on either the CARB rules or the OTC model rule) which allow only compliant PFCs to be sold in the state. Alternatively, States could choose to wait for the U.S. EPA to develop their national rule. EPA proposed a national rule on February 28, 2006. The proposed rule would require compliant containers beginning in 2009.

A well-promoted public outreach program could encourage homeowners and recreational vehicle owners to change out their gas cans with lower-polluting cans and nozzles. Funding and support from the state, as well as suppliers and retailers, would be needed to implement such a program. Each state agency would need to develop and implement a program to publicize, administer, and evaluate the program.

TABLE 4 – CONTROL FACTORS BY YEAR FOR OTC MODEL RULE

Year	Control Measure	CE	RP	RE	Emission Reduction % from Uncontrolled
2002 (Base)	No Control	0	0	0	0
2003-2006	No Control	0	0	0	0
2007	OTC Model Rule	75	10	80	6.0
2008		75	20	80	12.0
2009		75	30	80	18.0
2010		75	40	80	24.0
2011		75	50	80	30.0
2012		75	60	80	36.0
2013		75	70	80	42.0
2014		75	80	80	48.0
2015-2018		75	90	80	54.0

TABLE 5 - CONTROL FACTORS BY YEAR FOR OTC MODEL RULE PLUS INCENTIVE PROGRAM (applies only to nonattainment areas)

Year	Control Measure	CE	RP	RE	Emission Reduction % from Uncontrolled
2002 (Base)	No Control	0	0	0	0
2003-2006	No Control	0	0	0	0
2007	OTC Model Rule plus incentive program in nonattainment areas to accelerate phase-in	75	15	80	9.0
2008		75	30	80	18.0
2009		75	45	80	27.0
2010		75	60	80	36.0
2011		75	75	80	45.0
2012-2108		75	90	80	54.0

GEOGRAPHIC APPLICABILITY

In an effort to maintain consistency and uniformity for the manufacturers of PFC containers, it is preferable that any rules specifying performance standards (such as the OTC Model Rule) be implemented across the MRPO region. Thus, emission reductions would be realized in both ozone attainment and nonattainment counties. An incentive program is likely to be more effectively implemented in heavily populated areas, so for this analysis we have limited the applicability of the incentive program to nonattainment areas.

TEMPORAL APPLICABILITY

Emission reductions would be realized throughout the year. However, PFC usage is typically more prevalent during the warmer months during the ozone season. The overall emission reduction percentage would be the same throughout the year.

AFFECTED SCCs

Illinois has proposed the use of the following SCCs:

25-01-011-010	Residential PFCs Vapor Losses
25-01-011-011	Residential PFCs Permeation
25-01-011-012	Residential PFCs Diurnal
25-01-011-015	Residential PFCs Spillage
25-01-011-016	Residential PFCs Transport
25-01-012-010	Commercial PFCs Vapor Losses
25-01-012-011	Commercial PFCs Permeation
25-01-012-012	Commercial PFCs Diurnal
25-01-012-015	Commercial PFCs Spillage
25-01-012-016	Commercial PFCs Transport

EPA is considering adoption of these proposed SCCs, but is reluctant to finalize them pending resolution of issues related to the potential double-counting of PFC emissions in Stage II and nonroad equipment categories.

OTHER IMPACTS

No potential negative environmental impacts have been identified.

REFERENCES

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4. E.H. Pechan & Associates, Inc. *Development of Growth and Control Factors for the Lake Michigan Air Directors Consortium(LADCO) Draft Report*. October 26, 2004.
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