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Air Resources Board

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Arnold Schwarzenegger
Governor

February 20, 2008

Addressees: All Local Air District Air Pollution Control Officers (APCO)

Dear APCO:

I am writing to encourage you to revise your district's vapor recovery rules as outlined by the U.S. Environmental Protection Agency (U.S. EPA) in the attached memoranda (Attachment 1). U.S. EPA is encouraging states to eliminate the requirement for Phase II vapor recovery systems on gasoline refueling dispensers for certain motor vehicle fleets in light of the growing use of Onboard Refueling Vapor Recovery (ORVR) systems in those fleets.

The fleets at issue are new vehicles initially fueled at motor vehicle assembly plants, late model rental cars refueled at rental car facilities, corporate fleets refueled at corporate-owned pumps, and flexible fuel vehicles (FFVs) refueled at E85 fuel dispensers.

Section 202(a)(6) of the federal Clean Air Act (Act) allows U.S. EPA to remove the requirement for vehicle refueling gasoline vapor recovery systems in ozone nonattainment areas after determining that ORVR systems for motor vehicles are in widespread use. For new vehicles initially fueled at motor vehicle assembly plants, late model rental cars refueled at rental car facilities, and corporate fleets refueled at corporate-owned pumps, U.S. EPA has defined widespread use as 95 percent of the vehicles equipped with ORVR. By virtue of being made up of new late-model vehicles, these fleets have met this criterion.

For FFVs, U.S. EPA is recommending that states show that any increase in emissions caused by operating E85 refueling dispensers without vapor recovery systems is so small as not to interfere with ozone attainment. ARB staff has estimated the emissions to be less than 0.10 tons per day of reactive organic gases statewide in 2015 (see Attachment 2) and believes that it is reasonable to conclude that there is no impact on ozone attainment.

The process for revising a district's vapor recovery requirements is the same as for any other district rule State Implementation Plan (SIP) submission: adopt the amended rules at a public hearing and transmit the amended rules to ARB for processing as a SIP revision and submittal to U.S. EPA. ARB staff is available to assist you with rule review

or in doing additional analysis before proceeding, including more specific emissions assessment and attainment impacts, impact on progress toward state standards, and any possible toxic air contaminant issues.

If you have any questions or need further information regarding vapor recovery requirements, please contact Cindy Castronovo of the Monitoring and Laboratory Division at (916) 322-8957. For questions regarding the emissions impact analysis, please contact Dean Simeroth, Chief of the Criteria Pollutants Branch, at (916) 322-6020.

Sincerely,

James N. Goldstene
Executive Officer

Attachments

cc: Dean Simeroth, SSD
Kurt Karperos, PTSD
Cindy Castronovo, MLD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

DEC 12 2006

MEMORANDUM

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

SUBJECT: Removal of Stage II Vapor Recovery in Situations Where Widespread Use of Onboard Refueling Vapor Recovery is Demonstrated

FROM: Stephen D. Page, Director
Office of Air Quality Planning and Standards

Margo Tsirigotis Oge, Director
Office of Transportation and Air Quality

TO: Regional Air Division Directors

The purpose of this memorandum is to provide guidance to States concerning the removal of Stage II gasoline vapor recovery systems where States demonstrate to EPA that widespread use of onboard refueling vapor recovery (ORVR) has occurred in specific portions of the motor vehicle fleet. The specific fleets addressed here include:

1. initial fueling of new vehicles at automobile assembly plants
2. refueling of rental cars at rental car facilities
3. refueling of flexible fuel vehicles at E85 dispensing pumps

Background

Stage II vapor recovery systems are required to be used at gasoline dispensing facilities located in serious, severe, and extreme non-attainment areas for ozone under section 182(b)(3) of the Clean Air Act (CAA). States have included these control measures in their federally-approved state implementation plans (SIPs) in the form of generally applicable regulatory requirements governing all gasoline dispensing facilities that exceed the relevant gasoline dispensing throughput criteria. However, section 202(a)(6) of the CAA allows EPA to revise or waive the section 182(b)(3) Stage II requirement for these ozone non-attainment areas after the Agency determines that ORVR is in widespread use throughout the motor vehicle fleet.

CAA section 202(a)(6) does not specify which motor vehicle fleet must be the subject of a widespread use determination before EPA may revise or waive the section 182(b)(3) Stage II requirement. Nor does the CAA identify what level of ORVR use in the motor vehicle fleet must be reached before it is "widespread." EPA expects the possibility of

different rates of the implementation of ORVR across different geographic regions and among different types of motor vehicle fleets within any region. Given this, EPA does not believe that CAA section 202(a)(6) must be read narrowly to allow a widespread use determination and waiver of the Stage II requirement for a given area or area's fleet only if ORVR use has become widespread throughout the entire United States, or only if ORVR use has reached a definite level in each area. Rather, EPA believes that section 202(a)(6) allows the Agency to apply the widespread use criterion to either the entire motor vehicle fleet in a State or non-attainment area, or to special segments of the overall fleet for which ORVR use is shown to be sufficiently high, and to base widespread use determinations on differing levels of ORVR use, as appropriate. Moreover, a single national rulemaking is not needed to grant such a waiver for a specific area. Instead, EPA believes that the Act allows the Agency to use an area-specific rulemaking approving a SIP revision to issue the section 202(a)(6) waiver for a relevant fleet in a non-attainment area, where a State meets the recommended criteria discussed below.

Various metrics have been studied for demonstrating widespread use of ORVR in motor vehicle fleets. One metric focuses on the percentage of vehicles in service that are ORVR-equipped. Based on our preliminary analysis, this metric seems to track fairly closely with the percentage of vehicle miles traveled (VMT) from ORVR-equipped vehicles, and with the percentage of gasoline sold which is dispensed to ORVR-equipped vehicles. In fact, since newer vehicles tend to be driven more miles than older models, VMT traveled by ORVR-equipped vehicles and gasoline dispensed to ORVR-equipped vehicles may exceed 95 percent in a 95 percent ORVR-equipped fleet.

Another metric that EPA considered is when VOC emissions resulting from the application of ORVR controls alone equal the VOC emissions when both Stage II vapor recovery systems and ORVR controls are used, after accounting for incompatibility excess emissions. The incompatibility excess emissions factor relates to losses in control efficiency when certain types of Stage II and ORVR are used together. Studies conducted in three northeastern states indicate that when the percentages of motor vehicles in service with ORVR, vehicle miles traveled by ORVR-equipped vehicles, or gasoline dispensed to ORVR-equipped vehicles are above 95 percent, then the widespread use metric based on comparable VOC emissions will likely have been reached. For this reason, EPA believes that if 95 percent of the vehicles in a fleet have ORVR, then widespread use will likely have been demonstrated.

1. Initial Fueling at Automobile Assembly Plants

Based on our preliminary analysis, EPA expects that if a State's submission of a SIP revision shows that 95 percent of the new vehicles fueled at an automobile assembly plant are equipped with ORVR, and that this level of ORVR use would not decrease, the Agency can determine that widespread use of ORVR has been achieved for the fleet of motor vehicles that are fueled at that facility.

Since model year 2000, all passenger cars have been required to have ORVR. Also since 2006, all light duty trucks, SUVs and medium duty vehicles are required to be equipped

with ORVR. There may be a few situations, such as the chassis for motorized mobile homes, which still do not have ORVR. However, the number of these would be small. It is apparent that at most automobile assembly plants greater than 95 percent of the vehicles manufactured would have ORVR. Many assembly plants manufacture 100 percent ORVR equipped vehicles. Only such new vehicles are expected to be fueled at the automobile assembly plants.

States desiring to remove the Stage II requirement for these facilities would need to submit a SIP revision that EPA would evaluate through notice and comment rulemaking. The SIP would need to demonstrate that the widespread use benchmark has been achieved and provide assurance that any facility wishing to remove Stage II equipment maintains its eligibility for its motor vehicle fleet. Any EPA SIP approval would also be subject to the CAA section 110(l) requirement that the revision not interfere with any applicable requirement concerning attainment and reasonable further progress, or any other requirement of the CAA.

2. Refueling of Rental Cars at Rental Car Facilities

Similarly, EPA expects that if a SIP revision submission demonstrates that 95 percent of the vehicles in an automobile rental fleet refueling at a rental car facility are equipped with ORVR and that this level of ORVR use would not decrease, then widespread use of ORVR could be found for the motor vehicle fleet refueling at that facility. Most large rental car companies rent current model vehicles that would all have ORVR. There may be truck rental companies which have older vehicles which do not have ORVR and that would not be able to demonstrate widespread use of ORVR for their fleets. As discussed above, any SIP revision would be subject to CAA section 110(l) and other applicable requirements, and State and local agencies should consider any potential transportation conformity impacts if Stage II is currently included in a SIP's on-road motor vehicle emissions budget.

3. Refueling Flexible Fuel Vehicles at E85 Dispensing Pumps

E85 is a motor vehicle fuel that is a blend of as little as 15 percent gasoline and up to 85 percent ethanol. (In wintertime applications, the ratio may be 30 percent gasoline and 70 percent ethanol.) Ethanol is ethyl alcohol, a type of alcohol which can be produced from renewable resources such as corn. Based on the agency's survey of existing SIPs, EPA believes that most States have defined "gasoline" (for purposes of controlling emissions of VOC from refueling activities) to include gasoline/alcohol blends that have the same volatility as E85. EPA's guidance for States in developing their Stage II SIPs in the early 1990s suggested that States use the same definition of "gasoline" as the one found in EPA's Standards of Performance for Bulk Gasoline Terminals at 40 C.F.R. 60.501, which includes "any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals (kPa) or greater which is used as a fuel for internal combustion engines." EPA recommended using this definition to most broadly reach situations in which refueling of motor vehicles results in evaporative VOC emissions that contribute to ozone non-attainment concentrations, and to avoid a narrow interpretation of what is "gasoline" that

would allow significant VOC emissions from motor vehicle refueling activities in non-attainment areas to go uncontrolled.

E85 can only be used in specially designed flexible fuel vehicles (FFVs), which have mostly been manufactured since 1998. Since these are newer vehicles, most of them are equipped with ORVR, and every FFV built today has ORVR. Thus, most vehicles refueling at E85 dispensing pumps are already having their evaporative emissions captured, as in the cases of late model rental cars refueling at rental car facilities and newly manufactured cars being fueled for the first time at automobile assembly plants. EPA estimates that 59 percent of FFVs in current use are equipped with ORVR. The percentage of FFVs with ORVR will continue to climb as older vehicles are taken out of service and new models join the fleet. Across different ozone non-attainment areas and between States, these percentages may vary.

EPA believes that encouraging the use of E85 as a motor vehicle fuel reduces emissions of other air pollutants such as CO and benzene, a known human carcinogen, and reduces emissions of greenhouse gases. In addition, based on available information, the Agency is concerned that there is currently a lack of certified Stage II equipment for E85 (which may require different materials of construction than conventional Stage II equipment), and that the timing for when certified E85-compatible equipment will become widely available is uncertain. This may unnecessarily hinder E85 distribution in areas that now require Stage II.

Unlike in the cases of automobile assembly plants and rental car facilities, EPA is not recommending a specific percentage of the FFV fleet that should have ORVR before widespread use could be determined. This is because most E85 compatible vehicles are already equipped with ORVR and this percentage is increasing over time, whereas for automobile assembly plants and car rental facilities very high percentages of ORVR use have in most cases already been reached and are not expected to further increase significantly. The general use of ORVR in FFVs, instead, is expected to significantly increase, as are the miles driven by and amount of fuel dispensed to recent ORVR-equipped FFVs compared to those manufactured before 2000 without ORVR.

Moreover, we believe that in determining whether widespread use of ORVR has been demonstrated, it is reasonable under section 202(a)(6) to consider the VOC emissions impacts of removing Stage II, and that those impacts may inform the percentage of ORVR-equipped vehicles that would need to be achieved for a specific motor vehicle fleet or in a specific non-attainment area. EPA expects that the air quality impact of allowing E85 refueling facilities to operate without Stage II controls would likely be minimal in most non-attainment areas. FFVs currently comprise about 2 percent of the total US fleet. Non-ORVR FFVs are less 1 percent of the total U.S. vehicle fleet. EPA estimates that non-ORVR FFVs participate in only about 0.5 percent of all refueling events. Furthermore, because of the relatively small number of stations that offer E85 (around 1,000 out of 170,000 total refueling stations) EPA believes that very few of these non-ORVR refueling events actually occur at E85 pumps.

Considering the factors discussed above, if an area can demonstrate that any increase in emissions caused by operating E85 fueling facilities without Stage II controls is so small as to clearly not interfere with attainment of the ozone standard or reasonable further progress or any other applicable CAA requirement, then EPA expects it could find that ORVR is in widespread use for FFVs when refueling at E85 facilities in this area. These areas could then allow E85 facilities to operate without Stage II controls, after modifying their SIPs such that E85 is not included within the definition of "gasoline" for purposes of Stage II vapor recovery controls (or after taking other necessary SIP revision action). As discussed above, States would need to submit SIP revisions affecting this change to their current Stage II SIPs, which EPA would evaluate through notice and comment rulemaking, subject to the provisions of CAA section 110(l). In addition, State and local agencies should consider if there are any transportation conformity impacts related to removing Stage II, if emissions reductions from Stage II are included in a SIP's on-road motor vehicle emissions budget. Due to the expected rapid growth of E85 installations, EPA will explore the development of ways to expedite the SIP revision process for States which are dealing with the E85 issue.

General Exclusions from Widespread Use Determinations

States in the ozone transport region (OTR) are still required to apply Stage II, or a comparable measure, in all areas under 184(b)(2) of the CAA. This requirement is not affected by any widespread use determination or waiver of the section 182(b)(3) requirement granted under section 202(a)(6). For the independent section 184(b)(2) "comparable measure" requirement to not prevent an appropriate removal of Stage II controls, OTR States may want to revisit their previously approved comparable measure SIPs to consider substituting available non-Stage II measures for the Stage II controls they currently require.

Also, some States have chosen to add Stage II vapor recovery system requirements in their SIPs for ozone nonattainment areas that are classified in a category lower than "serious." While it is not necessary for States to demonstrate ORVR is in widespread use in moderate or cleaner ozone non-attainment areas, a revision of previously adopted SIP requirements to specifically waive Stage II requirements in such areas would need to comply with the provisions of CAA section 110(l) and, as described above, consider any transportation conformity impacts as applicable.

This guidance for widespread use determinations for special sectors would not necessarily apply to widespread use determinations for the general motor vehicle fleet. Within the overall motor vehicle fleet, the rate of penetration of ORVR-equipped vehicles has not advanced at the same rapid rates as for the fleets discussed in this memorandum. EPA is still considering the possible criteria for determining widespread use for the general fleet.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

NOV 28 2007

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Removal of Stage II Vapor Recovery from Refueling of Corporate Fleets

FROM: Stephen D. Page, Director
Office of Air Quality Planning and Standards

Margo Tsirigotis Oge, Director
Office of Transportation and Air Quality

TO: Regional Air Division Directors

The purpose of this memorandum is to provide guidance to States concerning the removal of Stage II gasoline vapor recovery systems at gasoline refueling facilities exclusively dedicated to refueling "corporate" or "commercial" fleets, where States demonstrate to the Environmental Protection Agency (EPA) that widespread use of onboard refueling vapor recovery (ORVR) has occurred in such fleets. Corporate or commercial fleets include vehicles owned by corporations, governments, universities or other organizations which use the vehicles for business purposes and typically fuel the vehicles at fueling pumps owned and operated by the fleet owner and exclusively dedicated to fueling the fleet.

On December 12, 2006, EPA issued a memorandum, "Removal of Stage II Vapor Recovery in Situations Where Widespread Use of Onboard Refueling Vapor Recovery is Demonstrated," (attached) which discussed how States may explore amendments to their State Implementation Plans (SIPs) to allow Stage II gasoline vapor recovery to be removed from specific fleet situations, namely:

1. initial fueling of new vehicles at automobile assembly plants;
2. refueling of rental cars at rental car facilities; and
3. refueling of flexible fuel vehicles at E85 dispensing pumps.

The December 12, 2006, memo states that widespread use of ORVR will likely have been demonstrated if 95 percent of the vehicles in a fleet have ORVR. In today's memorandum, EPA is indicating that it believes that if a State demonstrates that 95 percent of the vehicles in a corporate or commercial vehicle fleet are equipped with ORVR and that

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this level of ORVR use would not decrease, then widespread use of ORVR could be found for the corporate or commercial motor vehicle fleet, such that Stage II controls could be considered for removal from a refueling facility that is exclusively dedicated to refueling that fleet.

States desiring to remove the Stage II requirement for these facilities would need to submit a SIP revision that EPA would evaluate through notice and comment rulemaking. The SIP would need to demonstrate that the widespread use benchmark has been achieved and provide assurance that any facility wishing to remove Stage II equipment maintains its eligibility for its motor vehicle fleet. Any EPA SIP approval would also be subject to the Clean Air Act (CAA) section 110(l) requirement that the revision not interfere with any applicable requirement concerning attainment and reasonable further progress, or any other requirement of the CAA. In addition, State and local agencies should consider if there are any transportation conformity impacts related to removing Stage II, if emissions reductions from Stage II are included in a SIP's on-road motor vehicle emissions budget(s).

As mentioned in the December 12, 2006 memorandum, this guidance for widespread use determinations for corporate fleets would not necessarily apply to widespread use determinations for the general motor vehicle fleet. Within the overall motor vehicle fleet, the rate of penetration of ORVR-equipped vehicles has not advanced at the same rapid rates as in some corporate and rental fleets. EPA is still considering the possible criteria for determining widespread use for the general fleet.

In addition, the December 12, 2006, memorandum explained that widespread use determinations would not affect separate requirements applicable to States in the ozone transport region. This exclusion would also apply in the case of corporate or commercial fleets with widespread use of ORVR.

If you have questions about this recommendation, you may contact William L. Johnson in EPA's Office of Air Quality Planning and Standards by telephone at (919) 541-5245 or by e-mail at johnson.williamL@epa.gov.

Attachment

Attachment 2

Estimated ROG Emission Increases
From Removal of Stage 2 Vapor Recovery from E85 Fuel Dispensers

Year	Non-ORVR flex fuel vehicle population[1] (1,000's)	Annual VMT per vehicle[2], (1,000's)	% VMT fueled with E85[3]	E85 fuel economy[4] (miles per gallon)	Annual E85 used per vehicle[5], (gallons)	Total E85 used daily[6], 1,000's (gallons)	ROG emissions[7], statewide (tons per day)
2005	110	13.5	0	14.8	0	0	0
2010	95	11.4	5	14.8	38.5	10.0	0.035
2015	67	10.3	15	14.8	104	19.1	0.073
2020	34	9.3	25	14.8	157	14.6	0.055

Notes:

1. Based on data provided to ARB by automobile manufacturers of flex fuel vehicles (FFVs) sold in California 1997 – 2005, for which nearly all FFVs were light-duty trucks. Annual number of FFVs is estimated using survival fraction of vehicles as a function of vehicle age. Assumes all FFV light-duty trucks equipped with onboard refueling vapor recovery (ORVR) starting with MY2003. Average age of vehicles in 2005 non-ORVR FFV fleet is 4 years.

2. Annual vehicle miles traveled (VMT) data for light-duty trucks based on EMFAC2007.

3. Assumes increase in E85 refueling over time as number of E85 pumps increase and motorists become aware that E85 costs less than reformulated gasoline. The assumed percentages in each of the three years are estimates based on these factors.

4. Assumes:

   - Fuel economy of FFVs operating on E85 based on U.S. EPA Fuel Economy Guides;
   - Fuel economy does not decline with vehicle age for newer model year vehicles equipped with advanced on-board diagnostics.

5. Calculated: annual VMT X % fueled with E85 / fuel economy in miles per gallon.

6. Calculated: vehicle population X annual gallons E85 / 365 days per year.

7. Calculated: daily gallons of fuel used X evaporative emissions in pounds TOG per gallon of fuel throughput X 0.92 (ratio of ROG/TOG).

Assumes:

- E85 evaporative emissions factor same as emissions factor for reformulated gasoline. (Source: Full Fuel Cycle Assessment Well to Tank Energy Inputs, Emissions, and Water Impacts, CEC-600-2007-002-D, February 2007, pp. 5-30 to 5-35);

- Reformulated gasoline evaporative emissions factor 7.6 pounds TOG per 1,000 gallons of fuel throughput (Source: "Uncontrolled Vapor Emission Factor at Gasoline Dispensing Stations," January 5, 2000.)