

APPENDIX N

**Voluntary Mobile Source Emission Reduction Program Development
for the Houston-Galveston State Implementation Plan (SIP)**

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Introduction

This memorandum outlines the processes and programs explicitly for State Implementation Plan (SIP) credit through the Voluntary Mobile Source Emission Reduction Programs (VMEPs) under section 110 of the Clean Air Act. Voluntary mobile source measures have the potential to contribute, in a cost-effective manner, emission reductions needed for progress toward attainment and maintenance of the National Ambient Air Quality Standards (NAAQS). The regional stakeholders believe that SIP credit is appropriate for voluntary mobile source measures where measures achieve emission reductions.

Summary

The region supports innovative methods to achieve air quality goals and wishes to promote the creation of viable voluntary mobile source air quality programs. Demonstration of air quality benefits is eligible for assistance through EPA 's section 105 grants and is a requirement for project eligibility under the Department of Transportation 's Congestion Mitigation and Air Quality Improvement (CMAQ) program.

This memorandum is intended to identify and describe regional efforts at demonstrating VMEPs with the following commitments:

1. to explore potential and quantifiable emissions benefits leading to the monitoring, evaluation, and reporting of the resulting emissions effect of the voluntary measure;
2. A commitment to remedy in a timely manner any SIP credit shortfall if the VMEP does not achieve projected emission reductions.

Local stakeholders anticipate regional gains from VMEPs including emissions benefits, public response and education, secondary indicators\benefits, additional quantification methodologies, and data collection. The region hopes to generate programmatic experience to warrant a wider application of VMEPs for progress towards attainment under the SIP. This will ultimately support the creation of new, cost-effective air quality programs and market-based incentives.

Background

Most of the region's mobile source control strategies focus on reducing emissions through vehicle and fuel technology improvements. Even with those technological improvements factored into the future case model, emissions continue to be a significant cause of air pollution

due to an increase in vehicle miles traveled (VMT) and because of the time it takes for technological improvements to penetrate existing fleets through the adoption of new emission standards. This suggests that supplemental or alternative approaches for reducing mobile source emissions are necessary. Strategies which attempt to complement existing regulatory programs through voluntary, nonregulatory changes in the local on and non-road sectors are being explored and developed.

SUMMARY

The Regional Air Quality Planning Committee (RAQPC)¹ has developed the following Task Forces - On-Road, Non-Road and Economic Incentives to explore and develop VMEPs for a broad range of targeted emission reductions. These Task Forces are working with the stakeholders to explore and fund VMEPs that will be cost-effective, user friendly, and provide maximum emission reductions, specifically in nitrogen oxides (NO_x), with the least amount of disruption. The regional stakeholders believe that the most effective way to develop an emissions reductions program is through the input of the users, a groundlevel approach.

PROGRAM PROCESS

The most significant target area is the non-road mobile sector, largely due to historically uncontrolled sources and existing preemptive regulatory issues. Therefore, VMEPs are being aggressively pursued locally as a method to reduce emissions from those sources. The principal targets include, but are not limited to, diesel engines operating in the following areas:

1. Construction,
 - (Heavy-highway, Industrial, Municipal, Commercial, and residential/multi-family)
2. Marine,
 - (Localized commercial marine, port ground equipment, ferries, recreational marine, and fishing/shrimping)
3. Airports,
 - (Ground equipment)
4. Locomotives,
 - (Captive fleets only such as switchers)
5. Lawn and Garden Equipment
6. Ports,
 - (e.g., container handling equipment and off-highway trucks)

The Non-road Mobile Task Force has teamed up with leaders in the different Non-road sectors to develop VMEPs. These leaders include the Associated Builders & Contractors, the Associated General Contractors, the Houston Airport System, the City of Houston, Exxon, BP Amoco,

¹ RAQPC is an advisory committee to the Houston-Galveston Area Council, which is the Metropolitan Planning Organization for the region.

American Airlines, the Port of Houston, Williams Brothers Construction, and Halliburton. These entities are exploring new fuels, new equipment, methods to accelerate fleet retirement, and ways to prevent old (and long-lasting) equipment from re-entering the market. To date the following projects are in review for potential CMAQ funding through the Houston-Galveston Area Council's Clean Cities program –

- A fuel emulsion –(PuriNOx) for diesel engines developed by Lubrizol for ground support equipment at the Port of Houston.
- Electric powered cranes or propane fueled cranes at the Port of Houston. The Port has approximately 8 large cranes, which are their largest on-site source of emissions.
- The PuriNOx emulsion with catalyst retrofits for the City of Houston's ground equipment, diesel-powered lawn mowers.
- Fuel-celled powered generator to charge electric powered for American Airlines ground equipment at Bush Intercontinental Airport.
- Two single fuel-celled powered ground support vehicles at Bush Intercontinental Airport for American Airlines.

The Task Force has also identified the following options for additional demonstration projects and VMEPs:

- Heavy-Highway and Public Works Construction sources, some of which have expressed a preliminary interest in the use of the PuriNOx emulsion, with or without catalyst/SCR retrofits for their larger equipment;
- Commercial Marine sources also have the potential to 90% NOx reductions through the adoption of SCR retrofits. Initial focus will target captive tug and tow engines.

The On-Road Task Force is looking specifically at the following:

- An Incident Mitigation Program, measures to reduce the traffic and therefore air emissions build up associated with accidents and engine/tire problems.
- Fleet conversion Programs for taxis, Garbage trucks (private and public), and Tow trucks.
- A public/private partnership to encourage/promote the early retirement of older vehicles. An Accelerated Vehicle Retirement Program.
- Special plans to manage travel demand in effect during special events, defined as destinations for a large number of vehicle trips which occur on a one-time, infrequent, or scheduled basis (such as athletic events, festivals, and major entertainment performances). These measures could include parking management, remote parking connecting with transit or shuttle services, efficient traffic routing efforts, public information and communications systems.

In addition, the PuriNOx emulsion fuel can be adopted by centrally fueled fleets. The PuriNOx manufacturer has already established similar programs in Ohio and California, finding between 10 and 20% NOx reductions.

Clean Air Act Authority

Local governments are interested in gaining SIP credits and funding for VMEP programs which will count toward our State's plan to make progress toward attainment and maintenance of the NAAQS. Under the Clean Air Act SIP credit is allowed for new approaches to reducing mobile source emissions. This represents a needed flexible approach regarding the SIP requirements set forth in section 110², and economic incentive provisions in section 182 and 108 of the Act.

SIP submittal of a State must commit to monitor, evaluate, and report the resulting emissions effect of the voluntary measure, whether the measure is implemented directly by the State or another party, and to remedy in a timely manner any credit shortfall.

The State will pursue appropriate follow-up actions in a timely fashion including, but not limited to: adjusting the voluntary measure, adopting a new measure, or revising the VMEP emission credits to reflect actual emission reductions, provided overall SIP commitments are met.

The limit allowed for VMEPs in the SIP is set at three percent (3%) of the total projected future year emissions reductions required to attain the appropriate NAAQS.

Further, where emissions reductions are expected to exceed the 3% limit, EPA would anticipate the State could use the EIP to incorporate measures. If a State wishes to have a VMEP approved under the EIP program rules, EPA is willing to work with the State to develop such a program.

Criteria for approval of VMEPs into SIPs, and that emission reductions be:

1. Quantifiable - VMEP emission reductions must be quantifiable. The level of uncertainty in achieving emission reductions must be quantified, and this uncertainty must be reflected in the projected emission reductions claimed by the VMEP. VMEPs must also contain procedures designed to both evaluate program implementation and to report program results as described in the section [Technical Support for VMEPs](#) of this guidance.

2. Surplus - The VMEP emission reductions may not be substituted for mandatory, required emission reductions. States may submit to EPA for approval any program that will result in emission reductions in addition to those already credited in a relevant attainment or maintenance plan, or used for purposes of SIP demonstrations such as conformity, rate of progress, or emission credit trading programs.

3. Enforceable - A State's obligations with respect to VMEPs must be enforceable at the State and Federal levels. Under this policy, the State is not responsible, necessarily, for implementing

² The requirements regarding emission reductions needed to achieve attainment of the NAAQS.

a program dependent on voluntary actions. However, the State is obligated to monitor, assess and report on the implementation of voluntary actions and the emission reductions achieved from the voluntary actions and to remedy in a timely manner emission reduction shortfalls should the voluntary measure not achieve projected emission reductions. As stated earlier, EPA anticipates that the State will take the steps it determines to be necessary to assure that the voluntary program is implemented and that emission reductions are achieved so that corrective SIP actions are not required. For example, the State may want to sign a Memorandum Of Understanding (MOU) with the VMEP sponsors.

Technical Support for VMEPs

A State may take credit in its SIP for VMEPs only if they are quantifiable. VMEPs which are thought to be directionally sound, but for which quantification is not possible cannot be granted credit.

All VMEP submittals must include documentation which clearly states how the sources from which the reductions are occurring, are currently, or will be addressed in the emissions inventory, ROP plan, and attainment or maintenance plan, as applicable. This documentation should include a description of the assumptions used in estimating and tracking emissions and emissions reductions from affected sources.

In general, emission reductions will be quantified using CARB and/or EPA engine certification data when available. For new or unproven measures, demonstration projects will utilize standard EPA test protocols (such as the EPA 8-mode engine dynamometer test) at regular intervals, to quantify reductions from baseline technologies and fuels.

Emission Reduction Calculation

To receive SIP credit for a VMEP, the SIP submittal must contain a good faith estimate of emission reductions, including technical support documentation for the conclusion that the measure will produce the anticipated emission reductions. VMEP emission reduction calculations must account for and be adjusted to reflect uncertainties in the program. The calculations must be adjusted to account for two types of uncertainty:

Compliance uncertainty - the extent to which the responsible party (a public or private entity) will fully implement the VMEP program, and

Programmatic uncertainty - the extent to which voluntary responses actually occur and/or the inherent uncertainties of program design.

These elements could include, but not be limited to: the voluntary mechanism upon which the program is based, such as public outreach or reduced fares; the variability in emission rates from affected mobile sources; the extent of uncertainty in the emissions quantification procedure; and the frequency and type of program evaluation, monitoring, record keeping and reporting.

Evaluation Reporting Procedures

States which use VMEPs in their SIP must describe how they plan to evaluate program implementation and report on program results in terms of actual emissions reductions. Program evaluation provisions for VMEPs must be accompanied by procedures designed to compare projected emission reductions with actual emissions reductions achieved. The timing of the evaluations must be specified in the VMEP SIP submittal.

The State must provide timely post-evaluation reports to the EPA relevant to the SIP time-frame in which the emission reductions are being used. These reports may be used by EPA for the purpose of reviewing subsequent SIP submissions required by the CAA, including but not limited to: periodic inventories, rate of progress (milestone compliance demonstrations), attainment demonstrations, and maintenance demonstrations.