

BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

Comments on Draft Guidance Documents Entitled "Program User Guide for Interim Vehicle Clean Screening Credit Utility" and "Description and Documentation for Interim Vehicle Clean Screening Credit Utility"

I. Introduction

In May, 1998, the U.S. Environmental Protection Agency ("EPA") published two draft guidance documents pertaining to clean screening. In general, these documents set forth the procedures EPA will use to determine the impact on a state's emissions credits when the state adopts as part of its Inspection and Maintenance ("I/M") program one of three "clean screening" concepts. These three concepts include remote sensing, vehicle emitter profiling, and model year exemptions. The following constitute the comments of Envirotech Systems Corp. on these draft guidance documents.

Remote Sensing Technologies, Inc. ("RSTi") has developed and perfected an innovative approach to emissions monitoring that assesses the composition of vehicle exhaust plumes as the vehicle passes a roadside testing station under actual driving conditions. This process simultaneously measures the three most important components of vehicle exhaust emissions: carbon monoxide (CO), hydrocarbons (HC), and oxides of

nitrogen (NO_x), plus carbon dioxide (CO₂). This method provides a substantial benefit to vehicle owners in excusing them from the traditional I/M test and rewarding them for properly maintaining their vehicles and emissions control components. Governmental agencies receive substantial goodwill from undertaking a program to relieve citizens from a regulatory burden. Finally, emissions stations will be less congested and able to focus their time and resources on vehicles most in need of testing and repairs.

II. Remote Sensing Clean Screening

This method uses state-of-the-art technology to measure the emissions plumes from automobiles as they pass by roadside testing stations. Highly accurate automated license plate readers are used to link the results of the test to the car's owner. Cars that pass this test would be exempt from their next I/M test, at a great convenience to the car's owner. Strict controls are in place to reduce the likelihood that an automobile that is dirty will be excused as a result of clean screening, including requirements that a vehicle pass two consecutive tests at different times or places, within a limited time window. Careful siting, monitoring, and quality control practices are also required to minimize the likelihood of error.

Recent comparative studies and advances in remote sensing

technology and equipment demonstrate that the effectiveness of this method of clean screening is no longer in dispute. RSTi uses infrared spectroscopy to measure CO and HC concentrations and ultraviolet spectroscopy to measure NOx. RSTi's latest equipment, the RSD 3000, can measure NOx with an accuracy of ± 250 ppm, which is approximately two and a half times better than the previous generation. Specifications for CO are ± 0.25 of concentration or $\pm 10\%$ of the reading, whichever is larger, and specifications for HC are as low as ± 150 ppm hexane or $\pm 15\%$ of reading, whichever is larger. To establish the operating condition of the vehicle at the time its emissions are recorded, the RSD 3000 systems also measure the speed of the vehicle and acceleration within ± 0.3 miles/hour/second at the moment the exhaust is being measured.

III. Vehicle Emissions Profiling

This method uses statistics on the historical failure rate of vehicles of similar design. This method relies on a large and broad database of historical information. Because excusing vehicles from testing under this method would quickly deplete emissions data in a state where this method is used, the state would have to rely on another state's emissions data to predict the failure rate of cars. EPA has indicated that it is preferable for

emissions data to come from within the area of the I/M program doing the profiling. Random sampling of vehicles may be required to maintain the statistical database. Because some vehicle models have very low population numbers, the random sampling may have to be adjusted to assure adequate statistical significance. EPA has indicated that the credit ramifications for vehicle emissions profiling are about the same as for remote sensing.

IV. Model Year Exemptions

This method would exempt all new cars until they reach a certain age, on the assumption that new cars are clean and will remain so for several years. Currently, OMS recommends that states exempt cars from testing for the first four years, and EPA has observed that many states wait until a car is four or five years old before requiring an inspection.

V. Vehicle Emitter Profiling and Model Year Exemptions will have a disparate impact on the poor.

Vehicle Emitter Profiling and Model Year Exemptions will have a disparate impact on those members of the public who cannot afford to buy new cars and replace them regularly. These people are disproportionately poor and minorities. Owners of older cars, not matter how well they

maintain their cars, will have no way to avoid submitting to an annual or biennial emissions test. This is true, despite evidence that many older cars are in compliance with applicable emissions standards. The only method of clean screening that is fair, non-discriminatory, and based on actual observed automobile emissions is remote sensing.

VI. Vehicle Emitter Profiling and Model Year Exemptions will impair the "maintenance" aspect of Inspection and Maintenance programs.

Vehicle Emitter Profiling and Model Year Exemptions will dramatically reduce the incentive for an automobile owner to proactively maintain his or her automobile. Under a traditional I/M testing system, an owner's motivation for repairing his automobile emissions system came only after failing an emissions test, which occurred only once every one or two years. Under remote sensing, the conscientious driver who actively maintains his automobile emissions system is rewarded by being excused from the next I/M test when, during the previous 12 months, it has passed at least two consecutive tests. This gives an incentive to drivers to maintain their cars on a continuous basis rather than merely once every two or three years. In contrast, vehicle emitter profiling and model year exemptions eliminate the incentive to maintain a vehicle's emissions systems until the next test (or immediately prior to the test). Owners of new cars will not

have to worry about having their emissions components tested for 4-5 years, and low-emitter profiling will remove the incentive for even longer. Thus, these two screening methods reduce the benefit of the "M" component of I/M programs, whereas remote sensing actually enhances and incentivizes the maintenance component.

Although some may assume that newer cars are likely to be in compliance, data indicate that a certain percentage of a model will have premature failure, due to manufacturing or assembly defects, tampering, or breakage. Under profiling or model year exemptions, these cars with non-compliant emissions systems could go undetected for four, five, or more years. The early detection and repair of vehicles that do not comply with air standards is more important in recent years than before. Continued improvements in tailpipe emissions are coming less frequently from replacing old cars with cars employing newer technologies. Instead, "new" cars are being replaced with "new" cars. Because remote sensing provides for this early and more frequent detection, it presents incomparable benefits over model year exemptions and profiling.

Further, model year exemptions could lessen the incentive of automobile manufacturers to use durable emissions components in their

vehicles. For 1995 and newer models, the comprehensive performance warranty is two years or 24,000 miles (whichever occurs earlier), while the major components are protected for eight years or 80,000 miles. If vehicles are exempted from inspection during their first four or five years, the likelihood that a vehicle's owner will discover a failure within the performance warranty period is remote, and the likelihood of detecting a failure that is covered during the remaining warranty period is lessened substantially

VII. Use of Vehicle Emitter Profiling and/or Model Year Exemptions is simultaneously over-inclusive and under-inclusive.

Vehicle Emitter Profiling is over-inclusive because it is guaranteed that it will include within the scope of the exemption vehicles that would fail an emissions test. Although a particular model class may exhibit a low failure rate, there will be cars in that class that, due to manufacturing and assembly defects, premature failures, or tampering, would fail an emissions test. Model Year Exemptions suffer from this same malady of over-inclusiveness. It is certain that some new cars will have defective emissions control components which will not be detected until the first I/M test. Recent data from one state show that 15% of 1993 Mazda RX7s failed their I/M inspection in 1995 (when the vehicles were only two years old) and

21% of these vehicles failed their most recent I/M 240 test using interim standards. Under the final I/M 240 program standards, data indicate that the failure rate for this vehicle and the 1993 Chevrolet Caprice could range as high as 35%-45%. The model year exemption does not mitigate against this certainty of failures.

These two methods are under-inclusive as well. With respect to Vehicle Emitter Profiling, a certain statistical threshold will have been set. Obviously, a significant number of cars that are in compliance with emissions standards will nonetheless be required to undergo testing simply because the model class had too high a failure rate to qualify for a profiling exemption. Further, with respect to the Model Year Exemption, a large number of well-maintained and compliant vehicles more than 4-5 years old will not receive any opportunity for exemption from I/M testing.

Only RSD offers a level playing field that is neither under-inclusive nor over-inclusive.

VIII. Alternate clean screening methods will dramatically eliminate vehicle emissions data.

Clearly, the increased use of vehicle emitter profiling or model year exemptions will deplete the availability of vehicle emissions data. States

will have to rely on data from other states, or they will have to conduct random sampling, which is subject to statistical variability. Further, data from other states may be unreliable because cars perform differently in different parts of the country. For example, in May, 1996, Hyundai recalled about 6,000 of its vehicles registered in high-altitude areas because they exceeded the federal hydrocarbon and carbon monoxide exhaust emission standard. Model year exemptions and vehicle emitter profiling do not necessarily take this variability into account.

IX. Conclusion

EPA's guidance documents address three versions of clean screening tools. Remote sensing offers substantial benefits over the others, which include vehicle emitter profiling and model year exemptions, because it does not have a disparate impact on the poor, it does not impair the "maintenance" aspect of I/M programs, it offers a level playing field that is neither over- nor under-inclusive, and it will not deplete the pool of emissions data which is necessary to evaluate the performance of emissions control devices.

Respectfully submitted,

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