

**Workgroup Recommendations and Other Potential Control Measures**  
**Diesel Initiatives Workgroup**

**DI011 – Opacity Cutpoint Revision**

Overview

Heavy duty diesel vehicles (HDDVs) have been subject to emissions testing in the form of smoke opacity tests in New Jersey since 1998. This testing program defines the maximum permissible smoke opacity level for trucks and buses based on defined engine age ranges, similar to the various emissions limits placed on gasoline vehicles. The issue is that well over 95% of HDDVs pass inspection at the current cutpoints and many are repaired just to pass rather than being fully repaired to their certified emissions levels. The Department anticipates proposing a reduction in these defined maximums or cutpoints to encourage owners to adhere to manufacturer’s maintenance schedules thus increasing the frequency and quality of maintenance performed on the vehicles which has been shown to lower emissions levels, especially particulates in the form of visible smoke.

Details

The current smoke opacity inspection program defines the following age ranges and associated maximum smoke opacity limits or cut points:

|         |                      |                    |                      |
|---------|----------------------|--------------------|----------------------|
| Trucks: | Pre-1974 – 70%       | Buses:             | Pre-1988 - 40%       |
|         | 1974 thru 1990 – 55% |                    | 1988 and newer - 30% |
|         | 1991 and newer – 40% | Retrofitted buses: | All - 30%            |

Under this proposal, both the age ranges and the assigned smoke opacity limits would be changed to be more restrictive on all vehicles. These cutpoints would be used for both the annual inspections performed on NJ registered HDDVs by the Diesel Emission Inspection Centers (DEICs) and spot roadside enforcement inspections conducted by the Motor Vehicle Commission (MVC) on all HDDVs on the road in New Jersey.

|         |                      |                    |                       |
|---------|----------------------|--------------------|-----------------------|
| Trucks: | Pre- 1990 – 40%      | Buses:             | Pre-1988 - 40%        |
|         | 1991 thru 1996 – 30% |                    | 1988 - 1993 - 30%     |
|         | 1997 and newer– 20%  |                    | 1993 and newer - 20%  |
|         |                      | Retrofitted Buses: | Pre-1994 - 30%        |
|         |                      |                    | 1994 and newer - 20 % |

Existing inspection records including both annual DEIC inspections and roving roadside inspections indicate that the vast majority of the truck fleet on NJ roads will be able to pass these new cutpoints. Making this change will encourage more frequent and more stringent maintenance programs by fleet owners which will lead to lower emissions across the board.

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**Stakeholders**

- NJ HDDV Fleet Owners
- HDDV Owner/Operators
- DEICs and HDDV Repair

Cost/Benefit

The cost to the state for implementing this change in cutpoints would be minimal and includes only the administrative effort needed to change the appropriate rules and regulations; minimal training of inspectors; and an outreach effort to inform fleet owners and drivers of the change. The actual inspection process both for annual inspection of New Jersey registered trucks and the roadside inspection of all trucks would remain the same using the existing smoke opacity equipment.

In addition to these costs, vehicle owners would likely see some additional maintenance costs in order to comply with the more stringent cutpoints. However, many would also see a decrease in fuel costs as a better running engine burns less fuel. Based on data from the current HDDV inspection program, failure rates at the proposed cutpoints would initially rise to 8-12% as the industry adjusts to the new limits. Repair facilities would see an increase in repair business.

The benefits that accrue from an opacity based inspection program are derived from modeling as the criteria pollutants of interest are not measured directly during the vehicle inspection. This model assumes benefits from additional, more effective repairs, as well as a deterrent impact due to enforcement of the new standards. Modeling based on the NJ HDDV inspection program records from 2002 indicate that this change in cut points will result in a VOC reduction of TBD tons/day or TBD tons/year and a NO<sub>x</sub> reduction of TBD tons per day or TBD tons/year. Reductions in particulate matter and CO have also been estimated