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Driving Trucking's Success

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Air and Radiation Docket
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Mail code: 6102T
Washington, DC 20460

Via Electronic Filing: ***www.Regulations.gov***

Re: Docket No. EPA-HQ-OAR-2010-0444 – SCR Guidance Document

Dear Ms. Oge:

The American Trucking Associations[1] ("ATA") is writing to express concern over the potential revisions to the Environmental Protection Agency's ("EPA") guidance document supporting certification requirements for heavy-duty diesel engines using selective catalytic reduction ("SCR") technology (hereinafter "Proposed Guidance").[2] We are specifically concerned with the reduction in operating time before severe inducements are triggered and the forty percent torque de-rating and its potential to create unsafe operating conditions. We also are concerned over the impact that this Proposed Guidance will have upon truck operators that will experience negative inducements notwithstanding their intent to operate in full compliance with the regulations. We discuss each of these concerns in more detail below.

A. Justification for Revised Guidance

We are troubled by the fact that the Proposed Guidance contains no discussion on the potential impact of the proposed revisions upon the end user, especially the vast majority of truck operators that purchase API-certified DEF from third parties, but must

[1] ATA is a united federation of motor carriers, state trucking associations, and national trucking conferences created to promote and protect the interests of the trucking industry. Directly and through its affiliated organizations, ATA encompasses every type and class of motor carrier operation.

[2] *See* 76 *Federal Register* 32886 (June 7, 2011).

suffer through negative inducements as a result of a sensor failure or some other condition beyond their control.

Indeed, the information in the Proposed Guidance indicates that the existing manufacturer inducements for vehicle operators to refill Diesel Exhaust Fluid ("DEF") tanks have proven effective. These driver warnings and inducements include a mix of dashboard indicator lights, engine de-rates and vehicle speed inhibitors. These inducements have proven to be effective in encouraging the vehicle operator to address conditions such as low DEF levels, improper DEF quality, and emissions systems tampering. The Proposed Guidance would significantly alter many of these inducements and unfairly penalize end-users of SCR technology.

In September 2010, the California Air Resources Board ("CARB") conducted field investigations to evaluate the use of SCR, including random inspections to determine whether DEF was being used and whether the DEF was of appropriate quality. CARB found that "all trucks were using DEF and that the DEF was of appropriate quality."[3] Based on this investigation, EPA should be satisfied with the current SCR operator inducements.

With respect to the current menu of SCR inducements, CARB concluded that the warnings were effective in drawing the driver's attention to the need for SCR-related service.[4] With respect to the more severe negative inducements (*i.e.*, 25 percent engine torque de-rate and a 55 mph speed limitation), CARB concluded that driving the truck with these inducements "was neither acceptable nor tolerable . . . and would likely cause a driver to refill with DEF or correct the SCR problem as needed."[5] CARB also found that the "final solution" of limiting the vehicle speed to 5 mph worked as designed and that the only way to resume normal operation after the severe inducement was to have the vehicle serviced and reset by an authorized service technician.

> CARB determined that the inducements were effective for this vehicle because the constant inducement strategies and risk of costly repairs would not be worth the downtime and financial loss to the business when DEF could simply have been added to ensure proper vehicle operation.

In light of CARB's conclusion that the SCR inducements are proving to be effective, combined with the fact that EPA has not analyzed the impact upon vehicle operators from modifying those inducements, we do not believe it is appropriate to revise the SCR certification guidance to strengthen the severity of the inducements.

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[3] Proposed Guidance at 32889.

[4] *Id.*

[5] Proposed Guidance at 32889-32890.

In addition to the CARB Field Evaluation, ATA conducted a survey of some of its members that had experience with SCR-equipped trucks. The surveyed fleets were operating approximately 2,000 SCR-equipped trucks and indicated that they would likely purchase an additional 5,900 SCR-equipped trucks in 2011. None of the surveyed fleets reported running out of DEF. In fact, there were only six reported instances of triggering severe inducement (*i.e.*, 25 percent engine de-rate) and each of these were triggered by circumstances that were beyond the end-user's control.[6] This is critically important for EPA to understand – the severe inducements functioned as penalties assessed against operators who had done nothing wrong.

In addressing EPA's justification for revising the SCR Guidance, we also reference the 2010 survey done by Cummins. This survey, based on data transmitted wirelessly from 47 specific vehicles, revealed that the vehicles operated without DEF for only 0.02 percent of their operating miles, triggering a de-rating event. The survey further indicated that DEF quality was unacceptable in less than 0.18 percent of the operating miles.[7] This survey further supports the effectiveness of the existing SCR Guidance and nullifies the stated need for the proposed revisions.

Finally, we note that Navistar hired EnSight, Inc. to test three trucks "with the intent of circumventing the manufacturer designed inducements. . . ."[8] We do not believe that these "tests" are representative of conditions in the industry, as they were based upon actions that are "in contravention to EPA tampering regulations."[9]

The EnSight "test" results indicated that it is possible to drive a truck over 1,000 miles on an empty DEF tank at a limited speed of 55 mph, as long as no more than 100 gallons of fuel was added at any single refueling event. Under this scenario, the final inducement of 5 mph – limp mode – could be avoided. While this may be theoretically possible, it is extremely unlikely that this behavior would occur in the real world, as driving a truck that has experienced a 25 percent de-rating often would require operation in a lower gear and would produce a fuel economy penalty that exceeds the potential economic benefit associated with failing to refill the DEF tank. We also note that limiting refueling to less than 100 gallons is an inefficient use of the driver's time and further wastes fuel from having to repeatedly exit and enter the highway to enable more frequent diesel refueling.

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[6] The six reported instances involved two sensor malfunctions and four melted DEF supply hoses.

[7] Proposed Guidance at 32890.

[8] Proposed Guidance at 32890-328901.

[9] Proposed Guidance at 32890.

Severe inducements, such as engine de-rating or limp mode, may be caused by a variety of factors. Many of these factors are beyond the operator's control (*i.e.*, DEF heater malfunction, hose or valve malfunction, sensor malfunction). For these types of malfunctions, it is important to remember that the operator did not do anything wrong and it is unfair to penalize the driver in the manner suggested by the Proposed Guidance. While truck and engine manufacturers must ensure compliance with applicable emission standards, it is equally important to avoid economic damages associated with missed freight deliveries caused by sensor malfunctions or other unintentional events that could trigger severe inducements. Triggering a severe inducement likely will result in a significant economic penalty for the motor carrier, as additional drivers and trucks may need to be dispatched to complete delivery and customers may refuse to pay the freight bill associated with a delayed delivery.[10]

The preamble to the Proposed Guidance supports the fact that the existing SCR inducements are appropriate and that significant revision is neither necessary nor desirable.

> [O]n-highway heavy-duty diesel SCR systems introduced into commerce to date have been highly successful in inducing operators to refill DEF tanks on a timely basis and to avoid interfering with SCR operation, with a few specific exceptions.[11]

As EPA attempts to balance emissions compliance with the need to ensure reliable freight delivery by SCR-equipped trucks, ATA asks that the Agency withdraw the Proposed Guidance document to analyze and consider the adverse economic impacts that motor carriers likely will suffer from the imposition of severe inducements that are triggered through no fault of their own. EPA's SCR guidance is intended to ensure that manufacturers design emissions control systems in a manner that makes it unlikely that they will be operated inappropriately. EPA has accomplished this goal and should approach any revisions to the SCR Guidance document skeptically, being careful to consider the impact upon the innocent end-user.

[10] Many trucking customers rely upon a just-in-time delivery system to minimize inventory storage costs. Some freight contracts impose significant financial penalties upon trucking companies who fail to deliver freight at the time specified in the contract.

[11] Proposed Guidance at 32892, omitting footnote referencing tampering with SCR systems under Section 203(a)(3) of the Clean Air Act.

B. Reductant Tank Level Warning System

ATA supports the continued use of dashboard alerts to provide the operator with advance notice of the need to refill DEF. ATA agrees with EPA that the current designs are acceptable and do not warrant changes.[12] These warning indicators have a proven track record in helping operators avoid fully depleting the truck DEF tanks.

C. Low Reductant Level Inducement

The Proposed Guidance suggests that an engine torque de-rate of 40 percent would be appropriate as a severe inducement for the operator to replenish DEF and that this severe inducement should occur while there is enough reductant in the tank to continue to provide proper SCR dosing for approximately one full day of operation. In 2010, manufacturers used a 25 percent de-rate as a severe inducement for low reductant levels.

ATA does not support the proposed de-rating modification and questions whether EPA has investigated the impact of this type of de-rate event upon the end-user. A 40 percent de-rate could create an unsafe operating condition, especially if the truck is loaded and operating over steep terrain. A 40 percent de-rate also may make it impossible to complete the day's work without the driver running out of permissible hours. EPA must fully understand the impacts of this proposed change to the engine de-rating inducement.

As EPA analyzes this option, we note that the severe inducement of engine de-rating would be occurring while there is still DEF in the tank. Accordingly, no NOx emission exceedances will be occurring during this phase of operation and therefore further ratcheting down this inducement seems inappropriate. We also note that EPA previously concluded that the 25 percent de-rate was an effective inducement and therefore question the justification for this proposed revision.[13]

D. Identification and Correction of Incorrect Reducing Agent

ATA appreciates the need to set up a deterrent to using water in place of DEF as a reductant. In establishing an appropriate deterrent, EPA must distinguish between intentional misfueling and the unintentional use of off-spec DEF. It is unfair to penalize the operator that innocently purchases DEF from an unrelated third party.

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[12] Proposed Guidance at 32894.

[13] As discussed in Section A, a 25 percent de-rate will require additional fuel consumption, thereby removing the economic incentive to avoid replenishing DEF.

The Proposed Guidance states that "current urea-based SCR technology uses a robust NOx sensor system to detect poor quality reductant."[14] ATA questions EPA's characterization of the NOx sensor as "robust." In speaking with manufacturers, it is apparent that a certain percentage of NOx sensors (just like every other sensor) will fail. When this occurs, the operator should not be unnecessarily penalized.

The Proposed Guidance provides that final inducement (*i.e.*, 5 mph limp mode) should be triggered within 4 hours of detection or be combined with an engine de-rating two hours after detection. Since detection of poor quality urea may have nothing to do with the operator's decision to refill DEF and may simply be a sensor failure or off-spec DEF provided by an unrelated third party, we believe that this inducement is draconian and unfairly penalizes the operator. ATA supports the use of a visual indicator within one-hour of detecting a NOx exceedance, but believes that more severe inducements (*e.g.*, de-rating) should not be implemented until 11 hours following the NOx exceedance.[15] This would allow the driver to complete the day's work and bring the truck to a maintenance facility where the DEF tank can be drained and refilled. If this error occurs multiple times (*i.e.*, three or more), then the negative inducement could be triggered earlier – although limp mode should never be triggered unless the truck is parked to avoid a potentially dangerous situation of abruptly slowing the truck while it is on the road. ATA believes that this methodology will appropriately distinguish the operator that is the victim of a faulty NOx sensor or that unknowingly purchases off-spec DEF from the operator that intentionally refills the DEF tank with water.

We understand that urea quality sensors are under development and based on the fact that these sensors are still under development and not yet road tested, we offer no comment on the use of this technology as a trigger to the SCR negative inducements. We do, however, believe that manufacturers must be given adequate lead time to introduce new sensors and other technologies and therefore question whether the urea quality sensors will be ready for deployment by 2013.

E. Tamper Resistant Design

ATA recognizes the continuing need to create disincentives to emissions control tampering. In reviewing the Proposed Guidance, ATA applauds EPA for attempting to distinguish between equipment failure and tampering.

> It is possible that a part failure that occurs in the course of normal operation will be recognized as a result of these

[14] Proposed Guidance at 32895.

[15] *See* 49 CFR § 395.3.

> diagnostics. An operator should not immediately receive inducement for an event which may not have been caused by tampering.[16]

In recognizing that equipment failure is difficult to distinguish from tampering, EPA should delay the inducement trigger for a complete driving cycle to allow the driver to complete the day's work and return to a service facility. Accordingly, we recommend that the inducement begin 11 hours after detection rather than 4 hours, as proposed.

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ATA is pleased that the SCR-equipped emissions control systems combined with the current system of negative inducements to operating those systems without reductant have proven effective in reducing NOx emissions from heavy duty diesel trucks. Based on this fact, ATA does not believe that significant changes to the SCR Guidance Document and the heavy duty diesel engine certification process are warranted. We are especially concerned with potentially increasing the torque de-rating from 25 percent to 40 percent, as this could create an unsafe operating condition and prevent operators from completing their daily deliveries in a timely manner. We note that engine de-rating results in a significant fuel economy penalty and actually increases truck emissions. We also oppose reducing the time in which negative inducements are triggered, as this again will unfairly penalize operators by preventing them from completing daily deliveries, especially considering that the inducements may be triggered by circumstances that are beyond the operator's control. Finally, we believe that accelerating the inducement triggers could have an adverse impact on total emissions from this source category, especially considering the compliance track record under the existing SCR Guidance.

If you have any questions concerning the matters raised in these comments, please contact the undersigned at (703) 838-1910.

Respectfully submitted,

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[16] Proposed Guidance at 32896.