EPA ADOPTS HISTORIC INITIATIVE TO SUBSTANTIALLY REDUCE EMISSIONS FROM ON-ROAD HEAVY-DUTY ENGINES AND VEHICLES

EPA Administrator Carol Browner today announced on behalf of President Clinton the adoption of a bold initiative to establish stringent standards designed to reduce emissions from on-road heavy-duty trucks and buses by up to 95 percent and to cut the allowable levels of sulfur in diesel fuel by 97 percent. The EPA rule is the most significant and far-reaching mobile source initiative since Congress adopted the 1970 Clean Air Act Amendments establishing the U.S. Mobile Source Emission Control Program. States and the environmental and health communities hailed the decision, but segments of the oil industry and several engine manufacturers criticized the final rule.

Beginning with the 2007 model year, 100 percent of the on-road diesel HDEs will require the use of a diesel particulate filters and 50 percent of the engines will require NOx exhaust control technology; beginning with the 2010 model year, 100 percent of the on-road heavy-duty diesel engines will require NOx exhaust control technology.

Key Elements of the Regulation

The rule has several key elements:

- A sulfur cap of 15 ppm beginning June 1, 2006 for 80 percent of the diesel fuel sold by major refiners for use in highway vehicles, becoming 100 percent after December 31, 2009. In addition, small refiners, who produce approximately five percent of the on-road diesel fuel, are eligible to sell diesel fuel with 500 ppm sulfur until 2010.

- 0.01 g/bhp-hr PM standard that takes effect with the 2007 model year for all on-road diesel HDEs

- 0.2 g/bhp-hr NOx standard, a 0.14 g/bhp-hr NMHC standard, and a 0.016 g/bhp-hr formaldehyde (HCHO) standard for HDEs to be phased in beginning with the 2007 model year (diesel HDEs -- 50% for MYs 2007-2009 and 100% beginning with the 2010 MY; gasoline HDEs – 100% in 2007)

- New requirements for crankcase emissions on turbocharged diesel engines

- Tighter standards for heavy-duty vehicles certified as complete vehicles

- Standards requiring reduced evaporative emissions

Emission Standards

The emission standards for HDEs are shown in Table 1 below. EPA modified slightly the phase-in schedule for the HDDE NOx standards. Under the proposal, the 0.2 NOx standard would have been phased in at 25% in 2007, 50% in 2008, 75% in 2009, and 100% in 2010. Under the final rule, 50% of the engines must meet the 0.2 NOx standard for model years 2007-2009.

Gasoline engines will be subject to the new emission standards on a phase-in requiring 50 percent compliance in 2008 and 100 percent compliance in 2008.

Manufacturers who sell diesel HDEs meeting the 0.2 g/bhp-hr NOx and 0.01 g/bhp-hr PM standards before the 2007 MY deadline will receive a credit of 1.5 for each engine sold (i.e., for every two low emitting engines sold before 2007, a manufacture will receive a credit for three engines sold beginning in 2007).

Table 1

Full Useful Life Heavy-Duty Engine Emission Standards and Phase-Ins		**Standard (g/bhp-hr)**	**Phase-In by Model Year**			
			2007	**2008**	**2009**	**2010**
Diesel	NOx	0.20	50%	50%	50%	100%
	NMHC	0.14				
	HCHO	0.016				
Gasoline	NOx	0.20	0%	50%	100%	100%
	NMHC	0.14				
	HCHO	0.016				
Diesel	PM	0.01	100%			
Gasoline	PM	0.01	0%	50%	100%	100%

The standards for complete heavy-duty vehicles (HDVs) will be implemented on the same schedule as for gasoline engine standards. For certification of complete vehicles between 8500 and 10,000 pounds gross vehicle weight rating (GVWR), the standards are 0.20 grams per mile (g/mi) for NOx, 0.02 g/mi for PM, and 0.195 g/mi for NMHC.

For vehicles between 10,000 and 14,000 pounds, the standards are 0.4 g/mi for NOx, 0.02 g/mi for PM, and 0.230 g/mi for NMHC. EPA believes these standards are roughly comparable to the engine-based standards in these size ranges.

Note that these standards would not apply to vehicles above 8500 pounds that we classify as medium-duty passenger vehicles as part of our Tier 2 program because of their primary use as passenger vehicles (the final standards for these vehicles are in 65 FR 6698, February 10, 2000). The standards for HDVs are shown in Table 2.

Table 2

Emission Standards for HDVs			
GVWR	**PM**	**NOx**	**NMHC**
8,500-10,000	0.02 g/mi	0.2 g/mi	0.195 g/mi
10,000-14,000	0.02 g/mi	0.4 g/mi	0.230 g/mi

EPA also revised the evaporative emissions standards for heavy-duty engines and vehicles, effective in the 2007 model year. The evaporative emission standards are shown in Table 3.

Table 3

Evaporative Emission Standards		
GVWR	**3-Day Diurnal Test**	**Supplemental 2-Day Diurnal Test**
8,500-14,000	1.4 g/test	1.75 g/test
>14,000	1.9 g/test	2.3 g/test

Diesel Sulfur Limits

EPA had proposed a 15 ppm sulfur cap for all diesel fuel sold for on-road vehicles beginning in 2006. To address concerns expressed by the U.S. Department of Energy regarding possible fuel shortages and price spikes, and in recognition of the special burden placed by the rule on small refiners, EPA in the final rule called for a phase-in of the 15 ppm low sulfur diesel fuel requirement. From June 1, 2006 to December 31, 2009, a minimum of 80% of the diesel fuel sold by large refiners (on a pad-by-pad) basis must meet the 15 ppm sulfur limit, with the remaining diesel fuel meeting a 500 ppm limit. Credit trading between refiners is allowed on a regional (i.e., pad-by-pad) basis. Small refiners, who produce approximately five percent of the on-road diesel fuel, are given until 2010 to meet the 15 ppm sulfur limit.

Small refiners who elect to produce diesel fuel meeting the 15 ppm sulfur limit are also given the option of receiving an additional three years or until 2011 to meet the gasoline sulfur limit.

Less than 100 percent availability of 15 ppm sulfur diesel does raise the issues of a duel fuel distribution system and the possibility of fuel contamination, but EPA is confident these

issues can be addressed. Also, EPA anticipates that the amount of low sulfur diesel fuel actually sold in the 2006-2009 timeframe will approach 90 percent.

Costs

EPA estimates that the proposed standards will add about $1200 to $1900 per new vehicle, depending on the vehicle size. To put these costs in perspective, a truck can costs as much as $150,000 and a bus can cost as much as $250,000.

The agency estimates that cutting sulfur levels from the current 500 ppm level to 15 ppm will add about 4-5 cents per gallon to produce and distribute diesel fuel, but there will be a cost off-set of 1 cent per gallon from vehicle maintenance savings resulting from the use of cleaner diesel fuel.

Air Quality Benefits

EPA estimates that the new standards will reduce smog-forming NOx emission by 2.6 million tons annually when the program is fully implemented in 2030. Emissions of PM will be reduced by 110,000 tons each year, hydrocarbons by 115,000 tons each year, and toxic air pollutants such as benzene by 17,000 tons annually. EPA estimates that the emission reduction benefits of the rule is equivalent to removing 13 million of today's trucks out of service.

For More Information

The final rule and related documents can be found on EPA's Office of Transportation and Air Quality web site at http://www.epa.gov/otaq/diesel.htm.

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