

# *PA- Supplemental Guidance*

## *2011-1*

### **ENR-06 Upgrade of old Diesel Powered Pumping plants.**

The EPA rulemaking is a tiered progression to low emission standards. Each tier involves a phase in (by horsepower rating) over several years. Tier 1 standards were adopted in 1994 for engines over 50 hp (such as bulldozers) and phased in from 1996 to 2000. Tier 1 standards for engines under 50 hp (such as lawn tractors) phased in from 1999 to 2000. A more stringent Tier 2 standard for all engine sizes was adopted from 2001 to 2006, and yet more stringent Tier 3 standards for engines rated over 50 hp from 2006 to 2008.

With Tier 4 EPA adopted a comprehensive national program to greatly reduce emissions from future nonroad diesel engines by integrating engine and fuel controls as a system to gain the greatest air-quality benefits. The emission standards will reduce emissions of particulate matter and nitrogen oxides from nonroad diesel engines by more than 90 percent. These standards for new engines went into effect in 2008 and will be fully phased in for most engines by 2014. Larger mobile engines (greater than 750 horsepower) have one year of additional flexibility to meet their emission standards.

To comply with the law the manufacturer must affix at the time of manufacture a permanent and legible label identifying each nonroad engine. The label must be attached in such a manner that it cannot be removed without destroying or defacing the label. The label needs to have a statement saying: "This engine conforms to (model year) U.S. EPA regulations large nonroad compression-ignition engines". The label will also show date of manufacture (month and year) and fuel requirements among other information.

For your information the following tables show the tier requirements. (Not all details are included in these tables. They are provided just to provide a general idea of the process. For more specific information see the respective Statute and Regulation or contact the Environmental Protection Agency.)

Table I. Tier 3 Emission Standards in g/kW-hr (g/hp-hr)

Engine Power	Tier	Model Year	NMHC + NOx	CO	PM
37≤kW<75 (50≤hp<100)	3	2008	4.7 (3.5)	5.0 (3.7)	-
75≤kW<130 (100≤hp<175)	3	2007	4.0 (3.0)	5.0 (3.7)	-

130≤kW<225 (175≤hp<300)	3	2006	4.0 (3.0)	3.5 (2.6)	-
225≤kW<450 (300≤hp<600)	3	2006	4.0 (3.0)	3.5 (2.6)	-
450≤kW≤560 (600≤hp≤750)	3	2006	4.0 (3.0)	3.5 (2.6)	-

Table II. Tier 4 PM Standards (G/BHP-HR) and Schedule

Engine Power	Model Year					
	2008	2009	2010	2011	2012	2013
hp<25 (kW < 19)	0.30	-	-	-	-	-
25≤hp<75 (19≤kW<56)	0.22	-	-	-	-	0.02
75≤hp<175 (56≤kW<130)	-	-	-	-	0.01	-
175≤hp≤750 (130≤kW≤560)	-	-	-	0.01	-	-
Hp750 (kW>560)	See Table IV					

Table III. Tier 4 NO<sub>x</sub> and NMHC Standards and Schedule

Engine power	Standard (g/bhp-hr)		Phase-in schedule (model year) (percent)			
	NO <sub>x</sub>	NMHC	2011	2012	2013	2014
25≤hp<75 (19≤kW<56)	3.5 NMHC+NO <sub>x</sub>		-	-	100%	-
75≤hp<175 (56≤kW<130)	0.30	0.14	50	50	100	
175≤hp≤750 (130≤kW≤560)	0.30	0.14	50	50	50	100
Hp750 (kW>560)	See Table IV					

Table IV. Tier 4 Standards for Engines Over 750 HP (G/BHP-HR)

	2011			2015		
	PM	NO <sub>x</sub>	NMHC	PM	NO <sub>x</sub>	NMHC
Engines used in:						
generator sets ≤1200 hp	0.075	2.6	0.30	0.02	0.50	0.14
generator sets > 1200 hp	0.075	0.50	0.30	0.02	No new standard	0.14
all other equipment	0.075	2.6	0.30	0.02	No new standard	0.14

PPE to be done by an individual or company certified by a pump manufacturer or by the irrigation association, individual to indicate by whom on the report.

Cropland  
Pasture  
Forestland

Amount Applicable = No./Actual

Applicable on adjacent land

Not compatible with:

Cropland -ANM21, SOE02, WQT03

Pastureland – ANM22, ANM23, ENR03, SOE02, WQT03

Forestland – no compatibility issues