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New Delhi, Thursday, July 11, 2002

## MINISTRY OF ENVIRONMENT AND FORESTS

### NOTIFICATION

New Delhi, the 9th July, 2002

**G.S.R. 489(E):** In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection), Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely :-

1 (1) These rules may be called the Environment (Protection) Third Amendment Rules, 2002.

(2) They shall come into force on the date of their publication in the Official Gazette.

2 In the Environment (Protection) Rules, 1986, in Schedule I, after serial number 95 relating to Emission Limits for New Diesel Engines (up to 800 KW) for Generator Sets (Gensets) Applications and the entries relating thereto, the following serial number and entries shall be inserted, namely: -

**"96. EMISSION STANDARDS FOR DIESEL ENGINES (ENGINE RATING**

**MORE THAN 0.8 MW (800 KW) FOR POWER PLANT, GENERATOR SET APPLICATIONS AND OTHER REQUIREMENTS**

**TABLE**

Parameter	Area Category	Total engine rating of the plant (includes existing as well as new generator sets)	Gerator sets commissioning date			
			Before 1/7/2003	Between 1/7/2003 and 1/7/2005	On or after 1/7/2005	
Nox (as NO <sub>2</sub> ) (AT 15% O <sub>2</sub> ), dry basis, in ppmv	A	Upto 75MW	1100	970	710	
	B	Upto 150MW				
	A	More than 75MW	1100	710	360	
	B	More than 150MW				
NMHC (as C) (at 15% O <sub>2</sub> ), mg/Nm <sup>3</sup>	Both A and B		150	100		
PM (at 15% O <sub>2</sub> ), mg/Nm <sup>3</sup>	Diesel Fuels - HSD & LDO	Both A and B		75	75	
	Furnace Oils - LSHS & FO	Both A and B		150	100	
CO (at 15% O <sub>2</sub> ), mg/Nm <sup>3</sup>	Both A and B			150	150	
Sulphur content in fuel	A		<2%			
	B		<4%			
Fuel specification	For A only	Up to 5MW	Only Diesel Fuels (HSD, LDO) shall be used.			
Stack height (for generator sets commissioned after 1/7/2003)	Stack height shall be maximum of the following, in meter: i. $14 Q^{0.3}$ , Q = Total SO <sub>2</sub> emission from the plant in					

	<p>kg/hr</p> <p>ii. Minimum 6 m above the building where generator set is installed.</p> <p>(iii) 30 m.</p>
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**Note:**

1. Acronyms used:

MW : Mega ( $10^6$ ) Watt

FO : Furnace Oil

NO<sub>x</sub> : Oxides of Nitrogen

HSD : High Speed Diesel

NO<sub>2</sub> : Nitrogen Dioxide

LDO : Light Diesel Oil

O<sub>2</sub> : Oxygen

LSHS : Low Sulphur Heavy Stock

NMHC : Non- Methane Hydrocarbon

kPa : Kilo Pascal

C : Carbon

mm : Milli ( $10^{-3}$ ) metre

PM : Particulate Matter

kg/hr : Kilo ( $10^3$ ) gram per hour

CO : Carbon Monoxide

mg/Nm<sup>3</sup> : Milli ( $10^{-3}$ ) gram per

SO<sub>2</sub> : Sulphur Dioxide Normal metre cubic

ppmv : part per million (10<sup>6</sup>) by volume

2. Area categories A and B are defined as follows:

Category A: Areas within the municipal limits of towns/cities having population more than 10 lakhs and also upto 5 km beyond the municipal limits of such towns/cities.

Category B: Areas not covered by category A.

3. The standards shall be regulated by the State Pollution Control Boards or Pollution Control Committees, as the case may be.

4. Individual units with engine ratings less than or equal to 800 KW are not covered by this notification.

5. Only following liquid fuels viz. High Speed Diesel, Light Diesel Oil, Low Sulphur Heavy Stock and Furnace Oil or liquid fuels with equivalent specifications shall be used in these power plants and generator sets.

6. For expansion project, stack height of new generator sets shall be as per total Sulphur Dioxide emission (including existing as well as additional load).

7. For multi engine plants, fuels shall be grouped in cluster to get better plume rise and dispersion. Provision for any future expansion should be made in planning stage itself.

8. Particulate Matter, Non-Methane Hydrocarbon and percent moisture (dry basis). Carbon Monoxide results -are to be normalized to 25<sup>0</sup>C, 1.01 Kilo Pascal (760 mm of mercury) pressure and zero

9. Measurement shall be performed at steady load conditions of more than 85% of the rated load.

10. Continuous monitoring of Oxides of Nitrogen shall be done by the plants whose total engine capacity is more than 50 Mega Waft. However, minimum once in six month monitoring for other parameters shall be adopted by the plants.

11. Following methods may be adopted for the measurement of emission parameters,-

Sl.No.	Emission Parameters	Measurement Methods
1.	Particulates	Gravimetric
2.	SO <sub>2</sub>	Barium Perchlorate- Thorin indicator method
3.	NO <sub>x</sub>	Chemiluminescence, Non Dispersive Infra Red, Non Dispersive Ultra-violet (for continuous measurement), Phenol disulphonic method
4.	CO	Non Dispersive Infra Red
5.	O <sub>2</sub>	Paramagnetic, Electrochemical sensor
6.	NMHC	Gas Chromatograph - Flame Ionisation Detector

**Note :-** The principal rules were published in the Gazette of India vide number S.O. 844(E) 1 9<sup>th</sup> November, 1986 and subsequently amended vide S.O. 433(E) dated 18<sup>th</sup> April, 1987, S.O. 64(E) dated 18<sup>th</sup> January, 1988, S.O.3(E) dated 3<sup>rd</sup> January, 1989, S.O. 190(E) dated 15<sup>th</sup> March, 1989, G.S.R. 913(E) the 24<sup>th</sup> October, 1989, S.O."12(E) dated the 8<sup>th</sup> January, 1990, G.S.R. 742(E) dated the 30<sup>th</sup> August, 1990, S.O. 23(E) dated the 16<sup>th</sup> January, 1991, G.S.R. 93(E) dated the 21<sup>st</sup> February, 1991, G.S.R. 95(E) dated the 12<sup>th</sup> February, 1992, G.S.R. 329(E) dated the 13<sup>th</sup> March, 1992, G.S.R. 475(E) dated the 5<sup>th</sup> May, 1992, G.S.R. 797(E) dated the 1<sup>st</sup> October, 1992, G.S.R. 386(E) dated the 28<sup>th</sup> April, 1993, G.S.R. 422(E) dated the 19<sup>th</sup> May, 1993, G.S.R. 801(E) dated the 31<sup>st</sup> December, 1993, G.S.R. 176(E) dated the 3<sup>rd</sup> April, 1996, G.S.R. 631(E) dated the 31<sup>st</sup> October, 1997, G.S.R. 504(E) dated the 20<sup>th</sup> August, 1998, G.S.R. 7(E) dated the 25<sup>th</sup> September, 2000, G.S.R. 72(E) dated 6<sup>th</sup> February, 2001, G.S.R. 54(E) dated 22.1.2002 and G.S.R. No. 371(E) dated 17.5.2002.