



GOVERNMENT OF INDIA  
CENTRAL ELECTRICITY AUTHORITY  
CONSERVATION & EFFICIENCY DIVISION  
SEWA BHAWAN, RAMAKRISHNA PURAM  
NEW DELHI-110066  
TELFAX: 011-26108462



[ISO: 9001-2000]

No.CEA/PLG/C&E/ENV/1/2011/1972

Dated: 17.03.2011

✓ Shri D. Raja  
IITM Research Park, Phase – I,  
10<sup>th</sup> floor, No.1, Kanagam Village,  
Behind Tidel Park, Taramani,  
Chennai – 600 113

Subject: Information on pollutants released from Thermal Power Plants, under the  
Right to Information Act, 2005 – reg.


Sir,

I am directed to refer to your letter No.ESF/Pol/10/2/11/17 dated 10.2.2011  
addressed to Shri D.N. Prasad, Director (T) & PIO, Ministry of Coal and transferred to  
CEA by MOP vide their letter dated 1.3.2011, seeking information under the Right to  
Information Act, 2005.

The information sought for is enclosed in the desired tabular form.

Encl: As above.

Yours faithfully,

  
(Praveen Gupta)  
Director & CPIO

Copy to:-

1. Ms. Kalyani Mishra, Deputy Secretary & Nodal Officer (RTI), Ministry of  
Power, Shram Shakti Bhawan, New Delhi – 110001.
2. The Chief Engineer (Coordination), CEA.
3. Shri D.K. Gilhotra, Director & CPIO, TE&TD Division, CEA.

  
(Praveen Gupta)  
Director & CPIO



Name of chemical	Amounts produced	Method of removal disposal presently adopted	Amount still present in final treated product before being released to atmosphere or water / land	Maximum limit prescribed by the Pollution Control Authority for the release of this chemical
1	2	3	4	5
Coal/Lignite based Thermal Power Plants				
A. STACK EMISSIONS				
1. Suspended Particulate Matter (SPM)	Data on amounts produced is not available in CEA	Installation of Electrostatic Presipitators (ESPs)	Generally within the range of 40-150 mg./Nm <sup>3</sup> . However, few power stations are exceeding 150 mg./Nm <sup>3</sup> .	As given in the notification enclosed at Annexure-I
2. Sulphur Dioxide (SO <sub>2</sub> )	- do -	Since Sulphur content in Indian coal is very low, only 1-2 Thermal Power Plants have installed Flue Gas Desulphurisation (FGD) Plant to control emission of SO <sub>x</sub>	200-700 mg./Nm <sup>3</sup>	No limits have been prescribed
3. Oxides of Nitrogen (NO <sub>x</sub> )	- do -	Low NO <sub>x</sub> burners have been provided	250-450 mg./Nm <sup>3</sup>	- do -
B. LIQUID EFFLUENTS				
(a) Condenser Cooling Water 1. pH value 2. Free available Chlorine	- Data not available in CEA	Generally, Liquid Effluent Treatment Plants are installed.	7.5-8.5 0-0.5 mg./l	As given in Annexure-II
(b) Boiler Blowdown 1. Oil & Grease 2. Copper (total)	- do -	- do -	1-2.5 mg./l 0.05-0.1 mg./l	- do -



3. Iron (total)	- do -		0.1-0.8 mg./l	
4. Total Suspended Solids			10-80 mg./l	
(c) Cooling Tower Blowdown				
1. Free available chlorine			0-0.5 mg./l	
2. Zinc	Data not available in CEA	- do -	0.1-0.4 mg./l	As given in Annexure-II
3. Chromium (total)			0.05-0.1 mg./l	
4. Dissolved Phosphate			1-3 mg./l	
(d) Ash Pond Effluent				
1. pH value			7.5-8.5	
2. Oil & Grease	- do -	- do -	2-5 mg./l	- do -
3. Total Suspended Solids			35-90 mg./l	
Gas based Thermal Power Plants				
(a) Emissions				
1. Oxides of Nitrogen (NOx)	Data not available in CEA	Low NOx burners have been provided	No data is available in CEA	As given in Annexure-III
(b) Liquid Waste Discharge				
1. pH value				
2. Free available Chlorine	- do -	Generally, Liquid Effluent Treatment Plants are installed.	- do -	- do -
3. Total Suspended Solids				
4. Oil & Grease				
5. Copper (total)				
6. Iron (total)				
7. Zinc				
8. Chromium (total)				
9. Phosphate				

Note: Values mentioned under column No.4 are broad ranges based on the data available in CEA.



## THERMAL POWER PLANTS: EMISSION STANDARDS

### NOTIFICATION

MOEF vide Notification of 19<sup>th</sup> May 1993 issued as amendment rules to environment (Protection) Act 1986. The particulate matter emission limits for thermal power stations are as follows: -

1.	Generation capacity 62.5 MW or more	150 mg/Nm <sup>3</sup>
2.	Generation capacity less than 62.5 MW and plant Commissioned prior to 1.1.82	350 mg/Nm <sup>3</sup>
3.	Units located in protected area irrespective of generation capacity.	150 mg/Nm <sup>3</sup>



Annexure II

**THERMAL POWER PLANT: STANDARDS FOR LIQUID EFFLUENTS**

Source	Parameter	Concentration not to exceed, mg/l (except for pH & Temp.)
Condenser Cooling Water (once through higher cooling system)	PH	6.5 to 8.5
	Free available Chlorine	0.5
Boiler Blowdown	Suspended solids	100
	oil & grease	20
	Copper (Total)	1.0
	Iron (Total)	1.0
Cooling Tower Blow down	Free available Chlorine	0.5
	Zinc	1.0
	Chromium (total)	0.2
	Phosphate	5.0
As pond effluent	pH	6.5 to 8.5
	Suspended Solids	100
	Oil & grease	20

Source: EPA Notification S.O. 844 (E) dated 19.11.1986



## Annexure II

### THERMAL POWER PLANT: STANDARDS FOR LIQUID EFFLUENTS

Source	Parameter	Concentration not to exceed, mg/l (except for pH & Temp.)
Condenser Cooling Water (once through higher cooling system)	PH	6.5 to 8.5
	Free available Chlorine	0.5
Boiler Blowdown	Suspended solids	100
	oil & grease	20
	Copper (Total)	1.0
	Iron (Total)	1.0
Cooling Tower Blow down	Free available Chlorine	0.5
	Zinc	1.0
	Chromium (total)	0.2
	Phosphate	5.0
As pond effluent	pH	6.5 to 8.5
	Suspended Solids	100
	Oil & grease	20

Source: EPA Notification S.O. 844 (E) dated 19.11.1986



**ENVIRONMENTAL STANDARDS FOR GAS / NAPHTHA  
BASED THERMAL POWER PLANTS**

**(i) Limit for emission of NOx**

- (a) For existing units - 150 ppm (v/v) at 15% excess oxygen.
- (b) For new units with effect from 1-6-99.

Total generation of gas turbine	Limit for Stack NOx emission (v/v), at 15% excess oxygen)
(a) 400 MW and above	(i) 50 ppm for the units burning natural gas (ii) 100 ppm for the units burning naphtha
(b) Less than 400 MW but up to 100 MW	(i) 75 ppm for the units burning natural gas (ii) 100 ppm for the units burning naphtha
(c) Less than 100 MW	100 ppm for units burning natural gas or naphtha as fuel
(d) For the plants burning gas in a conventional boiler.	100 ppm

(ii) Stack height H in m should be calculated using the formula  $H = 14 Q^{0.3}$ , where Q is the emission of SO<sub>2</sub> in kg/hr, subject to a minimum of 30 mts.

**(iii) Liquid waste discharge limit**

Parameter	Maximum limit of concentration (mg/l except for pH and temperature)
pH	6.5-8.5
Free available chlorine	0.50
Suspended solids	100.0
Oil & grease	20.00
Copper (total)	1.00
Iron (total)	1.00
Zinc	1.00
Chromium (total)	0.20
Phosphate	5.00

Source: EPA Notification [GSR 7, dt. Dec. 22, 1998]