



Central Pollution Control Board
Delhi 110032

Press Release

Ambient Air and Noise Pollution Levels - Deepawali 2011

Background

Like previous years, the Central Pollution Control Board, Delhi has conducted an in-depth Ambient Air quality and Noise monitoring for the city of Delhi during celebration of Deepawali festival for the year 2011 (October 26, 2011) to see the overall impact of bursting crackers on Ambient Air Environment. It may be stated that the prime festival in North India is celebrated at the juncture of Autumn and Winter, when the meteorological conditions plays a vital role for dilution and dispersion of air pollutants due to lowering of temperature, reduced mixing height, changing wind direction besides low or no wind velocity and starting of dry weather spells in addition to the added pollution load.

Executive Summary

Intensive ambient air monitoring was carried at selected seven (07) locations and ambient noise monitoring was undertaken at nine (09) locations across the city, while data obtained from eleven (11) on-line stations were also taken into account.

The **findings of the monitoring** are summarized below:

1. **Noise level** during Deepawali, 2011 showed a slight increase at three locations, decreased at three, while no change at remaining locations as compared to Deepawali 2010 (November 05, 2010). Increase in Noise Level at these locations could be attributed to bursting of noisy crackers. The maximum Noise Level was found to have increased to 91 dB(A) in 2011 from 85 dB(A) observed in 2010.
2. **Air pollutant levels** during 2011 Deepawali Day (October 26, 2011) were found to be lower as compared to Deepawali, 2010 (November

05, 2010, these **might have attributed to sudden change in meteorological conditions, as under:**

- a. Increased 24 hourly average temperatures 26.4°C on October 26, 2011 from 21.2°C on November 05, 2010.
- b. Increased night time mixing height to 255 metre on October 26, 2011 from 151 metre on November 05, 2010.
- c. Increased wind speed to 1.1 m/sec. in 2011 from 0.9 m/sec in 2010.
- d. Decreased humidity profile to 39% on October 26, 2011 as compared 75% on November 05, 2010.

The above had helped to have better dispersion of pollutants.

Report

Ambient Air & Noise Pollution Levels - Deepawali 2011

The Central Pollution Control Board has conducted Ambient **Air quality & Noise** monitoring at various locations in Delhi on the occasion of Deepawali festival, 2011 to see the impact of bursting crackers on environment. The following investigations were conducted:

1. Round-the-clock Ambient Air quality monitoring was carried out on October 26, 2011 (Deepawali day) at **seven** monitoring stations of CPCB namely BSZ Marg (ITO), Pitampura, Siri Fort, Janakpuri, Nizamuddin, Shahzada Bagh, and Shahdara. The air quality data is presented in **Table -1**.
2. The Ambient noise level monitoring was carried out at **Nine** locations in Delhi namely Lajpat Nagar, Mayur Vihar (Phase – II), Pitam Pura, Kamla Nagar, Dilshad Garden, East Arjun Nagar, Ansari Nagar (AIIMS), Connaught Place and ITO between 18.00 hours & 24.00 hours (during Deepawali celebration hours) on October 26, 2011. Ambient Noise level monitoring data for Pre-Deepawali background monitoring was carried out at same locations & time on October 19, 2011. The noise level data is presented in **Table – 2**.
3. The data obtained from eleven (11) on-line air quality monitoring stations in Delhi are depicted at **Table 3A and 3B**.
4. Meteorological profile (temperature, relative humidity, wind speed, wind direction and mixing height) was also monitored and the data is presented at **Table-4**. Average temperature on October 26, 2011 was 26.4°C as compared to 21.2°C in 2010; relative humidity was

39 % in 2011 as compared to 75 % in 2010. Mixing height increased to 255 meters (2011) to 151 meters (2010).

Findings of Ambient Air Quality Monitoring

Sulphur dioxide (SO₂):

A Sulphur dioxide concentration on Deepawali day 2011 increased at four locations, decreased at three locations as compared to Deepawali day 2010. During Deepawali day, 2011 SO₂ ranged between 11 and 40 µg/m³ as compared to 8 and 51 µg/m³ during Deepawali day in 2010. SO₂ levels have been found within the prescribed standard of 80 µg/m³ at all the locations.

Nitrogen dioxide (NO₂):

Nitrogen dioxide concentration on Deepawali day in 2011 has decreased at six locations four locations and no change was observed at one as compared to Deepawali day 2010. NO₂ values during Deepawali day ranged between 27 and 56 µg/m³ as compared to 34 and 72 µg/m³ in 2010. The NO₂ levels are within the prescribed standard of 80 µg/m³ at all the locations.

Particulate Matter (PM₁₀):

PM₁₀ levels have shown decreasing trend at all the locations on Deepawali day, 2011 as compared to 2010. RSPM values during Deepawali day, 2011 ranged between 416 and 635 µg/m³ as compared to 704 and 1350 µg/m³ during Deepawali, 2010.

Decreased PM₁₀ values in general may be attributed to favorable meteorological conditions, i.e. increase in temperature, increase in mixing height, increase in wind speed couples with decreased relative humidity profile.

Findings of Ambient Noise Level Monitoring – Deepawali, 2011

- The ambient noise level at all the locations on Deepawali day, 2011 (October 26, 2011) have increased as compared to normal day (pre Deepawali – October 19, 2011).
- Noise level during Deepawali, 2011 showed a slight increase at three locations, decreased at three, while no change at remaining locations as compared to Deepawali 2010 (November 05, 2010). Increase in Noise Level at these locations could be attributed to

bursting of noisy crackers. The maximum Noise Level was found to have increased to 91 dB(A) in 2011 from 85 dB(A) observed in 2010.

- The maximum Noise Level was found to have increased to 91 dB(A) in 2011 from 85 dB(A) observed in 2010 [at Mayur Vihar (Phase-II).]

Conclusion

Noise levels during Deepawali, 2011 (October 26, 2011) at some locations was higher than Deepawali, 2010 (November 05) because of bursting of noisy crackers.

Air pollution levels during 2011 (October 26, 2011) were found to be lower as compared to Deepawali, 2010 (November 05) mainly because of favorable meteorological conditions, as stated above.

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Table- 1
Ambient Noise Level at different places in Delhi during Normal & Deepawali days in the year 2010 and 2011

Sl. No.	Location	Average Noise Level in dB (A) Leq.				Max. Prescribed Limit
		Normal Day (Pre-Deepawali)		Deepawali Day		
		2010	2011	2010	2011	
01.	Lajpat Nagar (R)	63	67	76	81 ↑	55
02.	East Arjun Nagar (R)	NM	57	NM	74 ↑	
03.	Mayur Vihar Phase – II (R)	63	79	85	91 ↑	
04.	Pitam Pura (R)	58	58	71	75 ↑	
05.	Kamla Nagar (R)	56	58	81	81 =	
06.	Dilshad Garden (R)	56	56	83	80 ↓	
07.	Ansari Nagar (R)	58	56	81	76 ↓	
08.	Connaught Place (C)	62	64	71	69 ↓	65
09.	I.T.O (C)	65	72	71	71 =	
Deepawali Day 2010 – 05 November (Friday) Normal day: 19 th October 2011. Deepawali Day 2011 – 26 October (Wednesday) Monitoring time: 1800 hours to 2400 hours R – Residential, C – Commercial, NM=Not monitored						

Table-2
Ambient Air Quality at Various Locations (NAMP) during
Deepawali 2010 & 2011

Sl. No.	Parameter→ Year→	Normal Day (Pre-Deepawali)						Deepawali Day					
		SO ₂		NO ₂		PM ₁₀		SO ₂		NO ₂		PM ₁₀	
		2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
01.	B.S.Z Marg (ITO)	05	13	76	78	236	208	18	28	56	56	1303	416
02.	Pitampura (R)	04	7	46	34	229	184	23	22	44	27	1350	428
03.	Sirifort (R)	04	10	45	75	257	292	14	25	51	30	1012	635
04.	Janakpuri (R)	04	4	55	52	284	323	51	40	43	31	1100	441
05.	Nizamuddin (R)	04	4	43	46	211	220	8	21	54	46	704	421
06.	Shahazada Bagh (I)	05	6	34	58	357	301	28	35	72	45	1116	438
07.	Shahdara (I)	05	6	31	59	375	486	14	11	34	28	1317	497
	<i>Concentration Range for Delhi (above stations)</i>	04-05	4-13	31-76	34-78	211-375	184-486	08-51	11-40	34-72	27-56	704-1350	416-635
	<i>Ambient Air quality Standards (24 Hrs.)</i>	80		80		100		80		80		100	
<p><i>All values are in microgram per cubic metre</i> Deepawali Day 2010: Nov.05,2010(Friday); Deepawali: Oct.26, 2011 (Wed.)</p>													

Tabale-3A
Ambient Air Quality (gaseous) at Various Locations (CAAQMS) during
Deepawali 2011

Sl. No.	Parameter→ Year→	Normal Day (Pre-Deepawali Day)			Deepawali Day		
		SO ₂	NO ₂	CO	SO ₂	NO ₂	CO
		2011	2011	2011	2011	2011	2011
01.	B.S.Z Marg (ITO)	-	-	2406	-	-	1728
02.	DCE	NM	NM	788	NM	NM	647
03.	Dilshad Garden	24	74	1705	21	68	1556
04.	Shadipur	29	55	2058	22	40	1273
05.	Dwarka	6	28	1108	4	19	964
06.	RKPuram	4	82	NM	40	-	NM
07.	Mandir Marg	6	45	NM	38	74	NM
08.	Punjabi Bagh	10	54	1924	35	73	1023
09.	East Arjun Nagar	30	61	NM	29	45	NM
10.	Civil Lines	22	84	2740	43	60	2050
11.	Airport	20	96	2040	39	64	1730
	<i>Concentration Range for Delhi (above stations)</i>	4-30	28-96	788-2740	4-43	19-74	647-2050
	<i>Ambient Air quality Standards</i>	80	80	2000	80	80	2000
<p><i>All Values are in microgram per cubic metre</i></p> <p>Deepawali Day 2010: Nov.05,2010(Friday); Pre-Deepawali: Oct 19, 2001(Wed);Deepawali: Oct.26, 2011 (Wed.)</p> <p>NM=Parameter not monitored</p>							

Table-3B
Ambient Air Quality (Particulate Matter) at Various Locations (CAAQMS)
during Deepawali 2011

Sl. No.	Parameter→ Year→	Normal Day (Pre-Deepawali Day)		Deepawali Day	
		PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
		2011	2011	2011	2011
01.	B.S.Z Marg (ITO)	NM	307	NM	291
02.	DCE	NM	NM	NM	NM
03.	Dilshad Garden	254	NM	NM	NM
04.	Shadipur	372	NM	NM	NM
05.	Dwarka	255	NM	NM	NM
06.	RKPuram	439	141	427	220
07.	Mandir Marg	303	163	385	232
08.	Punjabi Bagh	394	188	386	162
09.	East Arjun Nagar	NM	NM	NM	NM
10.	Civil Lines	239	NM	NM	NM
11.	Airport	362	NM	NM	NM
	<i>Concentration Range for Delhi (above stations)</i>	239-439	141-307	385-427	162-291
	<i>Ambient Air quality Standards</i>	100	60	100	60
<p><i>All Values are in microgram per cubic metre</i> Deepawali Day 2010: Nov.05,2010(Friday); Pre-Deepawali: Oct 19, 2010(Wed);Deepawali: Oct.26, 2011 (Wed.) NM=Parameter not monitored</p>					

Table-5
METEOROLOGICAL INFORMATION: DEEPAWALI, 2011
Delhi

Parameters	Normal Day (October 19, 2011)			Deepawali Day (October 26, 2011)		
	24 hourly Mean	Maximum*	Minimum*	24 hourly Mean	Maximum*	Minimum*
Mixing Height (Mtrs.)	604	1664	150	547	1494	170
Wind speed(m/s)	0.5	1.8	0.01	1.1	1.9	0.4
Prevailing Wind Direction	W,WNW	% of Calm: 47.8		W	% of Calm: Nil	
Temperature (°C)	28.1	34.2	23	26.4	31.3	21.7
Relative Humidity (%)	41	54	19	39	54	28
Note: * hourly averages						

