



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

द्रुत डाक

सं. ए-21018/7/13-मोन/1/

दिनांक: 30 सितंबर, 2015

सेवा में,

श्रीमान सदस्य सचिव,
कर्णाटक राज्य प्रदूषण नियंत्रण बोर्ड,
49, परिसर भवन,
चर्च स्ट्रीट, बेंगलूरु - 560 001



विषय: दीपावली पर्व, 2015 के आयोजन के दौरान परिवेशी वायु एवं ध्वनि स्तर प्रबोधन के संचालन के संबंध में।

महोदय,

आपको विदित है कि माननीय उच्चतम न्यायालय के निर्देशों के अनुपालन में केंद्रीय प्रदूषण नियंत्रण बोर्ड विगत कई वर्षों से दीपावली पर्व के आयोजन के दौरान प्रदूषण नियंत्रण बोर्डों / समितियों द्वारा आयोजित परिवेशी वायु एवं ध्वनि स्तर प्रबोधन कार्यक्रमों का समन्वयन कर रहा है।

गत वर्ष, 2014 की दीपावली प्रबोधन रिपोर्ट "Ambient Air Quality & Noise Levels" तैयार करके फरवरी, 2015 में केंद्रीय प्रदूषण नियंत्रण बोर्ड के वेबसाइट पर उपलब्ध करा दी गई है और इस वर्ष भी इस प्रकार की रिपोर्ट को वेबसाइट पर उपलब्ध करने का विचार है।

इस वर्ष देश में, दिनांक 11 नवम्बर, 2015, दिन बुधवार को दीपावली पर्व मनाया जाना है। अतः एक सप्ताह पूर्व, अर्थात् 05 नवम्बर, 2015, दिन मंगलवार को सामान्य दिवस प्रबोधन एवं 11 नवम्बर के दिन दीपावली दिवस प्रबोधन के आयोजन के लिए आप से आग्रह किया जाता है।

इस कार्यक्रम में एकरूपता को जारी रखने के लिए, प्रबोधन प्रोटोकॉल एवं डाटा पत्र (परिशिष्ट - I, II एवं III) को अपनाए जाने के लिए आप से आग्रह है। इस प्रकार से डाटा रिपोर्ट को अंतिम रूप देते समय परिशिष्ट - IV को अपनाए जाने के लिए भी आप से आग्रह है से डाटा रिपोर्ट को अंतिम रूप देते समय परिशिष्ट - IV को अपनाए जाने के लिए भी आप से आग्रह है। निवेदन है कि तैयार रिपोर्ट को ई.मेल (dsaha.cpcb@nic.in अथवा krishnacpcb@yahoo.co.in) अथवा फॅक्स (011-22301071) पर 30 नवम्बर, 2015 तक अवश्य उपलब्ध कराने की कृपा करें।

यह भी निवेदन है कि देश में आतिशबाजी के न्यूनतम उपयोग एवं माननीय उच्चतम न्यायालय के निर्देशों के अनुपालन में सर्व साधारण के लिए वर्तमान समय में एक बोध आंदोलन चलाने की कृपा करें।

अनुलग्नक: यथोपरि

भवदीय,

(डी. साहा)

वैज्ञानिक 'ड' एवं प्रभारी, वायु प्रयोगशाला

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website : www.cpcb.nic.in

SPEED POST

No. A 21018/7/13-Mon. /

Dated: September 30, 2015

To,

The Member Secretary,
Karnataka State Pollution Control Board,
#49, Parisara Bhavan,
Church Street, **Bangaluru - 560 001**
Karnataka

Sub: **Monitoring of Ambient Air and Noise during Deepawali Festival, 2015 - Reg.**

Sir,

As you are aware that in compliance to the direction of Hon'ble Supreme Court of India, CPCB is co-ordinating ambient air and noise level monitoring during Deepawali Festival.

Last year (i.e. 2014) Deepawali festival report on "Ambient Air Quality & Noise Levels" has been prepared and uploaded in CPCB website in February 2015 and this year also we plan to brought out similar report.

This year, the festival of Deepawali falls on November 11, 2015 (Wednesday). Hence, it is requested to conduct monitoring on normal day i.e. November 05, 2015 (Thursday) and Deepawali day on November 11, 2015 (Wednesday).

To maintain uniformity in ambient noise and air quality monitoring, noise monitoring protocol along with data sheets (Annexure-I, II and III) may kindly be adopted. The same uniformity may be followed in the final data reporting with respect to all locations in the form of Annexure - IV and it may be sent by e-mail to dsaha.cpcb@nic.in / krishnacpcb@yahoo.co.in or faxed on 011-22301071 by November 30, 2015 positively.

It is also requested to start awareness campaign / mass awareness program for reduction of bursting of fire crackers and to comply the Hon'ble Supreme Court directions across the country.

Yours faithfully,

Encl.: **As above**


(D. Saha)
Scientist 'E' & I/c Air Lab

Protocol for Ambient Level Noise Monitoring

1.0 Purpose:

This protocol presents the protocol for Ambient Noise monitoring to be carried out on routine basis or to address the public complaints. The objective is to monitor the noise level at a particular site or as described in the complaints. The data generated by the method shall also evaluate with prescribed noise level standards.

2.0 Introduction

The unit of noise is decibel, one-tenth of a bell and denotes as d(B), however the monitoring unit is considered as dB(A) Leq denotes the time weighted average 'A' of the level of sound in decibels on **scale A** and it has been found related to **human hearing**. Thus in, dB(A)Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear. The unit of frequency is hertz (Hz) and is defined as the number of compressions and rarefactions per unit time (sec.). Human hearing is sensitive to frequencies in the range of about 20-20,000 Hz (the audio frequency range).

Sound pressure is used as the fundamental measure of sound (amplitude) as it is measurable directly by any standard instruments. The weakest sound pressure disturbance that can be detected by an "average" person at 1,000Hz has been found to be $20 \mu\text{N/m}^2$ and the largest $10^7 \mu\text{N/m}^2$. Because of such a wide range, the use of a linear pressure scale has been found to be non-scientific. It has been found convenient to employ sound pressure level, a quality, which is proportional to the logarithm of sound pressure. By this, the sound pressure range of interest is compressed between 0 to 130 dB.

3.0 Site Selection Criteria:

Site of an area shall be selected such that it meets the land use pattern as prescribed in the standard e.g. Residential, Commercial or Silence Zone.

(A) General:

1. The station should be located at the ambient level i.e. away from the direct source, away from any vibration and any obstruction.
2. Categorize the area with land use pattern.

(B) Specific :

Always use tripod stand at above the ground level of 1 to 1.5 m for areas. Hand held monitoring should be avoided.

(C) Case Specific Locations:

- DG Sets up to 800 kW at about 1 m distances from all sides. DG Sets more than 800 kW at about 1 m distance of acoustic enclosure.

Concerned State PCBs / PCCs may regulate the norms with minimum reduction of 25 dB(A) to see the effectiveness of the enclosure.

- Petrol and Kerosene Gensets Sound power level is measured in anechoic room so as to have segregated noise level.
- Fire crackers 4 m from the bursting point, there shouldn't be reflecting surface around 15m radius.
- Vehicle 0.5m from the exhaust point.

(D) Positioning of the instrument:

- Microphone must be placed 1.2 -1.5m above the ground level.
- In dry conditions with a wind speed of less than 5 m/s.
- Isolate the instrument from strong vibration and shock.

4.0 Selection of Noise level meter:

Noise measurements will be made with a Type 1 integrating sound level meter with free-field microphone which meets the Accuracy of noise measurement as per IEC 804 (BS 6698) Grade I or ANSI Type I or equivalent IEC 61672-1(2002-05) Class-I.

5.0 Calibration:

Make sure that the instrument is properly calibrated. Measurements should be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB. The sound level meter and calibrator will hold a current calibration certificate traceable to national standards.

Start the calibrator and put on 1 KHz frequency calibration on two values 94 dB and 114 dB. If instrument is shows more than ± 0.3 dB differences adjust the calibration. Calibration is done O.K. now instrument is ready for monitoring.

6.0 Monitoring time:

The monitoring should be carried out minimum 75% of the prescribed Day time (06.00 am to 22.00 pm) and Night time (22.00 pm to 06.00 am).The exercise has to be carried out for 6 to 8 hrs. in the said time frame of day & night. It is always preferable to have large number of data sets thus 1sec sampling frequency is recommended.

7.0 Monitoring Parameters:

L_{eq} , L_{10} , L_{90} , L_{50} , L_{max} , L_{min} , (with 1 sec sampling period at all locations).

8.0 Monitoring Protocol:

The following criteria will be observed when undertaking the noise monitoring:

- a) During ambient noise monitoring sound comes from more than one direction, it is important to choose a microphone and mounting which gives the best possible Omni directional characteristics;

- b) The noise measurement equipment will be supervised continuously during the monitoring period and notes will be made of the date, time and prevailing weather conditions;
- c) Immediately prior to and following each noise measurement session the accuracy of the noise level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency.
- d) Noise measurements should not be made in fog and rain;
- e) A wind shield will be used at all times to prevent interference of reflecting noise;
- f) As far as is practicable, the pause facility on the noise measurement equipment will be used to exclude extraneous noise (e.g. low flying aircraft and road traffic passing in front of the microphone) so that the results recorded are representative of the site noise. If possible for extraneous noise/other source background noise can be eliminated from final reading by using the following formula:

$$L_{\text{pressure}} = 10 \cdot \log [10^{(L_p/10)} - 10^{(L_{p\text{Background}}/10)}]$$

9.0 Monitoring records:

- (i) The date, time, location and duration of the measurement;
- (ii) All predominant noise sources will be noted, which may include extraneous noise such as road traffic, aero-planes and other activity;
- (iii) Weather conditions will be recorded including wind speed and approximate direction, cloud cover, rain and ground frost;

10.0 Monitoring data submission:

The particulars of the measurements recorded by the noise level meter shall be furnished in the monitoring data sheet, as at **Annexure I**. A typical flow chart may be adopted for uniformity in the monitoring.

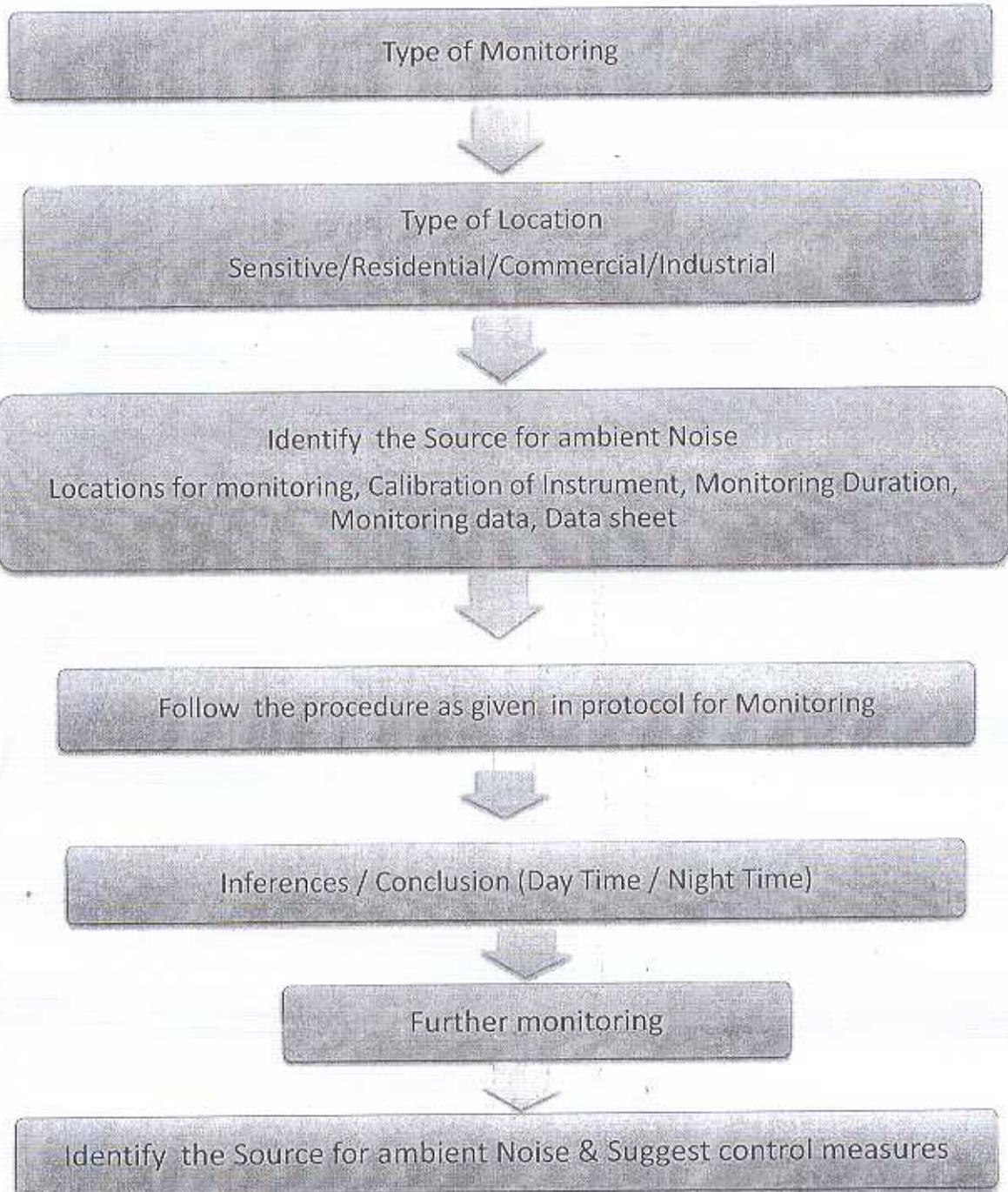
11.0 Monitoring Inferences:

The monitoring inferences should be drawn on the basis of final data sheet viz. compliance to the specified standard, violation of standard, average L_{eq} , noise intensity L_{50} , L_{90} etc. and suggest corrective action.

Data sheet for Ambient Noise Monitoring

Description of Location:			Date:					
Noise Level Meter								
Make	:							
Model	:							
Serial No.	:							
Calibration Result of Noise Level Meter								
Calibration	94 dB at 1000 Hz			114 dB at 1000 Hz				
Initial								
Final								
Sampling Rate								
S. No.	Time duration	File No.	Sound Parameters (dBA)					
			Leq	L ₁₀	L ₅₀	L ₉₀	L _{min}	L _{max}
1								
2								
3								
4								
5								
6								
...								
...								
Average L equivalent dB(A)								
Monitoring team & signature								
<p>Notes: (1) The method for calculation of average Leq: To convert average of dB(A), each value is to be divided by 10, followed by antilog and finally calculate arithmetic mean. The final value is converted in logarithm, (2) monitoring must be carried for 75% of the prescribed day time and night time for legal compliance, (3) L_{max} and L_{min} are to be reported hourly basis and (4) L₅₀ & L₉₀ also recorded to understand the intensity of the noise for further course of action.</p>								

Manual Ambient Noise Monitoring Flow Chart



CENTRAL POLLUTION CONTROL BOARD, DELHI
AMBIENT AIR QUALITY OF DELHI
DATA SHEET FOR PARTICULATE MATTER

Annexure - II

Station:			
Shift	Ist Shift	IInd Shift	IIIrd Shift
Monitoring Period	06:00AM-02:00PM RSPM	02:00PM-10:00PM RSPM	10:00PM-06:00AM RSPM
Parameter	RSPM	RSPM	RSPM
Filter Paper No.			
Hourly Flow Rate (m ³ /minute)			
Average Flow Rate (m ³ /minute)			
Total Operation Time (Minutes)			
Initial Weight of Filter Paper (gms.)			
Final Weight of Filter Paper (gms.)			
Dust Contents (gms.)			
Total Volume of Air Sampled (m ³)			
Concentration (µg/m ³)			
24 Hourly Average RSPM (µg/m ³):			
Remarks:			
Name & Signature of Official on Duty:			

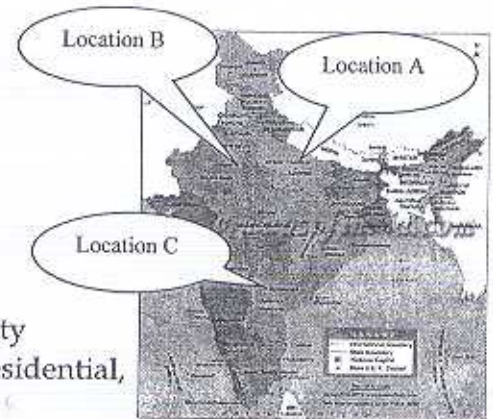
CENTRAL POLLUTION CONTROL BOARD, DELHI
AMBIENT AIR QUALITY OF DELHI
DATA SHEET FOR GASEOUS AIR POLLUTANTS

Station:													Date:						
Shift	Ist Shift						IInd Shift						IIIrd Shift						
Monitoring Period	06:00AM-10:00AM		10:00AM-02:00 PM		02:00PM-06:00PM		06:00PM-10:00PM		10:00PM-02:00AM		02:00AM-06:00AM								
Parameter	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	SO ₂	NO ₂	
Hourly Flow Rate (lpm)																			
Average Flow Rate (lpm)																			
Total Operation Time (Minutes)																			
Initial Volume of Sample (ml)																			
Final Volume of Sample (ml)																			
Volume Taken For Analysis (ml)																			
Total Volume of Air Sampled (lit.)																			
Absorbance (Blank)																			
Absorbance (Sample)																			
Concentration (µg/m ³)																			
24 Hourly Average SO ₂ (µg/m ³):													24 Hourly Average NO ₂ (µg/m ³):						
Remarks:																			
Name & Signature of Official on Duty:																			

Format of Report: Deepawali Monitoring 2015

City:

- Latitude & Longitude
- Climate/Meteorology
- Population
- Major Land use



Monitoring Locations:

- Map showing all monitoring locations of the city
- Description of monitoring site: Area/ Zone: Residential, Commercial & Silence
- Activities around the monitoring location/Sources of Noise Pollution

Data / Observations:

Noise Level during Deepawali festival, 2015:

Location: A	Normal Day			Deepavali Day		
	Lmin	Lmax	Leq dB(A)	Lmin	Lmax	Leq dB(A)
Time duration						
18:00 to 19:00 Hr						
19:00 to 20:00 Hr						
20:00 to 21:00 Hr						
21:00 to 22:00 Hr						
22:00 to 23:00 Hr						
23:00 to 24:00 Hr						

Location: B	Normal Day			Deepavali Day		
	Lmin	Lmax	Leq dB(A)	Lmin	Lmax	Leq dB(A)
Time duration						
18:00 to 19:00 Hr						
19:00 to 20:00 Hr						
20:00 to 21:00 Hr						
21:00 to 22:00 Hr						
22:00 to 23:00 Hr						
23:00 to 24:00 Hr						

Location: C	Normal Day			Deepavali Day		
	Lmin	Lmax	Leq dB(A)	Lmin	Lmax	Leq dB(A)
Time duration						
18:00 to 19:00 Hr						
19:00 to 20:00 Hr						
20:00 to 21:00 Hr						
21:00 to 22:00 Hr						
22:00 to 23:00 Hr						
23:00 to 24:00 Hr						

Contd.....

Interpretation of Noise Data / Results:

Report the compliance of the Noise level with standard limits for that area. The increase or decrease of the noise level on a particular day, state the cause of increase or decrease.

Ambient Air Monitoring during Deepawali festival, 2015:

Data / Observations:

Ambient Air Quality during Deepawali 2015						
Monitoring Location	Parameters monitored					
	Normal Day (05.11.2015)			Deepawali Day (11.11.2015)		
	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂	PM ₁₀
1						
2						
3						
NAAQ Standards	80	80	100	80	80	100

* All values (24 hourly Avg) are in µg/m³.

Interpretation of Ambient Air Quality Data/Results:

Report the compliance of the air pollutants concentration with standard limits for that area. If there is increase or decrease of pollutant concentration in that area, note the causes affecting air pollutants concentration.

Any other Information pertains to the monitoring activity.