

CENTRAL POLLUTION CONTROL BOARD
NATIONAL AIR QUALITY MONITORING PROGRAMME (NAMP)
Air Quality Monitoring Station Inspection Report

PART A: GENERAL

1	Name of the State	Karnataka
2	Name of the city/town	Mysore
3	Name and address of State Pollution Control Board/Pollution Control Committee / Other Agency :	Karnataka State Pollution Control Board, # 436/D, Opp. To Royal Inn Hotel, KRS Road, Metagalli, Mysore – 570 016
	e-mail address	mys1@kspcb.gov.in
	Website address	www.kspcb.kar.nic.in
	Telephone no;	0821 2519411
	Fax no.	0821 2519411
4	Name and designation of Regional Officer/ Contact person	Dr. P. Niranjan Regional Officer
5	Name and designation of Station Incharge Contact telephone no., e-mail and fax	Dr. P. Niranjan Regional Officer, Mob. No.: 9448350868, Fax.: 0821 2519411 & email ID.: mys1@kspcb.gov.in

PART B: EVALUATION OF MONITORING STATION

Sl. no	Descriptions	Station code no. 328	Station code no. 040
1	Name and detail address of the monitoring station	KSPCB Station, KSPCB Building, Hebbal Industrial area, Mysore – 570 016	KSRTC Station, KSRTC Building, KR Circle, Mysore
2	Type of Area Residential, rural and other areas/ Industrial/ Sensitive	Industrial and Residential	Commercial and Residential
	In case of other areas, please specify whether traffic intersection, commercial area etc.	Industrial Area	Traffic intersection
	In case of sensitive area, please specify	No	No

	details for declaring the area sensitive		
3	Whether any obstacles are present near the site/location such as trees, buildings etc. if yes	No	No
	Distance from site	NA	NA
	Type of obstacle	NA	NA
	If no, whether the site is open from all Sides/or three sides (indicate yes/no)	All sides	Yes
4	Type and sources of pollution :	Industrial and Vehicular emission	Vehicular emission
a.	Industrial Sources		
	(i) Point source such as stack of any Industry mention the details and distance of point source from the site.	Tyre Industries are located within 01 Km radius	No
	(ii) Aerial distance of any industrial estate from the existing site	The Station is located in Industrial estate	NA
	(iii) If there is industrial area within the radius of 1km the details there off:	yes	No
	- Type of industries	Tyre industries	NA
	- Product Manufactured	Tyres	NA
	- Raw Materials/ fuel used	NA	NA
	- Expected quantity of emissions		NA
	Whether DG sets used (give details)	Yes	NA
b.	Vehicular Sources:		
	(a) Sources such as vehicular traffic or traffic interactions etc. Mention the details and distance of source from the site.	Moderate traffic and at 100 mts.	High vehicular traffic. Right on the intersection
	(b) Source of natural dust from Road, Resuspension of dust/or Other activity mention the details and distance from existing site	NO	No.
	(c) Whether any kind of open burning takes place near the site (indicate yes or no and give details)	NO	No
	(d) Any other source such as engine gensets or information regarding sources of pollution	NIL	City Bus Station is located adjacent to the station building

5	Description of the nearby locality including: existing site	Industrial and Residential	Commercial area
	(a) If there is commercial area within the radius of 1 km, the details may be furnished;	KRS main road	Yes. Along the road on both the sides.
	Type of shops	No	Retail
	➤ Whether they use and kind of fuel & their quality	No information	No information
	Whether they use any generator sets etc.	Yes	Yes
	(b) If there is any sensitive area due to following reasons (indicate yes or no and specify reason)	No	No
	➤ 10 kms all around the periphery of health resorts that are notified	No	No
	➤ 10 kms all around the periphery of biosphere reserves, sanctuaries and national parks, that are notified	No	No
	➤ 5 kms all around the periphery of an archeological monument declared to be of national importance or otherwise that are notified	No	No
	➤ Areas which are delicate or sensitive to air pollution in terms of important agricultural / horticultural crops grown in that area and accordingly notified	No	No
	➤ 5 kms around the periphery of centers of tourism and/or pilgrim due to their religious, historical, scenic or other attractions, that are notified	No	No
6	Height of instrument above ground level (in m)	8	7
7	Position of Monitoring Instrument/Equipment at the present site (kindly indicate whether the instrument is on building terrace/ on any kind of substrate /On any House Balcony /On any confined place etc.)	On building terrace.	On building terrace.
8	Whether any obstacle/or trees present near the present site that are above the height of sampling devices (such as HVS/RDS etc.) Kindly indicate Yes/No, if yes mention the details.	Yes, the DG set stack is situated beside the station	No
9	Whether the distance of the instrument to any air flow obstacle i.e. buildings, is more	No	No

	than two times the height of the obstacle above the sampler.(kindly indicate yes or no)		
10	Whether the sampling equipment is provided with proper safety and security against loss or tampering (kindly indicate Yes or No, if yes give details)	Yes	Yes
11	Whether the sampler is 20 m away from trees (kindly indicate yes or no)	Yes	Yes
12	Whether there is unrestricted airflow in three of four quadrants (kindly indicate yes or no)	Yes	Yes
13	Whether there are any nearby furnace or incinerator fumes. (kindly indicate yes or no)	No	No
14	Whether the station/location is away at-least 25 meter from domestic chimneys particularly if the chimneys are lower than the sampling point/stations (Kindly indicate yes or no).	Yes	Yes
15	Whether the station is away from absorbing surface. (Kindly indicate Yes or No)	Yes	Yes
16	Whether the present site is the representative of the area selected Yes/No, if no provide details	Yes	Yes
17	Whether the station is established in the area where considerable rebuilding or land use Changes are foreseen in the near future. ➤ Yes/No., If yes provide details.	No	No
18			
	(i) Available for a long period;	Yes (Owned by KSPCB)	Yes. (On long lease from state transport co.)
	(ii) Accessible any time throughout the year Including rainy season	Yes	Yes
	(iii) Electrical power of sufficient rating and their full availability.	Yes	Yes
	(iv) Vandal Proof.	Yes	Yes
	(v) Protected from extreme of temperature especially in summer season	Yes	Yes
19	Whether the topographical and Micro	NA	NA

	Meteorological data of area should be taken into consideration for determining the distance of the sampler from the stack: (kindly indicate NA / Yes / No, if yes provide details.		
20	Whether the stack heights is being used as a guideline distance in case of elevated sources on a flat terrain. (kindly indicate NA / Yes / No) , If yes please elaborate	NA	NA
21			
	a) Station very close to topographic features- (kindly indicate Mountails / valleys / Rivers / Terrain / lakes / and oceans/or none of these)	No	No
	b) Whether the possibility of Katabatic (upslope) and anabatic (down slope) winds affecting the station due to Mountainous/ Rolling/just slightly terrain etc.? (Kindly indicate yes or no)	No	No
	c) if yes sketch out the station with Mountain/terrain etc. including distance of station with these topographical features?	NA	NA
22	Whether the winds causing day time heating and night time cooling depending upon terrain and the time of onset and intensity of these winds are existing at the station? If yes, please elaborate the statement made above to justify the possibility of local winds into a preferred direction flow, which may cause mountain gap wind? If not the situation above then state not applicable (NA):Statement by the observer, if yes:-	NA	NA
23	Whether the land-sea breeze circulation exists in the present station which dominates the local wind patterns and possibility of the same polluted air re-circulates over an area more than once either from the sea breeze circulation cell or from any wind changes occurring due to a combination of the	No	No

	Meteorological features? Not applicable/Yes/No., if yes pl elaborate?		
24	Whether the station having nearby Mountaneous/ or hilly terrain which can cause mesoscale precipitation patterns and may affect local pollution concentration through washout? If such situation exists, State the predictable patterns?	No	No
25	Whether the station in URBAN/sub urban/or Rural environs. In addition to this, whether the station is purely in residential/Industrial/ commercial and sensitive area? Please elaborate below:-	Urban	Urban

PART C : FIELD INSTRUMENTS AND FACILITIES EVALUATION:

			Station code no. 764	Station code no. 766
1	Type of available instrument, at site whether HVS/RDS etc. and their number (including stand by)	HVS RDS PM2.5	-- 1 1	-- 1 --
2	Type of available instrument, at laboratory whether HVS/ RDS etc. and their number (including stand by)	HVS RDS PM2.5	-- 3 1	
3	Defective equipment	RDS	No (Instruments are 15 years old and needs to be changed)	
4	Monitoring equipment details:			
	Make		Envirotech	Envirotech
	Model		APM 460, PM2.5 sampler- APM 550 MFC	APM 460
	Year of Purchase		1999	1999
	Performance		Satisfactory	Satisfactory
	Number available		01	01
	Calibration of Orifice		No	No
	Calibration of Time totalizer		No	No
	Calibration of Rotameter		No	No
	Calibration of Meteorological instruments		No	No
5				
	Neon lamp fails to glow		No	No

	Vaccum pump fails	No	No
	Blower speed is erratic indicated by varying flow rate.	No	No
	Odd sound of the blower	No	No
	Frequent fuse blow out	Yes in case of PM 2.5 sampler	No
	Frequent brush Wear out	No	No
	Times of timer and timer totatizer do not tally	No	No
	Carbon brush is not going freely inside the brush holder	No	No
	Flow meter does not show flow when connected to inlet of impinger having visible Air bubble	No	No
	Whether flow is 1232 lpm	1100 lpm	1100 lpm
	Whether flow varies drastically	No	No
6	In case above mentioned problems are encountered then also kindly indicate the remedies taken to prevent above mentioned problems.		
7	Whether sampling is carried out for 8 –hours for SPM and RSPM and 4-hours for SO ₂ and NO ₂ . If No then kindly mention reasons	Yes	Yes
8	Whether reagent storage in field (Proper or improper)	Proper	Proper
9	In case reagent storage in field is improper then mention details	NA	NA
10	Whether on-site analysis is being done or samples were transported to the Central laboratory?	Transported to Central Lab, KSPCB, Mysore.	Transported to Central Lab, KSPCB, Mysore.
11	In case on site analysis is done mention facilities present on site	NA	NA
12	In case samples transported to laboratory then mention following details.		
	(a)Distance of site to laboratory	In the same building	9 KM
	(b) Whether ice box available (kindly indicate yes or no)	Yes	Yes
	(c) Whether vehicle available to transport samples (kindly indicate yes or no)	Own transport	Own transport
	(d) Whether samples are kept at site in ice box after sampling	Yes samples were kept in ice box, but without ice in the box	Yes samples were kept in ice box, but without ice in the box
13	Filter paper		
	(a) Whether filter paper used is of good quality (having better mechanical stability, chemical stability, particle sampling efficiency, flow resistance, cost and availability etc.)	Yes	Yes

	(Kindly indicate yes or no)		
	(b) Make of filter paper	Whatman	Whatman
	(c) Whether Filter is mounted properly on the support screen with the rough side of the filter facing upwards. (Kindly indicate yes or no)	Yes	Yes
	(d) Whether the wing nuts are tightened properly to avoid any leakage. (Kindly indicate yes or no)	Yes	Yes
	Whether the wing nuts are tightened properly to avoid any leakage	Yes	Yes
	(e) Whether filter paper is preweighed after conditioning in dessicator for 24 hrs (Kindly indicate yes or no) *Filter paper should not be oven dried as volatile matter will be lost	Yes	Yes
	(f) Whether distilled water is used in manometer tube and water is changed every fortnightly and zero level is checked every time. (Kindly indicate yes or no)	NO. During inspection it was not changed.	NO. During inspection it was not changed.
	(g) Whether Ice is kept in the sampling tray during sampling (Kindly indicate yes or no)	No	No

PART D: LABORATORY INSTRUMENTS EVALUATION

1. Balance

Type (Single pan/double pan/digital/others)	Accuracy & Precision	Readability (gm/mg)	Make and model, Year of Purchase	Performance (Satisfactory/unsatisfactory)	Last Calibration done	Numbers Available
Single Pan / Digital	0.001 mg - 5 mg	5 decimals	Mettler PG 503S	Satisfactory	NA	One

2. Spectrophotometer

Make and model	Year of Purchase	Display (Analog/digital/others)	Performance (Satisfactory/unsatisfactory)	Last Calibration done	Numbers Available
Systronics 132	2011	Digital	Satisfactory	NA	one

3. Hot Air Oven

Make and model	Year of Purchase	Temperature Range	Performance (Satisfactory/unsatisfactory)	Last Temp. Calibration done	Numbers Available
Serwell	2006	0 – 250 °C	Satisfactory	30/08/2013	One

4. Refrigerator

Make and model	Year of Purchase	Cooling Status (inner chamber/freezer) (Satisfactory/unsatisfactory)	Performance (Satisfactory/unsatisfactory)	Numbers Available
Zenith	1991	Satisfactory	Satisfactory	Two
LG, GR 312 GE	2002	Satisfactory	Satisfactory	One

5. Dessicator

Make and model, Year of Purchase	Type (Glass/propylene/others)	Dessicant Used	Performance (Satisfactory/unsatisfactory)	Frequency of changing the dessicant	Numbers Available
Borosil & 1999	Glass	Silica gel	Satisfactory	Recharging Weekly	Two

6. Availability of Distilled water briefly: (kindly indicate yes or no)	Yes
(a) Purchased from outside (kindly indicate yes or no)	No
➤ Electrical conductivity	< 5
(b) Produced through own distillation assembly (Kindly indicate yes or no)	Yes
➤ Electrical conductivity	< 5
➤ Produced through (Kindly indicate Single/Double distilled)	Single Distilled
7. Analytical Methods used :	
a) Sulphur dioxide (SO ₂)	

Whether Modified West and Gaeke Method Is used (Kindly indicate yes or no) Others (please specify)	Yes
b) Nitrogen dioxide (SO₂)	
Whether Sodium Arsenite Method Is used (Kindly indicate yes or no) Others (please specify)	Yes
c) Respirable Suspended Particulate Matter (RSPM)	
Whether Cyclonic Flow Technique Is used (Kindly indicate yes or no) Others (please specify)	Yes
d) Suspended Particulate Matter (SPM)	
Whether High Volume Sampling Method (Gravimetric) Is used (Kindly indicate yes or no) Others (please specify)	Yes
8. Kindly indicate yes or NO or as the case may be for following items:	
➤ Availability of all chemical	Yes
➤ Availability of Absorbing Media	Yes
➤ Please state date of preparation (AM)	11/08/14
➤ Please state Assay performed if any for required chemicals	No
➤ Whether prepared absorbing Media Properly stored or not	Yes
➤ Whether stock solutions prepared? State their date of preparation	Yes 27/12/2014
➤ Whether working solutions prepared, state their date of preparation	Prepared freshly, 8/01/2015
➤ Whether silica gel bottle is kept in weighing chamber to avoid error while weighing.	No
➤ Whether properly clean glassware are used.	Yes
➤ Whether one set of glassware are calibrated as per requirement.	No. A grade certified glassware's are used
➤ Whether all critical chemicals must are of analytical Grade	Yes
➤ Whether double distilled or nanopure water is used for preparation of reagents and analysis	Distilled water
➤ Whether glassware and storage bottles are rinsed with distilled water and chemicals respectively.	Yes
➤ Whether reagent bottles are properly marked by name, strength and date of preparation, expiry date and initial of chemist who has prepared the reagent.	Yes
➤ Whether desiccant in the dessicator are changed as per requirements	Yes

➤ Whether the chemicals whose strength changes with time are standardized before use.	Yes
➤ Whether calibration graphs are made every time a new stock solution is prepared.	Yes
➤ Whether reagent bottles are made air tight before storage	Yes
➤ Whether key reagents are prepared fresh on the date of analysis.	Yes
➤ Whether storage of chemicals are done as per recommendations like away from sunlight etc.	Yes
➤ Whether the analytical balance has sensitivity of 0.1 mg or better.	Yes
➤ Whether sample are preserved during sampling	No
➤ Whether sample are preserved during transport	No
➤ Whether sample are preserved after receiving in laboratory.	Yes
➤ Whether immediate analysis after transportation is being done.	Yes
If all above points not followed, please give your comment briefly	NA
9. IF RSPM is not being measured, please state briefly reasons	NA
10.Data generation, calculation and reporting as per Forms (A) to (E)	Yes
(a) Whether data calculations is correct (Kindly indicate yes or no)	Yes
Whether 104 observations is being generated in a year if not state reasons briefly and average observations in a week	Yes
b) Whether data reporting is correct (if improper, State reasons regarding delay etc)	Yes
➤ Whether the values are reported above the detection limit as per the method.	Yes
➤ Whether SPM/RSPM values which are very high are reported in round figures (without decimal place).	Yes
➤ Whether any outlier values found are checked for contamination of sample, sudden change of environmental conditions in the vicinity of the monitoring site etc. and discarded if necessary.	Yes
➤ Whether Bills as per Form E are sent along with data	Yes

D Computer and Other Facilities

➤ Whether calculations are performed using computer	Yes
➤ Whether computer is available in the laboratory mention make and model	Yes
➤ Whether internet and e-mail facility exist in the office	Yes
➤ Whether software of CPCB for data entry exist and data sent via e-mail mention e-mail add and website address	Yes
➤ Whether data entry operator is there for entering into computer	Yes
➤ Is data sent to Head Office and then to CPCB or directly to CPCB	Through HO and also e-mail is sent.
➤ Whether data is entered using online entry in the software Environmental Data Bank of CPCB. If not then kindly mention reasons	Yes
➤ In case above mentioned facilities of computer, internet, e-mail etc. are not available then kindly mention details	NA

E. MANPOWER AND ADMINISTRATIVE EVALUATION**(1) Sampling**

Name and designation	Qualifications	Salary	Experience in sampling	Experience in Analysis	Whether Competent (indicate yes or no)
Lakshman	M. A.	11,600	15 Years	--	Yes
Siddaiah	P.U.C	11, 600	18 years	--	Yes

2) Analysis, Data Reporting, Data Checking and Validation

Name and designation	Qualifications	Salary	Experience in sampling	Experience in Analysis	Whether Competent (indicate yes or no)
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Bindu	M. Sc., in chemical	8000	-	2 Years	Yes
Vineeta	M. Sc., in Chemical	23000	-	1 Years	Yes

During above assessment do you feel that personnel require further training on ambient air quality monitoring; please name the person with details and which areas of monitoring the training is required?	No
3. Do you feel any other problem with persons involved in Ambient Air Quality Monitoring work, please comment briefly:	Nil
4. Other administrative problem at Ambient Air Quality Monitoring Stations? Please state briefly para wise as mentioned below	
(i) Whether funds are received on time? Whether there is shortage of Funds, Whether SPCB is contributing its share as applicable. Mention problems if any.	Yes
(ii) Whether purchasing of chemicals etc is done centrally or by Regional Office Mention problems if any	No
(iii) In case purchasing is done by head office, then whether filter paper, chemical are received on time? Mention problems if any	Yes
5) Whether any defective instrument/equipment need to be replaced?	Yes RDS equipments needs to be replaced as it is too old.
6) Whether you feel it is necessary to provide any more number of equipments?	No
7) Whether there is delay in procurement of spare parts etc. repairing of instrument?	No
8) Any other problems, remarks/ comments?	Nil

Other observations of Inspection team:

1. Laboratory instruments were found calibrated and provided the copy of calibration certificate, the field Instruments viz. RDS and PM_{2.5} were found not calibrated and the instruments were 15 years old and need to be replaced.
2. NAMP station (SC - 328) at KSPCB station found appropriate location to cover residential as well as Industrial area.
3. NAMP station (SC – 040) at KR Circle station found appropriate to cover commercial and Traffic intersection of Mysore city.

Signature of Inspection Team:

**I.A. Kadar
Sr. Technician**

**Poornima B. M.
Sc. 'B'**

Photo graphs showing NAMP stations located in Mysore, Karnataka



Fig no. 1: NAMP station located in KSPCB Building terrace (SC -764) – Residential & Industrial area



Fig no. 2: NAMP station located in KSRTC Building, KR Circle (SC -766) - Commercial & Traffic intersection