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

PART A: GENERAL

1	Name of the State	**Tamilnadu**
2	Name of the city/town	**Chennai**
3	Name and address of State Pollution Control Board/Pollution Control Committee / Other Agency :	Tamilnadu Pollution Control Board, 76, Mount Road, Guindy, Chennai - 600032
	e-mail address	mohantnpcb@gmail.com
	Website address	www.tnpcb.gov.in
	Telephone no;	8056042123
	Fax no.	044- 22301598
4	Name and designation of Regional Officer/ Contact person	Sh.R. Mohan,
5	Name and designation of Station Incharge Contact telephone no., e-mail and fax	Sh. Mohan, Assistant Director, Mob.No.: 8056042123, Fax.: 044- 22301598 & email ID.: mohantnpcb@gmail.com

PART B: EVALUATION OF MONITORING STATION

Sl. no	Descriptions	**Station code no. 764**	**Station code no. 766**	**Station code no. 767**	**Station code no. 765**
1	Name and detail address of the monitoring station	TNPCB pavillion, Periyar Science & Technology Centre, Kotturpuram, Adyar, Chennai	T. Nagar Bus Station, Opp. Krishnaveni Theatre, South Usman Road, T. Nagar, Chennai – 600 017	District Environmental Lab., 950/1, Poonamallee High Road, Arumbakkam, Chennai – 600 106	District Environmental Lab., 77-A, South Avenue Road, Ambattur Indl. Estate, Ambattur, Chennai – 600 058

		– 600 020			
2	Type of Area Residential, rural and other areas/ Industrial/ Sensitive	Residential	Commercial	Commercial	Residential
	In case of other areas, please specify whether traffic intersection, commercial area etc.	Institution Area	Traffic intersection	Commercial area	Commercial area
	In case of sensitive area, please specify details for declaring the area sensitive	No	No	No	No
3	Whether any obstacles are present near the site/location such as trees, buildings etc. if yes	No	No	No	No
	Distance from site	NA	NA	NA	NA
	Type of obstacle	NA	NA	NA	NA
	If no, whether the site is open from all Sides/or three sides (indicate yes/no)	All sides	Yes	Yes	Yes
4	Type and sources of pollution :	Vehicular emission	Vehicular emission	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.	No	No	No	Chemical and Garment industries
	(ii) Aerial distance of any industrial estate from the existing site	NA	NA		2 km
	(iii) If there is industrial area within the radius of 1km the details there off:	No	No	No	Earlier it was industrial estate. Now all the industries were directed to shift. Only service industries are allowed now.

	- Type of industries	NA	NA	NA	Service industries
	- Product Manufactured	NA	NA	NA	BPO/IT/Garments
	- Raw Materials/ fuel used	NA	NA	NA	
	- Expected quantity of emissions	NA	NA	NA	NA
	Whether DG sets used (give details)	NA	NA	NA	Yes
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 traffic area. Right on the intersection	High vehicular traffic. Curb side	High vehicular traffic. curb side
	(b) Source of natural dust from Road, Resuspension of dust/or Other activity mention the details and distance from existing site	NO	No.	No	No
	(c) Whether any kind of open burning takes place near the site (indicate yes or no and give details)	NO	No	No	No
	(d) Any other source such as engine gensets or information regarding sources of pollution	NIL	Bus Depot is there adjacently	No	Tiny size engineering fabrication units are located
5	Description of the nearby locality including: existing site	Educational Institutional and IT area	Commercial area	Residential	Residential
	(a) If there is commercial area within the radius of 1 km, the details may be furnished;	Adyar main road	Usman Road, Panagal Park area	Yes. Along the road on both the sides.	Along the road on both the sides
	Type of shops	Retail	Retail	Retail and Corporate offices	Retail and IT parks
	➢ Whether they use and kind of fuel	LPG	LPG	LPG	LPG

	& their quality				
	Whether they use any generator sets etc.	Yes	Yes	Yes	Yes
	(b) If there is any sensitive area due to following reasons (indicate yes or no and specify reason)	No	No	No. NGT is functioning on third floor	No
	➢ 10 kms all around the periphery of health resorts that are notified	No	No	No	No
	➢ 10 kms all around the periphery of biosphere reserves, sanctuaries and national parks, that are notified	No	No	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	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	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	Marina Beach is at a distance of 2 kms away.	No	No	No
6	Height of instrument above ground level (in m)	8	7	15	12
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.	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.	No	No	No	No
9	Whether the distance of the instrument to any air flow obstacle i.e. buildings, is more than two times the height of the obstacle above the sampler. (kindly indicate yes or no)	No	No	No	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	Yes	Yes
11	Whether the sampler is 20 m away from trees (kindly indicate yes or no)	Yes	Yes	Yes	Yes
12	Whether there is unrestricted airflow in three of four quadrants (kindly indicate yes or no)	Yes	Yes	Yes	Yes
13	Whether there are any nearby furnace or incinerator fumes. (kindly indicate yes or no)	No	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	Yes	Yes
15	Whether the station is away from absorbing surface. (Kindly indicate Yes or No)	Yes	Yes	Yes	Yes
16	Whether the present site is the representative of the area selected Yes/No, if no provide details	Yes	Yes	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	Small old buildings are developed into sky rise buildings	All pollution prone industries situated in North west direction has been directed to shift. IT Parks are coming up.
18	Whether the present site is fulfilling one or more of the following physical requirements (Kindly indicate yes or no)				
	(i) Available for a long period;	Yes (Owned by TNPCB)	Yes. (On long lease from state transport co.)	Yes (Owned by TNPCB)	Yes (Owned by TNPCB)
	(ii) Accessible any time through out the year Including rainy season	Yes	Yes	Yes	Yes
	(iii) Electrical power of sufficient rating and their full availability.	Yes	Yes	Yes	Yes
	(iv) Vandal Proof.	Yes	Yes	Yes	Yes
	(v) Protected from extreme of temperature especially in summer season	Yes	Yes	Yes	Yes
19	Whether the topographical and Micro 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.	NA	NA	NA	NA
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	NA	NA
21	Whether the station is fulfilling the meteorological and topographical considerations?				

	a) Station very close to topographic features- (kindly indicate Mountails / valleys / Rivers / Terrain / lakes / and oceans/or none of these)	No	No	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	No	No
	c) if yes sketch out the station with Mountain/terrain etc. including distance of station with these topographical features?	NA	NA	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	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	No	No	No	No

	cell or from any wind changes occurring due to a combination of the 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	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	Urban	Urban

PART C : FIELD INSTRUMENTS AND FACILITIES EVALUATION:

			Station code no. 764	**Station code no. 766**	**Station code no. 767**	**Station code no. 765**
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 --			
3	Defective equipment	RDS	--			
4	Monitoring equipment details:					
	Make		Envirotech	Envirotech	Envirotech	Envirotech

	Model		APM 411 TE & 550 EL	APM 460 NL	APM 460 NL & 550 EL	APM 460 NL & 550 EL
	Year of Purchase		2005/2014	2005	2005/2014	2005/2014
	Performance		Satisfactory	Satisfactory	Satisfactory	Satisfactory
	Number available		1/1	1	1/1	1/1
	Calibration of Orifice		No	No	No	No
	Calibration of Time totalizer		No	No	No	No
	Calibration of Rotameter		No	No	No	No
	Calibration of Meteorological instruments		No	No	No	No
5	Regular troubleshooting encountered such as (Kindly indicate yes or no)					
	➢ Neon lamp fails to glow		No	No	No	No
	➢ Vaccum pump fails		No	No	No	No
	➢ Blower speed is erratic indicated by varying flow rate.		No	No	No	No
	➢ Odd sound of the blower		No	No	No	No
	➢ Frequent fuse blow out		No	No	No	No
	➢ Frequent brush Wear out		No	No	No	No
	➢ Times of timer and timer totatizer do not tally		No	No	No	No
	➢ Carbon brush is not going freely inside the brush holder		No	No	No	No
	➢ Flow meter does not		No	No	No	No

	show flow when connected to inlet of impinger having visible Air bubble					
	➢ Whether flow is 1232 lpm		1100 lpm	--	980 lpm	--
	➢ Whether flow varies drastically		No	No	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	Yes	Yes
8	Whether reagent storage in field (Proper or improper)		Proper	Proper	Proper	Proper
9	In case reagent storage in field is improper then mention details		NA	NA	NA	NA
10	Whether on-site analysis is being done or samples were transported to the Central laboratory?		Transported to Advance Envl. Lab, Guindy, Chennai	Transported to Advance Envl. Lab, Guindy, Chennai	Transported to Advance Envl. Lab, Guindy, Chennai	Transported to Advance Envl. Lab, Guindy, Chennai
11	In case on site analysis is done mention facilities present on site		NA	NA	NA	NA
12	In case samples transported to laboratory then mention following					

	details.					
	(a)Distance of site to laboratory		1 KM	4 KM	7 KM	10 KM
	(b) Whether ice box available (kindly indicate yes or no)		Monitoring bag with ice bag	Monitoring bag with ice bag	Monitoring bag with ice bag	Monitoring bag with ice bag
	(c) Whether vehicle available to transport samples (kindly indicate yes or no)		Own transport	Own transport	Own transport	Own transport
	(d) Whether samples are kept at site in ice box after sampling		No	No	No	No
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.) (Kindly indicate yes or no)		Yes	Yes	Yes	Yes
	(b) Make of filter paper		Whatman	Whatman	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	Yes	Yes
	(d) Whether the wing nuts are tightened properly to avoid any leakage.		Yes	Yes	Yes	Yes

	(Kindly indicate yes or no)					
	Whether the wing nuts are tightened properly to avoid any leakage		Yes	Yes	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	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)		Yes	Yes	Yes	Yes
	(g) Whether Ice is kept in the sampling tray during sampling (Kindly indicate yes or no)		Thermoelectrically controlled Impinger box is used.	Thermoelectrically controlled Impinger box is used.	Thermoelectrically controlled Impinger box is used.	Thermoelectrically controlled Impinger box is used.

PART D : LABORATORY INSTRUMENTS EVALUATION

1. Balance

Type (Single pan/double pan/digital/others)	Accuracy & Precision	Readibility (gm/mg)	Make and model, Year of Purchase	Performance (Satisfactory/unsatisfactory)	Last Calibration done	Numbers Available
Single Pan / Digital	0.01 mg / 0.01 mg	5 decimals	Mettler AT 261 1998	Satisfactory	04/12/2013	Two

2. Spectrophotometer

Make and model	Year of Purchase	Display (Analog/ digital/ others)	Performance (Satisfactory/unsatisfactory)	Last Calibration done	Numbers Available
Shimadzu & UV 2100	1990	Digital	Satisfactory	04/12/2013	one

3. Hot Air Oven

Make and model	Year of Purchase	Temperature Range	Performance (Satisfactory/unsatisfactory)	Last Temp. Calibration done	Numbers Available
Carbolite, UK	1990	0 – 250 ^{o}C	Satisfactory	29/11/2013	Two

4. Refrigerator

Make and model, Year of Purchase	Capacity	Cooling Status (inner chamber/freezer) (Satisfactory/unsatisfactory)	Performance (Satisfactory/ unsatisfactory)	Numbers Available
Whirlpool, FF32B and 2010	310 lts.	Satisfactory	Satisfactory	Two
Whirlpool, Sterling supreme and 1995	250 lts.	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 & 1989 Imported & 1991	Glass Acrylic	Silica gel	Satisfactory	Recharging Weekly	Two One

6. Availability of Distilled water briefly: (kindly indicate yes or no)	Yes
(a) Purchased from outside (kindly indicate yes or no)	No
➢ Electrical conductivity	
(b) Produced through own distillation assembly (Kindly indicate yes or no)	Yes
➢ Electrical conductivity	
➢ Produced through (Kindly indicate Single/Double distilled)	Double 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 (SO_2)	
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)	NA
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
➢ Whether working solutions prepared, state their date of preparation	Preapared freshly
➢ Whether silica gel bottle is kept in weighing chamber to avoid error while weighing.	Yes
➢ Whether properly clean glassware are used.	Yes
➢ Whether one set of glassware are calibrated as per requirement.	No
➢ Whether all critical chemicals must are of analytical Grade	Yes
➢ Whether double distilled or nanopure water is used for preparation of reagents and analysis	Yes
➢ 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 alongwith 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

➢ 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)
Tamil Selvan, F. A	B. Com., B. G. L	16980 + 4200	27 Years	--	Yes
R. Palani, F. A	H. Sc.,	12810 + 4200	18 years	--	Yes
J. Balakumar F. A	B. A., B. L. I. S	12810 + 4200	18 Years	--	Yes
S. Dhanraj, F. A	B. Com	12810 + 4200	18 Years	--	Yes
R. Ravi Kumar, F. A	S. S. L. C	12610 + 2000	17 Years	--	Yes
R. M. Chitra Lakshman, L. A	S. S. L. C	7280 + 2400	3 Years	--	Yes
S. Thirugnana Vadivelu	S. S. L. C	7280 + 2400	3 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)
Niranjana Daisy Miller, Environmental Scientist.	M. Sc., M. Ed.,	10160 + 4700	2 Years	2 Years	Yes
S. Saravanabavan, Meteorologist (SG)	M. Sc., B. Ed.,	22180 + 4700	17 Years (Reporting and validation)	10 Years (analysis)	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	Nil
(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?	No
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 :

i) Laboratory instruments were found calibrated and provided the copy of calibration certificate, the field Instruments viz RDS and PM2.5 were found not calibrated.

(ii) NAMP station (SC -764)at Kotturpuram found appropriate location to cover residential as well as Institutional area.

(iii) NAMP station (SC – 766) at Thiyagaraya nagar also found representative station to cover commercial and Traffic intersection of Chennai.

(iv) NAMP station (SC- 765) at Anna Nagar was identified to represent the Residential area, however adjacent to this location small scale Industrial area was found, TNPCB officials informed that they have already taken steps to relocate these industries to other industrial area.

(v) NAMP station (SC – 767) at Kilpauk was found not representing commercial and traffic intersection of that area. It was informed that due to flyover construction the location was shifted from the original identified location.

(vi) NAMP station (SC -768) was found not functioning. It was informed that , due to infrastructure development, the station was asked to relocate to other location, the appropriate site identification is under process.

Signature of Inspection Team:

S.Karthikeyan
SSA

H.D. Varalaxmi
SEE/Sc. D

Photo graphs showing NAMP stations located in Chennai

Fig no. 1 : NAMP station located in Kottur Puram (SC -764) -Residential & Institutional area

Fig no. 2 : NAMP station located in T. Nagar Bus stand (SC -766) - Commercial & Traffic intersection

Fig no. 3 : NAMP Location located in Kilpauk (SC-767) - Commercial & Traffic intersection

Fig no. 4 : NAMP Location located in Anna Nagar (SC-765) - Residential