



**Tender No. MPPCB/Pur./06/2017-18**

## **TENDER DOCUMENT FOR**

**(PART-A) Supply of Laboratory Equipments,  
(PART-B) Identification of Service Provider For Supply,  
Commissioning & Maintenance of the Central Server Software for  
Online Real Time Data Acquisition and Handling System for  
Emission, Ambient Air and Effluent Quality Monitoring in Madhya  
Pradesh – Linking of Industries with MPPCB Server.**

**(PART-C) Rate Contract proposal for Laboratory  
Chemicals/Glassware & Plastic ware.**

**(PART-D) Sampling and Analysis of different environmental  
parameters related to Water, Waste Water, Hazardous Wastes,  
Ambient Air, Soil, Noise, Vehicular, and Source emission, (Part-E)  
Supply, Installation, Commissioning and Operation &  
Maintenance services of Continuous Ambient Air Quality  
Monitoring Stations (CAAQMS) and (Part-F) Supply, Installation,  
Commissioning and Operation & Maintenance services of Real  
Time Water Quality Monitoring Stations (RTWQMS)**

**Year: 2017 - 18**

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**M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
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# M. P. POLLUTION CONTROL BOARD

PARYAWARAN PARISAR, E-5, ARERA COLONY, BHOPAL – 16

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## TENDER NOTICE

Sealed tenders are invited from the reputed manufacturers [approved by BIS/ISO for quality & precision] and / or their authorized dealer / agent /representatives, specially authorized for this tender, for the (Part-A) supply of laboratory equipments, (Part-B) Request for Proposal for Identification of Service Provider For Supply, Commissioning & Maintenance of the Central Server Software for Online Real Time Data Acquisition and Handling System for Emission, Ambient Air and Effluent Quality Monitoring in Madhya Pradesh – Linking of Industries with MPPCB Server, (Part-C) Rate Contract proposal for Laboratory Chemicals, Glass ware and Plastic ware and (Part-D) Sampling and Analysis of different environmental parameters related to Water, Waste Water, Hazardous Wastes, Ambient Air, Soil, Noise, Vehicular, and Source emission, (Part-E) Supply, Installation, Commissioning and Operation & Maintenance services of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and (Part-F) Supply, Installation, Commissioning and Operation & Maintenance Services of Real Time Water Quality Monitoring Stations (RTWQMS) as per following details:

Sl. No.	Description of Items	Qty.	Earnest Money (EMD) (Rs.)
<b>PART “A”:</b>			
1.	Aerosol Particle Monitor	01	10000.00
2.	Carbon Monoxide (CO) Analyzer	32	352000.00
3.	Filter Papers for (PM <sub>10</sub> & PM <sub>2.5</sub> ) Air Monitoring	L/s	75000.00
4.	LED Moving Message Display Board	05	70000.00
5.	Micro Analytical Balance	14	504000.00
6.	PC-controlled UV-VIS Spectrophotometer	01	14000.00
7.	Portable Generating Set	61	100000.00
8.	PM <sub>2.5</sub> Samplers	61	100000.00
9.	Respirable Dust (PM <sub>10</sub> ) Samplers	61	80000.00
10.	Stack Monitoring Kit	33	70000.00
11.	Water Current flow) Meter	14	21000.00
<b>PART “B”</b>			
12.	Identification of Service Provider For Supply, Commissioning & Maintenance of the Central Server Software for Online Real Time Data Acquisition and Handling System for Emission, Ambient Air and Effluent Quality Monitoring in Madhya Pradesh – Linking of Industries with MPPCB Server	01 job	30000.00
<b>PART “C”</b>			

13.	Rate Contract proposal for Laboratory Chemicals, Reagents [of brands E. Merck, Rankem, Qualigens/Fisher scientific, SD fine chem., CDH, Thomas Baker, Sigma, HiMedia- for bacteriological tests only], Certified Reference Materials [of brands Merck, Sigma, Kinesis, Accu Standard, Thomas Baker, Glassware [of brands Borosil, Rievera, ASGI, SD Fine, Merck, JSGW, Sigma] and Plastic Ware [of brands like HiMedia, Tarson, ABDOS, Merck, RFCL].	As Req.	Not Required
<b>PART “D”</b>			
14.	Sampling and Analysis of different environmental parameters related to Water, Waste Water, Hazardous Wastes, Ambient Air, Soil, Noise, Vehicular, and Source emission	As req.	Not Required
<b>PART “E”</b>			
15.	Supply, Installation, Commissioning and Operation & Maintenance Services of Continuous Ambient Air Quality Monitoring Stations (CAAQMS)	10	2000000.00
<b>PART “F”</b>			
16.	Supply, Installation, Commissioning and Operation & Maintenance services of Real Time Water Quality Monitoring Stations (RTWQMS)	31	1000000.00

The laboratory instruments/equipments/services indicated above shall be procured only after receipt of budget from Madhya Pradesh Government. The tender document including technical specifications of instruments shall be downloaded from the website on or before up to 12.00 noon on dated 05.03.2018 on payment of Rs. 1500.00 [Rupees One Thousand Five Hundred only] by demand draft in favor of Member Secretary, M. P. Pollution Control Board, Bhopal towards downloading the tender document from Website. The Tender documents will not be available in physical form and any amendment required after the publication of this notice will be available on only Board’s website. The earnest money of requisite amount shall be submitted in a separate sealed envelope mentioning the details thereof. No tender shall be considered without requisite tender fee and earnest money. The bidder shall submit sealed tenders on or before at 12.00 noon on dated 05.03.2018 and shall be opened on the same date at 2.00 p.m. in the presence of bidders, who wish to participate. The detailed terms & conditions are available in tender document. For detailed tender document and any amendment (if required) regarding the said tender shall be available on Board’s Web site [www.mppcb.nic.in](http://www.mppcb.nic.in) and [www.govtenders.nic.in](http://www.govtenders.nic.in).

**[Dr. Reeta Kori]**  
**Chief Scientific Officer**



# M. P. POLLUTION CONTROL BOARD

PARYAWARAN PARISAR, E-5, ARERA COLONY, BHOPAL – 16

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## **PART "A"** **LABORATORY EQUIPEMNTS**

Dear Sir,

M. P. Pollution Control Board desires to procure laboratory equipments for its Head Quarter and laboratories spread over whole of the state. Sealed tenders are invited from the reputed manufacturers [approved by BIS/ISO] or their authorized representatives, specially authorized for this tender, who are capable of supplying laboratory equipment which are shown in the tender notice. The detailed separated tender documents including terms and conditions are as follows:

### **[A] SPECIAL CONDITIONS:**

1. All prices quoted should be CIF New Delhi for imported equipment. Other charges like transportation, insurance, F.O.R. destination and installation charges should be quoted separately. For indigenous equipment prices should be F.O.R. destination.
2. Prices should be quoted for complete set of equipment including the cost of installation, minor civil works, electrical fittings and cabling etc.
3. Accessories required [if any] for maintenance for a period of three years should be given separately.
4. Annual Maintenance charges for three years should be quoted separately in Annexure – 3.
5. The technical specifications of the offered equipment should be furnished in annexure –2. Schedule of requirement is annexed as annexure- 7(i). The check list is shown in the back side of the document.
6. The equipment offered should necessarily contain a guarantee for its trouble free performance for a period of one year from the date of installation.
7. The offer should clearly mention make, name of the manufacturer, detailed specifications, detailed literature about the equipment/circuit diagram/drawing of the mechanism and any other information relevant to the equipment. For any printing error/mistake in final bid will be the responsibility of the bidder and no correspondence will be entertained by the Board in future.

8. The tenderer should furnish details of supplies made by him to important institutions, along with performance certificate, during last one year [Users' list]. The bidder must submit Client list along with the previous purchase order copies of similar item [s] supplied to any Central /State Pollution Control Boards / any CSIR Laboratory.
9. The firm / manufacturer submitting the offer shall only quote for one most suitable model of the offered equipment whose specification matches the Board's specifications. No alternate offers shall be considered and, if submitted, the offer shall be rejected.
10. Earnest money be furnished by a demand draft in favor of Member Secretary, M. P. Pollution Control Board, Bhopal in envelop "A". Offers without earnest money shall not be considered and the relevant envelops [B & C] will not be opened and their offer shall be treated as rejected.
11. Bidders using downloaded tender forms must submit tender fee by demand draft along with Earnest Money in Envelop "A" drawn of Member Secretary, M. P. Pollution Control Board, Bhopal. The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from net without tender fee will not be accepted.
12. The bidder shall have to submit the copy of GST registration number and Income Tax registration [PAN] along with envelop "B" otherwise the offer shall be liable for rejection.
13. An undertaking shall be submitted by the tenderer that they are not black listed in any Govt. organization / institutions along with envelop "B".
14. The bidder shall provide exclusive company profile including necessary certificates / license for manufacture the product from DGTD / SSI/SIA etc. The bidder shall also provide Bank Name, Account Name, Account Number, Account Type, Branch IFSC Code for safer & easier payment transaction through RTGS/NEFT.
15. The specifications are clearly mentioned in the document and the Bidder is requested to submit Bid only if their offer strictly comply with these specifications. Please note that no deviation in the required specification will be permitted. The bidding for the instruments having different specification will be on Bidder's risk as the Board will not entertain such Bids.
16. **PROCEDURE FOR SUBMISSION OF TENDERS :**

Each bidders shall submit his offer in three sealed envelops A, B and C. Envelop "A" shall contain earnest money and tender cost, if the tender document is downloaded from the web site. The Envelop "B" should contain technical specification, terms & conditions, company profile, copy of GST registration number, PAN number and

authorization certificate from manufacturer for submission of offer for this tender, if offer is submitted by authorized representative. In case the manufacturer of any equipment authorizes more than one firm for submitting offer, then such offers shall be treated as rejected. Envelop "C" shall contain financial offer.

**[a] Envelop – "A" :** Envelop "A" should contain demand draft for the requisite amount of earnest money in favor of Member Secretary, M. P. Pollution Control Board, Bhopal. If the tender document is downloaded from web site, then separate demand draft for tender cost shall be submitted with envelop" A". The name of instrument and the amount of the demand draft should be inscribed on the top of envelop. Envelop "A" shall be opened on 05.03.2018 at 2.00 pm in the presence of the bidders or their authorized representatives. Insufficient amount furnished as earnest money and tender cost shall make the offer liable for rejection.

**[b] Envelop – "B":** Bidders, who have furnished the desired amount of earnest money and tender cost shall be liable for opening of the Envelop "B" of their offer and shall be opened on 05.03.2018 at 2.00 pm. The Envelop "B" should contain detailed compliance of technical specifications in annexure –2, make & model of the equipment, functioning procedure of the equipment and other literature relevant to the equipment and company profile. If the offer is submitted by authorized representative, he should submit authorization letter in envelop "B" from the manufacturer for submitting offer for this tender, otherwise tender offer of the firm shall not be considered and liable for rejection. The tenderer should furnish users' list and details of supplies made by him to important institutions along with performance certificate. The bidder shall have to submit the copy of GST registration number and income tax no. [PAN] along with the envelop "B", otherwise the offer shall be liable for rejection. An undertaking shall be submitted by the tenderer, regarding whether they are not black listed in any Govt. organization / institutions, along with envelop "B". The details of service station in Madhya Pradesh and India should be furnished with other details.

**[c] Envelop – "C" :** The envelop "C" shall contain financial offer in annexure 4 or 5 [whichever is applicable] of the tender document. Offers received in due time shall be evaluated technically by a committee constituted by the Competent Authority, M. P. Pollution Control Board and as per the recommendation of committee , depending upon the suitability of equipment with respect to application, performance, after sale service and service centers in Madhya Pradesh or in India etc., the financial offer shall be opened. The date of opening of financial bids (Env."C") will be informed later. Notwithstanding anything stated above the competent authority of the Board reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the Board.

**[B] OTHER CONDITIONS:**

1. The Board reserves its rights to reject any or all the tenders without assigning any reason there for.
2. Tender found incomplete shall be rejected forthwith.

3. The indigenous equipment, for which an order has been placed, after acceptance of the tender, shall have to be delivered, installed & demonstrated to the consignee mentioned in the supply order within 60 days from the date of issue of supply order. In case of late supply of the material, 2% per month penalty shall be charged. The maximum penalty for late supply shall not exceed 10% of the total ordered value. In case of unavoidable delay in supply a prior permission shall be obtained for extension in delivery period.
4. The time limit for the supply of imported equipment shall be 90 days, which can be relaxed for additional 30 days by the Competent Authority. After scheduled time limit, 2% per month penalty or maximum penalty up to 10% of the total ordered value should be levied.
5. If the bidder is not a manufacturer himself, should have a facility for repairing and maintenance of the instrument. The details of service centers in Madhya Pradesh and India should be furnished along with other details.
6. It shall be the responsibility of the bidder to deliver the material to the consignee in sound condition without any damage. Any damage or loss during transit shall be on the account of the bidder.
7. The tenders shall be valid for a period of 360 days from the date of opening of envelop "A". In exceptional circumstances, the Board may in writing or by facsimile, solicit the Bidder's consent to an extension of the period of the Bid validity. If the Bidder agrees to the request for extension, the Bid Security shall also be extended for an equivalent period of time. Any Bidder may refuse to extend the validity of his Bid without forfeiting his Bid Security, but the Bid will not be considered. Bidders granting the requests for extension of the Bid validity will not be required or permitted to modify their Bids.
8. The prices should include all taxes like GS tax, excise duty or any other tax.
9. The approved firm / manufacturer shall have to submit 5% security deposit of the ordered value in the form of Bank Guarantee for a period of 12 months, other wise 5% amount shall be deducted from the bill.
10. In case the approved bidder fails to effect supply, within the specified period as per supply order, the earnest money is liable to be forfeited.
11. The consignee or any other officer authorized by the Board shall have the right to reject any or all the items of the supply, if they do not confirm to specifications mentioned in the supply order. The rejected items shall be lifted by the bidders at their own cost. The consignee will not be responsible for the custody and safety of such items.
12. The Board reserves its rights to affect any reasonable increase or decrease in the quantity or number of items at the time of issue of supply order in the interest of the Board.
13. All the clearance including the obtaining NMI [Not manufactured in India] certificate, custom clearance and custom duty will be the responsibility of the tenderer. This office will open the letter of credit [L/C] as may be required and will only sign the documents wherever required.
14. In case, if any supplier quote their rates in Indian Rupees for imported equipment and do not require custom duty exemption certificate from the Board, then the supplier has to submit import document like bill of entry, custom duty paid and NMI [Not manufactured in India] certificate from the manufacturer.

15. The bidder is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bid document. Failure to furnish all information required by the bid documents of submission of a bid not substantially irresponsive to the bid document in every respect will be at the bidder's risk and may result in the rejection of it's bid.
16. The terms of payment shall be as under:
  - [A] **Indigenous Items:** 75% of the cost of material would be paid after receipt of the material by consignee and balance 25% payment shall be released only after satisfactory installation and demonstration of the equipments / material at site.
  - [B] **Imported equipments:** The letter of credit will be opened for total ordered value, but 75% of the cost will be released on shipment of the material and balance 25% payment shall be released only after satisfactory installation & demonstration of the equipments / receipt of material at site.
17. Conditional offers will not be accepted and liable for rejection.
18. In case of human error regarding labeling of envelop, the committee constituted for the opening of envelop shall take appropriate decision.
19. In case of any dispute the decision of Chairman, M. P. Pollution Control Board shall be final & binding.
20. In order to comply the instructions of Department of Commerce & Industries, Govt. of M.P., minimum 30% of the quantity of the items shall be reserved for the manufacturers / entrepreneurs from Scheduled castes/ scheduled tribes based at Madhya Pradesh.

***NOTE: The tenders shall be liable for rejection in breach of any of the special or other general conditions of the tender document and no correspondence in this regard shall be entertained in future.***

**[Dr. Reeta Kori]**  
**Chief Scientific Officer**





**M. P. POLLUTION CONTROL BOARD**  
**TENDER AND CONTRACT FOR SUPPLY OF MATERIALS GENERAL RULE AND**  
**DIRECTIONS FOR THE GUIDANCE OF SUPPLIERS**

- (1.) All suppliers proposed to be obtained by contract will be notified in a form of invitation to tender posted in public places/News Paper.
- (2.) The tender form will State the supplies to be made, as well as the date for submitting and opening tenders and the time allowed for supply, also the amount of earnest money to be deposited with the tender.
- (3.) In the event of tender being submitted by a firm it must be signed separately by each member thereof or in the absence of any partner, it must be signed on its behalf by a person holding a power of attorney authorizing him to do so, such

power of attorney should be produced with the tender and it must disclose that the firm is duly registered under the partnership Act.

- (4.) Any person who submits a tender shall fill up usual printed form stating at what rate he is willing to undertake supply of each item. Tender which propose any alteration in the work/supply specified in the said form of invitation to tender, or time allowed for carrying out work/supply will be liable for rejection.
- (5.) The Member Secretary or his duly authorized assistant will open tenders in the presence of any tenderer who may be present at the time and will enter the amount of several tenders in a comparative statement in a suitable form. Receipts for earnest money will be given to all tenderers except those whose tenders are rejected and whose earnest money is refunded on the day that the tenders are opened.
- (6.) The officer competent to dispose of the tenders shall have the right of rejecting all or any of the tenders.

### **CONDITIONS OF CONTRACT**

1. The time allowed for the supply of materials as entered in the tender shall be strictly observed by the supplier and reckoned from the date of which the order to commence supply of materials shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of contract) on the part of the supplier and the supplier shall pay as liquidated damage an amount equal to one percent or such smaller amount as the Member Secretary, M.P. Pollution Control Board, may decide on the amount of estimated cost of the whole of the materials as shown in the estimated cost of the tender that the supply remains uncommenced or unfinished after the proper dates. In the event of the contractor failing to comply with this condition shall be liable to pay as liquidated damage an amount equal to one percent or such smaller amount as the Member Secretary may decide on the said estimated cost of the whole of the materials for every day that the due quantity of supply remains incomplete to, provided that the due quantity of liquidated damage to be paid under the provisions of this clause shall not exceed ten percent on the estimated cost of the supply of materials as shown in the tender.
2. If the Tenderer shall be hindered in the supply of the materials so as to necessitate an extension of the time allowed in this tender he shall apply in writing well in advance or immediately after the cause occurs to the Member Secretary, M.P. Pollution Control Board who shall if in his opinion (which shall be final) reasonable grounds be shown therefore authorize such extension for a period not exceeding 15 days. Any further extension shall be subject to the previous sanction of the Chairman.
3. The supplier shall give notice to the consignee officer of his intention of making delivery of materials and on the materials being approved a receipt shall be granted by him to the Consignee Officer or his assistant, and no material will be considered for payment until so approved.

4. On the completion of the delivery of the materials the supplier shall be furnished with a certificate by the Consignee Officer of M.P. Pollution Control Board.
5. The material shall be of the best description and in strict accordance with the specification and the supplier shall receive payments for such materials only as are approved and passed by the Member Secretary/Consignee Officer.
6. In the event of materials being considered by the Consignee Officer to be inferior to that described in the specification the supplier shall on demand in writing forth with remove the same at his own charge and cost and in the event of his neglecting to do so within such period as may be named by the Consignee officer that officer may have such rejected material removed at the contractor's risk and expense incurred being liable to be deducted from any sum due or which may become due to the supplier.
7. Receipts for payment made on account of a supply when executed by a firm must also be signed by several partners except where the contractors are described in their as a firm in which case the receipt must be signed in the name of firm by one of the partners are by some other person having authority to give effectual for the firm.
8. Under no circumstances whatever shall the contractor be entitled to any compensation from Board on any account.
9. The supplier shall supply at it own expense all tools, plant & implements required for the due fulfillment of his contract and the materials shall remain at his risk till the date for final delivery, unless it shall have been in the mean time removed for use by the Consignee Officer.
10. No materials shall be brought to site or delivered on Sunday/holiday without the written permission of the Consignee Officer.
11. The supplier shall not sublet this contract without the written permission of the Member Secretary, M.P. Pollution Control Board. In the event of the contractor subletting his contract without such permission, he shall be considered to have thereby committed a breach of the contract, and shall forfeit his earnest money and shall have no claim, for any compensation for any loss that may occur from the materials he may have collected or engagements entered into.
12. The decision of the Chairman, M.P. Pollution Control Board, Bhopal shall be final, conclusive & binding on all parties to the contract upon all questions relating to the meaning of specification and instructions herein before mentioned and as to qualify of materials or as to any way arising out of, or relating to the contract specifications, instruction orders of these conditions or otherwise concerning the supplies whether arising the progress of after the completion or abatement thereof.
13. On the breach of any term of condition of this contract by the supplier, the said Chairman shall be entitled to forfeit the earnest money, security deposit and the balance thereof that may at that time be remaining and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of

the said Board to recover any further sums as damages from any sums due or which may be come due to the contractor by M.P. Pollution Control Board, or otherwise howsoever.

**[Dr. Reeta Kori]**  
**Chief Scientific Officer**

**Annexure-“1”**

# TECHNICAL SPECIFICATIONS

## (PART-A)

### LABORATORY EQUIPMENTS

*Item No. 1*

#### Aerosol Particle Monitor

Light Source	Light Scattering Method, Laser diode (>100,000 hours)
Sensitivity	0.3µm
Size Range	0.3 µm to 10µm
Channels	All three channels are user configurable (size selections from 0.3µm, 0.5µm, 1.0µm, 5.0µm and 10µm)
Counting Efficiency	50±20% @0.3µm ,100±10% @0.45µm
Zero Count	<1 count per 5 minutes
Flow Rate	2.83 L /min (0.1cfm)
Sampling Time	User defined: (up to 59m59s) and auto repeat (up to 99 times)
Sampling Mode	Cumulative, differential, concentration (counts/liter), mass concentration (µg/m <sup>3</sup> , can be interpreted as PM1, PM2.5, PM10 or TSP)

Error Indications	Excess count limit, optics contamination, loss of laser power, insufficient battery power
Power	Li-ion polymer rechargeable battery (7.4V/2800mAH) or 9VDC AC, Adapter (100~240V input)
Max. Operating Time	Continuous operation > 5 hours with Li- ion battery, Storage: -20 ~ 65°C, < 90%RH
Weight	Should be Light weight & Portable
Environmental Conditions	Operating: 5 ~ 45°C, < 90%RH
Optional Accessories	Zero-count filter, digital temperature and humidity sensor probe, mini printer, printer cable, tripod, portable carry case

*Item No. 2*

**CARBON MONOXIDE (CO) ANALYZER  
(Conforming to USEPA Automated Federal Reference Method (FRM)  
Designation**

<b>S. No.</b>	<b>Specifications</b>	<b>Requirement</b>
1.0	Principle	Non Dispersive Infra – Red (NDIR) with Gas Filter Correlation
2.0	Measurement	Carbon Monoxide in Ambient Air
3.0	Display	Digital
4.0	Ranges	At least four ranges Auto ranging 0 to 100 PPM
5.0	Minimum Detectable	0.1 PPM

	Limit	
6.0	Zero Noise	0.05 PPM with time constant $\pm$ 30 seconds
7.0	Zero Drift	< 0.2 PPM / 7 days
8.0	Span Drift	< 1% full scale in 24 hrs.
9.0	Linearity	Continuous $\pm$ 1%
10.0	Output Signals or Analog Output	3 Analog output 0 - 1 V, 0 - 10 V, 2 - 20mA / 4 - 20 mA for digital
11.0	Digital Output	Multiple drop RS 232
12.0	Consumables and spares	Recommended requirements of 3 years of continuous operation along with the list of Items.

*Item No. 3*

### **FILTER PAPERS FOR AIR & WATER ANALYSIS**

- (a) **Glass Micro- Fiber Filters sheets** Equivalent to Whatman Grade GF/A with specifications- to be used in Ambient Air monitoring for measuring PM10, high purity borosilicate glass filter, thickness -maximum 0.43mm, Particle retention - 99.95 % (min.), Flow rate -  $1.52 \pm 0.18$  M<sup>3</sup>/min., weight - 80 g/m<sup>2</sup> maximum and should sustain for temperature of 500°C. Size - 203mm X 254 mm [Box containing minimum 100 sheets]

- (b) **PM 2.5 monitoring filters** Equivalent to Whatman Grade with specifications - Made up of high purity thin PTFE membrane required for ambient air monitoring. Size - 46.2mm circular box containing minimum 50 circles in box. Filter Pore size - maximum 2.0  $\mu\text{m}$ , thickness - 40  $\mu\text{m}$ , Particle retention - 99.7%.
- (c) **Glass Micro Fibre Filter** Equivalent to Whatman grade GF/A with specifications - Pore size- maximum 1.6  $\mu\text{m}$ , Thickness - 0.26 m, Dry tensile 430 gm, suitable for PM 2.5 sampling in ambient air quality monitoring. Circle size - 37mm diameter. (Box containing minimum 100 no. paper circles)

Item No. 4

### LED MOVING MESSAGE DISPLAY BOARD

S.N.	Specification	Requirement
1.	Size of display System	8 feet X 6 feet
2.	Visibility range	200 Meters (Day Time)
3.	Nos. of display Line	4
4.	Display of colour elements	Multi Color (Red, Green and Blue)
5.	Minimum life span of the system	10 years
6.	Smallest Character Size	260 mm x 190 mm (approx.)
7.	Operating and Non Operating	0 – 50 ° C



	Temperature	
8.	Humidity Tolerance Range	0 – 100%
9.	Languages supported by the display	English & Hindi
10.	Color Gradient	Cluster LED based
11.	Display Characters	The display should be in at least four columns such as Serial No., Parameters, Concentration Limit, Standard Limits with AQI Index. The display of above variable data should be supported with moving messages / slogans to be changed from time to time.
12.	Input Power requirement	Cluster LED based
13.	Display Mounting	Weather proof casing to cope up with local condition
14.	Computer System	Software compatible with latest version
15.	General	The display system should be capable to transfer the data from computer to Display Board through Modem System or other relevant technology. The system should also have the facility to display the environment message, environmental picture through video camera / VCR / CD Player etc. for public awareness.

Item No. 5

### **MICRO ELECTRONIC BALANCE**

Capacity	22g
Readability	0.001mg or better
Repeatability	0.001mg or better
Linearity Deviation	0.015mg or better
Eccentricity (test load)	0.015 mg or better
Sensitivity offset (test weight)	0.04 mg (20 g)

Weighing Pan	30 X 30 mm or better.
Door Cleaning	Door cleaning should be Dishwasher Safe
Hands free Operation	Sensors should be provided for hands free operation such as auto door opening. These sensors should be configurable for zeroing, taring
Dosing Guide	Balance display should be with graphical track to guide dosing
Direct Dosing	Balance pan should be capable for attachment to keep flask, test tube etc so that balance can be used for other application such as sample weighing along with filter weighing
Touch Screen	TFT
Status Light	Balance should have Light indication for various status of balance like Ok, calibration over due, leveling error and other such warnings.
Level Adjustment Guide	Level Bubble
Internal Adjustment	Time and Temperature based adjustment with internal weights
Static Detect	Balance should be capable of detecting static charge collected on sample filter.
Antistatic Solutions	Balance should be capable of attaching antistatic kit to remove static charge on filter paper, flask or tare container
Data Transfer	Balance should be compatible for secure data transfer via software
Operation	<ul style="list-style-type: none"> <li>• Balance should be supplied with Software which can be configured and customizable with method for various applications such as sample preparation etc as per customer SOP. It will not allow user to deviate from any step of SOP.</li> <li>• Software should allow user to enter process parameters such as batch number, site details etc on balance display.</li> <li>• Entire data should be stored in PC and will not allow any modification, changes or deletion of any data.</li> <li>• Software should perform all mathematical operations.</li> <li>• User management should be available</li> <li>• All system related activities such as log in, log out etc should be recorded in software</li> <li>• Software should be capable of generating csv, txt etc file with data which can be further analyzed.</li> <li>• Software should be capable to interface barcode scanner and barcode printer</li> </ul>

Item No. 6

**PC-CONTROLLED UV - VISIBLE SPECTROPHOTOMETER**

<b>Specification</b>	<b>Requirement</b>
Type	Double beam, automatic scanning
Light source	Tungsten-halogen and deuterium
Wavelength range	should cover 190-1100 nm range or better
Wavelength accuracy	$\pm 0.1$ nm at D2 peak, 656.1 nm or better
Wavelength reproducibility	$\pm 0.05$ nm 656.1 nm or better
Band pass range	Variable 0.5 nm to 4 nm

Stray Light	0.01% Tat 220nm (NaI) or better
Scan speed	5 to 2800 nm/min
Photometric drift	0.0003 absorbance units/hour at 340 nm
Automatic switch Over	Pre aligned Deuterium and Tungston – Halogen Lamp
Photometric Stability	At least 0.0002 A/Hour ( at 1A, 500nm) or better
Power Requirement	220 VAC ± 25% , 47 to 53 Hz
Accessories	PC , compactable for operation control and monitoring of UV – Spectrophotometer and accessory modules, Colour monitor, Printer, Essential spare parts including Holonium Oxide filter for five year of operation, Voltage stabilizer, Dust cover, Operation manual, Matching cuvettes ( 2 pairs).

Software performing analysis at least as per DIN/ISO/US-EPA, calibration, blank correction, data import, data export, data handing and reporting, quality control protocols, computer based training.

Item No. 7

### Portable Generating Set

S.No	Requirement	Specifications
1.	Starting and Running	Petrol Start, Petrol Run
2.	Rated Out put at Unity Power Factor at STP	2800 VA
3.	Starting Type	Recoil
4.	Efficiency of alternator	80%
5.	Power Output	220 VAC

6.	Noise Level	75dB
7.	Approx. Weight	Less than 60 Kgs
8.	Limits of vibration	5.3 m/second square at control panel mm per sec
10.	Fuel Tank Capacity	At least 12.0 litres
11.	<ul style="list-style-type: none"> <li>• Provision of Voltmeter and Ammeter in the Output Circuit.</li> <li>• Generator should comply Temperature rise limit given in IS:4722/92</li> <li>• The generator set shall be fitted with Fuel Tank of a capacity to give continuous operation for at least 6.5 hours at rated full load and fuel should not spill out of the lid of the tank due to the vibration.</li> <li>• Generator should have low lubricating oil alert system.</li> </ul>	
12.	<ul style="list-style-type: none"> <li>• Test Report from Central Government/NABL/ILAC Accredited Laboratory to prove conformity to the specification for each rating for portable generator set.</li> <li>• COP and TAC declaring make &amp; model of engine/portable generator sets should be provided.</li> <li>• The generator set should comply with the latest requirement of Environment (Protection) Rules, 1986 as and when amended by Ministry of Environment &amp; Forests in respect of emission &amp; noise norms.</li> </ul>	

Item No. 8

### **PM<sub>2.5</sub> Sampler**

Design compliance should be as per USEPA norms. The instrument should possess following specification:

Flow Rate	Fixed, 1M <sup>3</sup> /hour (16.7 lpm) controlled by Mass Flow Calibrator.
Elapsed time indicator	Up to 9999 hours with two decimals
Vacuum Pump	Diaphragm type, Brush Less motor
Flow Recorder	Chart Type / Memory based downloadable to computer and or

	manually displayed on screen.
Dry Gas Meter (Volume totalizer)	For measuring total volume of air sampled.
Volumetric Flow rate compensation	Ambient temperature and pressure sensors to control volumetric flow rate.
Power Requirement	220 to 300 Volts $\pm$ 10 volts AC, 50 Hz $\pm$ 3%
Size Selective inlets	Opposed jet impaction for PM <sub>10</sub> cut and Cyclonic / WINS impactor for PM <sub>2.5</sub> cut off.
Special Features	The system should have an option to be used for PM <sub>10</sub> sampling.
Calibration Unit	Calibration unit to calibrate the flow rate of the instrument.
Additional supply	Manufacturers standard operation kit including all required items, fittings for start up / regular operation of instrument. Operation and Maintenance Manual for each unit. Spares and consumables for three year operation.
Optional Accessories	Pure Nylon membrane (1 $\mu$ m, 47 mm) developed specially for acidic dry deposition measurements. PTFE membrane filter with PMP (poly methyl pentene) support ring (1 $\mu$ m, 47 mm). Pure Quartz filter (Max. operating temp > 1000°C) 47 mm

Item No. 9

### **Respirable Dust (PM<sub>10</sub>) Sampler**

<b>Specifications</b>	<b>Requirements</b>
Blower	0.8 to 1.4 meter cube per minute free flow with flow controller and brushless motor operated at 230 Volts preferable noiseless.
Particle Size	Particles of 10 microns and below collected on filter paper, Filter holder designed to accept any standard filter sheet of

	203 mm x 254 mm. Separate provision for collecting particles bigger than 10 microns under the cyclone.
Sampling Time	0 to 24 hours flexible to set any time interval.
Time Totalizer	0 to 9999.99 hours. Time totalizer circuit detects blower stoppage due to any reason including brush failure.
Automatic Sampling	24 hours programmable timer to automatically shut off the system after pre – set time intervals.
Power	Normal 230 ± 10 V, single phase, 50 Hz AC, Built in requirement voltage stabilizer with automatic shut off beyond 220 – 300 V range.
Handling	Portable and as sleek as possible
Housing	Sturdy aluminium cabinet consists of blower, filter case assembly, time totalizer, real time timer, flow meter, flow controller & flow measurement device. RSPM should be collected on filter paper and coarse dust should be collected in a cup under cyclone.
Flow Measurement	Glass Manometer tube accurately graduated directly in M <sup>3</sup> / Min and calibrated across orifice.

Gaseous Sampling Attachment:

Flow Rate	0.3 to 3 lpm, 2% accuracy
Flow Control	Four Inlet and one outlet manifold with built in needle valve for flow control of each inlet.
Sampling Train	4 nos. of 35 ml. Borosilicate glass impingers kept in a ice tray. Dimension as per IS: 5182 Part V

Item No. 10

**Stack Monitoring Kit**

The In – Stack monitoring Kit (USEPA Method 17) should be Portable, Compact, Light Weight and user Friendly. Control Module, with Multi – Function Electronic Unit, Digital Electronic Manometer, Programmable Start and Stop facility for Sampling Pump, Digital Display for Stack Gas & Dry Gas Meter Temperatures, Light Weight Sampling Pump and Impinger Module Design Complies with Specifications, recommended by USEPA. The facility for mounting of thermocouple, pitot tube and probe together to keep all the components functional during the period of sampling is mandatory.

Stack Velocity range	3 to 30 m/sec
Stack temperature range	0 to 600 °C and 500°C to 1000°C [shall be quoted separately]
Particulate Sampling	At 6 to 60 lpm
Gaseous Sampling	At 0.6 to 6 lpm collection on a set of impingers, containing selective reagents.

**Pitot Tube:** Modified S- type pitot shall be fabricated from SS 304 or equivalent. The construction features should be as per USEPA method 1 to 4 & 17 (or) CPCB Doc. No. Emission Regulation [Dec. 1985] Part – III.

**Sampling Probe:** Fabricated from SS 304 tube of suitable diameter [not less than 15mm ID]. The lengths of the pitot tube and the sampling probes shall be decided by the users. The supplier have to quote separately for all sizes available.

**Nozzles:** A set of nozzles (min. 04 nos.) fabricated from SS 304 or equivalent material with internal diameter suitable to cover the full range of stack velocities. The leading edge of the nozzle should be sharp and tapered. The minimum internal diameter of the nozzle should not be less than 4mm

**Thimble Holder:** Filter holders fabricated from SS 304 suitable to hold cellulose/ glass fibre or other thimbles.

**Thermocouple:**

1. Thermocouple sensor with digital display capable of measuring temperature from 0 to 600 °C covered with acid resistant proper casing and appropriate length ( same as length of pitot tube)
2. A separate suitable thermocouple with digital display capable of measuring temperature from 500 °C to 1000 °C covered with acid resistant proper casing and appropriate length ( same as length of pitot tube)

**Stack Gas Sampling Module:**

The stack sampling console shall contain the following:

- Timer ( Stop Watch)  
Range 0 to 60 minutes  
Minimum resolution - one second  
Residual Battery Backup facility
- Temperature sensor at metering point (0 to 50 °C)
- Temperature displays with select toggle switches for display of ambient, Stack (Flue Gas) and temperature at metering point
- Rotameter ( separate for Particulate and Gas)
  - a) 6 to 60 lpm for particulate monitoring and
  - b) 0.6 to 6 lpm for gaseous monitoring
- Vacuum gauge Digital or Analog, Dual Scale, range 0 to 30 psi & 0 to 1552 mmHg
- Dry gas meter should be in built. The minimum resolution of digital Dry Gas Meter should be 1 L
- A cold box with a capacity to hold at least 6 to 8 impingers shall be provided with glass impingers.
- Control panel ( Console) shall have the facility for leak check with orifice or other type of control knobs.

**Stack Gas Velocity Module:**



**For velocity measurements the module should have provision for housing of:**

- Digital manometer ( capable to measure in the range 0 to 1300 mm of H<sub>2</sub>O)
- Digital pyrometer suitable for measuring ranges ( 0 to 600°C and 500°C to 1000 °C)

**Vacuum pump:** Compatible, portable, light weight, heavy duty pump capable to ensure 60 lpm effective gas flow with single phase motor, 220 ± 10 V AC, 50 Hz ± 3%.

**Sample Collection Tubes (Hose) :** All the sample collection hose / conduits should have push fit system to prevent leakages. The hose should be flexible and protected from outer shocks and aberrations. The length of the hoses is user selectable. Two separate sizes (10 m and 30 m) shall be quoted.

**Calibration Certificates:** Third party (any Nationally or Internationally Accredited Calibration laboratory) Calibration Certificates for Manometer, Rotameter, Pitot Tube, Nozzles, Thermocouple and Dry Gas Meter etc. with a validity of at least one year should be provided along with the supply.

**Impingers:** Four numbers of 120 ml and two numbers of 250 ml capacity Borosilicate glass impingers. Facility should be there for keeping ice at the bottom of impinger box.

**Tools:** A kit containing the essential tools required for connecting various components and routine maintenance shall be provided with the equipment.

**Spares and consumables:** The supply shall include spares and consumables for at least three years trouble free operation.

Item No. 11

**Water Current (Flow) Meter**

<b>Specifications</b>	<b>Requirements</b>
Velocity Meter (Water)	Portable cup type water velocity meter / flow meter with cable and sinking weight conforming to IS 3910 specification for measurement of velocity / flow of water & waste water in rivers,

	canals, drains, waste channels etc.
Measurement	Water current flow speed
Display	Digital Meter / Indicator
Flow Velocity	0.3 meter / second to 3.5 meter / second or better
Operation Manual	Two sets with CD
Instrument case & accessories	Rugged wooden carrying case, instrument oil, cleaning cloth, screw drivers etc complete
Installation & training	Onsite by trained personnel
Warranty	Three years comprehensive warranty with free maintenance.

**Annexure – 2**

**(Tender No. MPPCB/Pur./06/2017-18)  
Part-A  
(Laboratory Equipments)**

**TENDER SPECIFICATIONS VS OFFERED SPECIFICATIONS**

<b>Sl.</b>	<b>Tender</b>	<b>Offered Specifications</b>	<b>Documentary</b>
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No.	Specifications		evidence/ leaflet enclosed

**Signature of Bidder** -----  
**Name** -----  
**Business Address** -----

**Place:** -----

**Date :** -----

**Annexure – 3**

**(Tender No. MPPCB/Pur./06/2017-18)**  
**Part-A**  
**(Laboratory Equipments)**

**PRICE SCHEDULE FOR ANNUAL MAINTENANCE AND REPAIR**  
**CHARGES AFTER WARRANTY PERIOD**

Sl. No.	Item Description	Qty.	Annual Maintenance & Repair charges for each unit including supply of spares [Price to be quoted either in Indian Rupees or in Foreign currency] Excluding guarantee period	Maintenance and Repair charges for 3 years, including supply of spares.

**Note:** In case of any discrepancy between unit price and total price, the unit price shall prevail.

Signature of the Bidder -----  
Name -----  
Business Address -----

Place -----  
Date -----

**Annexure – 4**

**(Tender No. MPPCB/Pur./06/2017-18)**  
**Part-A**  
**(Laboratory Equipments)**

**PRICE SCHEDULE FOR GOODS IMPORTED**

1	2	3	4	5	6	7
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Sl. No.	Description	Country of origin	Quantity	Unit Price CIF New Delhi	Total CIF price per item	Unit price pf Inland delivery to final destination and unit price of other incidental services.

**Note: In case of discrepancy between unit and total price, the unit price shall prevail.**

**Signature of the Bidder.....**  
**Name .....**  
**Business Address .....**  
**.....**

**Place: .....**  
**Date: .....**

**Annexure – 5**

**(Tender No. MPPCB/Pur./06/2017-18)**  
**Part-A**  
**(Laboratory Equipments)**

**PRICE SCHEDULE FOR GOODS INDIGENOUS**

Sl. No.	Name of equipment with make & model	Unit Price in Rupees	GST or any other Tax/duty	Unit price including all taxes up to final destination

**Note: In case of discrepancy between unit and total price, the unit price shall prevail.**

**Signature of the Bidder** .....

**Name** .....

**Business Address** .....

.....

**Place:** .....

**Date:** .....

**TENDER NOTICE NO. MPPCB/Pur./06/2017-18  
(Part-B)**

**Identification of Service Provider for Supply, Commissioning & Maintenance of the Central Server Software for Online Continuous Real-Time Data Acquisition and Handling System for Emission, Ambient Air and Effluent Quality Monitoring in Madhya Pradesh – Linking of Industries with MPPCB Server”**

**1. Invitation for Competitive Bidding**

***1.1 RFP Notice***

Madhya Pradesh Pollution Control Board (MPPCB) seeks proposals from experienced agencies for “**Identification of Service Provider for Supply, Commissioning & Maintenance of the Central Server Software for Online Continuous Real-Time Data Acquisition and Handling System for Emission, Ambient Air and Effluent Quality Monitoring in Madhya Pradesh – Linking of Industries with MPPCB Server”**”.

***1.2 Important Information***

Bid Closing Date and Time	05.03.2018, 12.00 noon
Bid Opening Date and Time	05.03.2018, 2.00 P.M.
Bid Document Price and Mode of payment	Through Demand Draft for an amount of Rs. 1500.00 from Nationalized bank in favour of Member Secretary, M.P. Pollution Control Board, Bhopal
Amount of EMD and Mode of payment	Rs. 30,000.00 (Rs. Thirty Thousand only) in the form of DD from Nationalized bank in favour of Member Secretary, M.P. Pollution Control Board, Bhopal
Performance security	10% of the Project cost
Performance security validity period	One year from the date of submission or successful completion of the project, whichever is later.
Bid validity period	360 days from the date of opening of bid
Project period	Three years
Period of signing contract	Within 02 weeks from the date of dispatch of letter of notification of award.
Conditional Bids	Not acceptable and also liable for forfeiture of the EMD.
Entitlement for Bid submission	Only the software development firm who is the actual license holder of the software shall quote. No Joint Venture or Consortium of any kind is allowed. Authorized Agents / Dealers are not

	allowed to bid. Suppliers/manufacturers of online real- time monitoring instruments of stack, ambient, water and noise are also not allowed to bid.
Currency for Price quote	Indian Rupee
Language of Bid	English
Address for correspondence in respect of technical clarifications	Chief Scientific Officer Environmental Surveillance Centre M.P. Pollution Control Board, E-5 Sector, Arera Colony, Bhopal -16
Contact Person	Dr. Reeta Kori, Chief Scientific Officer
Email	<a href="mailto:ercmppcb@nic.in">ercmppcb@nic.in</a>
Address for Bid submission	Member Secretary M.P. Pollution Control Board E-5, Arera Colony, Paryavaran Parisar, Bhopal (M.P.)- 462 016 , India

Please furnish your bid for supply of Central Server Software for Data Acquisition and Handling system as per the technical and financial bid specifications mentioned in the RFP on or before the Bid Closing Date and Time mentioned in the time schedule under important information. The bids should be addressed to the Member Secretary, M.P. Pollution Control Board. The Central Server Software shall be an open Application Program Interface (API), should be workable for the client side software proposed by the tenderer and also be workable to client side software. Any offer for regulator side software without provision for supply of client side software will not be considered. The delivery period and the warranty period should be clearly mentioned in the technical bid document.

### **1.3 Procedure for submission of bids/tenders :**

Each bidders shall submit offer in three sealed envelopes A, B and C. All the three envelopes should be enclosed in a single outer envelope and submitted, at the address stated in the table of Important Information, superscribed as "BID DOCUMENTS - Tender for Identification of Service Provider for Supply, Commissioning & Maintenance of the Central Server Software for Real Time Data Acquisition and Handling System for Emission, Ambient Air and Effluent Quality Monitoring in Madhya Pradesh" – NOT TO BE OPENED BEFORE THE DUE DATE ON 05.03.2018 at 2.00 p.m.

The envelop "A" shall contain earnest money and tender cost, if the tender document is downloaded from the web site. The envelop "A" shall be opened on 05.03.2018 at 2.00 pm in the presence of the bidders or their authorized representatives. Insufficient amount furnished as earnest money and tender cost shall make the offer liable for rejection.

The Envelop "B" shall contain all relevant technical documents such as evidences for doing similar nature of work, experience in the similar field, detailed list of infrastructure / available, copy of GST registration and Income Tax registration [PAN], copy of undertaking regarding not being blacklisted, terms & conditions, company profile etc. Non – production of any of the documents may lead to rejection of the Bid / offers. Envelop "B" shall be opened only of those bidders who have submitted EMD and tender cost of valid/specified



amount. The bidders who intend may be present at the time of opening of Bid. The envelop "B" shall be opened on 05.03.2018 at 2.00 p.m.

Offers received in due time shall be evaluated technically by technical committee constituted by the Competent Authority, M. P. Pollution Control Board. The Committee may invite the bidders for the demonstration of their capability, pertaining to software requirement, on a specified day.

The envelop "C" shall contain financial offer in Form C#1 and C#2. The envelop "C" shall be opened only of those bidders who will be found suitable and recommended by the technical committee. The bidder shall submit copies of at least two recent supply orders of the similar nature indicating detailed price schedule along with "Envelop "C" (price bid) in order to examine reasonability of the quoted rates in the present bid. Notwithstanding anything stated above the competent authority of the Board reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment in the overall interest of the Board.

## 2.0 Technical Qualification Criteria:

MPPCB seeks proposals from experienced agencies for participation in tender for Identification of the Service Provider for Supply, Commissioning & Maintenance of the Central Server Software for Online Continuous Real Time Data Acquisition and Handling System for industrial Effluent, Emission and Ambient Air / Water Quality Monitoring in Madhya Pradesh State.

### The technical-qualification criterion is as under:

<b>Sl. No.</b>	<b>Pre-Qualification Criteria Description</b>	<b>Supporting Documents to be submitted by the service providers</b>
<b>1.</b>	<p><b>Legal Entity:</b> Service provider must have registration under companies Act, 1956 and also registered with the GST/Service Tax authorities and must have completed 2 years of existence as on Bid calling date.</p>	<p>Service provider should submit the following: a) RoC. b) Copy of GST/Service Tax Registration Certificate.</p>
<b>2.</b>	<p><b>Turnover:</b> a. The Service Provider should have a minimum turnover of Rs. 5.00 crores from IT based project with Software Application Development and Maintenance, Real Time Data Analysis Tools during any of the last 3 financial year 2014-15, 2015-16 and 2016-17 or Cumulative turn-over should be at least 10 Crores during the last 3 financial year.  b. Service provider should have positive net profit after tax during each of the last three financial years</p>	<p>Service provider should submit any of the following:  a) Copies of Certified audited Balance sheet / Profit &amp; Loss statement of the company</p>

	<p>namely 2014-15, 2015-16 and 2016-17.</p> <p>Note: Turnover in areas other than mentioned above shall not be considered for evaluation</p>	
<b>3.</b>	<p><b>Past Experience</b></p> <p>The Service provider should have similar experience in Supply &amp; maintenance of Central Server Software for Real Time Data Acquisition and Handling System in Central Govt. Deptt/State Govt Deptt/ PSUs. The service provider should have implemented at least 1 project worth Rs. 10 lakhs or above or two projects worth Rs. 5 lakhs or above. Copies of work orders claiming expertise in above areas (Work orders in the last 2 financial years i.e. 2014-15 and 2015-16) in support of claim.</p>	<p>Service provider should submit the following:</p> <p>a) Copies of Work orders.</p> <p>b) Copies of Installation and commissioning certificates.</p> <p>c.) Copies of Performance Certificates</p>
<b>4.</b>	<p>The Bidder should be ISO 9001 certified for quality of development of data related software.</p> <p>The Bidder should have ISO 27001 certification for Information Security Management</p>	<p>Copies of the Certificates to be enclosed</p>
<b>5.</b>	<p><b>Manpower Deployment</b></p> <p>The Service provider should have employed minimum 40 IT Professionals as on bid calling date. For this purpose, the term 'IT professional' means a person with a graduate degree or a higher qualification in Electronics/ Computer/IT from a recognized university employed by the company.</p>	<p>Service provider should submit the self-certification by the authorized signatory along with CVs of the professionals.</p>
<b>6.</b>	<p><b>Blacklist</b></p> <p>The Service provider should have no record of being blacklisted by any Central/state Government, Ministry or Agency for breach of Contractual Conditions as on bid calling date.</p> <p>The service provider should also not be entangled in any legal disputes with any Govt. / PSU body.</p>	<p>Service provider should submit Self declaration that the service provider is not black listed and is not in any legal disputes as on the bid calling date.</p> <p>Self-Declaration Certificate to be enclosed in the bid duly signed by the authorized signatory on its company letter head.</p>
<b>7.</b>	<p><b>Local Presence</b></p> <p>The service provider should have a local office as on date of bidding.</p> <p>Note: An undertaking in this regard should be submitted on the company letter head.</p> <p>If the service provider is not having Local presence, it</p>	<p>Service provider should submit self-certified office address.</p>

	has to open a local office within 15 days from issue of LoI and same must be communicated to MPPCB for future correspondence.	
<b>8.</b>	The service provider should have prior experience working on highly scalable large scale databases suited for storing time-series data	Service provider should provide credentials for handling large volume data and data security.
<b>9.</b>	The service provider should have experience in hosting the services at NIC domain or any of the State data center or PSU data center with approved security audit report	Service Provider should provide details of the application hosted and security audit certification or no vulnerability clearance.
<b>10.</b>	The service provider should have experience in developing Mobile application development and should have deployed atleast 2 Mobile Application in Playstore and iOS AppStore	Service provider should submit the details of the mobile application and proof of production usage at the time of calling the bid.

Note:

- i.) Relevant supporting documents (all the bid pages stamped and ink signed by authorized person) should be furnished without fail otherwise the bid will be treated as "non-responsive" and rejected.
- ii.) Any service provider who offers discounts/ benefits suo-moto after opening of commercial bid(s) will be automatically disqualified from the current bidding process without any prior notification and also may be disqualified for future bidding processes.
- iii.) No deviations of whatsoever nature are allowed in the pre-qualification criterion.
- iv.) Representations received from the service providers within 3 days from the date of opening of technical bids on the issues related to Pre-qualification/Technical bids evaluation will only be accepted. Representations received beyond this period will not be considered and strictly rejected.
- v.) If the service provider is not having local presence, it has to open a local office within 15 days from the issue of LoI and same must be communicated to MPPCB for future correspondence.
- vi.) Any deviation shall be treated as termination of contract and shall attract the liability as specified in the Tender.
- vii.) Service provider shall not have conflict of interest that may affect the bidding process or the Service provider. Any applicant found to have a Conflict of Interest shall be disqualified.

**3. Introduction**  
**About MPPCB :**

The M.P. Pollution Control Board was constituted in September 1974 under the Provisions of Water (Prevention & Control of Pollution) Act 1974. This organization is a regulatory body and is looking after implementation of various Environmental Acts and Rules. The abatement and control of pollution is a key role which is done through regular monitoring and constant vigil of various environmental components. With the advancement of technology the monitoring trend is fast changing. Induction of online continuous real-time monitoring is the recent feature being used to keep a watch on industrial pollution. Pollution monitoring data generated from industries on continuous basis, with the help of real-time monitoring systems, needs to be checked for authenticity and validated for policy planning, regulatory and pollution prevention purpose. The task of validation and management of real-time monitoring data can be handled through customized system and software in a better way and this has led to the concept of this project.

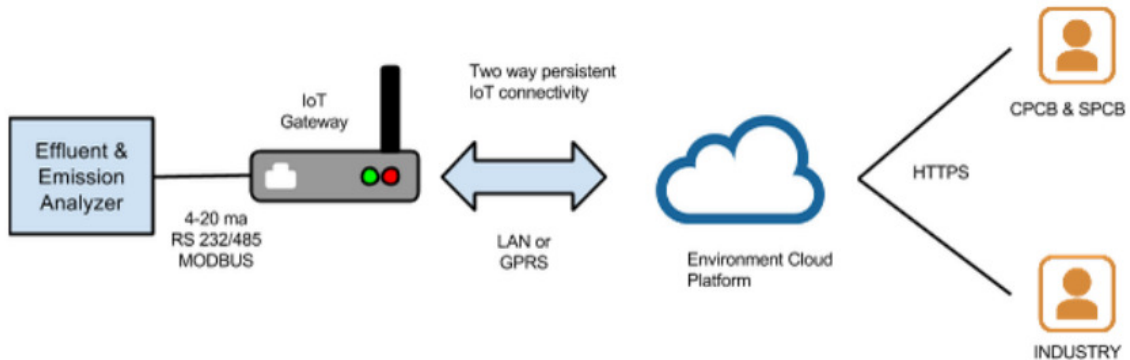
**Objective:**

1. To establish a real time online monitoring system for monitoring the Effluent, Emission and Ambient air parameters from various industries located across the Madhya Pradesh.
2. To acquire accurate and high integrity real time measurements of the effluent, emission and ambient air parameters directly from the analyzers installed at the industry site without any intermediate conversions, logics or changes.
3. To detect exceedance of monitored parameters for the prescribed standards and provide real time alerts on the same.
4. To provide a multi-client open architecture platform that supports any analyzer (make and model) and on a single integrated Central database system which supports all type of communication between the industry and the regulator.
5. To provide a unified web based access controlled platform accessible from Madhya Pradesh Pollution Control Board Headquarters, all Regional offices and all Industry sites in the state based on the given authorization level.

**4. Scope of Work**

The Central Software should have a web application to view, generate default reports, analyze the collected data, generate custom reports and corroborate with industry for various exceedance and failures. The web application should be supported on major browsers like FireFox, Chrome, Safari, Internet Explorer 11. The user interface should be responsive and support rendering on tablets, smart phones and desktops.

## 4.1 Environment Data Transfer



## 4.2 Capabilities:

### 4.2.1. General

1. The most fundamental requirement is to have a universal format of connectivity that can accept real time data from any analyzers (make or model) installed in the industry. Industry can choose any analyzer make and model that is approved internationally or by the Central Pollution Control Board for monitoring the effluent, ambient air and emission parameters, thus, the existing investment in the equipment by the industry can be utilized.
2. The system should be a highly scalable client server application where the client software resides in the industry site and the central server software resides at the central location at MPPCB or NIC.
3. Provide a highly scalable system that can connect more than 1000 industries simultaneously in real time with a non-proprietary highly scalable backend database suitable for storing Time Series Data.
4. The system should support multiple client software that are found suitable to the requirement and approved by the M.P. Pollution Control Board, which can send data to the central server.
5. The central server software should expose authenticated Representational State Transfer (REST) based Application Programming Interface (API) for client software to transmit the data.
6. The client software should NOT be restricted to the requirement of static IP and should be able to connect to the server based on the exposed API.

7. During collection and transmission, the platform should utilize digital encrypted communication to ensure authentic data is received and data origination location (GPS coordinates) and source signature are also verified by the software.
8. The client software should be able to transmit the data to server using minimal bandwidth using existing site leased line/broadband LAN/GPRS/GSM connectivity or by using an external dongle as an alternative for establishing online connectivity.
9. The software should provide reporting capabilities to display trend graphs, configurable alerts, tabular data, charts, wind-rose chart and data validation interface.
10. The software should provide two-way communication and have the ability to capture and display internal registers / protocols of the field instruments.
11. The software should be capable of providing remote calibration of field instruments.
12. The software application should have inbuilt ability to view the IP Camera without any kind of browser plug-in, add-ons or Desktop software.
13. The software should be able to control the IP camera and use the PAN, TILT and ZOOM functionality without any kind of plug-ins.
14. The software should provide the ability to annotate the validated data with the industry comments and data quality codes. The annotations should be visible while viewing the data in the charts.
15. The software should also provide ability to develop custom made on-demand reports with capabilities to export the data into PDF, CSV and Excel formats. The reports developed should be printable on any of the standard printers.
16. Entire Source code of the software should be provided to the M.P. Pollution Control Board and the board should have the ability to review any specific module to validate the business logic and the data handling process. Strictly "NO" proprietary software or code is allowed. The application source code including the real time data captured, processed and stored will remain the property of MPPCB at all times.
17. The ability to generate the encryption keys for the Client side software should be provided to the M.P. Pollution Control Board, so that the board can provide authorized keys to the individual sites for secured data transmission. There should not be any financial implication to MPPCB for generation of such keys and it should be a software feature.

18. Publishing of data should be at the end of the regulator and should have necessary components inbuilt in the system to publish valid data only.
19. Should have provision to share the database with the CPCB server database as and when required.
20. The platform should support advanced Analytics on air modeling and be able to generate the following reports by default on the platform
  - A. Percentile Rose
  - B. Summary Profile
  - C. Quartile Analysis Report
21. The software should have data manipulation detection facility in addition to provision for creation of log – files of all the events.

#### **4.2.2 Client Side Software Requirements**

##### **Data Collection and Transmission Module**

1. The data collection and transmission module should directly connect to the analyzer installed at the industry end and fetch the data directly from the analyzer without any intermediary software or conversions and without any PC or server. The software should have no editing provision for altering/correcting the data at the industry side.
2. No data shall be accepted as an output from OPC Server or DCS or any other intermediate software at Industry side.
3. The data collection and transmission module should encrypt the data with unique client specific encryption key to ensure authentic data transfer from the industry to the central server. Only encrypted and authenticated data shall be received by the Central Server Module.
4. During internet connectivity failure or a communication issue with the central server, the data collection and transmission module should store the encrypted data locally and retransmit when the transmission is restored. Any such delayed transmission should be identifiable at the regulator side using data quality codes.
5. The data collection and transmission module should wait for acknowledgement from the server and should retransmit the data if no acknowledgement is received within the timeout period.
6. The data collection and transmission module should support remote analyzer configuration. The data collection and transmission module should accept remote

analyzer configuration commands and update the analyzer configurations with the set value.

7. Each measurement should be associated with the data quality code inferred while data collection and the data quality code should be transmitted along with the data. The data quality code should indicate analyzer failures, analyzer communication failures etc.
8. Software should support reading analyzer configuration and report the configuration changes to the central server. Any configuration changes done at the site should have audit trail and reported to the regulator for approval in the form of workflow.
9. The data collection and transmission module should accept commands for calibration (auto and manual) and able to perform calibration of the analyzer locally.
10. The data collection and transmission module should be able to collect the data directly from the analyzer with a minimum scan interval of 10 seconds.
11. Data collection and transmission shall be minimum 15 min or other mean average period selectable by user.
12. The data collection and acquisition software should be able to collect and encrypt the data locally on the industry site.
13. The data collection and transmission module should communicate the status periodically to the central server even when no analyzer is connected or when analyzer is faulty with appropriate data quality code.
14. The data collection and transmission module should auto-restart on failure or machine reboots.
15. The data collection and transmission module should be able to transmit the data over Broadband/LAN/Wi-Fi/GPRS/GSM etc.
16. The data collection and transmission module should support any analyzer, make and model based on the configuration and protocol specific extensions (analyzer suppliers should be open enough to share their analyzer output protocol for easy data transmission digitally).
17. The data collection and transmission module should be customizable to support any specific protocol required.
18. Data collection and transmission module should be able to support protocol extension hooks and API.



19. The Central Server should publish an open Application Programming Interface (API) to support different client side software. Any vendor supplying the data collection and transmission module should comply with the API. The client side software requirement shall be demonstrated at MPPCB. Data transmitted only from such demonstrated and proven client software will be accepted by the Central Server Module.
20. There should not be any financial burden to the client industries for this service.

#### **4.2.3 Central Server Software Requirements**

##### **Regulator side software:**

1. The Central Server Module should provide a backend processing services for transmitted data and a highly scalable backend database capable of storing time-series data acquired from the industry site.
2. The database should be able to support data storage and query for 10 years of data collected from all the industry sites with minimum of 1-minute interval.
3. The database should be scalable to support 1000+ concurrent connections and should be able to store and process more than 100 Terabyte of data.
4. The Central Server Module should have pre-configured threshold limits for the various monitored parameters based on the industry type as per the Central Pollution Control Board directives for each of the industry types.
5. The Central Server Module should support remote configuration of the industry site parameters from the MPPCB Head Quarters.
6. The Central Server Module should generate automated alarms and alerts based on parameter exceedance, data connectivity failure, analyzer failures, etc.
7. The Central Server Module should be able to identify delayed data published from the industry site due to network connectivity failures and mark those data separately from the live connected data.
8. The Central Server Module should be able to send pre-configured template based SMS and Emails for alerts and alarms generated based on the configured rules. This feature should be a built-in capability of the Central Server Module and not external application software.
9. The Central Server Module should have facility to transfer data to other server at regulator side at periodic interval for data backup and recovery requirements.
10. The Central Server Module should be able to generate report on alarms/events and exceedance with industry wise consolidation and period wise say weekly, monthly, annually etc.
11. The Central Server Module should provide automatic notification to the industry site and regulator inbox for all new notifications and action items like fixing communication issues, analyzer problems etc.
12. The Central Server Module should be able to support data encryption and security at the server side. The data received from the site should be decrypted and data authenticity ensured.
13. The Central Server Module should be able to collect data from the industry sites even when one of the central server is down and thus provide redundancy.

14. The Central Server Module should be able to identify which client software and version send for specific data and capture the IP address from which the data was sent for audit purposes.
15. The central server should be available 24x7 for 365 days for data collection. The system should provide automated redundancy so that industry site should be able to send the data continuously.
16. The Central Server Module should support data export in ISO -7168 format.
17. The Vendor should provide the central server software and workstation software. The central server software will do all the data processing and storage management. The workstation software installed should provide the regulator with functionality (Web Interface Module) without the need to directly login to the central server. Minimum of one Workstation software licensed should be provided by the vendor.
18. The software on Regulator side should be *Highly scalable database capable of storing time-series data like Cassandra, Hbase, Graphite, Open TSDB, Influxdb, IBM Informixwith Timeseries blade or similar.*

#### **4.2.4 Web-Server Interface Requirement : (Apache httpd, nginx)**

##### **a). General Requirements:**

1. To view, generate default report, analyze the collected data and corroborate with industry for various exceedance and failures.
2. The Web Server Interface Module should provide a User Interface presented in the browser should be very user friendly and intuitive following the best practices in web based user interface design.
3. The User Interface should be supported on major browsers like FireFox, Chrome, Safari etc. The user interface should support rendering on a Tablet, smart phones which supports these browsers.

##### **b) Configuration Management**

1. The Web Server Interface module should provide the user interface to configure the site, monitoring station, analyzers, calibrator and measured parameters. The detail screens for site configuration, monitoring station configuration, analyzer configuration and parameter configuration should be available.
2. The Web Server Interface module should have list of supported analyzers make and model for the major analyzers used in the Industry.
3. The Web Server Interface module should support grouping of industry sites, industries across geographic dimensions like district, city, etc. and other custom attributes (like industry type) selected by the regulator.
4. The Web Server Interface module should allow configuration of analyzer parameters, channels etc. for a particular site.

##### **c) Alerts and Alarms**

1. The Web Server Interface module should provide an interface to view and list all alarms and alerts. There should be a filter to view only new alerts and alarms.
2. The Web Server Interface module should provide an interface to acknowledge the alarms and alerts to industry and regulator. Once acknowledged, the alarms and alerts should disappear from the list.

#### **d) Remote Calibration**

1. The Web Sever Interface module should support configuration of *remote* calibration of the analyzer
2. The Web Sever Interface module should have the ability to provide various manuals/online calibration sequences, schedules for remote calibration and reports.
3. The Web Server Interface module should support calendar view of all the automated calibration schedule and sequence.

#### **e) Security**

1. The Web Server Interface module should have facility for data viewable in non-editable format for Regional offices of the MPPCB for Industries under their jurisdiction.
2. Each industry should be able to view and generate default reports for the data generated for their industries based on the access provided.
3. The Web Server Interface module should support configurable user authentication levels to support different roles for Head office, Region offices and industry site access
4. The Web Server Interface module should support creating and managing new users and their access levels.

#### **f) Data Validation**

1. The Web Server Interface module should provide user interface for data validation and approval. The regulator should be able to select a particular time range and approve/reject the data with proper comments.
2. The Web Server Interface module should support manual and automated data validation and approval workflow to review various industry site data and approve by providing appropriate comments based on the data quality.
3. The Web Server Interface module should provide ability to annotate the data with the specific events/comments provided by the industry such as maintenance schedules, breakdown, analyzer fault etc.
4. Open API should support ISO 7168 Format.

#### **g) Corroboration and Workflow**

1. The software should support corroboration between the industry site and regulator by providing a built in workflow feature and an inbox feature. This feature should be a built-in functionality of the central server module and the web interface module and not additional software running separately to ensure that there is integration with the reporting module.
2. Whenever there is any exceedance or analyzer failure or analyzer connectivity failure, an action item should be generated in the industry site inbox. The industry site personnel should be able to update with the corrective actions and comments. These comments/reasons should show upon the graphs when the data for that particular period is viewed.

3. Industry site should be able to inform the regulator of different maintenance events (site maintenance, site breakdown, analyzer breakdown etc.) using workflow feature of the Web Interface Module.
4. The system should automatically generate events and inbox messages based on the exceedance thresholds and alerts configured.
5. The system should provide the history of communication between the industry site and the regulator for specific events/workflows.
6. Various events like communication failures, analyzer failures, exceedance etc. and corresponding reasons should be available for reporting. There should be standard reports for viewing industry level statistics for communication failures, analyzer failures, power failure, exceedances etc.

#### **h) Reports**

- a. The Web Server Interface module should support standard reports for each industry site based on the exceedance threshold, hourly average, and monthly average etc.
- b. The Web Server Interface module should have both default reports and also reports generatable by the end user as per requirements.
- c. The Web Server Interface module should be able to support different data quality code and report data based on representativeness and data quality. Statistical significance of data should be reportable in respect to data density.
- d. The Web Server Interface module should generate report on approved and validated data. There should also be a capability to see the raw data collected from industry site within the reports.
- e. The Web Server Interface module should be able to generate wind rose and pollution rose based on the wind data collected from the various sites.
- f. Grouping area wise Industries and selecting one meteorological station in that group should generate reports of pollution rose and wind rose details.
- g. The Web Server Interface module should have capability to compare, group sector wise industries, analyzers and generate report in desired form, i.e. text, numeric and graphical.
- h. The Web Server Interface module should support ability to export the reports data to csv, pdf and text file as and when required.
- i. The Web Server Interface module should have provisions to accommodate printers of different model and make.
- j. The Web Server Interface module should support ability to develop custom reports by the regulator based on the data analysis requirements. The report generated should be in both graphical and tabular form.
- k. The software should be able to select the data quality code, the data representativeness, the time window and the site specific parameters for generating reports.
- l. The Web Server Interface module should provide daily status of each industry site and provide metrics on data quality and representativeness.
- m. Report should be able to calculate differential data from two parameter reading and show the trend of differential data. This feature is required for temperature difference measurements and alerting.

- n. Should have feature to make calculations on raw data obtained from analyzer and generate alerts and reports.
- o. The web Server interface module should provide custom reporting capabilities to support regulator's present and future requirements.
- p. The reports should have the capability to show both raw data and approved/validated data.
- q. There should be a provision to create custom charts from the Web Interface Module. There should be a support to add new charts and dashboards as per the requirements.
- r. Should provide optional features such as to connect the data to the display board.

**i) Live Status**

1. The Web Server Interface module should support real time view of the data from all the industry sites for all the parameters configured for monitoring.
2. The Web Server Interface module should support geo-location of the industry using specific latitude - longitude or as per cartographic coordinates overlay on a map and present information of industry, parameters connected and present value either graphically or numerically display.
3. The software should be able to show the status of each of the sites in a geographic map and should show alerts and alarms based on system failures and parameter exceedance.

**4.2.5 Facilities to be provided by M.P. Pollution Control Board (MPPCB).**

- a. Physical space for setting up the Air Quality Monitoring Servers, UPS, and Workstations.
- b. Manpower to monitor and manage the Monitoring Center at MPPCB
- c. Dedicated broadband internet with minimum speed of 4 Mbps with 1: 1 Compression payload.
- d. Furniture, Fixtures, Electrical Wire, Telephone, LAN Network cabling at the space provided.
- e. The required hardware for the proposed solutions should be indicated by the bidder in the TQ Stage along with item wise specifications and the same shall be arranged by the MPPCB.

**5. Payment Terms, Penalties, Contract Period**

**Payment Schedule**

<b>Particular</b>	<b>% of Payment</b>
Supply, Commissioning of the Solution & Training to the Department Staff	75% of the Project Value
Go-Live & Successful User Acceptance	25% of the Project Value

**Penalty**

The penalty will be imposed as below:

1. @ 2% on Project Value for delay by 1 week in supply & installation of solution and increases @ of 0.25% of Project Value for every additional week delay.
2. During the O&M phase, the deployed solution shall be running with 99.5% efficiency & uptime. Any deviation shall be liable for penalty of Rs. 1,000/- per day.

### **Project Timelines:**

The identified bidder should supply the required solution within '45' days from the date of dispatch of Notification of Award /Letter of Intent.

### **Contract Agreement:**

The Contract Agreement is for a period of Three years and the contract agreement shall be signed by the User Department with the Successful Bidder upon submission of Performance Bank Guarantee by the bidder to the User Department.

## **6. Conditions of Bidding**

### *6.1 Completeness of Response*

- a. Service providers are advised to study all instructions, forms, requirements and other information in the RFP documents carefully. Submission of the bid shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.
- b. The response to this RFP should be full and complete in all respects. Failure to furnish all information required by the RFP documents or submission of a proposal not substantially responsive to this document will be at the Service provider's risk and may result in rejection of its Proposal.
- c. At any time prior to the last date for receipt of bids, MPPCB may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Service provider, modify the RFP document by a corrigendum.
- d. The Corrigendum (if any) & clarifications to the queries from all service providers will be on the portal [www.mppcb.nic.in](http://www.mppcb.nic.in).
- e. Any such corrigendum shall be deemed to be incorporated into this RFP.
- f. In order to provide prospective Service provider's reasonable time for taking the corrigendum into account, MPPCB may, at its discretion, extend the last date for the receipt of RFP Proposals.

### *6.2 Right to terminate the process*

- a. MPPCB may terminate the RFP process at any time and without assigning any reason. MPPCB makes no commitments, express or implied, that this process will result in a business transaction with anyone.
- b. This RFP does not constitute an offer by MPPCB. The service provider's participation in this process may result in short listing of the service provider.

### *6.3 Preparation of Proposals*

- a. The Technical Proposals shall contain an Executive summary giving a brief overview of the manner in which the service provider proposes to achieve the outcomes and the assessment of resources required.
- b. The service provider is expected to submit the Technical Proposal as per the format given in Appendix - I. Submission of the wrong Technical Proposal will result in the proposal being deemed non-responsive. The Technical Proposal shall not include any financial information.
- c. The Financial Proposal shall be prepared as per the format given in Appendix - II.

#### *6.7 Submission of Responses*

- a. The service provider shall submit bid related information in 3 envelopes as stated earlier.
- b. The proposal shall contain no interlineations or overwriting, except as necessary to correct the errors made by the service providers themselves. The same authorized representative who has signed the proposal shall initial the corrections.
- c. An authorized representative of the service providers shall initial all the pages of the original Technical and Financial Proposals. The authorization shall be in the form of written power of attorney accompanying the proposal and supported by evidence that the representative has been duly authorized to sign.
- d. The service provider shall submit one softcopy of the Technical Proposal in the form of a non-rewritable CD. The CD media must be duly signed using a permanent pen marker and should bear the name of the service provider.
- e. Service provider must ensure that the information furnished in the CD is identical to that submitted on paper. In case of any discrepancy, the information furnished in hard copy will prevail.

#### *6.8 Bid Submission Format*

- a. The entire proposal shall be strictly as per the format specified in this RFP and any deviation may result in the rejection of the RFP proposal.
- b. The documents to be submitted for *Technical Proposal* are:
  - i. General Information of the Service provider – Form TQ#1*
  - ii. Financial Turnover – Form TQ#2*
  - iii. Past experience – Form TQ#3*
  - iv. Manpower available with relevant Experience – Form TQ#4*
  - v. Self Declaration Certificate – Form TQ#5*
  - vi. Local Presence – Form TQ#6*
  - vii. Understanding of the Project & Implementation methodology – Form TQ#7*
  - viii. Hardware Proposed with Specifications - Form TQ#8*
  - ix. Tender document fee*
  - x. Power of Attorney*
  - xi. Technical capability of the supplier by providing installation and commissioning certificates as well as performance certificates as per the projects being quoted under Past experience in Form TQ#3*
  - xii. Additional documents as listed in the RFP or otherwise.*
- c. The documents to be submitted for *Commercial Proposal* are:

- i. Commercial Proposal submission - *Form C#1*
- ii. Financial Proposal Cost Break-up - *Form C#2*

**6.10 Short listing Criteria**

- a. MPPCB will shortlist service providers who meet the Technical Qualification criteria mentioned in this Invitation to RFP.
- b. Any attempt by a Service provider to influence the bid evaluation Process may result in the rejection of its RFP Proposal.
- c. MPPCB will constitute a Bid Evaluation Committee to short-list the service providers according the Technical Qualification criteria given in this document.

**6.11 Evaluation Process**

- a. The evaluation will be in 2 stages i.e. Technical Qualification (TQ) & Commercial proposal submitted by the service providers.
- b. The service providers will be shortlisted based on the Technical Qualification criteria as given in RFP document.
- c. The service providers who qualify in TQ evaluation will be eligible for Financial Bid.
- d. The service providers scoring >75 marks in Technical Evaluation will be considered for Financial Evaluation.
- e. The Financial Proposals of the service providers who have qualified in the Technical Evaluation will be evaluated.
- g. The overall method of evaluation is Quality cum Cost Based Selection (QCBS (70:30)) only. The Technical Evaluation Score will be given a weightage of 70% and the Financial Evaluation Score, a weightage of 30%, to arrive at the overall score. The bidder who scores the highest overall score will be considered for selection.

**Note:** MPPCB may ask service providers at this stage to give Technical Presentation on their Technical solution. Venue, Date & time will be communicated to the service providers at a later date.

**Technical Evaluation Criteria**

Technical Committee will evaluate the Technical Proposals of the service providers as per the following criteria:

<b>Sr. No.</b>	<b>Technical Parameter - Checklist</b>	<b>Max score</b>
<b>I.</b>	<b>Past Experience &amp; Turnover</b>	<b>25</b>
1.	The Bidder shall have similar experience in Supply & maintenance of Central Server Software for Real Time Data Acquisition and Handling System in at least '1' Central/State Government Depts/ PSUs during the last 2 years. The overall cost for such a project should be 10 lakhs or above.  >1 Projects (20 marks) 1 Projects (10 marks)	20
2.	Organization Strengths (Turnover, profitability for the last 3 years)	5



	The Firm having highest Turnover will get max score & the other firms obtaining the turnover within the range of maximum to minimum turnover will be assigned scores on prorated basis. The minimum score for the turnover reported is 3 points.	
<b>II.</b>	<b>Engagement Approach (bidder to elaborate)</b>	<b>75</b>
1.	Proposed Solution Design: (Max 10 marks) <ul style="list-style-type: none"> <li>••Data Collection and Transmission Module</li> <li>••Security</li> <li>••Data Validation</li> <li>••Workflow</li> <li>••Reports</li> </ul> <p>Data Handling System Methodology (Max. 10 marks)</p> <p>Project Plan covering specific activities of Development, Testing, Training plan, Rollout and Deployment (Max. 5 marks)</p>	25
2.	Software Feature and demonstrate Live Camera integration capability without Plug-in with PTZ Controls	10
3.	Live Demonstration of the capabilities of the Central Server Software demonstrating the following features. <ul style="list-style-type: none"> <li>••Acceptance of multi-client industry side software</li> <li>••Remote calibration of the Analyzer</li> <li>••Real Time Alerts and SMS</li> <li>••Demonstration of Delayed Data Handling</li> <li>••Demonstration of Analyzer Diagnostics Capture in Real Time</li> <li>••Demonstration of Pre-build Reports and Custom Reports</li> <li>••Demonstration of Security Features for different logins</li> <li>••Demonstration of the Integrated Workflow for Industry Communication</li> </ul>	25
4.	Proposed Team Structure with Skill & Experience of the Team during & post implementation. <p>Details of Team and size focusing on R&amp;D and the progress during the last 1 year by the R&amp;D Team</p> <ul style="list-style-type: none"> <li>••Team - Qualifications (25%)</li> <li>••Similar Relevant Experience as below :(75%)</li> </ul> <p>* Team Members Experience in communication with analyzers and Protocols for integrating any analyzers (make and model)</p> <p>* Experience in Big Data applications and Large Scale Data Handlings</p>	5
5.	Provide advanced Analytics using Integration of tools on the platform as a single application on all the data available in the platform.	5
6.	Existing capability for Operations & Maintenance along with helpdesk setup and escalation mechanism	5
	<b>Total (I +II)</b>	<b>100</b>

The bidders should be ready to make presentation to the bid evaluation committee on the offered solution during the technical bid evaluation. Bidders are required to focus on the parameters in the technical evaluation criteria.

### *6.12 General Instructions*

- While every effort has been made to provide comprehensive and accurate background information and requirements and specifications, Service Providers (SPs) must form their own conclusions about the solution needed to meet the requirements.
- All information supplied by SPs may be treated as contractual binding on the SPs, on successful award of the assignment by MPPCB on the basis of this RFP.

### *6.13 General Eligibility*

- SPs marked / considered by MPPCB for non-satisfactory past performance, corrupt, fraudulent or any other unethical business practices shall not be eligible.
- Breach of general or specific instructions for bidding, general and special conditions of contract with MPPCB or any of its user organizations may make a firm ineligible to participate in bidding process.
- The selected single SP shall not outsource the work to any other associate / sister concern / franchisee / 3<sup>rd</sup> Party SP under any circumstances. Any violation may invite imposition of sanctions, which shall include forfeiture of the security deposit, revocation of bank guarantees (including the ones submitted for other work orders) and termination of the Contract for default.

### *6.14 Earnest Money Deposit and its amount (EMD)*

- SPs shall submit, along with their bids, EMD of INR 20,000 (Rupees Twenty thousand only) in the form of Demand Draft drawn from any scheduled / nationalized bank in favour of **Member Secretary, MPPCB** payable at Bhopal, valid for three months from date of bidding.
  - No interest will be payable to the SP on the amount of the EMD.
  - Unsuccessful SP's EMD will be discharged/ returned as promptly as possible, but not later than 45 days after the award of the contract to the selected implementation agency.
  - The EMD may be forfeited:
    - If a SP withdraws his bid or increases his quoted prices during the period of bid validity or its extended period, if any; or
    - In the case of a successful SP if the SP fails to sign the contract for any reason not attributable to MPPCB or to furnish Performance Bank Guarantee within specified time in accordance with the format given in the RFP.
- Bids Submitted with EMD not Valid to the specified period will also be rejected

### *6.15 Authentication of Bid*

All the copies submitted in the bid shall be typed or written in indelible ink. The original and all copies (hard copies) shall be signed by the SP's duly authorized person to bind the SP to the contract. A letter of authorization shall be supported by a written power

of attorney accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be signed and stamped by the person or persons signing the bid.

#### *6.16 Late Bids*

Any bid received by MPPCB after the bid submission deadline prescribed in the Bid Data Sheet shall be rejected and returned unopened to the SP after the award of work.

#### *6.17 Withdrawal of the Bids*

The SP may withdraw their bids after submission, provided MPPCB receives information one-day prior to the deadline date prescribed for bid submission receives a written consent. No bid can be withdrawn after expiry of time allowed for withdrawal of bid till bid validity period. Withdrawal of bid during this prohibited period will result in forfeiture of bid security (EMD).

#### *6.18 Disqualification of bids*

MPPCB may at its sole discretion and at any time during the processing of tender, disqualify any SP from the tendering process if the SP has:

- i. Submitted the tender after the prescribed date and time of submission of bids.
- ii. Made misleading or false representations in the forms, statements and attachments submitted in proof of the eligibility requirements.
- iii. If found to have a record of poor performance such as abandoning works, not properly completing the contract, inordinately delaying completion, being involved in litigation or financial failures, etc.
- iv. Submitted bid document which is not accompanied by required documentation and Earnest Money Deposit (EMD) or non-responsiveness.
- v. Failed to provide clarifications related thereto, when sought.
- vi. If the technical offer contains any price information the offer will be summarily rejected.
- vii. Conditional bids will be summarily rejected.
- viii. Applicants who are found to canvass, influence or attempt to influence in any manner the qualification or selection process, including without limitation, by offering bribes or other illegal gratification, shall be disqualified from the process at any stage.
- ix. If found to submit more than one bid.

#### *6.19 Bid Submission Format*

The entire proposal shall be strictly as per the format specified in this Request for Proposal. Bids with deviation from this format shall be rejected.

#### *6.20 Opening of Bids*

Bids will be opened in the presence of SP's representatives who intend to attend. The SP representatives who are present shall sign a register as part of evidence. The SPs names, bid modifications or withdrawals, discounts, and the presence or absence of requisite bid security and such other details of MPPCB officer at his/her discretion, may consider appropriate, will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened. No Commercial bid shall be rejected at the time of Technical Bid Opening.

### *6.21 Clarification of Bids during Evaluation*

During evaluation of the bids, MPPCB may, at its discretion, ask the SP for clarification of its bid content and seek information.

### **Preliminary Examination of the Bids**

- Preliminary scrutiny will be made to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and stamped, and whether the bids are generally in order.

- Arithmetical errors will be rectified on the following basis :

If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the SP does not accept the correction of the errors, its bid will be rejected and its bid security may be forfeited. If there is a discrepancy between words and figures, the amount in words will prevail.

- MPPCB may waive any minor informality; nonconformity or irregularity in a bid that does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any SP.

- Prior to the detailed evaluation, MPPCB will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the bidding documents without material deviations.

- If a bid is not substantially responsive, it will be rejected by MPPCB.

### *6.22 Contract Finalization and Award*

If service agreement is not finalized with the SP ranked first, MPPCB may proceed to the next ranked SP, and so on until a contract is awarded.

### *6.23 Award Criteria*

MPPCB will award the contract to the SP whose bid has been determined to be substantially responsive and has been determined as the best value bid provided further that the SP has demonstrated that it is qualified to perform services required for the project satisfactorily. The notification of the award shall constitute signing of the agreement. The signing of agreement will amount to award of contract and SP will initiate the execution of the work as specified in the agreement. At the same time as MPPCB notifies the successful SP that its bid has been accepted, MPPCB will send the SPs the proforma for contract, incorporating all agreements between the parties. Within 2 week's time, the successful SP shall sign and date the contract and return it to MPPCB.

### *6.24 MPPCB's Rights to Accept / Reject any or all Proposals*

MPPCB reserves the right to accept or reject any proposal, and to annul the bidding process and reject all bids at any time prior to award of contract, without thereby incurring any

liability to the affected SP or SPs or any obligation to inform the affected SP or SPs of the grounds for MPPCB's action.

#### *6.25 Bid Prices*

The SP shall express their bid price for the information system using the price schedule form provided in the bidding documents. All costs and charges related to the bid shall be expressed in Indian Rupees. The SP shall give the total composite price inclusive of all Levies & Taxes i.e. Sales Tax / VAT / Service Tax & Excise, packing, forwarding, freight and insurance etc. but excluding Octroi / Entry Tax which will be paid extra as per actual, wherever applicable. Prices of incidental services should also be quoted. Prices indicated in the Price Schedule shall be entered in the following manner:

- DISCOUNT, if any, offered by the SPs shall not be considered unless specifically indicated in the price schedule. SPs desiring to offer discount shall therefore modify their offers suitably while quoting and shall quote clearly net price taking all such factors like Discount into account.
- The price approved by MPPCB for procurement will be inclusive of Levies and Taxes, packing, forwarding, freight and insurance.

#### *6.26 Bid Security*

The Bid Security shall, be in the form of a Demand Draft from a Scheduled bank located in India and having at least one branch in Bhopal in the form given in bid document. The bid security of the successful SP will be returned after signing the Agreement and furnishing the required Performance Bank Guarantee.

#### *6.27 Bid Opening and Evaluation*

##### **Bid Evaluation Committee**

The bid evaluation committee constituted by the MPPCB shall evaluate the tenders. The decision of the bid evaluation committee in the evaluation of the Technical and Commercial bids shall be final. No correspondence will be entertained outside the process of negotiation / discussion with the committee.

##### **Overall Evaluation**

- Bid evaluation committee will evaluate and compare the bids determined to be responsive. It is bid evaluation committee's intent to select the proposal that is most responsive to the project needs and each proposal will be evaluated using the criteria and process outlined.
- Technical bids shall be examined by the bid evaluation committee with respect to compliance, completeness and suitability of the proposal to the project and only the bids which are in compliance to the requirements mentioned in the RFP shall be considered as technically qualified.
- Total bid evaluation: The commercial bids of only those SPs, qualified in the technical evaluation, shall be opened.
- The evaluation shall be strictly based on the information and supporting documents provided by the SPs.

➤ The evaluation Committee shall shortlist such SPs who fulfill all the eligibility criteria and comply with the requirements for issue of Request for Proposal (RFP).

### **Commercial Bid Evaluation**

- Commercial Bids of only those SPs will be opened who are found Technically qualified.
- Final choice of firm for the project shall be made on the basis of conformity to technical qualification, and only **L-1 bid** shall be considered.

#### *6.28 Adjudicator*

The Chairman, MPPCB will be the Adjudicator for contract disputes. The Client and the SP will share the service charges @Rs.10, 000/- per day as daily fee for the Adjudicator.

#### *6.29 Confidentiality*

Information relating to evaluation of proposals and recommendations concerning awards shall not be disclosed to the bidders who submitted the proposals or to other persons not officially concerned with the process, until the award of contract is notified to the successful firm.

#### *6.30 Assumptions and Exclusions:*

The SP should state clearly the assumptions and exclusions based on which he/she is bidding for the contract.

## 7. General Terms and Conditions (GCC)

### *7.1. Contract and Interpretation*

In this Contract, the following terms shall be interpreted as indicated below and the solution provider must bind all the definitions and prepare financial quotations.

- Applicable Law means the Contract shall be interpreted in accordance with the laws of the Republic of India.
- Service Provider (SP)/Bidder means any firm offering the solution(s), service(s) and/ or materials required in the tender call. The word SP when used in the pre-award period shall be synonymous with SP and when used after award of the contract shall mean the successful SP with whom client signs the contract for rendering of goods and services.
- Client / User means the Madhya Pradesh Pollution Control Board.
- Contract: means the agreement entered into between the Client and the SP, as recorded in the Contract Form signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein.
- Contract Price means the price payable to the SP under the Contract for the full and proper performance of all its contractual obligations.
- SP's representative means the duly authorized representative of the SP, approved by the Clients and responsible for the SP's performance under the contract.
- Firm means a company, authority, co-operative or any other organization incorporated under appropriate statute as is applicable in the country.
- GCC means these General Conditions of Contract.
- Goods when used singly shall mean the hardware, firmware component of the goods and services.

- Goods and services mean the solution(s), service(s), materials or a combination of them in the context of the tender call and specifications.
- Incidental services means those services ancillary to the supply of the goods and services, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the SP covered under the contract.
- Performance security means on receipt of notification of award from the User, the successful SP shall furnish the security in accordance with the conditions of contract, in the performance security form provided in the bidding documents.
- Technical bid means that part of the offer which provides information to facilitate assessment, by MPPCB professional, technical and financial standing of the SP, conformity to specifications etc.
- Products mean all of the equipment, Hardware, Software, supplies and consumable items that the SP is required to install or provide under the contract, plus the associated documentation.
- Project sites means the place or places named in the schedule or requirements for delivery of goods and services.
- Specification means the functional and technical specifications or statement of work, as the case may be.
- Tender call or invitation for bids means the detailed notification seeking a set of solution(s), service(s), materials or any combination of them.
- Warranty Period is the period specified in the GCC or SCC, following Acceptance of the deliverables, during which the SP's warranty obligations in respect of the delivered materials are in force. During the warranty period the SP has to keep all the deliverables in safe custody.

## *7.2. Confidentiality*

The SP must maintain absolute confidentiality of the documents / maps / tools collected in any form including electronic media and any other data/information provided to him for the execution of the work. The SP must remove / destroy the entire data from his custody after completion of the warranty period. If at any stage it is found that the SP is using the data provided by the client any time during the contract execution or after completion of the contract for any other purposes, stringent legal action will be initiated as per applicable law of the land and the contract will be terminated without assigning any reasons.

### ***7.2.1. Use of documents and Information***

- The SP shall not, without prior written consent from MPPCB, disclose / share / use the bid document, contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the MPPCB in connection therewith, to any person other than a person employed by the SP in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

- All project related document (including this bid document) issued by MPPCB, other than the contract itself, shall remain the property of the MPPCB and shall be returned (in all copies) to MPPCB on completion of the SP's performance under the contract.

### *7.3. Indemnification*

- The SP shall, at its own expense, defend and indemnify the Client against all third-party claims of infringement of intellectual property rights, including patent, trademark, copyright, trade secret or industrial design rights arising from use of the products or any part thereof in the Client's country.
- The SP shall expeditiously extinguish any such claims and shall have full rights to defend itself there from. If the Client is required to pay compensation to a third party resulting from such infringement, the SP shall be fully responsible thereof and shall pay including all expenses and court and legal fees.
- The Client will give notice to the SP of any such claim and shall provide reasonable support to the SP in disposing of the claim.

### *7.4. Bid Security, Payments, Guarantees and Liabilities*

7.4.1 SP shall furnish, as part of its bid, a bid security for the amount specified in tender call notice. Format of EMD is enclosed in Annexure– B.

#### *7.4.2. Performance Bank Guarantee/Performance Security*

- The PBG shall be valid till the end of three months after the expiration of contract period and should be in the format prescribed in Annex. 'B'.
- In the event of the SP being unable to service the contract for whatever reason, department would evoke the PBG.
- Notwithstanding and without prejudice to any rights whatsoever of department under the contract in the matter, the proceeds of the PBG shall be payable to department as compensation for any loss resulting from the SP's failure to complete its obligations under the contract.
- Department shall also be entitled to make recoveries from the SP's bills, performance bank guarantee, or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence error, collusion, misconstruction or misstatement.

#### *7.4.3. Payment*

MPPCB will make payment for the entire services rendered as stated earlier in this document.

- For release of payments, the SP shall present pre-receipted due bills in duplicate for the payments along with all necessary supporting documents.

#### *7.4.4. Taxes and Duties*

The SP shall be entirely responsible for all taxes, duties, license fees and other such levies.



#### *7.4.5. Delay in the SP Performance*

The SP has to start as per the direction of the client at the designated locations and Services shall be made in accordance with the time schedule prescribed by the Client.

If at any time during performance of the Contract, the SP should encounter conditions impeding timely delivery or installation of the Systems or performance of the Services, the SP shall promptly notify the Client in writing the cause of delay. As soon as practicable after receipt of the SP notice, the Client shall evaluate the situation and may at its discretion extend the time for performance, with or without liquidated damages, and revised implementation plan will be prepared by both parties.

#### **7.4.6. Liquidated Damages**

If the SP fails to deliver Services or install any or all of the systems or if any of the services fail to gain Acceptance within the period specified in the Contract, the Client shall, without prejudice to its other remedies under the Contract, deduct from the performance security. Once the maximum is reached, the Client may consider termination of the Contract. If delivered or installed goods and/or Services cannot be put to use without the undelivered goods/Services, the damages will be calculated using the total price of the goods/services that can not be put to use.

#### *7.5. Termination for Default*

The Client, without prejudice to any other remedy for breach of Contract, may terminate this Contract in whole or in part by giving 30 days advance notice; if the SP fails to deliver any or all of goods / services or to install any or all of the Systems within the period(s) specified in the Contract or within any extension thereof granted by the Client or if he fails to perform any other significant obligations(s) under this contract. In the event the Client terminates the Contract in whole or in part, the Client may procure, upon such terms and in such manner as it seems appropriate, goods / services similar to those undelivered, and the SP shall be liable to the Client for any excess costs for those similar goods or Services. However, the SP shall continue performance of the contract to the extent not terminated.

#### *7.6. Force Majeure*

The SP shall not be liable for forfeiture of its performance security, liquidated damages, or termination for default if its delay in performance or to perform its obligations under the Contract is the result of an event of Force Majeure. For purposes of this Clause, "Force Majeure" means an event beyond the control of the and not involving SP's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Client in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

If a Force Majeure situation arises, the SP shall promptly notify the Client in writing of such condition and the cause thereof. Unless otherwise directed by the Client in writing, the SP shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

### *7.7. Resolution of Disputes*

1. **Disputes & its Jurisdiction:** The contract between the bidder and the MPPCB shall be governed by the Laws of India and under this contract shall be taken by the parties only in Bhopal to competent jurisdiction.
2. **Arbitration:** Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, instructions and terms & Conditions herein before mentioned and so as to the quality of the materials, as to any question, claim, right, matter or thing whatsoever, in any way arising out of or relating to the contract. Specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution of the same whether arising during the process of work or after the completion or abandonment thereof shall be referred to the sole arbitration of a person nominated by the Member Secretary, MPPCB, and if he is unable to act to the sole arbitration, some other person appointed by him willing to act as such arbitrator. The submission shall be deemed to be submission to arbitration under the meaning of the India arbitration & Conciliation, 1996 or any satisfactory modification or reenactment thereof for the time being in force conclusive and binding on all parties of the Contract. The venue of the arbitration will be Bhopal only.

### *7.8. Notices*

Any notice given by one party to the other pursuant to this contract shall be sent to the other party in writing or by email or facsimile and confirmed in writing to the other party's last known address. A notice shall be effective when delivered or tendered to other party whichever is earlier.

### *7.9. Inspections and Acceptance Test*

**Inspection:** The Client or its representatives shall have the right to inspect the commissioning works or any other work that would carried as part of contract execution for its quality to confirm their Contract specifications at point of development/delivery and/or at the final place(s) of delivery. The SP shall arrange necessary systems, people and equipment for such inspections. Should any inspected or tested or delivered services fail to conform to the Contract specifications or to pass the Acceptance tests as defined jointly in the Project Plan, the Client may reject the services, and the SP shall either replace the rejected delivered goods/ services or make alterations as necessary to meet the specifications free of cost to the Client.

### *7.10. Warranty & Maintenance*

7.10.1. The SP shall ensure that the portal platform to be customized during the project tenure.

7.10.2. The warranty shall remain valid for 12 months after the successful Implementation and acceptance by the department. The support period shall begin post completion of warranty period.

7.10.3. Service Provider will depute a Resident Engg. at MPPCB for minimum 6 months during the warranty period for the purpose of system administration & maintenance, trouble shooting, bug fixing and rectification or any other problems related to the portal. Post 6 months, the support will be required "on call basis".

7.10.4. If the SP fails to remedy the defect(s) within a reasonable period, as per response and resolution time defined and in any case takes more than 7 working days for resolution, the dept. may proceed to take such remedial action as may be necessary, at the Service Provider risk and expense and without prejudice to any other rights which the dept. may have against the SP under the contract.

#### *7.11. Service Provider's Obligations*

- The SP will abide by the job safety, insurance, customs and immigration measures prevalent and laws in force India, and will indemnify the Client from all demands or responsibilities arising from accidents or loss of life. The SP will pay all indemnities arising from such incidents and will not hold the Client responsible or obliged.
- The SP must provide a team of qualified technical persons for constant interaction with MPPCB officials during the entire duration of contract including installation, customization, testing, validation, trials, live running and maintenance.
- The SP is responsible for, and obligated to work closely with MPPCB, Designated Project development team. The Intellectual Property Rights of the developed System lies with MPPCB. The MPPCB development team will associate throughout the process of development. However, the submission of the project deliverables is the responsibility of the SP.
- Maintenance Calls: The maintenance calls during warranty and AMC period should be attended as per terms and conditions in AMC agreement, for which a register shall be maintained by MPPCB and no extra cost shall be paid beyond the contract price.

### **8. Special Conditions of the Contract (SCC)**

The following Special Conditions of Contract (SCC) shall supplement to the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions of the SCC shall prevail over those in the General Conditions of Contract.

#### ***Payments***

##### **••Contract Price & Payments:**

Prices are fixed and no adjustment will be made to the contract price. The payment will be done by department on submission of invoices supported by uptime certification form the authorized officer of the client department for the uptime and performance. The payment will be made on Milestone basis until go-live and the AMC will be paid for the completed quarters.

##### **••Release of Payment**

The user department will make the payment as per payment terms and conditions on submission of invoices with necessary certifications.

##### **••Insurance to men, machine and material**

The SP has to ensure against all risks on his men, machine and material and provide the evidence before commencing the work to the client.

##### **••Subcontract**

Subcontract is not allowed in any form. During the program, if found that SP has given subcontract, the contract will be cancelled and implementation cum performance security will be forfeited besides black listing the SP to participate in any future tender of MPPCB.

**••Infrastructure arrangement by SP**

The SP shall make his/her own arrangements for infrastructure which includes power, water, and transportation etc of personnel deployed by him, security at the site in addition to the men, machine and material.

***Time for Implementation of the project***

The successful SP shall complete and implement the project as per the agreed time frame starting from the date of award of contract. The implementation schedule will be finalized in consultation with the SP and shall be strictly adhered to.

**(Annex. 'A')**  
**(Tender No. MPPCB/Pur./06/2017-18)**  
**(Part-B)**  
**(Table of Sample Forms and Procedures)**

**Bid Letter Form**

From:  
(Registered name and address of the Service Provider)

**To:**

**The Member Secretary**  
**Madhya Pradesh Pollution Control Board**

**Paryavaran Parisar, E-5, Arera Colony,  
Bhopal - 462 016, India**

Sir,

Having examined the bidding documents and amendments there on, we the undersigned, offer to provide services / execute the works in conformity with the terms and conditions of the bidding document and amendments there on, for the following project in response to your tender call

“Identification of Service Provider for Supply, Commissioning & Maintenance of the Central Server Software for Online Continuous Real-Time Data Acquisition and Handling System for Emission, Ambient Air and Effluent Quality Monitoring in Madhya Pradesh – Linking of Industries with MPPCB Server”

We undertake to provide services / execute the above project or its part assigned to us in conformity with the said bidding documents for an estimated sum of Rs..... (Total bid amount in words and figures) which may vary in accordance with the schedule of prices attached herewith and coverage options made by the MPPCB.

If our bid is accepted, we undertake to Provide services / execute the work according to the time schedule specified in the bid document, obtain the performance guarantee of a bank in accordance with bid requirements for the due performance of the contract, and agree to abide by the bid conditions, including pre-bid meeting minutes, if any, which remain binding upon us during the entire bid validity period and bid may be accepted any time before the expiration of that period.

We understand that you are not bound to accept the lowest or any bid you may receive, nor to give any reason for the rejection of any bid and that you will not defray any expenses incurred by us in bidding.

**Place:**

**Service Provider’s signature**

**Date:**

**and seal**

**(Annex. 'B')**

**(Tender No. MPPCB/ Pur./06/2017-18)**

**(Part-B)**

**Sample Bid Security (EMD) form**

**(In Envelop 'A')**

**I. File. No: .....**

**II. Project Name: .....**

(To be issued by a bank scheduled in India as having at least one branch in Bhopal)

Whereas..... (herein after called “the Service provider”) has

submitted its bid dated .....(Date) for the execution of..... (Here in after called "the Bid") KNOW ALL MEN by these presents that WE ..... of ..... having our registered office at..... (Here in after called the "Bank") are bound unto the (hereinafter called "MPPCB") in the sum of ..... for which payment to be made to the MPPCB itself, its successors and assignees by these presents.

The conditions of this obligation are:

- a. If the service provider withdraws its bid during the period of bid validity or
- b. If the service provider , having been notified of the acceptance of its bid by the MPPCB during the period of bid validity:
  - 1) fails or refuse to execute the contract form if required; or
  - 2) fails or refuse to furnish the performance security, in accordance with the bid requirement;
- c. service provider submits fabricated documents

We undertake to pay the above amount upon receipt of its first written demand, without the MPPCB having to substantiate its demand, provided that in its demand they will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee of Rs. -----will remain in force up to..... and any demand in respect thereof should reach the Bank not later than the above date.

**Place:**  
**Date:**

**Signature of the Bank Official  
with seal**

**Sample Performance Security Form  
(Tender No. MPPCB/Pur./06/2017-18)  
(Part-B)**

**Ref. No.....**

(To be issued by a bank scheduled in India and having at least one branch in Bhopal)

To: ..... (Address of Member Secretary - MPPCB)

WHEREAS ..... (Name of Service provider) hereinafter called "the Service provider" has undertaken, in pursuance of Contract No..... dated ... (Date), to supply ..... called "the Contract".

AND WHEREAS it has been stipulated by you in the said Contract that the Service Provider shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract. WHEREAS we have agreed to give the Service provider a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Service provider, up to a total of Rs. ....( .....) and we undertake to pay you, upon your first written demand declaring the Service provider to be in default under the Contract and any sum or sums within the limit of Rs..... (Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the ..... day of ..... (Date)

**Place:**  
**Date:**

**Signature of Guarantors  
and seal**

**APPENDIX I**  
**(Tender No. MPPCB/Pur./06/2017-18)**  
**(Part-B)**  
**Technical Qualification (TQ) Proposal Submission Forms**

**Name of the Service Provider:**  
**Name of the Project:**

**Form TQ#1 - General Information**

Service provider must have registration under companies Act, 1956 & also registered with the Service Tax authorities and must have completed 3 years of existence as on Bid calling date.

Sl. No.	Description	Supporting documents with page nos.
---------	-------------	-------------------------------------

1.	Name of the Company / Firm	:	
2.	Date of Incorporation (Registration Number & Registering Authority) VAT No., CST No., PAN No.	:	Public Ltd Company / Private/ Partnership firm
3.	Legal Status of the Company in India & Nature of Business in India	:	
4.	Address of the Registered Office in India	:	
5.	Date of Commencement of Business	:	
6.	Name, e-mail Id, phone number, fax of the Contact Person	:	Phone: Fax: Email:
7.	Web-Site	:	
8.	EMD details	:	Amount: DD No. & Date Name of the Bank: Valid up to:
9.	Certification details as per TQ condition (valid documents to be submitted)	:	
10.	Proof of purchase of bid document	:	Receipt No: Date of purchase:

Note:

*Service provider should submit the copy of RoC & Copy of Service Tax Registration Certificate.*

**Place:**  
**Date:**

**Service Provider's signature  
and seal.**

### Form TQ#2 - Financial Turnover

**(Tender No. MPPCB/ Pur/06/2017-18)  
(Part-B)**

**Name of the Service Provider:**  
**Name of the Project:**

***(All values in Rs.)***

<b>Financial Information of Service Provider</b>					
#	<b>Financial Year</b>	<b>Turnover of the firm in</b>		<b>Total Profit after Tax</b>	<b>Net Worth of Company</b>
		<b>Total Turnover of the firm</b>	<b>IT based projects - Software Application Development and Maintenance, Real Time Data Analysis Tools</b>		
	(1)	(2)	(3)	(4)	(5)



1	FY 2014-2015				
2	FY 2015-2016				
3	FY 2016-2017				

**Note:**

- 1. Turnover in areas other than mentioned above shall not be considered for evaluation.*
- 2. Please attach audited Balance Sheets and IT return statements to confirming the figures mentioned in columns (2).*
- 3. Service provider should submit any of the Audited balance sheet / Profit & Loss statement /certificates from the Company duly audited by the Chartered Accountant and certified by the Company Secretary for all the above stated three financial years.*

**Place:**  
**Date:**

**Service Provider's signature  
and seal**

**Form TQ#3 - Project Experience  
(Tender No. MPPCB/ Pur/06/2017-18)  
(Part-B)**

**Name of the Service Provider:**

**Name of the Project:**

Description of Item	Supporting Document with page number
Name of the Client / Department	
Contact address & details of the department	
Value of the Project	
Date of Start of Work	
Date of Completion of Work	
Description of Work	
Service provider should submit any of the following: i. PO / Work order ii. Work completion certificates / Performance Certificate from client dept. on their letter head duly signed by the authorized signatory from the Client end. iii. Work satisfactory certificate from the client dept.	
<b>Enclosures submitted: Yes / No</b>	

**Note:**

1. Please submit supporting documents to support the claim and the certificates must be signed by Senior Executive/ Deputy GM of the organization clearly indicating his/her name, designation and contact details such as Telephone Number, Fax number, email-id etc.
2. Please attach certificate from the client for the successful completion & implementation of project.

**Place:**

**Date:**

**Service provider's signature  
with seal**

**(Tender No. MPPCB/ Pur/06/2017-18)  
(Part-B)**

**Form TQ#4 – Manpower**

**Name of the Service Provider :**

**Name of the Project:**

The Service provider should have employed at least 40 IT Professionals as on bid calling date. For this purpose, the term 'IT professional' means a person with a graduate degree or a higher qualification in Electronics / Computer / IT from a recognized university.

#	Employee Name	Designation	Skills & Professional Certification, if any	Area of expertise	Previous Exp.	Experience with Service provider

**Note:** *The service provider should submit Self-Certification by the authorized signatory.*

**Place:**  
**Date:**

**Service provider's Signature  
with Seal**

**(Tender No. MPPCB/ Pur/06/2017-18)**  
**(Part-B)**  
**Form TQ#5 - Declaration Regarding Clean Track Record**

**Name of the Service Provider:**

**Name of the Project:**

To:

**The Member Secretary**

**Madhya Pradesh Pollution Control Board**

ParyavaranParisar, E-5, Arera Colony,

Bhopal (M.P.) - 462 016, India

Sir,

I have carefully gone through the Terms & Conditions contained in the RFP Document [No.\_\_\_\_\_]. I hereby declare that my company has not been debarred / black listed as on Bid calling date by any Central or State Government / Quasi Government Departments or Organizations in India for non-satisfactory past performance, corrupt, fraudulent or any other unethical business practices. I further certify that I am competent officer in my company to make this declaration.

Yours faithfully,

**(Signature of the Service provider)**

**Printed Name**

**Designation**

**Seal**

**Date:**

**Business Address:**

**(Tender No. MPPCB/ Pur/06/2017-18)**  
**(Part-B)**  
**Form TQ#6 - Local Presence**

**Name of the Service provider :**  
**Name of the Project:**

The service provider should have a local office as on date of bidding.

If the service provider is not having Local presence, it has to open a local office within 15 days from issue of LoI and same must be communicated to the MPPCB for future correspondence.

**Note:** *An undertaking in this regard should be submitted on the company letter head.  
Service provider should submit self-certified office address.*

**Place:**  
**Date:**

**Service Provider's Signature  
with Seal**

**(Tender No. MPPCB/ Pur/06/2017-18)**  
**(Part-B)**  
**Form TQ#7**  
**Understanding of the Project & Implementation Methodology**

**Name of the Service Provider:**

**Name of the Project:**

A Brief technical proposal by the bidder on Project Scope, understanding of the project, technologies proposed covering the following and other issues related to project:

- i. Technology model.
- ii. Project Plan
- iii. Development model
- iv. Project execution plan
- v. Training Plan
- vi. Manpower deployment plan.
- vii. Implementation Methodology Plan.
- viii. Security Methodology and Plan.
- ix. Issues and Risks in the implementation of the Project.
- x. Others, if any.

**Note:** *Service providers should enclose the relevant supporting documents with page numbers.*

*All pages must be duly signed and stamped.*

**(Tender No. MPPCB/ Pur/06/2017-18)**  
**(Part-B)**  
**Form TQ# 8**  
**Hardware Required & Specifications**

**Name of the Service Provider:**

**Name of the Project:**

- i. Hardware, System software, network bandwidth and other tools required to implement the proposed solution
- ii. Technical Specifications for all hardware items

**Place:**

**Date:**

**Service Provider's Signature  
with Seal**

**(Tender No. MPPCB/ Pur/06/2017-18)  
(Part-B)**

**APPENDIX II**

**Commercial Proposal Submission Forms**



**(Tender No. MPPCB/ Pur/06/2017-18)  
(Part-B)**

**Form C#1 - Commercial Proposal Submission Form**

[Location, Date]

To: .....

Dear Sirs:

We, the undersigned, offer to provide the **commercial proposal** for [Insert title of Assignment] in accordance with your Request for Proposal dated [Insert Date], and the Technical Proposal.

Our attached Financial Proposal is for the sum of [***Insert amount(s) in words and figures***].

This amount is inclusive of the Domestic taxes such as ----- (***Indicate the amounts against each***).

We hereby confirm that the financial proposal is unconditional and we acknowledge that any condition attached to financial proposal shall result in rejection of our financial proposal.

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal.

We understand you are not bound to accept any Proposal you receive.

Yours sincerely,

**Place:**  
**Date:**

**Service Provider's Signature  
with Seal**

**(Tender No. MPPCB/ Pur/06/2017-18)**  
**(Part-B)**  
**Form – C#2**  
**Commercial Proposal**

**Name of the Service Provider:**  
**Name of the Project:**

<b>Sl. No.</b>	<b>Content Items</b>	<b>Cost (in Rs.)</b>	<b>Taxes (in Rs)</b>	<b>Total Cost including all taxes</b>
<b>1.</b>	Cost of Central Server Software (Data Acquisition and Handling Software)			
<b>2.</b>	Any Other Cost <i>(to be specified)</i>			

Total Price in words \_\_\_\_\_

*Note: The above price quote should include '3' year annual maintenance cost post Go-Live declaration and also includes customization as per the User Department requirement, training, defect fixing and any upgradations.*

**Place:**  
**Date:**

**Service Provider's Signature  
and seal**

## **Tender No. MPPCB/ Pur./06/2017-18**

### **PART-C**

#### **LABORATORY CHEMICALS, CERTIFIED REFERENCE MATERIAL (CRMs), GLASSWARE AND PLASTIC WARE ON RATE CONTRACT BASIS**

Sealed tenders are invited from reputed manufacturers only [approved by BIS/ISO for quality and precision] for entering into Rate Contract for supply of indigenous & imported chemicals [of brands E. merck, Rankem, Qualigens/Fisher Scientific, SD fine chem., CDH, Thomas Baker, Sigma, HiMedia- for culture media only], Certified Reference Materials [CRMs] [of brands, Merck, Sigma, Accu Standard, Thomas Baker and Glassware [of brands Borosil, Rievera, ASGI, SD Fine, Merck, JSGW, Sigma] and Plastic ware [of brands like HiMedia, Tarson, Abdos, Merck, RFCL]. The instructions are as follows:

#### **1. Preparation of Bids:**

- [a] Tenders must be sealed and super scribed with " Rate Contract for Chemicals & Glassware".
- [b] Bidders using downloaded tender forms must submit tender fee for an amount of Rs. 1500.00 (Rs. One Thousand Five Hundred only) by demand draft along with Envelop drawn of Member Secretary, M. P. Pollution Control Board, Bhopal. The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from MPPCB,s web site without tender fee will not be accepted.
- [c] Tenders must be addressed to Member Secretary, M. P. Pollution Control Board, E-5, Arera Colony, Paryawaran Parisar, Bhopal – 462016. The last date for submission of tender is 05.03.2018 by 12.00 noon and the same shall be opened on the same day at 2.00 PM in the presence of bidders, who wish to participate.
- [d] Opened / Unsealed Tenders in any form shall not be accepted.
- [e] Tenders / quotations must be sent in advance, so that it reaches the destination on or before the due date and time. Quotations received after the due date and time shall not be considered at all. The Board shall not be held responsible for any postal delay, if any.
- [f] Conditional and ambiguous and late / delayed tenders shall be rejected summarily.
- [g] Incomplete tenders in any form shall be treated as non- responsive and non acceptable.

#### **2. Scope of Contract:**

- [a] The supplier will have to maintain sufficient stock of the standard quality of all items to avoid inconvenience to the Board.
- [b] In case of failure or refusal to supply, the contract is liable to be cancelled at the risk and cost of supplier. Any extra cost involved in arranging supply from alternative source will be recovered from rate contract holder.
- [c] All chemicals should be of Analytical Reagent grade (AR Grade) or above and Glassware should be of Borosilicate Glass - Class "A" with certificate. The stores so supplied will have to be of high quality and grade and in the event of substandard / inferior quality; the supplier is liable to be blacklisted.
- [d] All the bids will be opened as per the date and time specified in the tender document. If desire, bidder's representative may attend the same.

### **[3] Period of Contract:**

The Rate Contract [RC] shall be for a minimum period of one year from the date of award of contract unless cancelled by the Board before the expiry of the period at its discretion. However, the contract may be extended beyond one year, if so agreed to, by both the parties. The rates shall remain valid for a period of minimum one year and there will be no change in price structure during the currency of the contract except, if the statutory levies are otherwise made applicable by the Govt. through notification / regulations. Enlistment can be cancelled at any time if the firm found as a habitual defaulter or supplying sub-standard material or for any reason or non – compliance of the terms and condition of the RC. It may be noted that price / rate should not be higher than the market price at the point of time of supply and if such documentary evidence /s would be made available, only market price would be payable to the supplier. The Board has the option to renegotiate the price with the supplier / rate contract holder at any time within the period of contract & if there is strong reasons & necessary, negotiation may be possible before entering in to contract.

### **[4] Board's Obligations:**

- **Opening of tenders:** The tenders will be opened by the committee of Board. Bidder / their representative may attend bid opening as per the mentioned / intimated schedule.
- Our Board is not entitled to issue either form "C" or "D" to avail concessional Sales Tax. Hence, the exact percentage of total GST / VAT is to be mentioned by the bidder.

### **[5] Liabilities of the Bidders:**

- [i] Material should be door delivered at various laboratories located in Madhya Pradesh.
- [ii] Delivery must be made immediately preferably within 2-3 week after placement of order either directly or through their dealer network unless otherwise specified.

- [iii] If the supplier fails to deliver the stores within the allotted delivery period as specified above, the purchaser may procure goods or service similar to those undelivered upon such terms and in such manner as it deems appropriate from any other firm / alternative source and the supplier will be liable to the purchaser for any excess cost.
- [iv] Part supply is normally not acceptable. But may be allowed on genuine cases, on written request only and permission of user.
- [v] Manufacturer's Price List / catalogue / Brochure / pamphlet etc must be sent along with the offer, failing which, the offer will not be considered. If your firm is selected for entering rate contract, copies of same price list are to be sent one each to our Central laboratory, Bhopal and other Regional Laboratories situated at Indore, Ujjain, Gwalior, Rewa, Jabalpur, Satna, Katni, Sagar, Vijaypur [Guna], Shahdol, Chhindwara, Dewas and Singrauli.
- [vi] Soft copies of price of the products can also be submitted in the form of CDs / any non- volatile portable form.
- [vii] Offered basic price must not be higher than price displayed by manufacturer on their website / price list / MRP on cover / genuine & authentic documentary evidence. Price list must be stamped and signed with date by the bidders.
- [viii] Discount: Please quote maximum discount on your price list as applicable to Government Research institutes. Discount must be indicated in words as well as in figures.
- [ix] For any rate contract items / Quantities / frequencies demand etc., if manufacturer has any discount offer / free gift scheme, the same shall have to be passed on to Board, without any additional cost.
- [x] Mere submission of application / proposal does not imply acceptance of the same at this end and the firms will be enlisted only after meeting the laid down qualifying parameters for which our decision will be final.
- [xi] Client list along with the previous purchase order copies of similar item [s] supplied to any Central /State Pollution Control Boards / any Govt. organization including details of price & all charges must be attached.
- [xii] Mode of Dispatch: Delivery must be up to FOR destination at their own risk / cost i.e free delivery at our laboratories located in Madhya Pradesh.
- [xiii] Delivery period: Delivery must be made immediately i.e two –three weeks after placement of order either directly or through their dealer network unless otherwise specified. In case of Ex-stock, the rates of transport, F&F, Insurance etc. must be included in your price.

[xiv] Insurance: In the case of FOR destination, insurance should also be covered by supplier. The goods should be insured against all risks from ware house to ware house basis. The insurance charges, if any, must be included in your price.

[xv] Packing & Forwarding: Rate must include packing & forwarding charges.

[xvi] Printed terms and conditions of the bidder on their offer / literature/letter etc. will not be bidding on us.

**[6] Authorized Local Dealer / Stockiest:**

The manufacturers / firms /principals shall furnish the name and address of their local Stockiest / Dealer so that the copies of orders can be endorsed to them for expeditious supply. In such cases where local dealer / stockiest has been nominated by the principal, the bills raised by them against our purchase will be accepted. Any addition or deletion of dealership / distributorship shall be intimated to the undersigned immediately on authorization of a new party.

**[7] Estimated Sale:** The target of sale may vary depending upon the requirement. The Rate Contract agreement with this Board does not ensure business of any quantum, whatsoever.

**[8] Warranty:** One year standard warranty [wherever applicable] / life of the item (s) must be indicated with name and address of the manufacturer / service provider should invariably be given.

**[9] Eligibility Criteria for the Bidders:** The bidders have to produce following documents while submitting the tender. Non – production of any of the following documents may lead to rejection of the Bid / offers.

- i) Copy of Firms GST Tax No. [Copy of Registration Certificate]
- ii) Copy of PAN Card
- iii) Name, addresses and other contact details of Dealers / stockiest / distributors in annexure-5.
- iv) Current Price list of the manufacturer
- v) Offer maximum discount percentage, which will be one of the most important criteria for selection of firm to enter into rate contract. If one manufacturer will authorize more than one firm for supply, the offer with the highest discount will be preferred.
- vi) Experience with good track record and satisfactory service / reputation of vendors like CPCB / any SPCBs / any Govt. organization /PSU will be preferred in the same order.
- vii) Any deviation from the tender & conditions mentioned above will imply disqualification for the firm.

**[10] Liquidated Damage /Penalty Clause:** A liquidated damage charges of minimum 2% of the ordered value per month for consumable maximum up to 5% of the total

ordered value will be recovered from the vendor for non – compliance of the RC terms.

- [11] Loss, Damage & Shortage:** MPPCB shall not be responsible for any loss, damages and shortage during transit / transportation. Payment shall be made for materials received in good condition only.
- [12] Payment Terms:** The supplier shall present their triplicate copies of computer generated bills for each order / supply. All payment shall be made on bill basis on receipt of the material in full and all requisite documents as per terms & conditions of RC and order normally within 30 to 60 days from the date of delivery or otherwise specified in purchase order. Advance payment will not be made in any circumstances.
- [13] Discretion:** The Competent Authority, M. P. Pollution Control Board reserves the right to accept or reject any or all the tenders without assigning any reason what so ever. The Rate Contract can be terminated at any time without any prior notice. The contract may be extended or curtailed at any point of time at the discretion of the competent authority, MPPCB.
- [14] Disputes & its Jurisdiction:** The contract between the supplier and the buyer shall be governed by the Laws of India and under this contract shall be taken by the parties only in Bhopal to competent jurisdiction.
- [15] Arbitration:** Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, instructions and terms & Conditions herein before mentioned and so as to the quality of the materials, as to any question, claim, right, matter or thing whatsoever, in any way arising out of or relating to the contract. Specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution of the same whether arising during the process of work or after the completion or abandonment thereof shall be referred to the sole arbitration of a person nominated by the Member Secretary, MPPCB, and if he is unable to act to the sole arbitration, some other person appointed by him willing to act as such arbitrator. The submission shall be deemed to be submission to arbitration under the meaning of the India arbitration & Conciliation, 1996 or any satisfactory modification or reenactment thereof for the time being in force conclusive and binding on all parties of the Contract. The venue of the arbitration will be Bhopal only.
- [16] Right of Acceptance:** The competent authority reserves the right to accept the lowest or any other tender and reserves to himself the right of accepting the whole or any part of the tender without assigning any reason what so ever.

## **Tender No. MPPCB/ Pur./06/2017-18**

### **PART-C**

#### **APPLICATION FORM FOR RATE CONTRACT WITH MPPCB, BHOPAL**

#### **LABORATORY CHEMICALS, CERTIFIED REFERENCE MATERIAL (CRMs), GLASSWARE AND PLASTIC WARE ON RATE CONTRACT BASIS**

**(A Separate Application Form is required for each Product Category)**

1.	Name & Address of the Manufacturer [With Tel./Fax/Mobile/e.mail address]	
2.	Name & address of the Local Authorized Dealer / Distributor [With Tel./Fax/Mobile/e.mail address]	
3.	Quoted Product Category	
4.	Percentage of Discount Offered [In figures & words]	
5.	Name of the Any Pollution Control Boards of similar RC [Max. Three]	
6.	Exact % of GST to be charged [Form "C" or "D" will not be issued by MPPCB]	
7.	Delivery Charges	
8.	Delivery Period	
9.	Delivery of materials	Free delivery at MPPCB's laboratories in Madhya Pradesh
10.	GST/VAT no. of the Dealer (Copy to be enclosed)	
11.	Period of Contract	Minimum one year from the date of award of contract.
12.	Undertaking for not being blacklisted in any Government/PSU submitted	

**Notes:**

- We hereby declare that all the particulars given in the application are true and complete to the best of our knowledge and we will produce all the relevant documents promptly, if necessary or as and when asked for by MPPCB. We understand that information provided by us will serve as Pre-qualification Criteria for enlistment being detected even after the approval of Rate Contract our contract may be cancelled and all our claims may be forfeited by MPPCB. We have read and understood all the terms and conditions of RC and we fully agree to it.



- We also declared that we will not sell our product at a lesser price to other parties than those given to you and in the event of happening of such situation, we will be bound to refund the difference and our enlistment maybe cancelled at the discretion of MPPCB.
- We also undertake that all the terms and such as product Range, price, Discount, Delivery/other charges, Terms of Payment and also the name/s of the Dealer/Distributor will remain unchanged during the period of no alteration will be done without your official approval. However, we will promptly change our distributor/supplier of a request/compliant is received from your end with regard to this effect due any reason.

**Date :**

**Signature**

**Place :**

**Name :**

**Designation :**

**Seal of the firm :**

## **TENDER NOTICE NO. MPPCB/PUR./06/2017-18**

### **(PART-D)**

#### **Sampling and Analysis of different environmental parameters related to Water, Waste Water, Hazardous Wastes, Ambient Air, Soil, Noise, Vehicular, and Source emission.**

Dear Sir,

M. P. Pollution Control Board (MPPCB) was constituted on September 23, 1974 under the provisions of "The Water (Prevention & Control of Pollution) Act, 1974". Later on MPPCB have been entrusted with the added responsibilities under the provisions of "The Air (Prevention & Control of Pollution) Act, 1981" and "Environment (Protection) Act, 1986". The M. P. Pollution Control Board has been continuously playing a key role in abatement and control of pollution in the State by generating, compiling and collating data, providing scientific information, rendering technical inputs for information of environmental policies and programmes, training and development of manpower, through activities for promoting awareness at different levels of the Government and public at large.

MPPCB laboratories play an important role in assessing the status of environment comprising of analysis of Water, Waste Water, Hazardous Wastes, Air (Ambient & Source), Soil, Biotic components (flora, fauna) and Noise measurement. The major objectives and work responsibilities of the laboratory are sampling and analysis of various parameters for routine and specific monitoring activities in the field of environment and pollution control. The MPPCB had established environmental laboratories located at Head Quarter and its Regional Offices viz. Indore, Ujjain, Gwalior, Guna, Jabalpur, Sagar, Rewa, Satna, Shahadol, Singrauli. The laboratories of the Board have State of the Art infrastructure, trained manpower, expertise and utilizes various sophisticated instruments, undertake field sampling / monitoring studies at various water resources, emission sources and ambient air / water, soil, solid wastes, noise studies.

As per the directions issued by Hon'ble NGT & CPCB, M. P. Pollution Control Board intends to invite offers for third party monitoring through reputed agencies for conducting sampling and analysis of different environmental parameters. M. P. Pollution Control Board proposes to engage reputed, financially sound and experienced valid EPA recognized testing laboratory to carry out sampling and analysis of different environmental parameters related to (1) Water & Waste Water (2) Ambient Air (3) Hazardous Wastes (4) Soil (5) Noise (6) Source Emission and (7) Vehicular emission on annual rate contract basis for its laboratories spread over whole of the Madhya Pradesh State.

#### **[A] SPECIAL CONDITIONS:**

1. The successful agency shall carry out the monitoring, sampling and analysis work for the Water, Waste Water, Ambient Air emission, Source emission, Soil, Vehicular, Hazardous Waste, Noise level monitoring during the specified period as mutually agreed upon.

2. The tentative list of parameters (group wise) are shown in the annexure-1. Out of all groups shown in Annexure-1, the bidder shall participate at least in any one group.
3. The bidder shall attach list of similar kind of work executed previously clearly indicating the starting and completion date with documentary proofs.
4. The bidder shall clearly indicate the manpower, time and other resource allocations required for execution of the work.
5. The bidder shall enclose detailed list of parameters, which can be analyzed in-house and those covered under NABL accreditation scope.
6. The bidder shall submit detail list of personnel proposed to be deployed for the assignment along with their Curriculum vitae, outlining specifically the qualifications, experience of each person relevant to this work and each member's role and responsibility. A broad breakup of the no. of personnel to be used in sampling / monitoring, analysis and transportation of samples from the site to laboratory should also be provided.
7. The bidder shall submit detailed list of infrastructure / laboratory facilities available with the Agency for monitoring / analysis.
8. The bidder shall submit attested valid lab certification by NABL and EPA.
9. The bidder shall submit NABL approved scope including details of parameter –wise method of analysis along with type of instrument (Range and Min. Detection limit) to be used for analytical measurement. The analytical instruments proposed to be used by the Agency for monitoring & analysis should be of advanced level & should have the detection limit much below the general standards so as to check the compliance status of the environmental quality of the monitored area.
10. The bidder shall quote rates including all taxes, duties, sampling, analysis and transportation charges. The rates should be clearly quoted both in figures and words and there should not be any variation in the same. In case any variation, the rates quoted in figures shall be treated as final.
11. Service Tax or any other tax applicable shall be paid as per applicable norms and TDS will be deducted as per applicable rules.
12. During the course of implementation of the project, the executing agency shall conduct the monitoring and analysis strictly as per methodologies/ techniques prescribed in Standard

Methods by APHA / EPA / BIS / CPCB manuals (as the case may be). The executing agency shall provide the information in this regard to the MPPCB.

13. The Bidders must submit tender fee by demand draft along with Envelop "A" drawn of Member Secretary, M. P. Pollution Control Board, Bhopal towards downloading from web site. The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from net without tender fee will not be accepted.
14. The bidder shall have to submit the copy of sales / service tax registration and Income Tax registration [PAN] along with envelop "B" otherwise the offer shall be liable for rejection.
15. An undertaking shall be submitted by the tenderer that they are not black listed in any Govt. organization / institutions along with envelop "B".
16. The bidder shall provide exclusive company profile including registration in appropriate Government department. The bidder should also submit details of Bank Name, Account Name, Account Number, Account Type, branch IFSC Code for safer & easier payment transaction through RTGS/NEFT.
17. The tender shall be valid for a period of 360 days from the date of opening of envelop 'A'.

18. **PROCEDURE FOR SUBMISSION OF TENDERS :**

Each bidders shall submit his offer in three sealed envelopes A, B and C. Envelop "A" shall either contain receipt towards purchasing of tender document from MPPCB office or Demand Draft of requisite amount, in case, if the tender document is downloaded from the web site. The Envelop "B" shall contain all relevant technical documents such as evidences for doing similar nature of work, experience in the similar field, Copy of valid lab registration for NABL and EPA, detailed list of infrastructure / laboratory facilities available, details of parameter –wise method of analysis along with type of instrument, copy of sales tax registration and Income Tax registration [PAN], copy of undertaking regarding not being blacklisted, terms & conditions, company profile. Non – submission of any of the documents may lead to rejection of the Bid / offers. Envelop "C" shall contain financial offer.

**[a] Envelop – "A" (Tender Cost) :** Envelop "A" should contain self attested copy of receipt of tender cost if the bidder has purchased the tender document from MPPCB office. If the tender document is downloaded from web site, then separate demand draft for the requisite amount of Tender Cost in favor of Member Secretary, M. P. Pollution Control Board, Bhopal shall be submitted with envelop "A". The amount of the demand draft should be inscribed on the top of envelop. Envelop "A" shall be opened on 05.03.2018 at 2.00 pm in the presence of the bidders or their authorized representatives. Insufficient amount furnished as tender cost shall make the offer liable for rejection.

**[b] Envelop – “B”(Technical Bid):** Bidders, who have furnished the desired amount of tender cost shall be liable for opening of the Envelop “B” of their offer. Envelop “B” shall contain documents regarding Qualification requirements such as copy of valid Certification of the Laboratory of the Agency under E (P) Act – 1986, Work Experience, Numbers of Technical / Scientific staff & their qualification, Infrastructure facilities available with the Laboratory of the Agency, Numbers of parameters having NABL Accreditation and other documents such as company profile, Copy of Sales/ Service Tax/ Income Tax registration, Undertaking regarding not being blacklisted in any Govt. organization. Non – submission of any of the documents may lead to rejection of the Bid / offers. Envelop “B” shall be opened on 05.03.2018 at 2.00 pm in the presence of the bidders or their authorized representatives.

**[c] Envelop – “C” (Financial Bid):** The envelop “C” shall contain financial offer in annexure- 2 of the tender document. The bidder shall submit copies of at least two recent supply orders of the similar nature indicating detailed price schedule along with “Envelop “C” (price bid) in order to examine reasonability of the quoted rates in the present bid. Failing to which the bid shall be liable for rejection. Offers received in due time shall be evaluated technically by a committee constituted by the Competent Authority, M. P. Pollution Control Board and as per the recommendation of committee , depending upon the suitability of the offer the financial offer shall be opened. Notwithstanding anything stated above the competent authority of the Board reserves the right to assess the capability and capacity of the bidder to perform the contract, should the circumstances warrant such an assessment or technical presentation in the overall interest of the Board.

**[B] OTHER CONDITIONS:**

- (1) The work order shall be for a minimum period of one year from the date of award of contract unless cancelled by the Board before the expiry of the period at its discretion. However, the contract may be extended beyond one year, if so agreed to, by both the parties. The rates shall remain valid for a period of minimum one year and there will be no change in price structure during the contract period except, if the statutory levies are otherwise made applicable by the Govt. through notification / regulations. The award can be cancelled at any time if the agency found as a habitual defaulter or non – compliance of the terms and condition of the award.
- (2) Tender found incomplete shall be rejected forthwith.
- (3) Our Board is not entitled to issue either form “C” or “D” to avail relevant Tax. Hence, the exact percentage of total Sales Tax / GST is to be mentioned by the bidder.
- (4) On receipt of call / work order from the laboratory, the agency shall collect the sample as per description and location shown and submit certified analysis report (Certificate of Analysis) within seven days from the date of issue of work order. A liquidated damage charges of minimum 0.5% of the ordered value per week for delayed work and maximum up to 10% of the total ordered value will be recovered from the vendor.
- (5) MPPCB shall not bear any responsibility for the personnel engaged during the contract period.

- (6) The executing agency will not assign / outsource any component of the work to any other agency. In case due to any reasons beyond the control of bidder, prior written permission for sub contracting, from the competent authority has to be obtained; otherwise it may lead to rejection of contract at any time. However, subcontracting should not be more than 25% of the total work, subjected if the subcontracting firm is NABL/EPA recognized laboratories.
- (7) The executing agency shall collect duplicate samples (2% of the total samples, when it is applicable) for selected parameters to be specified by MPPCB and submit the same in sealed condition to MPPCB. These samples shall be analyzed in MPPCB laboratory to ensure the analytical quality control.
- (8) **Payment Terms:** The agency shall submit their triplicate copies of computer generated bills for each work order to the respective Laboratory In-charge. All payment shall be made on bill basis on receipt of the certified analysis report as per terms & conditions of award of contract normally within 30 to 60 days from the date of submission of bill along with certified analysis report or otherwise specified in purchase order. Advance payment will not be made in any circumstances.
- (9) All the information and data generated or collected during the execution of the work shall be treated as confidential and shall be the sole property of MPPCB and any interpretation study shall not be published without prior permission of MPPCB.
- (10) The agreement between the selected Agency and MPPCB shall be operative until the completion of the award period.
- (11) The above work shall be implemented as per the rates finalized and MPPCB will not provide any additional fund on account of cost escalation due to delay in work implementation or due to any other reasons whatsoever. The MPPCB will extend facility such as issuance of Identity Card, space for accommodating instruments, sample preservation and storage, storage of third sample to the successful agency in order to mediation with industries for carrying out monitoring.
- (12) It shall be at the sole discretion of the Chairman, MPPCB either to defer the entire work duration or part of the work or reject any proposal without assigning reasons thereof.
- (13) The bidders are requested not to erase or mutilate any word (s) or figures occurring in the quotation. The overwriting is not allowed.
- (14) The bidder shall submit copies of at least two recent supply orders of the similar nature indicating detailed price schedule along with "Envelop "C" (price bid) in order to examine reasonability of the quoted rates in the present bid. Failing to which the bid shall be liable for rejection.
- (15) The approved firm / agency shall have to submit an amount equal to 5% of the total each order value towards performance security deposit in the form of Bank Guarantee

for a period of 18 months, which will be released on successful performance and completion of the contract.

- (16) **Discretion:** The Chairman, M. P. Pollution Control Board reserves the right to accept or reject any or all the tenders without assigning any reason what so ever. The Award of Contract can be terminated at any time without any prior notice. The contract may be extended or curtailed at any point of time at the discretion of the Chairman, MPPCB.
- (17) **Disputes & its Jurisdiction:** The contract between the bidder and the MPPCB shall be governed by the Laws of India and under this contract shall be taken by the parties only in Bhopal to competent jurisdiction.
- (18) **Arbitration:** Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, instructions and terms & Conditions herein before mentioned and so as to the quality of the materials, as to any question, claim, right, matter or thing whatsoever, in any way arising out of or relating to the contract. Specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution of the same whether arising during the process of work or after the completion or abandonment thereof shall be referred to the sole arbitration of a person nominated by the Member Secretary, MPPCB, and if he is unable to act to the sole arbitration, some other person appointed by him willing to act as such arbitrator. The submission shall be deemed to be submission to arbitration under the meaning of the India arbitration & Conciliation, 1996 or any satisfactory modification or reenactment thereof for the time being in force conclusive and binding on all parties of the Contract. The venue of the arbitration will be Bhopal only.
- (19) **Right of Acceptance:** The Chairman, MPPCB reserves the right to accept the lowest or any other tender and reserves to himself the right of accepting the whole or any part of the tender without assigning any reason what so ever.
- (20) In case of any dispute, the decision of the Chairman, M. P. Pollution Control Board will be final and binding to both the parties.

#### **CONDITIONS OF CONTRACT:**

1. All bidders proposed to be obtained by contract will be notified in a form of invitation to tender posted in public places/News Paper.
2. The tender form will state the supply of data to be made, as well as the date for submitting and opening tenders and the time allowed for supply of data, also the amount of tender cost to be deposited with the tender.
3. In the event of tender being submitted by a firm it must be signed separately by each member thereof or in the absence of any partner, it must be signed on its behalf by a person holding a power of attorney authorizing him to do so, such

power of attorney should be produced with the tender and it must disclose that the firm is duly registered under the partnership Act.

4. Any person who submits a tender shall fill up usual printed form stating at what rate he is willing to undertake supply of each data. Tender which propose any alteration in the work/supply specified in the said form of invitation to tender, or time allowed for carrying out work/supply will be liable for rejection.
5. The Member Secretary or his duly authorized assistant will open tenders in the presence of any bidder who may be present at the time and will enter the amount of several tenders in a comparative statement in a suitable form.
6. The officer competent to dispose of the tenders shall have the right of rejecting all or any of the tenders.
5. The time allowed for the supply of data as entered in the tender shall be strictly observed by the bidder and reckoned from the date of which the order to commence supply of data shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of contract) on the part of the supplier and the supplier shall pay as liquidated damage an amount equal to two percent or such smaller amount as the Member Secretary, M.P. Pollution Control Board, may decide on the amount of estimated cost of the whole of the data as shown in the estimated cost of the that the supply of data remains uncommenced or unfinished after the proper dates. In the event of the contractor failing to comply with this condition shall be liable to pay as liquidated damage an amount equal to one percent or such smaller amount as the Member Secretary may decide on the said estimated cost of the whole of the data for every day that the due quantity of data supply remains incomplete to, provided that the due quantity of liquidated damage to be paid under the provisions of this clause shall not exceed ten percent on the estimated cost of the supply of data as shown in the tender.
6. If the Bidder shall be hindered in the supply of the data so as to necessitate an extension of the time allowed in this tender he shall apply in writing well in advance or immediately after the cause occur to the Member Secretary, M.P. Pollution Control Board who shall if in his opinion (which shall be final) reasonable grounds be shown therefore authorize such extension for a period not exceeding in 15 days. Any further extension shall be subject to the previous sanction of the Chairman.
7. The bidder shall give notice to the consignee officer of his intention of making delivery of data and on the data being approved a receipt shall be granted by him to the Consignee Officer or his assistant, and no data will be considered for payment until so approved.
8. On the completion of the delivery of the data the bidder shall be furnished with a certificate by the Consignee Officer of M.P. Pollution Control Board.
9. The data shall be of the best description and in strict accordance with the specification and the bidder shall receive payments for such data only as are approved and passed by the Member Secretary/Consignee Officer.
10. In the event of data being considered by the Consignee Officer to be inferior / invalid to that described in the specification the bidder shall on demand in writing forth with remove the same at his own charge and cost and in the event of his neglecting to do so within such period as may be named by the Consignee officer that officer may have such rejected data removed at the contractor's risk and



- expense incurred being liable to be deducted from any sum due or which may become due to the bidder.
11. Receipts for payment made on account of a supply when executed by a firm must also be signed by several partners except where the contractors are described in their as a firm in which case the receipt must be signed in the name of firm by one of the partners or by some other person having authority to give effectual for the firm.
  12. Under no circumstances whatever shall the contractor be entitled to any compensation from Board on any account.
  13. The bidder shall supply the data at its own expense which are required for the due fulfillment of his contract and the data shall remain at his risk till the date for final delivery, unless it shall have been in the mean time removed for use by the Consignee Officer.
  14. No data shall be brought to site or delivered on Sunday/holiday without the written permission of the Consignee Officer.
  15. The bidder shall not sublet this contract without the written permission of the Member Secretary, M.P. Pollution Control Board. In the event of the bidder subletting his contract without such permission, he shall be considered to have thereby committed a breach of the contract, and shall forfeit his earnest money and shall have no claim, for any compensation for any loss that may occur from the materials he may have collected or engagements entered into.
  16. The decision of the Chairman, M.P. Pollution Control Board, Bhopal shall be final, conclusive & binding on all parties to the contract upon all questions relating to the meaning of specification and instructions herein before mentioned and as to quality of supply of data or as to any way arising out of, or relating to the contract specifications, instruction orders of these conditions or otherwise concerning the supplies whether arising the progress of after the completion or abatement thereof.
  17. On the breach of any term of condition of this contract by the bidder, the said Chairman shall be entitled to forfeit the earnest money, security deposit and the balance thereof that may at that time be remaining and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of the said Board to recover any further sums as damages from any sums due or which may be come due to the contractor by M.P. Pollution Control Board, or otherwise howsoever.

**(Tender No. MPPCB/ Pur/06/2017-18)  
(Part-D)**

**Name of Work: Sampling and Analysis of different environmental parameters related to Water, Waste Water, Hazardous Wastes, Ambient Air, Soil, Noise, Vehicular, and Source emission.**

**LIST OF TENTATIVE PARAMETERS FOR EACH SAMPLE TO BE ANALYSED**

<b>S. No</b>	<b>Description</b>	<b>Name of Parameters</b>
<b>1.</b>	<b>Water and Waste Water</b>	Color, Odor, Velocity (Flow), Suspended Solids, Dissolved Solids, Fixed Solids, Total Solids, pH, Temperature, Oil & Grease, Total residual Chlorine, Ammonical Nitrogen, Total Kjeldhal Nitrogen, Free Ammonia, Bio Chemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Arsenic, Mercury, Lead, Cadmium, Chromium, Total Chromium, Copper, Zinc, Selenium, Nickel, Boron, Sodium, Potassium, Calcium Hardness, Magnesium Hardness, Total Hardness, Alkalinity, Residual Sodium, Cyanide, Chloride, Fluoride, Dissolved Phosphate, Sulphate, Total Phosphate, Sulfide, Pesticides, Phenolic Compound, Sodium Absorption Ratio (SAR), Radio Active Material including alpha and Beta radiation, Pesticides residue, PCB's, PAH's, Phenolic Compounds, Bio assay, Total Coliform and Fecal coliform or any other relevant parameters.
<b>2.</b>	<b>Ambient Air Parameters</b>	PM <sub>10</sub> , PM <sub>2.5</sub> , Aerosol particle, Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide, Benzene, Toluene, Xylene, Ozone, Ammonia, Lead, Nickel, Benzo (a) Pyrene, Arsenic, VOCs, Mercury, other Heavy Metals & Pesticides or any other relevant parameters.
<b>3.</b>	<b>Source Emission Parameters</b>	Particulate Matters in source/stack emission, Stack / Incinerator Temperature, HF, TOC, HCl, Sulphur Dioxide, Carbon Monoxide, Mercury and its compounds, Cadmium + Thorium and its compounds. Vanadium (V), Thallium, H <sub>2</sub> S, TDI, P <sub>2</sub> O <sub>5</sub> , CH <sub>3</sub> Br and HBr, Benzene and Benzo (a) pyrene, Acid mist, Total Dioxin & Furans, Antimony + Arsenic + Lead + Cobalt + Chromium + Copper + Manganese Nickel + Vanadium and their compounds. Percentage (%) Oxygen, Nitrogen Oxides as NO <sub>2</sub> Combustion Efficiency of Incinerator. Oxides of Nitrogen (Nox), NMHC and RHC in Gen set Monitoring or any other relevant parameters.
<b>4.</b>	<b>Hazardous</b>	Physical State of the Hazardous Waste, Color & Texture,

	<b>Wastes Parameters</b>	Specific Gravity, Viscosity, Loss on drying, Reactive Cyanide, Reactive Sulfide, %age Moisture content, Oil & Grease, TCLP, Concentration of relevant individual organics as per HW rules, 2016, Phenol, Arsenic, Lead, Cadmium, Chromium, Copper, Nickel, Mercury, Zinc, Fluoride, Ammonia, Nitrate, Absorbable Organic Halides, Water soluble compound except salts, PAH, Benzene, Toluene, Xylene, Annealing loss of the dry residue, Extractable lipophylic content (Oil & Grease), VANE Test, Unconfined compression test AXIAL deformation test. Flash Point, Calorific Value, Density, Carbon, Hydrogen, Nitrogen, Sulphur, Oxygen, Chlorine, TOC Content and LoI in slag & Bottom ash, Paint Filter Liquid Test (PFLT), LRT, pH or any other relevant parameters.
5.	<b>Vehicular Emission parameters</b>	Smoke Density, Oxides of Nitrogen (Nox) and Particulate Matters, Light Absorption Coefficient in Diesel Vehicle Exhaust monitoring Carbon Monoxide, Hydrocarbon, Oxides of Nitrogen (Nox) in Petrol Vehicle exhausts monitoring or any other relevant parameters.
6.	<b>Noise Level Monitoring Parameters</b>	Sound Level, dB (A) (B) (C) Leq or Lavg or any other relevant parameters.
7.	<b>Soil Monitoring Parameters</b>	pH, Available Nitrogen, Total Soluble Solids, Moisture, Conductivity, Available Phosphorous (as P, PO <sub>4</sub> , P <sub>2</sub> O <sub>5</sub> ), Available Potassium ( as K, K <sub>2</sub> O), Organic Carbon, Organic Matter, Micronutrients (Available) , Macronutrients (Available), Heavy Metals, Pesticides, Organochlorine, Organo Phosphorous, N- containing pesticides, P-containing pesticides, Fertilizers & other herbicides or any other relevant parameters.

**FINANCIAL BID**  
**(Tender No. MPPCB/ Pur/06/2017-18)**  
**(Part-D)**

**Name of Work: Sampling and Analysis of different environmental parameters related to Water, Waste Water, Hazardous Wastes, Ambient Air, Soil, Noise, Vehicular, and Source emission on annual rate contract basis.**

To,

**The Member Secretary,  
M. P. Pollution Control Board,  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal – 462 016.**

Sir,

Having examined the terms & conditions of the Tender Document, the receipt of which is hereby acknowledged. We, the undersigned, offer to supply the data on the rates given below for carrying out Sampling and Analysis of following Environmental Parameters:

<b>S. No.</b>	<b>Description of Parameters</b>	<b>Unit Rate Quoted inclusive of all taxes duties &amp; transportation charges (Rs.)</b>
<b>A. WATER AND WASTE WATER PARAMETERS</b>		
1.	Color	
2.	Odor	
3.	Suspended Solids, Dissolved Solids, Fixed Solids, Total Solids	
4.	pH	
5.	Temperature	
6.	Oil & Grease	
7.	Total residual Chlorine	
8.	Ammonical Nitrogen ,Total Kjeldhal Nitrogen, Free Ammonia	
9.	Bio Chemical Oxygen Demand (BOD)	
10.	Chemical Oxygen Demand (COD)	
11.	Arsenic	
12.	Mercury	
13.	Lead	
14.	Cadmium	
15.	Chromium, Total Chromium	
16.	Copper	

17.	Zinc	
18.	Selenium	
19.	Nickel	
20.	Boron	
21.	Sodium	
22.	Potassium	
23.	Calcium Hardness, Magnesium Hardness, Total Hardness	
24.	Alkalinity	
25.	Residual Sodium	
26.	Cyanide	
27.	Chloride	
28.	Fluoride	
29.	Dissolved Phosphate , Total Phosphate	
30.	Sulphate	
31.	Sulfide	
32.	Pesticides	
33.	Phenolic Compound	
34.	Sodium Absorption Ratio (SAR)	
35.	Radio Active Material including alpha and Beta radiation	
36.	Pesticides residue	
37.	Poly chlorinated biphenyls (PCBs)	
38.	Polycyclic aromatic hydrocarbons (PAHs)	
39.	Phenolic Compounds	
40.	Bio assay	
41.	Total Coliform	
42.	Fecal Coliform	
43.	Velocity (Water current)	
44.	Any other relevant Parameters (if any)	
<b>B. AMBIENT AIR PARAMETER</b>		
1.	PM <sub>10</sub>	
2.	PM <sub>2.5</sub>	
3.	Aerosol particle	
4.	Sulphar Dioxide	
5.	Oxides of Nitrogen (NOx)	
6.	Carbon Monoxide	
7.	Benzene	
8.	Toluene	
9.	Xylene	
10.	Ozone	
11.	Ammonia	
12.	Methane	
13.	Lead	
14.	Nickel	
15.	Arsenic, Mercury	
16.	Benzo (a) Pyrene (BAP)	
17.	Volatile Organic Carbon (VOCs)	

18.	Other Heavy Metals & Pesticides	
19.	Any other relevant Parameters (if any)	
<b>C. SOURCE EMISSION PARAMETER</b>		
1.	Particulate Matters in source/stack emission	
2.	HF	
3.	TOC	
4.	Mercury and its compounds	
5.	Cadmium + Thorium and its compounds.	
6.	Vanadium (V),	
7.	Thallium	
8.	H <sub>2</sub> S	
9.	TDI	
10.	P <sub>2</sub> O <sub>5</sub> ,	
11.	CH <sub>3</sub> Br	
12.	HBr	
13.	Benzene	
14.	Benzo (a) pyrene	
15.	Total Dioxins & Furans	
16.	Stack / Incinerator Temperature	
17.	HCl	
18.	CO <sub>2</sub>	
19.	Polycyclic Aromatic Hydrocarbons (PAH)	
20.	Acid mist	
21.	Percentage (%) Oxygen in BMW Incinerator	
22.	Nitrogen Oxides as NO <sub>2</sub> in BMW Incinerator.	
23.	Combustion Efficiency of Incinerator	
24.	Oxides of Nitrogen (NO <sub>x</sub> ), NMHC and RHC in Gen set Monitoring.	
25.	Any other relevant Parameters (if any)	
<b>D. HAZARDOUS WASTE PARAMETERS</b>		
1.	Physical State of the Hazardous Waste	
2.	Color & Texture	
3.	Specific Gravity	
4.	Viscosity	
5.	Loss on drying	
6.	Reactive Cyanide	
7.	Reactive Sulfide	
8.	%age Moisture content	
9.	Oil & Grease	
10.	TCLP	
11.	Concentration of relevant individual organics as per HW rules, 2016	
12.	Phenol	
13.	Arsenic	
14.	Lead	
15.	Cadmium	
16.	Chromium	

17.	Copper	
18.	Nickel	
19.	Mercury	
20.	Zinc	
21.	Fluoride	
22.	Ammonia	
23.	Nitrate	
24.	Absorbable Organic Halides	
25.	Water soluble compound except salts	
26.	PAH	
27.	Benzene	
28.	Toluene	
29.	Xylene	
30.	Annealing loss of the dry residue	
31.	Extractable lipophylic content (Oil & Grease)	
32.	Transversal Strength (VANE Test)	
33.	Unconfined compression test	
34.	AXIAL deformation test	
35.	Flash Point	
36.	Calorific Value	
37.	Density	
38.	Carbon	
39.	Hydrogen	
40.	Nitrogen	
41.	Sulphur	
42.	Oxygen	
43.	Chlorine	
44.	Total Organic (TOC) Content	
45.	LoI in slag & Bottom ash	
46.	Paint Filter Liquid Test (PFLT)	
47.	LRT	
48.	pH	
49.	Any other relevant Parameters (if any)	
<b>E. VEHICULAR EMISSION PARAMETERS</b>		
1.	Smoke Density, Oxides of Nitrogen (NOx) and Particulate Matters, Light Absorption Coefficient in Diesel Vehicle Exhaust monitoring	
2.	Carbon Monoxide, Hydrocarbon, Oxides of Nitrogen (NOx) in Petrol Vehicle exhausts monitoring.	
3.	Any other relevant Parameters (if any)	
<b>F. NOISE LEVEL PARAMETERS</b>		
1.	Sound Level, dBLeq or Lavg	
2.	Any other relevant Parameters (if any)	
<b>G. SOIL MONITORING PARAMETERS</b>		
1.	pH	
2.	Available Nitrogen	
3.	Total Soluble Solids	

4.	Moisture	
5.	Conductivity	
6.	Available Phosphorus	
7.	Available Potassium (as K, K <sub>2</sub> O)	
8.	Organic Carbon	
9.	Organic Matter	
10.	Micronutrients (Available) Fe, Mn, Cu, Zn, Mo, B	
11.	Macronutrients (Available) Ca, Mg, Na,	
12.	Heavy Metals (Total) As, Se, Cr, Pb, Ni, Sn, Hg	
13.	Pesticides	
14.	Organo Chlorine	
15.	Organo Phosphorous	
16.	N – containing Pesticides	
17.	P- containing Pesticides	
18.	Fertilizers & other Herbicides	
19.	Any other relevant Parameters (if any)	

The above supply of data shall be in conformity with the terms & conditions and all contents stipulated in the Tender Document. We undertake that if our bid is accepted to supply the data as stipulated above, we shall deliver the data within the period indicated. We agree to abide by this bid for a period of 360 days from the date fixed for bid opening and it shall remain binding upon us and may be accepted at any time before expiration of that period.

This bid, together with your written acceptance thereof in your notification of award shall constitute contract between us. We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this ..... day of..... 20..... .

**Seal & Signature of the Bidder**



TENDER NO. MPPCB/Pur./06/2017-18  
(PART-E)

**BID DOCUMENT  
FOR**

**SUPPLY, INSTALLATION,  
COMMISSIONING AND OPERATION  
& MAINTENANCE SERVICES OF  
CONTINUOUS AMBIENT AIR  
QUALITY MONITORING STATIONS  
(CAAQMS)**

Volume - I



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**M. P. POLLUTION CONTROL BOARD**

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**BIDDING DOCUMENTS FOR SUPPLY, INSTALLATION,  
COMMISSIONING AND OPERATION & MAINTENANCE SERVICES  
FOR CONTINUOUS AMBIENT AIR QUALITY MONITORING  
STATIONS (CAAQMS)**

**VOLUME -1  
CONTENTS**

INVITATION FOR BIDS

SECTION I	INSTRUCTION TO BIDDERS .....
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SECTION III	FORM OF TECHNO-COMMERCIAL BID .....
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SECTION V	GENERAL CONDITIONS OF CONTRACT (G.C.C)...
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**INVITATION FOR BIDS (ICB)**  
INTERNATIONAL COMPETITIVE BIDDING

**Sub.: Supply, Installation, Commissioning and Operation & Maintenance Services of ten continuous ambient air quality monitoring stations (CAAQMS) in Indore, Gwalior, Bhopal, Jabalpur, Satna, Rewa, Shahadol, Sagar, Katni and Chhindwara.**

1. M. P. Pollution Control Board, Bhopal, invites sealed bids in two envelopes from eligible bidders for supply, installation & commissioning of equipments (listed in Bid documents) for Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and Operation & Maintenance of this CAAQMS at various locations as listed and related services as specified in the bid document.
2. This invitation for the Bid is open to any bidder who is a reputed manufacturer or authorized representative of the manufacturer, who on its own or along with his associate as O & M partner meets the qualifying Requirements stipulated hereunder for participation in the tender. The bidder shall furnish satisfactory evidence to establish that bidder meets the following qualifying requirements.
  - 2.1 The bidder should have at least five years experience in satisfactory operation of real time system.
  - 2.2 For all the items not manufactured by the Bidder i.e. Analyzers, Monitors, Calibrators and Sensors, the bidders should be authorized by the manufacturers for these items as per the format "Form of letter of authorities" provided as Attachment 3 of Section 3, except where make is prescribed.
  - 2.3 Bidder or their authorized representative should have adequate financial capability to execute the contract.
  - 2.4 The bidder should furnish the information on all past supplies and satisfactory performance, in "Performance Statement" as per Attachment No. 8 C of Section 3 and minimum two (2) no. documentary evidences (client certificates in favours of bidder or manufacturers of equipment) in support of the satisfactory operation of similar air monitoring stations.
  - 2.5 The bidder or its associates as an O & M partner in India, (any authorized agency in India) should have well trained O & M personnel on its regular rolls as per following details and on award of LOI bidder shall submit the name of Project Engineer (Grad. Engineer), Technicians (Diploma holder in electronics/ instrumentation) and Data Processor for central data management and CAAQM station respectively. Their resume, PF slip as a proof of their regular employment with the bidder. All personnel should be on pay roll of the O & M partner.
  - 2.6 The O&M partner shall furnish an undertaking regarding carrying out satisfactory O &M of CAAQMS covered in this document as per terms & conditions of the document on behalf of the bidder. This information is to be provided as per Attachment 5 & 9 of Section III.
3. A complete set of bidding documents may be downloaded from the Board' Web-site up to 12.00 noon on dated 05.03.2018 upon payment of a non-refundable fee of Indian Rupees 1500.00 (Rs. One Thousand Five Hundred only) in the form of Demand Draft in favour of M. P. Pollution Control Board, Payable at Bhopal. The same can be downloaded from the website of M. P. Pollution Control Board, Bhopal

- [www.mppcb.nic.in](http://www.mppcb.nic.in) and [www.govtenders.nic.in](http://www.govtenders.nic.in) In this case bid shall be accompanied along with a demand draft of Rupees 1500.00 as cost of tender document.
4. This bidding takes simultaneous bidding procedure in two part (envelope) bidding system. All the eligible and interested bidders are required to submit the Techno-commercial bid and Financial Bid simultaneously. Only the bidders whose Techno-commercial bid is found substantially responsive will be notified by the Board of the date and place to participate in the public opening of the financial bid, in writing later.
  5. Eligible Bidders must submit their bids **for complete scope of work**. Any bid submitted for incomplete scope shall be rejected out rightly.
  6. The Representative of Agents of Foreign Bidders in India are also permitted to purchase Tender Document on behalf of their principals by submitting a letter of authority from their principals and by depositing requisite cost of tender document.
  7. **All the bids must be accompanied by bid security in accordance with the Instructions to Bidders in the bidding documents.**
  8. All bids must be submitted on or before **05.03.2018 at 12.00 Noon**. Any offer received after expiry of the time and date prescribed for receiving complete bid will not be entertained. Only the technical Bid will be opened in public on the same date at **2.00 P.M.** in the presence of the bidders or their representative, who choose to attend on the specified date and time at the office of M. P. Pollution Control Board, Bhopal.
  9. Issuance of Bidding Documents will not be construed to mean that such bidders are automatically considered qualified.
  10. The bid must accompany bid security money as indicated above, failing which it will not be considered.
  11. M. P. Pollution Control Board, Bhopal will not be responsible for any cost(s) or expense(s) incurred by bidders in connection with the preparation or delivery of bids.
  12. The M. P. Pollution Control Board, Bhopal reserves the right to reject any or all the bids without assigning any reason whatsoever.
  13. In the event of date being declared as a closed holiday the date for submissions of bids and opening of bids will be the following working day at the appointed time.
  14. Interested eligible Bidders may obtain further information from MPPCB for the bidding documents.
  15. Description of works shall be as per annexure –I enclosed.

**(Dr. Reeta Kori)**  
**Chief Scientific Officer**

**ANNEXURE – I**

<b>Sl. No.</b>	<b>Name of the instrument/ Equipment</b>	<b>Qty. (Nos.)</b>	<b>Total Estimated Cost (Rs. in Lacs)</b>	<b>Earnest Money Deposited [EMD]</b>
1.	Automatic Ambient CO Analyzer	10	30.00	1350000.00
2.	Automatic Ambient SO <sub>2</sub> Analyzer	10	30.00	
3.	Automatic Ambient NO <sub>x</sub> and NH <sub>3</sub> Analyzer	10	80.00	
4.	Automatic Ambient O <sub>3</sub> Analyzer	10	25.00	
5.	PM <sub>10</sub> Monitor	10	120.00	
6.	PM <sub>2.5</sub> Monitor	10	125.00	
7.	BTX Analyzer	10	170.00	
8.	Multi-calibration systems for gaseous monitors comprising of gas supply / generation and automated calibration	10	20.00	
9.	Meteorological Instrumentation comprising Wind direction, Wind speed, Ambient temperature, Relative humidity, Solar Radiation and Rainfall mounted on telescoping crank up meteorological Mast.	10 Sets	75.00	
10.	Housing/ Container for Continuous Automatic Monitoring Stations with Sampling line, Internal fitting, Instruments racks, Electrical and Gas line fittings, Tools (electrical and mechanical), Data display system, Recommended spares .	10 Lots	190.00	420000.00
11.	RCC foundation, pillars misc works including civil & electrical	10 Lots	20.00	
12.	Computer system consisting of one PC along with Laser Printer and DAS at the monitoring station and one PC at central office with peripherals and software for data acquisition / Data display Board / transfer and system integration, telephone, Modem.	10 Lots	40.00	270000.00
13.	2 Ton capacity split Air conditioner	20 Units	15.00	
14.	1 Ton capacity split Air conditioner	10 Units	5.0	
15.	Single Phase 10 KVA UPS, 1 Hour backup	10 Units	50.00	

16.	Single Phase 5 KVA UPS, 2 Hrs. backup	05 Units	25.00	
17.	Annual operation & Maintenance of CAAQMS for five years expandable up to next five years	Rs. Lakh per year	Rs.	

### List of the City / Locations where CAAQMS will be installed

<b>S. No.</b>	<b>Name of City</b>	<b>Number of Stations</b>
1.	Indore,	One
2.	Gwalior	One
3.	Bhopal	One
4.	Jabalpur	One
5.	Satna	One
6.	Rewa	One
7.	Shahadol	One
8.	Sagar	One
9.	Katni	One
10.	Chhindwara	One

**SECTION I (ITB)**

**INSTRUCTIONS TO BIDDERS**

**C O N T E N T S**

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2. Introduction .....

3. Bidding Documents .....

4. Preparation and Submission of Bid .....

5. Preparation of Techno-commercial Bid .....

6. Preparation of Financial Bid .....

7. Submission of Bid .....

8. Opening and Evaluation of Techno-commercial Bid .....

9. Notification of Successful Techno-commercial Bid .....

10. Opening of Financial Bid .....

11. Examination of Financial Bid .....

12. Evaluation and Comparison of Financial Bid .....

13. Award of Contract .....

14. Performance Security .....

15. Expense of Bid .....

16. Responsibility for information supplied .....

Important: Bidders are expected to examine the Bidding Documents carefully and are deemed to have received and read all documents. It shall be the responsibility of the Bidder to request copied of any missing documents. Failures to do so will be at the Bidder's risk.



## INSTRUCTION TO BIDDERS

### 1.0 DEFINITIONS

The terms used in this bidding document shall have the meaning defined hereunder:

- 1.1 "The Project" or "The Works" means supply, installation & Commissioning of equipments for Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and Operation & Maintenance of this CAAQMS at the pre defined city/ location
- 1.2 "The Board" means the M. P. Pollution Control Board, Bhopal, having its office at E-5 Sector, Paryawaran Parisar, Arera Colony, Bhopal, India and shall include any person or persons authorized by the Board. The Board is also executing agency of the Project. **"The Owner" means the Board.**
- 1.3 "The Bid" means the offer or proposal of the Bidder to be submitted for the works in accordance with the stipulations set forth in this Bidding Documents.
- 1.4 "The Techno-commercial Bid" means the Techno-commercial part of the Bid.
- 1.5 "The Financial Bid" means the financial part of the Bid.
- 1.6 "The Bidder" means either the manufacturer of the Equipment or his authorized Representative, who submits the Bid for the Works.
- 1.7 "The Authorized representative" means the bidder who has enclosed the manufacturer's authorization as per the format "Form of letter of authorities" provided as Attachment 3 of Section III.
- 1.8 "The Contractor" or "The Contractor" means the Bidder, whose Bid for the Works has been accepted by the Board and includes his personal representatives, successors and authorized assignees.
- 1.9 "The Manufacturers" means the firms, which produces the equipment to be furnished by the Contractor under the Contract with the Board.
- 1.10 "The Bidding Documents" mean all the documents in Offer I and Offer II in the bidding documents annexed thereto.

- 1.11 "The Contract" means the written agreement to be concluded between the Board and the Contractor and includes terms and conditions stipulated on the Bidding Documents and any other descriptions annexed thereto which form an integral part of the agreement to be provided by the Board.
- 1.12 "The Equipment" means all kind of materials, machinery, components, apparatus, articles and instruments for the Project to be provided by the Contractor to the Board under the Contract.
- 1.13 "The Specifications" means the specifications of the Works to be performed by the Contractor in conformity with those specified in the Technical Specifications of Volume II and all other related documents in the Bidding Documents, and modifications thereof or additions thereto as may from time to time be made and approved in writing by the Board through the Consultant in case prior to the Contract and agreed upon by both the Board and the Contractor after the Contract.
- 1.14 "S/W" means the Scope of Works in Section II of this Volume.
- 1.15 "The Sites" means CAAQMS at the defined city/ location.
- 1.16 "The Contract Price" means the price payable to the contractor under the contract for the full and proper performance of its contractual obligations.

## **2.0 INTRODUCTION**

- 2.1 The M. P. Pollution Control Board intends to invite bids from eligible bidders for supply, installation & commissioning of equipments for Continuous Ambient Air Quality Monitoring Station (CAAQMS) and operation & Maintenance of this CAAQMS at specified city / locations wise.

### **2.2 Scope of Works**

The description of Scope of Works is set forth in Section II of this Volume 1.

### **2.3 Size of Bid**

The whole bid is for single composite package as detailed at Section - II i.e. scope of work.

## 2.4 Eligible Equipment and conformity to the bidding documents

- (1) All countries are the eligible source countries for goods and services to be supplied under this contract.
- (2) For the purpose of this clause "origin" means the place where the equipment or component parts thereof are grown, or produced. Equipment are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.
- (3) The Bidder shall furnish the Certificate of Country of Origin (duly authenticated by competent authority of that country) of each Equipment (as per Attachment 4 to Section III) in these instructions, as the documentary evidence of the eligibility of the Equipment.
- (4) The origin of equipment may be distinct from the nationality of the bidders.
- (5) Conformity of the Bidding documents may be in the form of literature, drawings, and data, and the Bidder shall also furnish:
  - a) A detailed description of equipment, essential technical and performance characteristics.
  - b) A list giving full particulars, including available sources of all spares (whether mandatory or recommended) and their prices, special tools etc., necessary for the proper and continued functioning / maintenance of the equipment on long term basis.
  - c) An inventory of the spare parts for each equipment available with the O&M partner in India mentioning the ones not available in India and have to be imported in case necessary after the expiry of O&M period.
  - d) **A clause-by-clause commentary of the Board's Technical Specifications** demonstrating the equipment's substantial responsiveness of these specifications or a statement of deviations of exceptions to the provisions of Technical Specifications.

The above stated requirements are a minimum and the Board reserves the right to request any additional information concerning the Bid Proposal in response to this Invitation of Bids.

## 2.5 Qualifying Requirements of Bidders

This invitation for the Bid is open to any bidder who is a reputed manufacturer or authorized representative of the manufacturer, who on its own or along with his associate as O&M partner meets the Qualifying Requirements stipulated hereunder for participation in the tender. The bidder shall furnish satisfactory evidence to establish that bidder meets the following qualifying requirements.

- 2.5.1 The bidder should be a manufacture as listed in the scope of work who must have manufactured, supplied, tested and commissioned minimum six (6) nos. similar air monitoring stations either container based or otherwise in any one year of the last three years which should be in satisfactory operation.
- 2.5.2 For all the items not manufactured by the Bidder i.e. Analyzers, Monitors, Calibrators and Sensors, the bidders should be authorized by the manufacturers for these items as per the format "Form of letter of authorities" provided as Attachment 3 of Section 3.
- 2.5.3 Bidder or their associate as O&M partner should have adequate financial capability to execute the contract.
- 2.5.4 Bids of bidders quoting as authorized representative of a **manufacturer, who meets the above requirements** in full, can also be considered, provided:
  - (i) the manufacturer furnishes a legally enforceable authorization certificate in the prescribed form at Attachment-3 Section-III, assuming full guarantee and O&M obligations as per GCC and SCC, for the goods offered; and
  - (ii) The bidder, as authorized representative, supplied, tested and commissioned minimum six (6) nos. similar air monitoring stations either container based or otherwise in any one year of the last three years which should be in satisfactory operation with no adverse report for last two (2) year as on date of bid opening.
- 2.5.5 The bidder should furnish the information on all past supplied and satisfactory performance for both 2.5.1 and 2.5.4 (ii) above, in "Performance Statement" as per Attachment No. 8B & 8C respectively of Section 3 and minimum two (2) nos. documentary evidences (client certificates in favor of bidder or manufacturers of equipment) in support of the satisfactory operation of similar air monitoring stations, which is in use for last two (2) years in case bidder is manufacturer or for last one (1) year in case bidder is authorized representative.

2.5.6 The bidder or their associates with an O&M partner in India, (any authorized agency in India) should have well trained O&M personnel on its regular rolls as per following details to establish this bidder should enclose the curriculum vitae of following persons with required experience.

Sl. No.	Responsibility	No. of Persons	Minimum Qualification	Experience
1.	Project Manager	1	Graduate Engg./ M.Sc.	10 years
2.	Technician	2	Diploma in Electronics/C&I/ Electrical	3 years
3	Data Processor	1	Science Graduate	2 Years

2.5.7 The O&M partner shall furnish an undertaking regarding carrying out satisfactory O&M of CAAQMS covered in this document as per terms & conditions of the document on behalf of the bidder. This information is to be provided as per Attachment 5 & 9 of Section III.

## 2.6 Bidding Procedure

- (1) The Bidding will take two envelopes simultaneous Bidding procedure.
- (2) All bids shall be submitted simultaneously by the designated date and at the place specified in Sub-clause 7.2 in this instruction. The Technical Bid will be evaluated first and only the Bidders who's Technical Bids will have been found substantially responsive will be notified by the Board of the date and place to participate in the publicly opening of the Financial Bid in writing.
- (3) The envelop for Technical Bid shall consist of three (3) envelopes. The first envelope "A" will contain the Bid Security; the second envelope "B" will contain the qualification documents, and the third envelope "C" will contain the technical specifications pursuant to Clause 5 of this Instructions.
- (4) The envelope for the Financial Bid shall consist of documents pursuant to Clause 6 of these Instructions.
- (5) The bidder must quote for complete scope of work in package. In case the bidder does not quote for complete scope of work, the bid shall be rejected at Techno-commercial evaluation stage.
- (6) The bidder shall bear all costs associated with the preparation and delivery of its bid, and purchaser will in no case be responsible or liable for those costs.

### **3.0 BIDDING DOCUMENTS**

#### **3.1 Issue of Documents**

One complete set of the Bidding Documents will be downloaded from the Board's Web-site by the eligible and interested Bidders against a non-refundable fee of **Indian Rupees 1500/-** (Rs. One Thousand Five Hundred Only) in the form of demand draft in favour of the Member Secretary, M. P. Pollution Control Board, payable at Bhopal.

The same can be downloaded from the website of (Name of the Board) (<http://www.mppcb.nic.in> and [www.govtenders.nic.in](http://www.govtenders.nic.in)). The bid shall be accompanied along with a demand draft of Rupees - 1500.00/- as cost of BOQ/tender document.

**Bidding Documents are not transferable.**

#### **3.2 Confidentiality of Documents**

All recipients of the Bidding Documents, regardless of whether the Bid is submitted or not, shall treat the details of the documents as private and confidential.

#### **3.3 Check of the Bidding Documents**

Upon receipt of the Bidding Documents, the Bidder shall check the number of pages and drawings and notify the Board of any missing or duplicate pages and drawings or of any figures or words, which may be indistinct or ambiguous.

No claim will be admitted as result of the Bidder's failure to comply with the foregoing. The address for the contact is specified in Sub-clause 3.5 of this Instruction.

#### **3.4 Contents of Bidding Documents**

(1) The Bidding Documents include:

Invitation for Bids

SECTION I INSTRUCTION TO BIDDERS

SECTION II SCOPE OF WORKS

SECTION III	FORM OF TECHNO-COMMERCIAL BID
SECTION IV	FORM OF FINANCIAL BID
SECTION V	GENERAL CONDITIONS OF CONTRACT
SECTION VI	SPECIAL CONDITIONS OF CONTRACT

### **Technical Specifications**

- (2) Bidders must acquaint themselves with all the Bidding Documents embodied in Volume I and Volume II. In order to familiarize with the Works, the Bidders should ascertain all particulars regarding the location and site conditions at their own expenses. No plea attributed to lack of information or insufficient information will be entertained at any time.

The Board shall reserve the right and privilege to settle the affairs in case any doubt may occur concerning the Bidding Documents.

### **3.5 Clarification of Bidding Documents**

If a prospective Bidder has any doubt as to the meaning of any part of the Bidding Documents he may notify the Board for supplementary information and explanation in writing or facsimile in compliance with Form of Questionnaire of Attachment 1 in Section III at the following address at least seven (7) days before the closing date of the bid.

**Chief Scientific Officer,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony, Bhopal**

## **4.0 PREPARATION AND SUBMISSION OF BID**

### **4.1 Language**

The Bid to be prepared by the Bidders, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Board or the Consultant shall be written in English. Failure to comply with this may disqualify a bid.

### **4.2 One Bid per Bidder**

Each Bidder shall submit one Bid only.

### **4.3 Local Representation**

a) Foreign Bidders, if they have in India a local representative in Indian / Indian agent shall indicate in their bid (Bid Proposal Sheets), the name of such person or firm and also shall furnish the following information in their bid:

- 1) The precise relationship between the Bidder and his Indian Agent.
- 2) The mutual interest which the Bidder and the Indian Agent have in business of each other.
- 3) Any payment which the Indian Agent receives in India or abroad from the Bidder whether as a commission for the Contract or as a general retainer fee.
- 4) Indian Agent's Income Tax Permanent Account Number.
- 5) Bidder's Income Tax Permanent Account Number.
- 6) All services to be rendered by the Indian Agent whether of general nature or in relation to the particular contract.
- 7) All above statements have to be substantiated by authenticated documents from competent authority.

b) Agent's commission, if any, (to be included in the Bid Price) shall be indicated separately but as a part of Bid Price and the same will be payable only in equivalent Indian Rupees. Indian agent's commission will not be subject to any escalation whatsoever and



will be payable at the time of final payment after commissioning & training. To effect such payments, the Indian Agent's commission will be calculated on the basis of exchange rates (State Bank of India T T Exchange buying rate) as on the date of notice of the award to the successful Bidder.

- c) The bidder /Contractor shall not pay Indian Agent's Commission, unless declared in the bid.

#### **4.4 Bid Security / Earnest Money**

- (1) Pursuant to Clause 5.1 in this instruction, the Bidder shall furnish, as part of its Bid, his Bid Security in the amount of Indian Rupees 2000000.00 (Rs. Twenty Lakh only) of quoted value in the form of Bank draft, in favor of the Member Secretary, M. P. Pollution Control Board, payable at Bhopal.
- (2) The Bid Security shall be submitted through Crossed bank draft in favour of the Member Secretary, M. P. Pollution Control Board, payable at Bhopal, from a reputed Indian Bank.
- (4) Any Bid not secured by the Bid Security will be rejected by the Board as non-responsive pursuant to Sub-clause 8.4. Unsuccessful Bidder's Bid Security will be discharged or returned as promptly as possible, but not later than thirty (30) days from the expiration of the period of the Bid validity specified in Sub-clause 4.6 hereunder. The successful Bidder's Bid Security will be discharged upon the Bidder signing the Contract pursuant to Sub-clause 13.3 in this instruction and furnishing the Performance Security pursuant to Clause 14 in this instruction.
- (5) The Bid Security may be forfeited:
  - a. If a Bidder withdraws its Bid during the period of Bid validity specified in Sub-clause 4.5 hereunder;
  - b. If a bidder refuses to accept the arithmetical corrections made according to ITB (Instructions to the Bidder) Clause No. 11;
  - c. In case of a successful Bidder, if the Bidder fails to sign the Contract in accordance with Sub-clause 13.3 in this Instructions and furnish Performance Security in accordance with Clause 14 in this Instructions;

- d. In case bidder refuses to withdraw, without any cost to the Owner, those deviations, which the bidder did not state in the Deviation Schedules.

(6) No interest will be payable by the Board on the above Bid Security.

#### 4.5 **Validity of Bid**

The bid shall remain valid and binding on the Bidder for Three Hundred and Sixty (360) days from the final time and date for submission of the Bid. Bid validity for a shorter period shall be rejected by the Board as non-responsive.

In exceptional circumstances, the Board may in writing or by facsimile, solicit the Bidder's consent to an extension of the period of the Bid validity. If the Bidder agrees to the request for extension, the Bid Security shall also be extended for an equivalent period of time.

Any Bidder may refuse to extend the validity of his Bid without forfeiting his Bid Security, but the Bid will not be considered.

Bidders granting the requests for extension of the Bid validity will not be required or permitted to modify their Bids.

#### 4.6 **Modification and Withdrawal of Bid**

- a) The Bidder may modify or withdraw its Bid after the Bid's submission; provided that written notice of the modification or withdrawal is received by the Board prior to the deadline prescribed for submission of Bids.
- b) The bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of clause 5 & 6 for Techno-commercial and financial bid respectively, with the outer and inner envelope additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax/email, but must be followed by a signed confirmation copy.
- c) No Bid shall be allowed to be modified subsequent to the deadline for submission of Bids.

- d) No bid shall be allowed to be withdrawn in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified in the clause 4.7 above. Withdrawal during this period may result in the forfeiture of the bid security pursuant to clause 4.4 (5) (a).

#### **4.7 Rejection of Bid**

Failure by the Bidder to comply with the provisions of these Instructions to Bidders or any part of the Bidding Documents may result in rejection of the Bid and forfeiture of the Bid Security. Hiding any information on past supplies / installation /services in last three years, the bid may be liable for rejection.

The Board reserves the right to accept or reject any or all Bids or to amend the Bidding process at any time prior to award of the Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Board's action.

The Board also reserves to itself the right of accepting the whole or any part of the Bid and the Bidder shall be bound to perform the same at the rate quoted.

#### **4.8 Contacting the Board**

Except for responses to request for clarification of the Bid by the Board, the Bidder shall not contact the Board for any matter related to this Bid from the time of submission of the Bid until the Contract is awarded.

Any efforts by the Bidder to influence the Board in his decision in respect of evaluation of the Bid or award of the Contract shall result in the rejection of the Bid and forfeiture of the Bid security.

### **5.0 PREPARATION OF TECHNO-COMMERCIAL BID**

#### **5.1 Contents of Envelop "A", Bid Security**

The Bidder shall enclose his Bid Security in the sealed envelope marked "A" and "ORIGINAL" or "COPY" pursuant to sub-clause 4.4 in this Instructions. The Bidder shall prepare and submit one (1) original and one (1) copy.

#### **5.2 Contents of Envelop "B", Qualification Documents**

Following documents shall be prepared in one (1) original and one (1) copy and be enclosed in the sealed envelope clearly marked "B" and "ORIGINAL" or "COPY" with the indication of the contents.

- 1) Authorization letter authorizing the signatory of the Bid to commit the Bidder.
- 2) Attachments in support of meeting qualifying requirements as per Clause No. 2.5 for the quoted packages (Attachments 8A, 8B & 9 of Section-III).
- 3) Copy of certificate of local branch, sales, residential and representative office(s) of the Bidder in India as per certificate from pursuant to Attachment 2 of Section III.
- 4) Certificate of letter of authority from manufacturers for all the Equipment (Attachment 3 of Section III).
- 5) Certificate from manufacturer stating the country of origin of each Equipment duly authenticated by competent authority of that country (Attachment 4 of Section III).
- 6) Certificate of carrying out O&M by O&M Partner (Attachment 5 of Section III).
- 7) List of Equipment offered (Attachment 6 of Section III).
- 8) List of Manufacturers of the equipment offered (Attachment 7 of Section III).
- 9) Pre-requisite for installation of equipment offered (Attachment 11 of Section III).

### **5.3 Contents of Envelop "C"; Techno-commercial bid including Technical Specifications and Catalogs**

The following documents shall be enclosed in the sealed envelope marked "C" and "ORIGINAL" or "COPY" with the indication of the contents. The Bidder shall prepare one (1) original and one (1) copy.

- 1) Attachments 1 & 2 of Financial Bid, Section IV.
- 2) Deviation Schedule (Attachment 12 of Technical Bid, Section-III).
- 3) Technical Data sheets of the Equipment in the package (Annexure-I, Vol. II) offered:
  - a) In case that there is no deviation from the Board's requirement, the Bidder must write down "complied" in the column for "Bidder's Response" and it is not necessary to rewrite the same words of the requirements.

- b) In case of any deviation from the requirement the Bidder must write down the “not complied” & the deviation in blanks under “Bidder’s Response”.
- c) The Bidder shall clearly indicate contents and quantities of standard accessories for the proposed Equipment in the blanks.
- d) The Bidder shall understand that decision of the Board will be binding in regards of anything not specifically mentioned in the technical specification.
- e) The Bidders shall offer only one manufacturer, one brand and one model.
- f) Complete set of original catalogues and/or photographs and/or pamphlets illustrating principal feature.

## **6.0 PREPARATION OF FINANCIAL BID**

### **6.1 Preparation of Financial Bid**

The Bidder shall enter a price or rate against all the forms specified in the following Sub-clauses from 6.2 to 6.5 and Attachments in Section IV.

### **6.2 Bid Form**

The Bid Price to be quoted by the Bidder shall be prepared on the official letter head of the respective Bidder according to the Attachment 1 “Bid Form” in Section IV without any alteration or change.

The Bid Price shall be quoted for performing the Contract strictly in accordance with the Technical Specifications.

The Bid Price quoted by the Bidder shall be firm during the Bidder’s performance of the Contract and not subject to variation on any account.

**A Bid Price submitted with an adjustable price will be treated as non-responsive and will be rejected.**

### **6.3 Summary of Bid Price**

Summary of Bid Price shall be prepared and submitted in accordance with the Attachment 2 in Section IV.

The Bidder shall indicate prices for the package in the following manner:

- (i) For the Goods Supplied from Foreign Origin
  - 1. CIF Price at Port of de-embarkment.
    - a) FOB Price of the Package (for the equipment to be supplied from Foreign Origin)
    - b) Freight for complete Package
    - c) Insurance covering all risks up to Port of de-embarkment
  - 2. Local Costs
    - a) Port handling and clearance charges.
    - b) Transportation cost from the port to Port of de-embarkment to Sites.
    - c) Insurance covering all risks from Port of de-embarkment up to handing over.
    - d) Installation and commissioning.
- (ii) For the Goods Supplied from India
  - a) The price of the Equipment quoted ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf including all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of the Equipment quoted ex-works or ex-factory.
  - b) Price for handing and inland transportation, insurance up to handing over the equipment at Site and other local costs up to delivery of the Equipment to each Site.
  - c) Installation and commissioning
  - d) Price of other incidental cost, if any. Then the Bidder shall specify the same.

- (iii) Price of other incidental cost such as Indian Agent's Commission, if any. The Bidder shall specify the same.
- (iv) Cost of O&M of CAAQMS after one year of warranty for Five (5) years including insurance expandable up to next five years.
- (v) Training: The Bidder shall quote the price for the training as indicated in clause 10 of S/W. Cost of Travel, Boarding & Lodging and local transport cost of participants shall be borne by respective board.

**Note :**

- (1) Quoted cost O&M of a CAAQMS for each year should be at least 15% of the cost of supply & installation of the CAAQMS. In case the bidder quotes O&M cost lower than 15% of the supply & installation cost, the Owner will reduce the supply & installation cost suitably, so as to make the O&M cost as 15% of the supply & installation cost, keeping the total quoted cost as unchanged.
- (2) All the local taxes & duties in the State of India i.e. Custom Duty, Excise duty, Sales Tax, Entry Tax, etc. which will be payable on the Equipment if the Contract is awarded shall be paid extra as actual by board.
- (3) Service tax as applicable shall be paid extra as actual the Board.

**6.4 Bid Price Breakup**

The Bidder shall prepare and submit the Bid Price Breakdown (CIF Price or Ex-works price as applicable) for each item of the quoted package(s) in accordance with Attachment 3 in Section IV.

The Bidder shall prepare and submit break up of Operation & Maintenance of CAAQMS as per Attachment 3A in Section-IV.

**6.5 Currencies of Bid:**

The unit rates and the prices shall be quoted by the bidder separately in any one of International trading currencies for the equipment, which the bidder proposes to supply.

**7.0 COMPLETION AND SUBMISSION OF BID**

## 7.1 Completion of Bids

### 7.1.1 Techno-commercial Bid

- (1) The Techno-commercial Bid shall not contain any information regarding Bid Prices and other financial matters except the Bid Security pursuant Clause 4.4 in this instruction.

### 7.1.2 Financial Bid

The Bidder shall submit separate outer envelope (Envelope 'D') for each package, enclosing the sealed inner envelopes of one (1) original and one (1) copy of the price bid(s) prescribed at Sub-clauses 6.2, 6.3, 6.4 and 6.5 and clearly marked "ORIGINAL" or "COPY". All the envelopes shall be clearly marked as follows and then be sealed.

- 1) Board name
- 2) Project Name and Reference No. of the Package
- 3) Financial Bid
- 4) Bidder's Name
- 5) Submission Date
- 6) Contents

### 7.1.3

- (1) In case of discrepancy between "ORIGINAL" and "COPY" bids prepared pursuant to clause 5 & 6 in this instruction, the "ORIGINAL" shall govern.
- (2) The original and the copy of the Bid shall be typed or printed in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. All pages of the Bid except for un-amended, printed literature shall be initialed by the person(s) signing the Bid.
- (3) Any interlineations, erasures or over writing shall be valid only if they are initialed by the person or persons signing the bid with official stamp. A list of such occurrences are to be brought out in separate sheet including Section number, Clause number and Page number and submitted along with the respective envelope of Techno-commercial and/or financial bid.
- (4) The Bid shall be signed by the Bidder himself or for and on behalf of the Bidder by an officer or officers with authorization letter as the case may be. A notarized copy of such Power of Attorney



shall be submitted with the Bid pursuant to Clause 5 in this instruction.

## 7.2 Submission of Bid

**If the outer envelopes of the Techno-commercial Bid and Financial Bid are not sealed, Bid will not be accepted.**

All the documents for the Techno-commercial Bid and Financial Bid shall be submitted to the address and at the time & Date designated by the Board as follows:

**Chief Scientific Officer,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony, Bhopal**

**Phone- +91(0755) 2466191**

**Fax- +91(0755) 2463742**

**Time By 12.00 noon on Date 05.03.2018**

**The Bids received after the specified time and date here above for whatever reason shall be declared 'late' and rejected and returned unopened to the bidder.**

Considering difficulties with document transportation, it is strongly suggested that the Bid shall be delivered by hand and the Bidder assumes all responsibilities for his Bid reaching address specified, prior to the time specified.

Bids in the form of Telex, facsimile, telegraph or email, will not be accepted. Only the complete documents specified above, received at the place and time will be considered.

The Bids once opened shall not be returned to the Bidders regardless of the result of the Bid. This will apply to both the Techno-commercial and financial bids in case a bidder is not qualified at the stage of Techno-commercial evaluation.

## 8.0 OPENING AND EVALUATION OF TECHNO-COMMERCIAL BID

### 8.1 Opening of Technical Bid

Only the Technical Bid will be opened in public at **2.00 PM** on the dated **05.03.2018** at the place specified in Sub-Clause 7.2 here above. Bidders or their representatives may attend the opening.

During opening of the Techno-commercial Bid, the Bidder's name, the presence or absence of necessary envelopes, withdrawals of the Bid and such other details as the Board at their discretion may consider appropriate will be announced and recorded.

All the Bidders or their representatives present shall sign a format evidencing their attendance.

## 8.2 Confidentiality of the Process

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of the contract shall not be disclosed to bidders or any other person not officially concerned with such process. Any effort by a bidder to influence the Board's processing of Bids or award decisions may result in the rejection of the Bidder's Bid. The request for clarification and response shall be in writing or by fax, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Board in the evaluation of the bids in accordance with the clause 11.2 of these instructions.

## 8.3 Clarification of Techno-commercial Bids

To assist the Techno-commercial examination and evaluation of bids, the Board may, at its discretion ask the bidder for a clarification of its Techno-commercial bid. **if needed a pre bid meeting may be called.** All responses to request for clarification shall be in writing, and **no change in the price bid shall be sought, offered or permitted.**

## 8.4 Preliminary Examination

The Board will examine the Techno-commercial Bids to determine whether they are complete, whether the documents have been properly signed and whether the Techno-commercial Bids are generally in order. Any Techno-commercial Bid found to be non-responsive for any reason i.e. non-conformity of bid security, or not meeting the eligibility criteria and/ or qualifying requirements pursuant to clause 2.4 & 2.5 of ITB etc. will be rejected by the Board. No further Techno-commercial evaluation shall be carried out for such bidders.

Prior to detailed evaluation of Techno-commercial bids, pursuant to clause 8.5, the Board will determine the substantial responsiveness of each Bid to the Bidding Documents including acceptable quality of goods offered pursuant to clause 2.4 & 2.5. A substantially responsive Bid is one, which conforms to all terms and conditions of the Bidding Documents without material deviations, objections, conditionality or reservations. A material deviation, objection, conditionality or reservation is one (i) that affects in any substantial way the scope, quality or performance of the contract; (ii) that limits in any substantial way, inconsistent with bidding documents, the Owner's right or the successful Bidder's obligations under the Contract; or (iii) whose rectification would unfairly affect the competitive position of other Bidder's who are presenting substantially responsive bids.

No deviation, whatsoever, is permitted by the Owner to the provisions relating to the following clauses (important Conditions):

- (a) Bid security (ITB Clause 4.5)
- (b) Resolution of Disputes (G.C.C clause 37),
- (c) Applicable law (G.C.C clause 42),
- (d) Taxes & duties (G.C.C Clause 38),
- (e) Performance security (ITB Clause 14 & GCC Cl.28),
- (f) Force Majeure (G.C.C Clause 35).

A bid with deviation to any of the above clauses (important Conditions) will be liable to be rejected.

The Owner's determination of bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence. If a bid is not substantially responsive, it will be rejected by the Owner, and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

## **8.5 Evaluation of Techno-commercial Bid**

- (1) The Board will determine the responsive Techno-commercial Bids for the invitation of opening of Financial Bid if the Techno-commercial Bid meets satisfactorily technical specification and any other information, which they consider relevant to his offer.
- (2) If a Bidder is found not substantially responsive to the technical requirement, the Techno-commercial Bid will be rejected and the

subsequent information as to opening of the Financial Bid will not be notified.

- (3) If the Techno-commercial clarifications are required by the Board to any part of the Techno-commercial Bids, the Bidders will be requested to clarify the same in writing.

#### **8.6 Evaluation Criteria of Techno-commercial Bid**

The Bidder who fulfill the requirements specified under Qualification Requirement (**Clause 2.5**) will be short listed. Under the Qualification Requirement a minimum threshold limit has been set for each parameter like technical experience and financial strength. Bidders not meeting the minimum threshold limit in any of these parameters will not be short-listed.

**The detailed techno-commercial evaluation to be carried out shall be restricted to these short listed Bidders only.**

#### **9.0 NOTIFICATION OF SUCCESSFUL TECHNO-COMMERCIAL BID**

After completing the techno-commercial evaluation of the Techno-commercial Bid first, the Board will notify in writing the **pre-qualified and techno-commercially responsive Bidders**, of the date and venue for the opening of the Financial Bid.

#### **10. OPENING OF FINANCIAL BID**

The Bidders to whom the opening time, date and venue for the Financial Bid are notified by the Board in writing will be invited to attend the Financial Bid opening. The Bidder's representatives present shall sign a format evidencing their attendance.

During opening of the Financial Bid, the Bidder's name, quoted price of package and other details as the Board, as its discretion may consider appropriate will be announced and recorded.

#### **11. EXAMINATION OF FINANCIAL BID**

- 11.1 After opening of the Financial Bid, the Board will examine them to determine whether they are comparable, complete, signed, generally in order and substantially responsive to the Bidding Documents or not.

A Financial Bid determined as being not substantially responsive will be rejected.

The Board may waive any minor informality or non-conformity or irregularity in a Financial Bid which does not constitute a major deviation or reservation provided such waiver does not prejudice or affect the relative ranking of any Bidder.

If there is any discrepancy between words and figures, the amount in words will prevail.

The Financial Bid which is incomplete or conditional will be rejected.

The Financial Bid shall not be returned to the Bidder regardless of the result of the Bid.

The bidder shall submit copies of at least two recent supply orders with the same specifications indicating detailed price schedule along with the price bid, in order to examine reasonability of the quoted rates in the present bid. Failing to which the bid shall be liable for rejection.

11.2 During examination of Financial Bid any **arithmetical errors** will be corrected as follows:

- a) If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected accordingly.
- b) The amount stated in the Form of Bid shall be adjusted by the Board in accordance with the above procedure for the correction of errors and, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, its bid will be rejected, and the bid security will be forfeited in accordance with clause 4.5 (5)

## **12. EVALUATION AND COMPARISON OF FINANCIAL BID**

### **12.1 Evaluation Procedure**

The Board will evaluate the Bid previously determined to be Techno-commercially responsive pursuant to clause 8.6. The Board reserves the

right to reject any bid or bids received at its discretion without assigning any reason whatsoever.

12.2 The purchaser's evaluation of a bid will take into account following factors:

**I. Total cost of supply, installation & commissioning at the identified city / location of the equipment as below:**

- 1) The CIF port of entry price of the equipment to be offered from abroad including price of consumables & spare parts.
- 2) The ex-factory / ex-warehouse / off-the shelf price of the equipment to be offered from within India (such price include all costs as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the equipment)
- 3) Local costs i.e.
  - a. Cost of port handling and custom clearance,
  - b. Transportation cost from Port of de-embarkment to Sites,
  - c. Insurance from Port of de-embarkment up to handing over and
  - d. Installation and commissioning charges at site.
- 4) Other incidental costs, if any (such as Indian agent's commission)

**II. O&M cost (including insurance) for five years expandable up to next five years as Net Present Value discounted @15% per annum.**

**NOTE:**

Taxes and duties shall not be considered for the purpose of evaluation.

12.3 The Board will evaluate and compare Bid for complete package.

12.4 **The rate of exchange for evaluation**

To facilitate evaluation and comparison, the Owner will convert all Tender prices to Indian Rupees at the BC selling exchange rate as determined by the State Bank of India, on the date of opening of Techno-commercial Bids.

### **12.5 Clarification on Financial Bid**

For the purpose of examination, evaluation and comparison of the Financial Bid, the Board may at his discretion request the Bidder in writing to clarify his Financial Bid, but no change in the Bid Price or substance of the Bid will be sought, offered or permitted.

### **12.6 Cost Compensation for deviations**

Deviations specifically declared by the bidders in respective Deviation Schedule (Attachment 12 of Technical Bid, Section – III) only will be taken into account for the purpose of evaluation.

In case of any of these deviations are not acceptable to the Owner, the Bid shall be rejected.

In case any of the deviations are acceptable to the Owner, the Owner will make its own assessment of the cost of these deviations and consider it for evaluation for the purpose of ensuring fair comparison of bids.

Bidders may note that all deviations / variations and additional conditions etc. found elsewhere in the bid other than those stated in the Deviation Schedules, save those pertaining to any rebates, shall not be given effect to in evaluation and it will be assumed that the bidder complies to all the conditions of Bidding Documents. In case bidder refuses to withdraw, without any cost of the Owner, those deviations, which the bidder did not state in the Deviation Schedules, the bid shall be rejected and the bid security of the bidder may be forfeited.

## **13. AWARD OF CONTRACT**

### **13.1 Award of Contract to Successful Bidder**

The Board will award the Contract to successful Bidder:

1. Whose Bid will be determined to be substantially responsive to this Bidding document and who will be determined by the Board, to be qualified technically, financially and otherwise in respect of

such other capabilities, as the Board may be deem necessary and appropriate to satisfactory performance of the Contract and

2. Whose Bid will be determined to be lowest evaluated, responsive Bid and is determined to be qualified to satisfactorily perform the contract.
3. The Board reserves the right to reject any bid or bids received at its discretion without assigning any reason whatsoever.

### **13.2 Notification to Award**

Prior to the expiration of the Bid validity pursuant to sub-clause 4.6 in this Instructions, the Board will notify the successful Bidder in writing by registered letter or by facsimile to confirm that its Bid has been accepted.

The notification of award will constitute the formation of the Contract.

Upon the successful Bidder's furnishing of the Performance Security pursuant to Clause 14 the Board will promptly notify each unsuccessful Bidder and will discharge their Bid Security pursuant to Sub-Clause 4.5.

### **13.3 Signing of Contract**

Within Thirty (30) days of the receipt of notification of award from the Board, the successful Bidder shall sign and date of Contract.

The Contract shall take the form of General and Special Condition attached to Section V, VI and such modifications as may be necessary.

The Bidder shall prepare at his own cost one (1) original and three (3) bound copies of the Contract including the Contract Form attached to the Special Conditions of Contract (Attachment 3 of Section VI) for distribution to the parties concerned.

## **14. PERFORMANCE SECURITY**

Within thirty (30) days of notification of award from the Board, the successful Bidder shall furnish the Performance Security in the form of bank guarantee issued by a reputable bank (as per enclosed list of Attachment – 15) having license to do business in India in accordance with Attachment 2 "Performance Security Form" provided in Special Conditions Contract for an amount equivalent to 10% (ten percent) of



the Contract Price, for one year after successful commissioning of system.

Failure of the successful Bidder to comply with the requirement of Sub-clause 13.3 or Clause 14 in these instructions shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security in which event the Board may make the award to the second high ranked Bidder or call for new Bids.

## **15. EXPENSE OF BID**

Under no circumstances will the Board be liable to the Bidder for any expenses, losses or damages whatever incurred in the Bid including but not limited to expenses, losses or damages associated with preparation of the Bid, visits to the Sites and all matters in connection with the Contract negotiations and signing regardless of the conduct or outcome of the bidding process.

## **16. RESPONSIBILITY FOR INFORMATION SUPPLIED**

Prior to the final time and date for submission of the Bids, no representation, communication, explanation or statement, verbal or written, made to the Bidder or anyone else by the Bidder or any of their employees or authorized representatives other than as may be set out in amendment issued in accordance with Sub-clause 3.6 in this Instructions shall bind the Bidder in the exercise of their powers and duties under the Contract.

The information given in the Bidding Documents is the best in the possession of the Board, but the Board does not hold himself responsible for its accuracy.

**VOLUME - I**  
**SECTION II**  
**SCOPE OF WORKS**

1.	Details of Project Structure .....
2.	Scope of Services .....
3.	Minimum Specifications .....
4.	Desired Output for AAQMS Equipment .....
5.	Data Management AMD Quality checks .....
6.	Location .....
7.	Supply of Equipment .....
8.	Installation of Equipment .....
9.	Inspection and Test .....
10.	Provision of Training .....
11.	Operation & Maintenance of Air Monitoring Stations .....
12.	Schedule .....
	Attachment 1 Equipment List .....
	Attachment 2 Protocol Manual Calibration .....
	Attachment 3 Daily Reporting Format for Meteorological Parameters ...
	Attachment 4 Monthly Reporting Format for Meteorological Parameters..
	Attachment 5 Daily Reporting Format for Main Pollutants .....
	Attachment 6 Monthly Reporting Format for Main Pollutants .....

## **1.0 DETAILS OF PROJECT STRUCTURE**

- (a) Successful Bidder would be awarded the project/work under a Supply and Service Agreement, which would entail:
1. Supply, installation and Commissioning of Ten Sets of CAAQMS Equipment at the defined cities/ locations
  2. Operation and Maintenance of the CAAQMS after one year of warranty for a period of 5 years from the date of it's the commissioning expandable up to next five years.
  3. Daily reporting of data pertaining to Ambient Air Quality to MPPCB/ CPCB. MPPCB would make payment for CAAQMS as per schedule of requirement, for Supply, Installation and Commissioning of the system. MPPCB would procure all the CAAQMS equipment on its name. MPPCB will make regular payments for the O&M and supply of Data at the end of each Quarter. The bidders therefore need to quote two prices for;
    - (a) Supply Installation and Commissioning of the System and;
    - (b) Reporting of data to MPPCB / CPCB. The price for the data supply would include the Operation and Maintenance, including incidental charges, electricity, manpower, security, etc.

MPPCB would provide land for installation of CAAQMS free of cost, in the identified city/location to the Successful Bidder. Along with the land, MPPCB would provide letter/ documents for telephone and electricity connections at the proposed location. Bidder would bear the initial installation cost for these facilities and the monthly recurring cost pertaining to their usage (monthly telephone and electricity bill) would also be borne by the Successful Bidder.

One no. of Day light & Night visible data display system is to be supplied, installed and maintained initially for five years after warranty of one year. MPPCB would identify location for installation of Day light & Night visible data display system. The successful bidder shall also arrange telephone and electricity connections at the identified location and all the documents required for the connection shall be provided by the board. The Successful Bidder would bear the initial installation cost for these facilities and the monthly/recurring cost pertaining to their usage (monthly telephone and electricity bill) would also be borne by the Bidder. All other installation requirement for Display System is to be arranged by the successful bidder and cost for same should be included in bid price.

(b) **SCHEDULE OF REQUIREMENTS**

The CAAQMS shall have the following schedule of requirement. The system should be completely functional. Any balance of material not specified but required for the purpose must be supplied by the bidder.

Schedule No.	Brief Description	Qty. in nos.
1.	Continuous Automatic Air Quality Monitors analyzers for CO, SO <sub>2</sub> , NO <sub>2</sub> +NH <sub>3</sub> , O <sub>3</sub> , and Beta Gauge PM <sub>2.5</sub> and PM <sub>10</sub> Monitors.	10 Units
2.	BTX Monitor/ Analysers	10 Units
3.	Multi-calibration systems for gaseous monitors comprising of gas supply / generation and automated calibration	10 Units
4.	Meteorological Instrumentation comprising Wind direction, Wind speed, Ambient temperature, Relative humidity, Solar Radiation and Rainfall mounted on telescoping crank up meteorological Mast.	10 Units
5.	Computer system consisting of one PC along with Laser Printer and DAS at the monitoring station and one PC at central office with peripherals and software for data acquisition / Data display Board / transfer and system integration, telephone, Modem.	10 Units
6.	Modem	20 Units
7.	Recommended spares and supplies	10 Units
8.	Data display system	10 Units
9.	Housing/ Container for Continuous Automatic Monitoring Stations with Sampling line, Internal fitting, Instruments racks, Electrical and Gas line fittings, Tools (electrical and mechanical), and Recommended spares .	10 Units
10.	UPS, 10 KVA (1hr. full load back-up)	10 Units
11.	UPS, 5 KVA (2hrs. full load back-up)	10 Units
12.	Split Air Conditioners (2 Ton capacity)	20 Nos.
13.	Split Air Conditioners (1 Ton capacity)	10 Units
14.	RCC foundation, pillars misc works including civil & electrical	10 Units

**2.0 SCOPE OF SERVICES**

The Scope of Works under the package shall include:

- A) The supply including packing, transportation, insurance, custom clearance, port clearance and handling, inland transportation, inland transit insurance and delivery to site, installation, testing and commissioning of equipment and provision of training of MPPCB officials station wise.
- B) Operation & Maintenance of Air Monitoring Stations for a period of five (5) years from the date of commissioning of the station, which can be extended up to five (5) years at the mutually agreed rates and terms and conditions.
- C) Data & Report of data pertaining to CAAQMS to MPPCB/CPCB.
- D) On line transfer of data to MPPCB & CPCB.
- E) The bidder shall quote rates for complete package of CAAQMS including all analyzers (imported & Indigenous) and other jobs as indicated in the schedule of requirements. The Board shall reserves right to award notification for all or some analyzers according to the requirement of the specific locations and budget availability.

Other services involved with performance of the Works are specified in General and Special Conditions of Contract of bid document.

### **3.0 MINIMUM TECHNICAL SPECIFICATIONS**

The minimum technical specification requirements for the CAAQMS to be installed are given in Volume – II (Technical Specifications) of bid document. However, the actual technical proposal can have higher or better technical performance parameters and the minimum specifications proposed should not be taken as a constraint on the upper side. The technical specifications given in Volume – II (Technical Specifications) of bid documents are descriptive and Selection Committee can consider technical proposals having similar specifications.

### **4.0 DESIRED OUTPUT FOR CAAQMS EQUIPMENT**

The desired output requirements from the CAAQMS equipment to be installed at are given in Attachment 2 to 6 of Scope of work of bid document.

## **5.0 DATA MANAGEMENT AND QUALITY CHECKS**

Data shall be collected and validated according to US EPA standards/National Ambient Air Quality Standards using the methodologies included in 40 Code of Federal Regulations. All analyzers shall have current US EPA reference or equivalent method designation and shall be of the latest design.

Successful bidder shall submit a Standard Operating Procedure for the air quality monitoring station to the Board before award of contract. This Standard Operating Procedure shall be approved by the Board prior to award. The Standard Operating Procedure shall contain the following:

Operating procedures for all analyzers and meteorological sensors

Calibration procedures

Calibration schedule

Maintenance procedures

Maintenance schedule

Data validation procedures

Data reporting as per attachment X<sub>1</sub> to X<sub>5</sub>

Data obtained from these calibration checks and copies of associated Quality Assurance and calibration documentation, shall be submitted to the Board along with the Air Quality Data.

Inventory of spares and consumables to be maintained and recorded from time to time and a buffer stock for any eventuality to be maintained.

Upon 3 days notice from the Board once per year, Successful Bidder shall agree to submit to an audit of calibrations, conducted, using pre-approved US EPA methodologies, by a third party. Third party audit will be arranged by the Owner (MPPCB) by the agency decided by them, at their cost and bidder shall provide all necessary facilities to carryout required audit. The results of these audits shall be made immediately available to both the Seller and Buyer.

Operator shall participate in Proficiency Testing Exercise organized by reputed organization.

### **GENERAL GUIDELINES**

**Working Hours:** The site for CAAQMS operation should be manned by the employees of the Successful Bidder for 24 hours a day. In addition the Successful Bidder would arrange for a security of the site and

equipments through appointment for security agency (providing at least one security guards) throughout the day.

**Insurance:** Successful Bidder would bear the cost of insuring the equipment (Comprehensive) and facilities against any theft, fire and other applicable provisions during tenure of contract period including O&M with a copy to MPPCB of an appropriate amount.

**Station platform, pillars Electricity & telephone / modem arrangement:**

The successful bidder shall construct station platform pillars etc. as required and shall also arrange electric and telephone connection modems etc. required for the smooth Operation of the station. The necessary documentation shall be provided by the concerned MPPCB / local authority of the board.

**6.0 LOCATION**

The location of the Air Monitoring Station shall be decided by the Board and city wise are as under:

1. Indore
2. Bhopal
3. Jabalpur
4. Gwalior
5. Rewa
6. Satna
7. Katni
8. Shahadol
9. Chhindwara
10. Sagar

**7.0 SUPPLY OF EQUIPMENT**

Attachment – 1 specifies the list of equipment in the package, quantity of equipment to be supplied, delivered and installed.

**8.0 INSTALLATION OF EQUIPMENT**

All the necessary arrangements and adjustments for suitable installation and operation of the equipment shall be made by the Bidder including power supply and telephone / mobile/ internet

connection, however all the required document shall be arranged by the board.

## **9.0 INSPECTION AND TEST**

### **9.1 Unpacking Inspection**

The Contractor shall inspect at Site whether all the Equipment are packed in conformity with the Equipment list and packing list without any damage immediately after arrival of the Equipment at each Location.

### **9.2 Performance Test**

The Contractor shall carry out the performance test for all the Equipment supplied under the scope of work of this document.

In case the Equipment for performance test requires the supplemental and/ or supporting Equipment, the Contractor shall carry out the performance test including such Equipment.

## **10.0 PROVISION OF TRAINING**

The supplier shall provide the training to the Board staff for minimum two days **to three (3) persons** (maximum) after the performance test and commissioning. Training should include but not limit to the following:

- 1) Inspection of the Equipment.
- 2) Precautions in use of the Equipment.
- 3) Basic measurement principle.
- 4) Principles of operation of the Equipment.
- 5) Start-up and shutdown procedure.
- 6) Operation of the Equipment.
- 7) Calibration method.
- 8) QA/QC.
- 9) Data Validation & management and software application.
- 10) Safety precautions.
- 11) Basic maintenance procedure.
- 12) "Do's" and "Don'ts" in operation of the Equipment.
- 13) Handling of hazardous chemicals and gas.
- 14) Others, which are deemed to be necessary by the Supplier.

In case the Equipment for training requires the supplemental and/or supporting Equipment, the Supplier shall carry out the training including such Equipment.



The Supplier shall discuss and finalize the detailed contents and schedule of the training program in consultation with the Board during installation of the Equipment.

The Supplier shall furnish the training manual and/or CD as required for training for all the Equipment supplied under the scope of work of this document.

Contents of training manual and/or CD for the Equipment are as follows:

1. Principle of the Equipment.
1. Operation and calibration of the Equipment.
2. Maintenance and basic repair of the Equipment.
3. Safety instruction of the Equipment.
4. Others, which are deemed to be necessary by the Supplier.
5. QA/QC, Data Validation & management and software Application

## **11.0 Operation & Maintenance of Air Monitoring Stations**

11.1 The Contractor's responsibilities shall include without limitations the following works to be carried out on the Air Monitoring Stations installed under this Contract during the Operation & Maintenance of the stations:

- a) Operation and Maintenance of all the commissioned equipments and amenities as supplied by the Manufacturer under the Contract including services during forced and planned outages and overhauls.
- b) The Contractor shall take over the entire Air Monitoring Station (including all equipment) for O&M after execution of Indemnity Bond as per format placed at Attachment- 12, Section III of bid document.
- c) The Contractor shall provide to the owner a monthly summary of all operation and maintenance activities performed by the contractor during each month.
- d) Operation and Maintenance Obligations:

In implementing its obligations to operate and maintain the facility under this Contract, the Contractor shall:

- i) Undertake comprehensive maintenance including i.e. schedule and breakdown maintenance & repair at site and keep Board Informed regarding status of equipments and forward daily data as per Attachment 3 of Section – II.
- ii) Obtain permission from the owner and inform the O&M for any assistance for which equipment is required to be sent to the works. Contractor shall arrange substitute equipment to keep CAAQM station operational.
- iii) Take reasonable action to assure that the Personnel deployed at Air Monitoring Stations and any subcontractors and agents are provided with a work place in compliance with applicable Law.
- iv) Keep the Air Monitoring Stations clean, well maintained and in good working condition.
- v) Security: It is the duty of the Contractor to secure the movable, immovable and other properties of the Owner at the Air Monitoring Station. The Contractor shall indemnify the loss caused to the Owner on account of any damage, loss or theft caused to the property of the Owner.
- vi) Scheduled Maintenance: Unless Owner and Contractor mutually agree otherwise, perform all required Scheduled maintenance for all equipment, auxiliaries etc., in accordance with the O&M specifications.
- vii) Unscheduled Maintenance :Perform all Unscheduled Maintenance and repairs for all equipment, auxiliaries etc. within (24) hours of the occurrence of the event requiring Unscheduled Maintenance, the operator shall provide the Owner with detailed written information on nature of the repair or replacement to be carried out, estimated down time and other necessary details as required.
- viii) The Contractor shall source all the spares required for maintenance & repairs of the installed equipment from O&M only.

- e) The Operator shall not:
  - i) Make any modifications as to the Air Monitoring Stations, other than in an Emergency, without the prior written approval of the Owner, or
  - ii) Dispose off any assets, settle law-suits or engage in transactions relating thereto on the Owner's behalf without the prior written approval of the Owner.
- f) The Contractor shall purchase spare parts, materials, supplies and other consumable items, and maintain an inventory thereof, for the Air Monitoring Stations. All such material supplied and other items shall be the property of the Contractor However all the spares shall be sourced from OEM's only.
- g) The Contractor shall review all applicable Laws and initiate and maintain such prosecution, procedures and operating plans relating to operation of the Air Monitoring Stations as are necessary to comply therewith or assist the owner in complying therewith as the case may be.
- h) The Contractor shall operate the equipment as per the laid out standards in the operating manual of the equipment and providing data for ambient air to MPPCB on daily basis in the suggested format. The daily monthly and yearly Reporting Formats are attached **Annexure X<sub>1</sub> to X<sub>5</sub>**
- i) The CAAQMS has to be in operation for a minimum of 85% of the days in a year, 24 hours a day, and should not be inoperable for more than 7 days at a stretch.
- j) Provide data collected through operation of the equipments on daily basis in suggested output formats given in the bid document.
  - i) Establish and maintain a daily and monthly and yearly reporting system to provide storage and ready retrieval of operation and maintenance data including such information necessary to verify calculations. The monthly reporting shall contain variances from targets.
  - ii) Provide access to the owner to the Air Monitoring Stations and its data at all reasonable times and as and when required.

- iii) Provide the operational date required to all competent authorities including, Government of India or concerned State Governments.
- iv) On line transfer of data to MPPCB /CPCB web site.
- k) The Contractor shall ensure accuracy of the data provided as per standards.
- l) The contractor shall ensure periodic re-calibration of all the equipment as per manufacturer's instructions and maintain "Protocol Calibration" as per Attachment 2 of Section II.

11.2 Owner shall arrange for the following and Contractor shall guide and assist the Owner:

- a) The Owner shall pay O&M charges to the Contractor at the end of each quarter after submission of validated data & report by the Contractor, in accordance with the payment terms detailed in Special Conditions of Contract.
- b) Owner shall pay all fees including Service Tax, etc., imposed upon Owner by the Applicable Law.
- c) The Owner shall identify and hand over the site for erection & commissioning of Air Monitoring Stations free from all encumbrances.
- d) The Owner shall make the arrangement for electricity & telephone connection at the site. However monthly charges for both electricity and phone bill shall be borne by the Contractor.
- e) The valid data capture rate should be minimum 85%. The full payment shall only be made if validated data is 85% and all the calibration protocol maintenance scheduled and spare parts/ consumable replacement document are maintained and verified by the owner/ board. The contractor has to maintain records / Receipts/ bills paid available as and when required

11.3 **Handing Over of Station:** On expiry/closure/termination of the Contract Agreement, stations shall be handed over to Board in working condition to the satisfaction of Board. Few or all the spares procured by the Contractor and unused as on date of handing over may be purchased by the Owner at his discretion provided Contractor is able to provide

reasonability of the costs of such spares. In addition the Contractor shall provide consumables equivalent to three months consumption on expiry/closure/termination of the Contract Agreement without any extra financial implication.

#### **11.4 Relocation of Station:**

During contract period, if Board intends to shift CAAQM station from one location of the city to another location, due to some reason – functional or otherwise, Bidder shall shift the CAAQM station for which cost of shifting including dismantling, loading & transportation, reinstallation at new location and construction of foundation will be made by the Board at a mutual agreed cost.

#### **11.5 Penalties:**

During O&M period, in case of any Analyses/ system failure, penalty will be charged by MPPCB @ Rs.1,000/- (one thousand) per day per Analyzer after a grace period of seven (7) continuous non-working days. The grace period of seven (7) continuous non-working days shall be given only once per quarter (3 months).

For a failure of Data display:

Board/panel, a penalty will be charged by MPPCB @ Rs. 1,000/- (one thousand) per day after a grace period of five (5) continuous non-working days. The grace period of Five (5) continuous non-working days shall be given only once per quarter (3 months).

Failure due to power outage and other Force Major conditions shall not be considered for levy of penalty.

Total penalty per year during O&M period on account of above conditions shall be limited to 30% of total O&M charges for one year. Failing which defective/ malfunctioning analyser / system has to be replaced.

In case penalty in the year exceeds 30% as above, the Contractor shall be required to replace the defective analyzer (s) or systems with new ones at his own cost, failing which the MPPCB shall have the right to terminate the O&M contract.

## **12.0 SCHEDULE**

- 12.1 Contractor shall complete all activities covered in the scope of work up to installation & commissioning of Air Monitoring Stations within 180 days from date of opening of Letter of Credit.
- 12.2 The Contractor shall carry out Operation & Maintenance of Air Monitoring Stations for a period of (5) years from the date of commissioning of the station, which can be extended up to five (5) years at the mutually agreed rates and terms and conditions.
- 12.3 The operation and maintenance contract shall be executed by the concerned Member Secretary of Madhya Pradesh Pollution control board having jurisdiction or the area under his control. The term and condition shall be governed as per the tender document. The Member Secretary of MPPCB or any person authorized by him shall be the ultimate consignee.

## Attachment 1

### Equipment List

Schedule No.	Brief Description	Qty. in nos.
1	Continuous Automatic Air Quality Monitors analyzers for CO, SO <sub>2</sub> , NO <sub>2</sub> +NH <sub>3</sub> , O <sub>3</sub> , and Beta Gauge PM <sub>2.5</sub> and PM <sub>10</sub> Monitors.	10 units each
2.	BTX Monitor/ Analyser	10 units
3.	Multi-calibration systems for gaseous monitors comprising of gas supply / generation and automated calibration	10 units
4.	Meteorological Instrumentation comprising Wind direction, Wind speed, Ambient temperature, Relative humidity, Solar Radiation and Rainfall mounted on telescoping crank up meteorological Mast.	10 units
5.	Computer system consisting of one PC along with Laser Printer and DAS at the monitoring station and one PC at central office with peripherals and software for data acquisition / Data display Board / transfer and system integration, telephone, Modem.	10 Lots
6.	Modem	20 Units
7.	Recommended spares and supplies	10 Lots
8.	Data display system	10 units
9.	Housing/ Container for Continuous Automatic Monitoring Stations with Sampling line, Internal fitting, Instruments racks, Electrical and Gas line fittings, Tools (electrical and mechanical), and Recommended spares .	10 units
10.	UPS, 10 KVA (1hr. full load back-up)	10 units
11.	UPS, 5 KVA (2hrs. full load back-up)	10 units
12.	Split Air Conditioners (2 Ton capacity)	20 Nos.
13.	Split Air Conditioners (1 Ton capacity)	10 Nos.
14.	RCC foundation, pillars misc works including civil & electrical	10 Lots

## Attachment 2

### STATION PROTOCOL FOR CAAQM STATION UNDER O&M CONTRACT

**NAME OF CAAQM STATION**

**DATE:**

S. No.	Parameter	Status	Zero Value		Zero Offset		Span Calibration			K Factor (Span)		Rem.
			Pre	Post	Pre	Post	Span Source	Pre	Post	Pre	Post	
1.	CO Analyzer											
2.	SO <sub>2</sub> Analyzer											
3.	NO <sub>x</sub> Analyzer											
	NO											
	NO <sub>2</sub>											
	NH <sub>3</sub>											
4.	O <sub>3</sub> Analyzer											
5.	BTX Analyzer											
	Benzene											
	Toluene											
	E-benzene											
	M+P Xylene											
	O-Xylene											
6.	Dust Analyzer											
	PM <sub>2.5</sub>											
	PM <sub>10</sub>											
7.	<b>Meteorological Parameter</b>											
	Temperature											
	Humidity											
	Wind Speed											
	Wind Direction											
	Solar Radiation											
	Rain Fall											
8.	<b>Computers</b>											
9.	<b>UPS / ACs / Others</b>											
10.	<b>Data Display Board</b>											
	<b>Maintenance</b>	<b>Details/</b>										



	<b>Requirement</b>											
	1.											
	<b>Specific Observation(s)</b>											

**Station Maintained By.....**

**Station supervised by .....**

**DAILY REPORTING FORMAT FOR METREOLOGICAL  
PARAMETERS**

(To be submitted daily at 12 Noon for the previous day ending 12 midnight)

**Location:**

**Date:**

Hrs.	WIND SCREEN	WIND DIRECTION	HUMIDITY	TEMPERATURE	SOLAR RADIATION	RAINFALL	REMARKS
00-01							
01-02							
02-03							
03-04							
04-05							
05-06							
06-07							
07-08							
08-09							
09-10							
10-11							
11-12							
12-13							
13-14							
14-15							
15-16							
16-17							
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
Min.							
Max.							
Average							



**DAILY REPORTING FORMAT FOR MAIN POLLUTANTS**

(To be submitted daily at 12 Noon for the previous day ending 12 midnight)

**DAILY AMBIENT AIR QUALITY DATA**

**Location:**

**Date:**

Hrs.	SO <sub>2</sub>	NO	NO <sub>2</sub>	NO <sub>x</sub>	NH <sub>3</sub>	CO	O <sub>3</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	Benzene	Toluene	Xylene	Remarks
00-01													
01-02													
02-03													
03-04													
04-05													
05-06													
06-07													
07-08													
08-09													
09-10													
10-11													
11-12													
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14-15													
15-16													
16-17													
17-18													
18-19													
19-20													
20-21													
21-22													
22-23													
23-24													
<b>Standards</b>													
<b>Min.</b>													
<b>Max.</b>													
<b>Average</b>													

**MONTHLY REPORTING FORMAT FOR MAIN POLLUTANTS**

(To be submitted monthly at 12 Noon next day ending month)

**MONTHLY AMBIENT AIR QUALITY DATA**

**Location:**

**Month:**

Date	SO <sub>2</sub>	NO	NO <sub>2</sub>	NO <sub>x</sub>	NH <sub>3</sub>	CO	O <sub>3</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	Benzene	Toluene	Xylene	Remarks
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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30													
31													
Min.													
Max.													
Average													

**VOLUME 1**

**SECTION III**

**FORM OF TECHNO-COMMERCIAL BID**

## SECTION III

### FORM OF TECHNO-COMMERCIAL BID

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**Attachment 1**

<Letterhead of the Bidder>

**FORM OF QUESTIONNAIRE**

M.P. POLLUTION CONTROL BOARD PROJECT  
BIDDING DOCUMENTS  
FOR SUPPLY, INSTALLATION & COMMISSIONING  
OF CONTINUOUS AMBIENT AIR QUALITY MONITORING STATIONS (CAAQMS)  
AND OPERATION & MAINTENANCE SERVICES FOR THIS CAAQMS AT -----

Date :

**To,**

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony, Bhopal**

From:        Name of Bidder  
              Address  
              Name of Representative  
              Position  
              Fax No.  
              Email id.  
              Signature

Question
Brief report of experience and capabilities and company profile.



## Attachment 2

<Letterhead of the Bidder>

### CERTIFICATE OF O&M PARTNER OF THE BIDDER IN INDIA

To,

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

**Subject :- Certificate of Existence of Local Branch, Sales Residential and Representative Office(s) in India**

1. Name of Office (s) :
2. Address :  
Tel. No. :  
Fax No. :  
Telex No. :  
Email id :
3. Status of Office(s) :
4. Date of Establishment of Office (s):
5. Name & Address of Residential Representative:
6. Total No. of years of association with OEM (Name of the manufacturer):
7. Total Manpower :
8. Total No. of trained Service Engineer :
9. Present No. of offices in India (Name the locations & address):
10. Total Turnover in last 3 years:
11. Major job in Hand:
12. Experience in O&M contract:

Sl. No.	Name of Client and Address, Phone No.etc.	Description of Contract (Brief scope of contract)	Year of Placement of Order	Present Status

Signature

Name:

Designation:

Seal:

### Attachment 3

#### FORM OF LETTER OF AUTHORITY

To,

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran parisar,  
Arera Colony,  
Bhopal-462016 [India]**

Name of Manufacturer

Subject:- Letter of Authority from Manufacturer

Dear Sirs,

We, (Name of Manufacturer), a manufacturer duly organized and existing under the law of (Country Name) with its principal office of business as (Address) hereby make, constitute and appoint (name of Bidder), a company duly organized and existing under the laws of (Country Name) with its principal office of business at (Address) to be our true and lawful attorney in fact to do the following sets and deeds:

To present and bind us in the for Supply and O&M of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for (Name of the Board) at in the State of India, regarding the supply and installation of the following equipment proposed in the bid which we manufacture or produce.

Item No.	Name of Equipment

We, as a manufacturer bind ourselves as co-worker of the bid and are jointly and severally responsible for the compliance of the said bid and once (Name of Bidder) has been selected as a successful bidder, we shall manufacture, delivery and install the equipment in accordance with the terms and conditions of contract with (Name of Bidder) and the M. P. Pollution Control Board.

We hereby give and grant to the said (Name of Bidder) full power and authority to do and perform all and every act and thing whatsoever, requisite necessary and proper to be done in the premises, as fully, to all intents and purposes as we might or could do with full power of submission and renovation hereby ratifying and conforming all that (Name of Bidder) or its duly authorized representative shall lawfully do or cause to do done by virtue hereof.

IN WITNESS WHEREOF, we have hereto signed this document on -----  
2018.

ACCEPTED ON -----, 2018

NAME OF BIDDER  
MANUFACTURER

NAME OF ISSUING

-----  
(Name of duly authorized  
representative to sign and signature

-----  
(Name of duly authorized  
representative to sign and  
signature)

-----  
(Rank of position and department)

-----  
(Rank of position and department)

### Attachment 3A

<Letterhead of the Manufacturer>

#### FORM OF CERTIFICATE OF SUPPLY OF SPARES AND CONSUMABLES BY MANUFACTURER

Date:

To,

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran parisar,  
Arera Colony,  
Bhopal-462016 [India]**

#### **Sub:- Certificate of Supply of Consumables and Spare Parts by Manufacturer**

This is to certify that we (Name of Manufacturer) shall supply the consumables and spare parts of the equipment mentioned below during O&M period under the contract (contract detail) to the contractor (Name of the contractor)/ Owner.

It is hereby guaranteed that we shall maintain stocks of consumables and spare parts for the following equipment for a period of Eight (8) years after the commissioning of the equipment in India.

Item No.	Name of Equipment	Name of Manufacturer

Signature:

Name of Person:

Position:

Name of Manufacturer:

Office Seal of Manufacturer:

Legal Address of Manufacturer:

<Letterhead of the Manufacturer>  
**FORM OF CERTIFICATE OF COUNTRY OF ORIGIN**

**To,**

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

Name of Manufacturer

**Subject :- Certificate of Country of Origin**

We, (Name of Manufacturer), hereby certify that our equipment for procurement and installation of equipment for M. P. Pollution Control Board, Bhopal in the State of Madhya Pradesh, India is to be manufactured in the country mentioned below:

Item No.	Name of Equipment	Country of Origin

Signature

Name of Person:

Title:

Name of Manufacturer:

Legal Address:

## Attachment 5

<Letterhead of the O&M Partner>

### **FORM OF CERTIFICATE OF CARRYING OUT O&M OF CAAQMS's BY THE O&M PARTNER IN INDIA**

Date:

**To:**

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

**Sub:- Certificate of carrying out O&M of CAAQMS's by the O&M partner in India.**

This is to certify that we <Name of O&M Partner> hereby agree to carry out day to day Operation and maintenance of the one (1) CAAQMS installed and commissioned by <Name of the main bidder> for minimum of five years from the date of installation & commissioning of the CAAQMS at the rates quoted by <Name of the main bidder> against this tender, strictly in accordance with terms & conditions contained in this bid document.

Signature:

Name of Person:

Position:

Name of O&M Partner:

Name Seal of O&M Partner:

Legal Address of O&M Partner in India:

Counter-signed by main bidder

Name of Person:

Position:

Name of the Bidder:

Office Seal of Bidder:

Legal Address of Bidder:

**Attachment 6**

<Letterhead of the O&M Partner>

**LIST of Equipment Imported and indigenous**

<b>S. No.</b>	<b>Name of Equipment</b>	<b>Name of Manufacturer</b>	<b>Quantity</b>

## Attachment 7

<Letterhead of the O&M Partner>  
**LIST of Manufacturer Imported and indigenous**

S. No.	Name of equipment	Name of manufacture



**Attachment 8 A**

**PROFORMA FOR FINANCIAL CAPABILITY OF BIDDER  
(for a period of last three years)**

Bid No. ----- Package Code ----- Date of Opening -----  
Time -----  
Name of the Bidder .....

<b>Year</b>	<b>Currency</b>	<b>Turnover</b>
2014-2015 financial year		
2015-2016 financial year		
2016-2017 financial year		
Average		

**Note:**

1. The annual turnover amount is to be supported by annual report.

**Signature of the Authorized Representative**  
**Name of the Person**  
**Position**

**Attachment 8 B**

**PROFORMA FOR PERFORMANCE STATEMENT FOR MANUFACTURER (for a period of last five years)**

Bid No. \_\_\_\_\_ Name of Equipment \_\_\_\_\_ Date of Opening

\_\_\_\_\_ Time \_\_\_\_\_

Name of the Manufacturer \_\_\_\_\_

Order placed by (full address of Purchaser)	Order No. & Date	Description of ordered equipment (Model no.)	Quantity supplied	Value of order	Date of commissioning and handing over	Has the equipment been satisfactory functioning? <b>(Attach certificates from the Purchaser/Consignee for each equipment)</b>
1	2	3	4	5	6	7

**NOTE :** Bidder to furnish above detail for each equipment of the quoted package on separate sheet.

**Signature of the Authorized Representative**

Name of the Person

Position

**Attachment 8 C**

**PROFORMA FOR PERFORMANCE STATEMENT FOR BIDDER (O&M OPERATOR) AS AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER (for a period of last five years)**

Bid No. \_\_\_\_\_ Name of Equipment \_\_\_\_\_ Date of Opening \_\_\_\_\_  
 Time \_\_\_\_\_  
 Name of the Manufacturer \_\_\_\_\_

Order placed by (full address of Purchaser)	Order No. & Date	Description of ordered equipment (Model no.)	Quantity supplied	Value of order	Date of commissioning and handing over	Has the equipment been satisfactory functioning? (Attach certificates from the Purchaser/Consignee for each equipment)
1	2	3	4	5	6	7

**NOTE :** Bidder to furnish above detail for each equipment of the quoted package on separate sheet.

**Signature of the Authorized Representative**  
 Name of the Person \_\_\_\_\_  
 Position \_\_\_\_\_

**Attachment 9**

**CAPABILITY & EXPERIENCE OF O&M PARTNER**

**Name and address of the O&M Partner in India (if applicable):**

<b>Sl. No.</b>	<b>Name of the O&amp;M personnel proposed to be deployed</b>	<b>Educational Qualification</b>	<b>Experience in no. of years in carrying out O&amp;M of CAAQMs.</b>	<b>Detail curriculum Vitae Attached (YES / NO)</b>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

## Attachment 11

### PRE-REQUISITES FOR INSTALLATION OF EQUIPMENT

To :

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

Dear Sir,

Following are the pre-requisites for installations of the equipment offered by us, which are required to be provided by you prior installation of the equipment:

<b>Package no. / Item No.</b>	<b>Name of the Equipment</b>	<b>Installation &amp; commissioning pre-requisites*</b>

Signature of the Authorized Representative

Name of the Person

Position

**Note:**

**Attachment 12**

**SUPPLY, INSTALLATION & COMMISSIONING OF CONTINUOUS AMBIENT AIR  
QUALITY MONITORING STATIONS (CAAQMS) AND OPERATION &  
MAINTENANCE SERVICES FOR CAAQM AT ----- FOR ----- MPPCB**

**(Deviation Schedule)**

**Bidders Name & Address**

To,

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

Dear Sir,

**Subject:- Deviation Schedule.**

We declare that the following are the only and exhaustive deviations, variations from, exceptions and exclusions to the Bidding Documents for Services as outlined in your Technical Specifications for the subject package. Except these deviations, subject to the approval and acceptance by you, the entire work shall be performed as per your specifications and documents. Further, we agree the additional conditions, if any found elsewhere in the offer other than those stated below, save that pertaining to any rebates / discount offered, shall not be given effect to:

<b>Equipment Code No.</b>	<b>Vol./ Clause Ref. / Page No.</b>	<b>As Specified in the Bid Documents</b>	<b>Deviation and Variations to the Bid document</b>

Date:

(Signature)

Place

.....  
(Printed Name)

.....  
(Designation)

.....  
(Common Seal)

## Attachment 13

### INDEMNITY BOND FOR HANDING OVER AIR MONITORING STATIONS INCLUDING ALL EQUIPMENT TO THE O&M CONTRACTOR

This Indemnity Bond is made this ..... Day of 2018.....  
By.....a Company registered under the Companies Act, 1956/Partnership firm / Proprietary concern having its registered office at .....  
( hereinafter called as "Contractor" or "obligator" which expression shall include its successors and permitted assigns) in favour of **M. P. Pollution Control Board** with Office at E-5 Sector, Paryawaran Parisar, Arera Colony, Bhopal, which term shall include permitted assigns and successors, (hereinafter called "MPPCB" which expression shall include its successors and assigns).

Whereas MPPCB has awarded to the Contractor, a contract for O&M of the ten nos. of Continuous Ambient Air Monitoring Stations (CAAQMS located at -----, vide its Letter of Indent / Award Letter / Contract No..... dated ..... (hereinafter called the "Contract"), in the terms of which Contractor shall be responsible for the Equipments to be handed over to it by MPPCB for the purpose of performance of the Contract (hereinafter called the "Equipments").

Now, therefore this Indemnity Bond witnessed as follows:

1. That in consideration of various Equipments as mentioned in the Contract, valued at Rs.----- (Rupees.....) to be handed over to the Contractor for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep MPPCB indemnified, for the full value of the Equipment. The Contractor hereby acknowledges receipt of the Equipments as per details in the Schedule appended hereto.
2. That the Contractor is obliged and shall remain absolutely responsible for the safe custody of the Equipments at Continuous Ambient Air Monitoring Stations (CAAQMS) belonging to MPPCB against all risks whatsoever till the Equipments are duly used in accordance with all terms of the Contract. The Contractor undertakes to keep MPPCB harmless against any loss or damage that may be caused to the Equipment.
3. The Contractor undertakes that the Equipments shall be used exclusively for the performance/ execution of the Contract strictly in accordance with its terms and conditions and no part of the

Equipments shall be utilized for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purposes including legal / penal consequences.

4. That MPPCB is and shall remain the exclusive Owner of the Equipment free from all encumbrances, charges or liens of any kind, whatsoever. The Equipments shall at all times be open to inspection and checking by Project-in-Charge MPPCB shall always be free at all time to take possession of the Equipments in whatever form the equipments may be. If in its opinion, the equipments are likely to be endangered, misutilized or converted to uses other than those specified in the Contract, by any act of omission or commission on the part of the Contractor; he finds itself and undertakes to comply with the direction or demand of MPPCB to return the Equipments without any demur or reservation.
5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the Equipments or the same or any part thereof is misutilised in any manner whatsoever then the Contractor hereby agrees that the decision of the Project-in-Charge of MPPCB as to assessment of loss or damage to the Equipments shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and / or damaged Equipments at its own or remedy that may be available to MPPCB against the Contractor under the Contract and under this Indemnity Bond.
6. Now the condition of this Bond is that if the Contractor shall duly and punctually complies with the terms and conditions of this bond to the satisfaction of MPPCB, then the above bond shall be void, but otherwise, it shall remain in full force and virtue.

In witness whereof, the Contractor has hereunto set its hand through its authorized representative under the common seal of the company, the day month and year first above mentioned.



**SCHEDULE NO. 1**

Particulars of the Equipments handed over	Quantity	Value of the Equipment	Signature of Authorised Person

For and on behalf of  
M/s.....

Witness I

1. Signature
2. Name
3. Address

Name  
Signature  
Designation  
Authorized representative

Witness II

1. Signature
2. Name
3. Address

(Common Seal)  
(In case of Company)

---

## Attachment 14

### LIST OF BANKS ACCEPTABLE FOR SUBMISSION OF BANK GUARANTEE FOR BID SECURITY

#### SCHEDULED COMMERCIAL BANKS

##### (A) SBI AND ASSOCIATES

1. State Bank of India
2. State Bank of Bikaner and Jaipur
3. State Bank of Hyderabad
4. State Bank of Indore
5. State Bank of Mysore
6. State Bank of Patiala
7. State Bank of Saurashtra
8. State Bank of Travancore

##### (B) NATIONALISED BANKS

9. Allahabad Bank
10. Andhra Bank
11. Bank of India
12. Bank of Maharashtra
13. Canara Bank
14. Central Bank of India
15. Corporation Bank
16. Dena Bank
17. Indian Bank
18. Indian Overseas Bank
19. Oriental Bank of Commerce
20. Punjab National Bank
21. Punjab & Sind Bank
22. Syndicate Bank
23. Union Bank of India

24. United Bank of India
25. UCO Bank
26. Vijaya Bank
27. Bank of Baroda

**(C) SCHEDULED PRIVATE BANKS (INDIAN BANKS)**

1. Bank of Rajasthan
2. Bharat Overseas Bank Ltd.
3. Catholic Syrian Bank
4. City Union Bank
5. Dhanalakshmi Bank
6. Federal Bank Ltd.
7. Jammu & Kashmir Bank Ltd.
8. Karnataka Bank Ltd.
9. Karur Vysya Bank Ltd.
10. Lakshmi Vilas Bank Ltd.
11. Lord Krishna Bank Ltd.
12. Nainital Bank Ltd.
13. Kotak Mahindra Bank
14. Ratnakar Bank Ltd.
15. Sangli Bank Ltd.
16. South Indian Bank Ltd.
17. Tamilnadu Mercantile Bank Ltd.
18. United Western Bank Ltd.
19. ING Vysya Bank Ltd.
20. UTI Bank Ltd.
21. S.B.I. Commercial & International Bank Ltd.
22. Ganesh Bank of Kurundwad Ltd.
23. INDUSIND Bank Ltd.
24. ICICI Bank Ltd.
25. HDFC Bank Ltd.

26. Centurion Bank of Punjab Limited
27. Development Credit Bank Ltd.
28. Yes Bank

**(D) SCHEDULED PRIVATE BANKS (FOREIGN BANKS)**

1. Abu Dhabi Commercial Bank Ltd.
2. ABN Amro Bank Ltd.
3. American Express Bank Ltd.
4. Bank of America NA
5. Bank of Bahrain & Kuwait
6. Mashreq Bank
7. Bank of Nova Scotia
8. The Bank of Tokyo-Mitsubishi UFJ Limited.
9. Calyon Bank
10. BNP Paribas
11. Barclays Bank
12. Citi Bank
13. Deutsche Bank
14. The Hong Kong and Shanghai Banking Corporation Ltd.
15. Oman International Bank
16. Societe Generale
17. Sonali Bank
18. Standard Chartered Bank
19. J.P Morgan Chase Bank
20. State Bank of Mauritius
21. Development Bank of Singapore
22. Bank of Ceylon
23. Bank International Indonesia
24. Arab Bangladesh Bank
25. Cho Hung Bank
26. China Trust Bank

27. Mizuho Corporate Bank Ltd.
28. Krung Thai Bank
29. Antwerp Diamond Bank N.V. Belgium
30. ING Bank N.V.

**(E) PUBLIC SECTOR BANK**

1. IDBI Ltd.

## Attachment 15

### LIST OF BANKS ACCEPTABLE FOR SUBMISSION OF BANK GUARANTEES FOR ADVANCE PAYMENTS, PERFORMANCE SECURITIES AND SECURITIES FOR DEED OF JOINT UNDERTAKING

#### SCHEDULED COMMERCIAL BANKS

##### **A. SBI and Associates**

1. State Bank of India
2. State Bank of Bikaner and Jaipur
3. State Bank of Hyderabad
4. State Bank of Indore
5. State Bank of Mysore
6. State Bank of Patiala
7. State Bank of Saurashtra
8. State Bank of Travancore

##### **B. Nationalised Banks**

9. Allahabad Bank
10. Andhra Bank
11. Bank of India
12. Bank of Maharashtra
13. Canara Bank
14. Central Bank of India
15. Corporation Bank
16. Dena Bank
17. Indian Bank
18. Indian Overseas Bank
19. Oriental Bank of Commerce
20. Punjab National Bank
21. Punjab & Sind Bank
22. Syndicate Bank
23. Union Bank of India
24. United Bank of India

25. UCO Bank
26. Vijaya Bank
27. Bank of Baroda

**C. Foreign Banks**

1. Bank of America NA
2. The Bank of Tokyo-Mitsubishi UFJ Limited.
3. BNP Paribas
4. Calyon Bank
5. Citi Bank N.A.
6. Deutsche Bank A. G.
7. The Hong Kong and Shanghai Banking Corporation Ltd.
8. Standard Chartered Bank
9. Societe Generale
10. Barclays Bank
11. ABN Amro Bank N. V.
12. Bank of Nova Scotia
13. Development Bank of Singapore i.e. DBS, Singapore

**D. SCHEDULED PRIVATE BANKS**

1. ING Vysya Bank Ltd.
2. ICICI Bank Ltd.
3. HDFC Bank Ltd.
4. UTI Bank Ltd.

**E. Public Sector Banks**

1. IDBI Ltd.

## Attachment 16

### PRE CONTRACT INTEGRITY PACT

#### General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on .....day of the month of .....2018, between, M. P. Pollution Control Board, acting through Member Secretary, M. P. Pollution Control Board hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns of the First Part and M/s..... represented by Shri....., Chief Executive Officer (hereinafter called the "BIDDER / SELLER" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part. WHEREAS the BUYER proposes to procure (Name of the Stores/Equipment/Item) and the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS the BIDDER is a private company/public company/Government undertaking/partnership/registered export agency, constituted in accordance with the relevant law in the matter and the BUYER MPPCB work under the ageis of Environment & Forests, performing its functions as per the provisions of Water Act 1974, Air Act ,1981 and EPA Act, 1986.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to :-

Enabling the BUYER to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

#### Commitments of the BUYER

- 1.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage



from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

- 1.2 The BUYER will, during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
  - 1.3 All the officials of the BUYER will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with full and verifiable facts and the same is prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an inquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

### **Commitments of BIDDERS**

3. The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-
  - 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
  - 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any

official of the BUYER or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favor or disfavor to any person in relation to the contract or any other contract with the Government.

- 3.3\* BIDDERS shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.
- 3.4\* BIDDERS shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 3.5\* The BIDDER further confirms and declares to the BUYER that the BIDDER is the original manufacture/integrator/authorized government sponsored export entity of the defense stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans,

technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the BUYER, or alternatively, if any relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.
- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER.

#### **4. Previous Transgression**

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### **5. Sanctions for Violations**

- 5.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-
  - (i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER.

However, the proceedings with the other BIDDER (s) would continue.

- (ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.
- (iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- (iv) To recover all sums already paid by the BUYER, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.
- (v) To en cash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.
- (vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money (s) due to the BIDDER.
- (vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the BUYER.
- (viii) To recover all sums paid in violation of this Pact by BIDDER (s) to any middleman or agent or broker with a view to securing the contract.
- (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.
- (x) Forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.2 The BUYER will be entitled to take all or any of the actions mentioned at para 6.1 (i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

5.3 The decision of the BUYER to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor (s) appointed for the purposes of this Pact.

## **6. Fall Clause**

6.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub systems was supplied by the BIDDER to any other Ministry/Department of the Government of India, State Pollution Control Boards or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER, if the contract has already been concluded.

## **7. Independent Monitors**

7.1 The BUYER has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Names and Addresses of the Monitors to be given).

7.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

7.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

- 7.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 7.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.
- 7.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 7.7 The BUYER will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 7.8 The Monitor will submit a written report to the designated Authority of BUYER/Secretary in the Department/ within 8 to 10 weeks from the date of reference or intimation to him by the BUYER / BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

## **8. Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of Commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

## **9. Law and Place of Jurisdiction**

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat/place of the BUYER.

**10. Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

**11. Validity**

11.1 The validity of this Integrity Pact shall be from date of its signing and extend up-to 5 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

11.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

12. The parties hereby sign the Integrity Pact at .....on.....

**BUYER**

**BIDDER**

**Member Secretary  
M. P. Pollution Control Board**

**CHIEF EXECUTIVE OFFICER**

Witness

Witness

1.....

1.....

2.....

2.....

**VOLUME I**  
**SECTION IV**  
**FORM OF FINANCIAL BID**



**SECTION IV**  
**FORM OF FINANCIAL BID**

**CONTENTS**

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Attachment 2 Summary of Bid Price.....

Attachment 3 Bid Price Breakup Equipment of Foreign Origin (CIF Price)...

Attachment 3A Bid Price Breakup For O&M of CAAQMS's for Five Year .....

**Attachment 1**  
<Letterhead of the Bidder>

Date:

Grant no.:-----

Bid No. -----

**BID FORM**

TO:

**The Member Secretary,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

Gentlemen:

1. Having examined the Bidding documents for procurement, installation & commissioning and Operation & Maintenance of CAAQMS's at ----- (number(s)) locations, MPPCB (herein after referred to as "the Works"), including, but not limited to, the Instructions to Bidders, Scope of Works, General and Special Conditions of Contract, Technical Specifications, Schedules, Attachments, Amendment Nos. .... we, the undersigned, offer to execute and complete the whole of the works and remedy any defects therein, in conformity with the said Bidding Documents for the sum of International trading currency ..... (in figures.....) for the equipment including all other charges as mentioned in the document, supplied from Foreign Origin and Indian Rupees..... (INR.....) for the incidental costs incurred in India (if any) as may be ascertained in accordance with the Summary of Bid Price and Bid Price breakup attached herewith and made part of this bid.

2. We undertake, if our Bid is accepted, to complete and deliver the whole of the Works comprised in the Contract within the time specified in the contract, subject to the said conditions.
3. If our Bid is accepted, we will obtain the guarantee of a bank in a sum equivalent to ----- percent of the Contract Price for the due performance of the Contract, in the form prescribed by the Board.
4. We agree to abide by this Bid for a period of Three Hundred Sixty (360) days from the final date of the submission of Bid fixed in sub-clause 7.2 of the Instruction of Bidders, and shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Unless and until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us.
6. We understand that you are not bound to accept the lowest of any bid you may receive, and that you will not defray any expense incurred by us in bidding.

Date this-----day of ----- 2018.

Signature ----- in the capacity of -----

Duly authorized to sign Bid for and on behalf of -----

(IN BLOCK CAPITAL ) -----

Address -----

Facsimile number -----

Telephone Number -----

Email id. -----

WITNESS -----

Address -----

Occupation -----

## Attachment 2

### SUMMARY OF BID PRICE

DESCRIPTION	TOTAL VALUE
<b>I. SUPPLY OF THE EQUIPMENT</b>	
1) For goods supplied from abroad (In Bid-Currency)	
a. FOB price for Package	
b. Freight	
c. Insurance up to port of de-embarkment	
CIF Price at port of de-embarkment (bid currency) (1a + 1b + 1c)	
2) Local Costs for goods supplied from abroad	
a. Port handling and clearance charges.	
b. Transportation cost from Port of de-embarkment to Sites	
c. Insurance from Port of de-embarkment up to handing over	
d. Installation and commissioning	
Sub total (2a + 2b + 2c + 2d)	
3) For the Goods Supplied from India	
a. The price of the Equipment quoted ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf including all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of the Equipment quoted ex-works or ex-factory.	
b. Price for handling and inland transportation, insurance up to handing over the equipment at Site and other local costs upto delivery of the Equipment to each Site.	
c. Installation and commissioning	
d. Price of other incidental cost, if any. Then the Bidder shall specify the same.	
Sub total (3a + 3b + 3c + 3d)	
4) Other incidental costs, if any (such as Indian agents Commission) in INR	
TOTAL FOR SUPPLY (1 + 2 + 3 + 4)	
<b>II Total O&amp;M cost for five years expandable up to next five years for all the CAQM's as indicated in Attachment 3A</b>	
<b>III. COST OF TRAINING (bid currency)</b>	
<b>GRAND TOTAL CONTRACT PRICE (BID CURRENCY/INR) (I + II + III)</b>	
:	

**NOTE:** 1. ALL LOCAL TAXES/GST, DUTIES & LEVIES ARE PAYABLE AT ACTUAL (EXTRA) BY THE OWNER AS PER GOVT. NORMS.

2. QUOTED COST OF O&M OF A CAAQMS FOR EACH YEAR SHOULD BE AT LEAST 12% OF THE COST OF SUPPLY & INSTALLATION OF THE CRTAQMS. IN CASE THE BIDDER QUOTES O&M COST LOWER THAN 15% OF THE SUPPLY & INSTALLATION COST, THE OWNER WILL REDUCE THE SUPPLY & INSTALLATION COST SUITABLY, SO AS TO MAKE THE O&M COST AS 15% OF THE SUPPLY & INSTALLATION COST, KEEPING THE TOTAL QUOTED COST AS UNCHANGED.
3. INDIAN AGENT'S COMMISSION SHALL BE PAID IN INDIAN RUPEES ONLY. MARKET EXCHANGE RATE RULING ON THE DATE OF AWARD IN ACCORDANCE WITH CLAUSE 4.3 (b) OF INSTRUCTIONS TO BIDDER (SECTION-I) WILL BE APPLICABLE FOR THIS PURPOSE.
4. GST/SERVICE TAX SHALL BE PAYABLE ONLY ON THE SERVICE PORTION OF O&M COST ONLY (EXCLUDING SUPPLY OF SPARES FOR MAINTENANCE & OVERHAULING) AS **INDICATED IN ATTACHMENT – 3A.**

### Attachment 3

### BID PRICE BREAKUP FOR EQUIPMENT (CIF) PRICE

S. No.	Item / Analyzer Name	Manufacturer	Country of Origin	Model	Quantity in Nos. / Sets	Unit Price ( BID CURRENCY)	TOTAL Price (BID CURRENCY)
1.	Automatic Ambient CO Analyzer						
2.	Automatic Ambient SO <sub>2</sub> Analyzer						
3.	Automatic Ambient NO <sub>x</sub> and NH <sub>3</sub> Analyzer						
4.	Automatic Ambient O <sub>3</sub> Analyzer						
5.	PM <sub>10</sub> Monitor						
6.	PM <sub>2.5</sub> Monitor						
7.	BTX Analyzer						
8.	Multi-calibration systems for gaseous monitors comprising of gas supply / generation and automated calibration						
9.	Meteorological Instrumentation comprising Wind direction, Wind speed, Ambient temperature, Relative humidity, Solar Radiation and Rainfall mounted on telescoping crank up meteorological Mast.						
10.	Computer system consisting of one PC along with Laser Printer and DAS at the monitoring station and one PC at central office with peripherals and software for data acquisition / Data display Board / transfer and system integration, telephone, Modem.						
11.	Housing/ Container for Continuous Automatic Monitoring Stations with Sampling line, Internal fitting, Instruments racks, Electrical fittings and Gas line fittings, Tools (electrical and mechanical), Data display system, Recommended spares .						
12.	2 Ton capacity split Air conditioner						
13.	1 Ton capacity split Air conditioner						
14.	Single Phase 10 kVA UPS, 1 Hour backup						
15.	Single Phase 5 kVA UPS, 2 Hrs. backup						
16.	RCC Foundation, pillars and miscellaneous works including civil and electrical						

**Attachment 3A**  
**BID PRICE BREAKUP FOR O&M OF CAAQMS FOR FIVE YEARS**

Sl. No.	Year of O&M	Service charges (70%) for O&M in Rs.		Cost of (Incidental charges( 30%) consisting of security , Electricity, Phones/ internet, Manpower, AMCs material including spares & consumables for Operation & maintenance and other in Rs.		Total Charges for the year in Rs.	
0.	Warranty Period						
1.	1 <sup>st</sup> year						
2.	2 <sup>nd</sup> year						
3.	3 <sup>rd</sup> year						
4.	4 <sup>th</sup> year						
5.	5 <sup>th</sup> year						
<b>TOTAL</b>							

NOTE:

- A. GST/Service tax shall be payable only on the service portion of O & M cost only (excluding supply of spares for maintenance & overhauling).
- B. Cost of material including spares & consumables for operation & maintenance shall be inclusive of all taxes & duties.
- C. The above ceiling O&M cost also include incidental charges (Security, Electricity, Data Connectivity, Stations Supervisor, Insurance) and services along with manpower at Central Server Stations of respective SPCB-Head Office as well as CPCB-Delhi.

- D. Health of the Stations should be sound for the entire period (05 years) so that the contract can be further renewed on mutual agreement.
- E. All the statutory taxes & duties as applicable in the State of India i.e. Duties and Taxes, as applicable will be paid as actual by the Vendor for simplification. However, these taxes will be reimbursed by the Board on production/submission of original bills.



**VOLUME I**

**SECTION V**

**GENERAL CONDITIONS  
OF CONTRACT**

**SECTION V**  
**GENERAL CONDITION OF CONTRACT CONTENTS**

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## GENERAL CONDITIONS OF CONTRACT

These conditions encompass all the Works to be executed and completed by the Contractor for the Project and as further defined herein.

### 1.0 DEFINITION

Unless the context of the General and-Special Conditions of Contract otherwise requires, the following terms wherever in the General and Special Conditions of Contract shall have the meaning defined hereunder.

Words imparting the singular shall also include the plural and vice versa where the context requires. Whether the words and phrases defined in this Clause are capitalized or not in the Contract shall not affect their meaning.

- 1.1 “The **Project**” or “The Works” means supply, installation & commissioning of equipments for Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and their Operation & Maintenance at defined locations under the supervision and control of M. P. Pollution Control Board.
- 1.2 “The **Contract**” means the written agreement to be concluded between the Board and the Contractor and includes terms and conditions stipulated on the Bidding Documents and any other descriptions annexed thereto which form an integral part of the agreement to be provided by the Board.
- 1.3 “The **Contract Price**” means the price payable to the Contractor under the Contract for the full and proper performance of its contractual obligations for the Works.
- 1.4 “The **Equipment**” means all kind of materials, Machinery, Components, apparatus, articles and instruments for the Project to be provided by the Contractor to the, Board under the Contract.
- 1.5 “**GCC**” means the General Conditions of Contract contained in this Section.
- 1.6 “**SCC**” means the Special Conditions of Contract in Section VI of this Volume.
- 1.7 “**S/W**” means the Scope of Works in Section II of this Volume.

- 1.8 “The **Contractor**” means the firm supplying the Equipment and performing the Works in connection with the Project under the Contract and includes his personal representatives, successors and authorized assignees.
- 1.9 “The **Manufacturers**” means the firms, which produce the Equipment to be furnished by the Contractor under the Contract with the Board.
- 1.10 “The **Specifications**” means the specifications of the Works to be performed by the Contractor in conformity with those specified in both the Technical Specifications of Volume II and all other related documents in the Bidding Documents, and modifications thereof or additions thereto as may from time to time be made, and approved in writing by the Board through the Consultant in case of prior to the Contract and agreed upon by both the Board and the Contractor after the Contract.
- 1.11 “The **Sites**” means CAAQMS’s as specified in Clause 1 of Scope of Works (Section – II).

## **2.0 INTENT OF CONTRACT**

- 2.1 The intent and spirit of the Contract is to provide all the details for the Works herein specified to be fully completed within the duration of the Contract.
- 2.2 It is hereby understood that the Contractor, in accepting the Contract, agrees to furnish any and everything necessary for such intent notwithstanding any omission in the Contract.

All matters omitted from the Contract which may reasonably be inferred to be obviously necessary for the efficient and stable completion of the Works shall be deemed to be included in the Contract and the Contractor shall be held responsible for any errors or losses which the Contractor may make due to such omissions as above.

## **3.0 PERFORMANCE OF WORKS**

Unless otherwise provided for, the Works shall be performed by the Contractor in compliance with S/W, GCC, SCC and the Specifications in this Bidding Documents issued by the Board and Contract to be concluded between the Board and the Contractor.

Unless otherwise agreed or stated, the Contractor shall bear all the cost and take all the responsibilities for the performance of all the Works.

#### **4.0 USE OF CONTRACT DOCUMENTS AND INFORMATION**

4.1 The Contractor shall not, without the Board's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Board, Consultant and their authorized personnel and body in connection therewith, to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

4.2 The Contractor shall not, without the Board's prior written consent, make use of any documents or information enumerated here above except for purposes of performing the Contract.

4.3 Any documents other than the Contract itself, enumerated in here above shall remain the property of the Board and shall be returned to the Board on completion of the Contractor's performance under the Contract if so required by the Board.

#### **5.0 LOCATION**

As defined by the board as per list attached

#### **6.0 LANGUAGE AND CALENDAR**

##### **6.1 Language**

All documents and correspondence related to the Contract shall be made in English.

##### **6.2 Calendar**

All dates, months, years and terms referred in the Contract shall relate with the Gregorian Calendar, unless otherwise mentioned specifically.

#### **7.0 SITE CONDITION**

##### **7.1 Site Condition**

The Contractor shall study the existing Site Conditions, referring to the Bidding Documents carefully in order to familiarize themselves with the

Works. The Contractor should ascertain all particulars of the location and Site conditions at their own expenses.

## **7.2 Access to Site**

The Board will give the Contractor access the Sites in order to perform the Works during the period of validity of the Contract unless otherwise provided.

## **8.0 COUNTRY OF ORIGIN**

8.1 All the Equipment supplied under the Contract shall have their origin in the eligible countries.

8.2 For the purposes of this Clause, "Origin" means the place where the Equipment were produced or manufactured. The Equipment is produced or manufactured when, though manufacturing, processing, or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics in purpose or utility from its components.

8.3 The origin of Equipment is distinct from the nationality of the Contractor.

## **9.0 SPECIFICATION OF EQUIPMENT**

### **9.1 Equipment**

The Contractor shall supply all the Equipment specified in the package quoted as per the package wise Equipment List of Attachment 1 of S/W.

All the Equipment to be supplied under the Contract shall be new and unused.

### **9.2 Specification of Equipment**

The performance, materials, duty, workmanship, operating conditions and design conditions for the Equipment shall meet and comply with the Specifications.

The Specifications indicate the principal and minimum technical requirements for each equipment. The details of the Equipment shall be fully examined and suitably selected through the detailed engineering and design without sacrifice in quality of serviceability of the Equipment.

The figures of dimension and weight shown in the Specifications are indicatively presented as approximate figures. These figures may not necessarily and exactly be applied for the selection of the Equipment, but the Contractors shall meet the principal and minimum requirements shown in the Specifications. Any Bidder offering better specification than the minimum prescribed shall be considered as technically qualified.

## **10. CODE AND STANDARD**

### **10.1 Code and Standard**

All the Equipment and the Works shall conform to the approved and authorized codes and standards of the origin country, the following standards wherever applicable and Indian Standard which are in force at the moment of the installation.

- Japanese Industrial Standard (JIS)
- Environmental Protection Agency of United States (U.S EPA) Standard
- International Organization for Standard (ISO)
- British Standard (BS)
- TUV Germany
- MCERTS- SIRA certification U.K Environment Agency

Other internationally prevailing standards are accepted for the Equipment, unless otherwise indicated.

Even if some codes and standards are designated in the Specifications, the other codes and standards not shown therein are also applicable instead of the designated ones as far as they are equivalent to such designated codes and standards and meet the requirement thereof.

### **10.2 Metric System**

All dimensions and performance of the Equipment shall be stated in metric system, unless otherwise specified in the Specifications.

## **11.0 ELECTRICAL RATINGS**

### **11.1 Electrical Rating**

The Equipment shall conform to the following ratings and standards wherever applicable.

- 1) All the electrically operated equipment specified herein shall be single phase, 230 Volts  $\pm 10$  volts AC and 50 Hz  $\pm 3\%$  unless otherwise specified in the Specifications.
- 2) Electrical plugs for the Equipment shall conform to local regulations and standards.

### **11.2 Precaution against Voltage Fluctuation**

Adequate automatic voltage regulator for the Equipment shall be arranged by the Contractor wherever indicated in the Specifications. The Contractor shall pay due attention to that electrical voltage fluctuation exerts a serious influence and damage upon functioning of the equipment.

### **12.0 NAME PLATE**

Nameplate shall be affixed on a suitable place of the Equipment in accordance with the provision of SCC.

### **13.0 PACKING AND MARKING**

#### **13.1 Packing**

- 1) Transportation by air cargo

The Contractor shall pack and transport the Equipment in the double carton, approved by airline and deliver separately to the designated Site in complete condition.

- 2) Transportation by vessel

The Equipment shall be packed and transported for seaworthy shipment in such a manner that they are carried to the Sites in complete condition. The packages shall be made shockproof, waterproof, moisture proof and any other protection against rough handling, exposure to extreme temperature, salt, precipitation, open storage and other severe tropical conditions during transit to each final Site. These Equipment shall be transported by container vessel and packed separately for the designated Site.



## 13.2 **Marking**

The outside of the package shall be marked in accordance with SCC in such a manner that they are clearly visible, protected against loss and resistance to external influences.

## 13.3 **Packing List**

Contents of each package and/or the Equipment shall be itemized on a detailed list showing the exact weight, and extreme outside dimensions of length, width and height of each package and/or the Equipment. One copy of the detailed packing list indicating name of components, assembly number and quantity which corresponds to those of the Equipment in each package shall be enclosed in each package.

Enclosed in one package, there shall also be a master packing list summarizing and identifying each individual package. Packing list shall be placed in a waterproof cover and secured against any external influence of the package.

## 14.0 **SHIPMENT**

### 14.1 **Shipment**

Shipment of the equipment from foreign origin shall be made as specified in SCC.

### 14.2 **Shipping Documents**

Promptly after shipment of equipment of foreign origin, the Contractor shall airmail the shipping documents to the Board in accordance with SCC.

### 14.3 **Unloading and Custom Clearance**

The Contractor shall arrange the clearing agent for unloading, customs clearance and storage of the equipment from the Foreign Origin, documentation and all the other procedures.

The Board will agree to assist the Contractor where required in obtaining clearance of the Equipment through the customs and provide exemption certificate, if required.

#### **14.4 Inland Transportation**

The Contractor shall be fully responsible for the delivery of all the Equipment to the Sites.

The Contractor shall arrange at his option and cost for the transportation from the port of entry to each Site for the equipment of foreign origin.

Transportation of Radioactive material if any shall be carried out by the contractor and contractor will obtain statutory clearances for the same.

#### **14.5 Handling and Storage**

The Contractor shall protect the Equipment from any damage and avoid overloading. Particular attention shall be given to the perishable Equipment and those which must be kept dry, cool or from exposure to direct sunshine and moisture.

In case a part of the Board's facilities is necessary to be occupied by the Contractor for temporary storage or installation use, the Contractor shall obtain the written approval from the Board for temporary occupation and protect facilities against any damages. Charges payable for this facility to the Board for this shall be fixed by the Board.

#### **15.0 PROJECTION AND SAFETY**

The Contractor shall be totally responsible for all the reasonable precautions against fire in respect of the Works, temporary works, offices, storage yards and other places and things connected therewith.

The Contractor shall comply with all rules, regulations and orders which have been made by the Government of India, the Board or any other competent authority and the contractor shall provide sufficient fire-fighting protection in respect of the safety of the property and personnel of the Board.

#### **16.0 WORKS SCHEDULE**

The time schedule for the Works to be carried out by the Contractor is specified in SCC.

The Contractor shall complete the Works in accordance with the Works schedule specified here above.

## **17.0 PROJECT FORMATION**

### **17.1 Board**

**The authorized personnel of the M. P. Pollution Control Board for the Project who is responsible for any coordination with the Contractor is:**

**The Member Secretary or Authorized Representative,  
M. P. Pollution Control Board  
E-5 Sector, Paryawaran Parisar,  
Arera Colony,  
Bhopal-462016 [India]**

Any correspondence to or authorization from the Board shall be made with the Member Secretary here above.

## **18.0 WARRANTY / O & M CONTRACT**

18.1 All the CAAQMS's shall be under O&M Contract from the date of commissioning of the CAAQMS's. The details terms and conditions and scope of work during O&M Contract period shall be as specified in the Scope of Work, Section – II of this document.

18.2 However the Contractor shall warrant to the Board that the Equipment to be supplied under the Contract is new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. This warranty includes all spare parts and services to keep the instruments and equipment in operating condition. In case O & M is not awarded / terminated the equipment shall remain warranted for 3 years.

The Contractor shall further warrant to the Board that the Equipment complies strictly with the Specifications and has no defect, arising from design, materials, or workmanship or from any act or omission of the Contractor that may develop under normal use of the supplied Equipment in the conditions prevailing to the final Sites.

### 18.3 Period of O&M Contract

This O&M Contract shall remain operative for the period specified in SCC after the successful installation & commissioning of the stations by the Contractor.

### 18.4 In Case of Faulty Equipment

If any part of the Equipment breakdowns or fails due to faulty of improper design, materials, workmanship, manufacture, fabrications or instructions, or fails to meet the requirements of the Specifications, then the Contractor or his O&M partner shall promptly notify the manufacturer in writing of any claims arising under this clause.

Contractor or his O&M partner shall ensure that within the period specified in Scope of Work for O&M Contract in Section – II of the document and with all reasonable speed, the repair or replacement of the defective Equipment or improper parts thereof is carried out at the Contractor's expenses.

In the event that any part of the Equipment becomes defective due to no fault of the Contractor, such as voltage fluctuations, misuse and negligence, the Contractor will be indemnified by the Board in respect of repair thereof.

### 18.5 Manufacturer's Warranty

The contractor must take into account any manufacture's standard Warranty on the equipment supplied **before quoting for O&M cost for the years** for which such Warranty is applicable.

## 19.0 INSURANCE

The Equipment supplied under the Contract shall be fully insured (Comprehensive) in currency acceptable as per the existing Law of India against loss or damage incidental of manufacture or acquisition, transportation, storage, shipment, delivery, installation and training involved with the Works naming the Board as the beneficiary, in the manner specified in the SCC, until issuance of taking over certificate.

## 20.0 INSTALLATION

20.1 All the Equipment shall be installed and brought into suitable conditions for operation by the Contractor at the Sites designated by the Board.

The Contractor shall make all the necessary and proper adjustments and arrangements, including, but not restricted to, the utility supplies and connections, foundation and erection works specified in Clause 3 of S/W in order to install the Equipment in adequate conditions for operation.

All matters omitted from this Clause which may reasonably be incurred to be obviously necessary for the proper installation and operation of the Equipment shall be deemed to be included in this installation works, and the Contractor shall be held responsible for any errors or defects which the Contractor may make due to such omissions thereof.

20.2 Only the best installation practices are to be applied, and all the installation works must be done to the satisfaction of the Board and the Contractor shall carry out his works in a neat and proper workmanlike manner. The installation shall be planned and carried out in no way to damage installation materials and the Equipment.

20.3 All the installing Equipment, tools, materials, labour, logistics and all the other requirements for installation shall be provided by the Contractor.

20.4 Prior to the establishment of Equipment layout and installation plan, the Contractor shall verify, check and inspect the designs and specific site conditions of monitoring stations and laboratories where the Equipment are to be installed so as to make good arrangement for installation and utility assembly in consultation with the Board.

## **21.0 INSPECTION AND TEST**

21.1 The Board shall have the right to inspect and the test the Equipment to confirm their conformity to the Specifications without any extra charge to the Board by the Contractor. The Contractor shall notify the Board and the Consultant in writing, in a timely manner (at least 21 days in advance), of the schedule of inspections and test.

21.2 The inspections and test shall be conducted on the premises of the Contractor and/or the Manufacturers and the Sites. If conducted on the premises of the Contractor and/or the Manufacturers, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the Consultant for the inspections and test at no charge to the Board.

21.3 Should any inspected or tested Equipment fail to conform to the Specifications, the Board may reject the Equipment, and the

Contractor shall either replace the rejected Equipment or make alternations necessary to meet the Specifications requirements free of cost to the Board.

21.4 No pre dispatch inspection is envisaged for equipment of foreign origin and contractor shall furnish factory test / inspection reports as furnished below of the manufacturer along with the dispatch documents. However, the Board reserves the right to appoint at its cost, any inspection agency (other than suggested by contractors) which will be binding on the contractor.

- Performance Test Certificate of all analyzer/ UPS/ 1.2 mm pre-coated GI Sheet of container, NIST traceability for gas Aluminum cylinders / Permeation tube
- Certificate of Traceability
- Verification of System Completeness
- Product Certificate

21.5 For the equipment of Indian origin contractor should submit check list for equipment for approval of MPPCB. For container, contractor should take prior approval of the drawing from MPPCB. Contractor should notify date of pre-dispatch inspection to the MPPCB at least 15 (fifteen) days ahead of inspection.

21.5 The Board's right to inspect, test and, where necessary, reject the Equipment after the Equipment's arrival in India shall in no way limited or waived by reason of the Equipment having previously been inspected, tested and passed by the Board prior to the Equipment's shipment from the country of origin.

## **22.0 TRAINING**

22.1 The Contractor shall provide the Board staff with the training as specified in Clause 5 of S/W for the Equipment & Technical Specification.

22.2 The Contractor shall furnish the schedule and program of the training to the Board within 30 days after the installation of the stations in such a manner that proper training is imparted to Board staff members.

## **23.0 COMPLETION**

The Contractor shall complete all the Works by the date as specified in SCC.

### **23.1 Taking Over**

Upon successful completion of delivery, installation, inspection and training of the Equipment to and at the designated Sites and O&M of the CAAQMS for the period specified in S.C.C., the Contractor shall notify the Board in writing that all the Works under the Contract have been completed at least 30 days before expiry of O&M Contract period.

Immediately after completion of O&M Contract period as specified in S.C.C., the Board will take over the stations or make alternate arrangement for their O&M.

### **24.0 SUBMISSION OF DOCUMENTS**

The Contractor shall submit the documents specified in SCC to the Board. The Contractor shall prepare all the documents in English.

Besides the documents thereof, the Contractor shall submit the notices, reports, and other documents when deemed necessary, in accordance with the direction of the Board.

### **25.0 PAYMENT**

#### **25.1 Payment**

The method, terms and conditions of payment to be made to the Contractor under this Contract shall be specified in SCC.

The Contractor's request(s) for payment for, as appropriate, the Equipment delivered and the Works performed and fulfillment of other obligations stipulated in the Contract shall be made to the Board in writing, accompanied by documents specified in SCC.

25.2 The payment shall be made promptly by the Board but in no case not later than sixty (60) days after submission of invoice or claim by the contractor.

#### **25.3 Currency of Payment**

The currency in which payment is made to the Contractor under this Contract shall be specified in SCC.

## **26.0 PRICES**

Prices charged by the Contractor to the Board for the Equipment delivered and the Works performed under the Contract shall not vary from the prices quoted by the Contractor in the Financial Bid.

## **27.0 PERFORMANCE SECURITY**

### **27.1 Performance Security**

The Contractor within thirty (30) days from the date of notification of award shall furnish a Bank Guarantee from a reputed Indian or Nationalized Commercial Bank having license to do business in India to the Board in line with the enclosed form as per Attachment 2 Section VI towards performance guarantee for an amount equal to ten (10) percent of the total Price under the Contract for faithful and due fulfillment by the Contractor of all obligations under the terms and conditions of the Contract.

**The Contractor shall ensure that Contract Performance Security remains valid at one year after commissioning of entire system satisfactorily.**

### **27.2 Return of Performance Security**

The performance security will be discharged by the Board and returned to the Contractor not later than forty five (45) days after expiry of one year subject to date of completion of the Contractor's performance obligations under the Contract, including obligations, unless specified otherwise in SCC.

## **28.0 ASSIGNMENT**

The Contractor shall not assign in whole or in part, its obligations to perform under this Contract, except with the Board's prior written consent.

## **29.0 SUBCONTRACTORS**

29.1 The Contractor shall notify the Board in writing of all the Manufacturers awarded under this Contract and any other subcontractors involved with performance of the Works if not already specified in the Bid. Such notification, in the original Bid or later, shall not relieve the Contractor from any liability or obligation under the Contract.



## **30.0 DELAYS IN THE CONTRACTOR'S PERFORMANCE**

### **30.1 Delays in the Contractor's Performance**

Delivery of the Equipment and performance of the Works shall be made by the Contractor in accordance with the time schedule specified in SCC.

### **30.2 Notification of Delay**

If at any time during performance of the Contract, the Contractor and/or the Manufacturers should encounter conditions impeding timely delivery of the Equipment and performance of the Works, the Contractor shall promptly notify the Board in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Contractor's notice, the Board shall evaluate the situation and may at its discretion extend the Contractor's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the Board by amendment of the Contract.

### **30.3 Liability of Liquidated Damages**

Except as provided under Clause 31.1 of GCC, a delay by the Contractor in the performance of its delivery obligations shall render the Contractor liable to the imposition of liquidated damages pursuant to Clause 32 hereunder, unless an extension of time is agreed upon pursuant to Sub-clause 32.2 here above without the application of liquidated damages.

## **31.0 LIQUIDATED DAMAGES**

if the Contractor fails to perform the Works within the period specified in Clause 11 of SCC, the Board shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC. Once the maximum is reached, the Board may consider termination of the Contract pursuant to Clause 35 of GCC.

## **32.0 SUSPENSION OF WORK**

The Contractor shall not suspend the whole or any part of the Works without notice to the Board in writing. The Contractor thereupon shall do all possible endeavors to reduce any expenses or costs resulting from the suspension. Such suspension shall not nullify the Contract.

### **33.0 TERMINATION FOR DEFAULT**

#### **33.1 Termination for Default**

The Board, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Contractor, may terminate this Contract in whole or in part:

- 1) If the Contractor fails to perform any or all of the Works within the period specified in Clause 11 of SCC, or extension thereof granted by the Board pursuant to Clause 32 of GCC  
or
- 2) If the Contractor fails to perform any other obligations under the Contract.

#### **33.2 Liability for Excess Cost for Unperformed Work**

In the event the Board terminates the Contract in whole or in part pursuant to Sub-clause 35.1 here above the Board may procure at the risk and cost of the contractor, upon such terms and in such manner as it deems appropriate, the equipment / works similar to those undelivered / unperformed and the **Contractor shall be liable to the Board for any excess costs for such similar equipment / works**. However, the Contractor shall continue performance of the Contract to the extent not terminated.

### **34.0 FORCE MAJEURE**

34.1 Notwithstanding the provisions of Clauses 32, 33 and 35 in GCC, the Contractor shall not be liable for forfeiture of its performance security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

34.2 For the purposes of this Clause, "Force Majeure" means an event beyond the control of the Contractor and not involving the Contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Board in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

34.3 If a Force Majeure situation arises, the Contractor shall promptly notify the Board in writing of such condition and the cause thereof. Unless otherwise directed by the Board in writing, the Contractor shall continue to perform its obligations under the Contract as far as is reasonably

practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

### **35.0 TERMINATION FOR INSOLVENCY**

The Board at any time terminates the Contract by giving written notice to the Contractor if the Contractor becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Contractor, provided that such, termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Board.

### **36.0 RESOLUTION OF DISPUTES**

#### **36.1 Settlement of Disputes**

Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible in the first instance be resolved amicably between the Contractor and the Owner's Engineer.

If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Contractor may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.

In the case of dispute or difference arising between the Purchaser and a Domestic Contractor relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of (3) three arbitrators one each to be appointed by the Purchaser and the Contractor. The third arbitrator shall be chosen by the 2 (two) Arbitrators so appointed by the parties and shall act as Presiding arbitrator. In case of failure of the two arbitrator appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the President of the Institution of Engineers (India).

In case of a dispute with a Foreign Contractor, the dispute shall be settled in accordance with provision of UNCITRL (United Nations Commission on International Trade Law) Arbitration Rules. The Arbitral Tribunal shall consist of three Arbitrators one each to be appointed by the Purchaser and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties, and shall act as presiding arbitrator. In case failure of two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the President of the Institution of Engineers (India).

If one of the parties fails to appoint its arbitrator in pursuance of Sub-Clause (a) and (b) above, within thirty days after receipt of the notice of the appointment of its arbitrator by the other party, then the Presiding Arbitrator shall be nominated by President of the Institution of Engineers (India), both in case of the foreign contractor as well as Indian Contractor, shall appoint the arbitrator. A certified copy of the order of the President of the Institution of Engineers (India), making such an appointment shall be furnished to each of the parties.

Arbitration proceedings shall be held at Bhopal, India, and the language of the arbitration proceedings and that of documents and communications between the parties shall be English.

The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.

Where the value of the contract is Rs. 10 million and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority namely the President of the Institution of Engineers (India).

### **37.0 TAXES AND DUTIES**

- a) Concessional Customs Duty (presently) shall be applicable on the equipment being imported by M. P. Pollution Control Board.

Necessary exemption certificate shall be issued by MPPCB and applicable Custom Duty shall be paid by MPPCB.

- b) MPPCB is also exempted from paying Excise Duty. Necessary exemption certificate shall be issued by the MPPCB.
- c) GST, Local taxes i.e. entry tax octroi etc. will be paid by MPPCB at actual against documentary evidence.
- d) GST/Service Tax as applicable on incidental services like Installation, Commissioning and training and O&M service etc. shall be payable extra by MPPCB.

## **38.0 INJURY AND DAMAGE**

### **38.1 Injury or Death of Persons**

The Contractor shall be liable for and shall indemnify the Board against any liability, loss claim or proceedings whatsoever arising under any statute or law in respect of personal injury or death or any disability caused by the carrying out of the Works unless due to any act or neglect of the Board, or of any person for whom the Board is responsible.

Without prejudice to the Contractor's liability to indemnify the Board, the Contractor shall maintain and cause any manufacturers and subcontractors to maintain such insurance as necessary to cover the liability of the Contractor or, as the case may be, of such Manufacturers and subcontractors, in respect of personal injuries or deaths arising out of or in the course of or caused by the carrying out of the Works.

### **38.2 Damage to Property**

The Contractor shall be liable for and indemnify the Board against and insure and cause any Manufacturers and subcontractors to insure against any expense, liability, loss claim or proceedings in respect of any damage whatsoever to any real or personal property for any one occurrence in so far as such damage arises out of or in the course of or by reason of the carrying out of the Works and is due to any negligence, omission or default of the Contractor or any person for whom the Contractor is responsible or any Manufacturers and subcontractors or person for whom the Manufacturers and subcontractors are responsible.

## **39.0 ROYALTY AND PATENTS**

- 39.1 The Contractor shall pay all royalties and licenses fees for the use of any patented item, whether it may be an invention, method, arrangement, article, process or appliance used in connection with the performance of the Contract. The Contractor shall indemnify and save harmless the Board against any and all costs, damages and expenses of any nature or kind whatsoever which may arise out of or result from a claim by any person, firm or corporation that the manufacture, purchase, use of sale of any of the inventions, methods, arrangements, articles processes or appliances used in connection with the performance of this Contract infringes any patent of such other rights. The Contractor shall, at the request of the Board, defend the Board against any suit brought to enforce any such claim at the Contractors expense.
- 39.2 In case any such patented item used on or in conjunction with the Works is in suit held to constitute and infringement of its use enjoined, the Contractor shall either secure for the Board the right to continue using the said item by suspension of the injunction, by procuring for the Board a license or otherwise, or will replace such items with a non-infringing item or modify it so that it becomes non-infringing or with the Board's approval remove the said enjoined item and refund to the Board the sums paid thereof.

#### **40.0 EFFECTIVENESS**

This Contract shall come into force and effect on the date of the Letter of Award and shall be in force until the Works have been completed and all the payments have been made to the Contractor, including the payments for O&M contract period.

#### **41.0 LAWS AND REGULATIONS**

The formation, validity and performance of this Contract shall be governed as to all matters by and under the laws and regulations of India and courts in Bhopal shall have exclusive jurisdiction in all matters arising under this Contract.

The Contractor shall respect and abide by all laws and regulations of India and shall make its best effort to ensure that the personnel of the Contractor and their dependents, while staying in India, shall respect and abide by all laws and regulations of India. The Contractor shall protect, absolve and indemnify the Board and their representatives from any claim, loss or damage arising from any non-compliance alleged or proved, without claiming them for payment.

#### **42 NOTICES**

Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or by cable, telex, facsimile and confirmed in writing to the other party's address specified in SCC.

A notice shall be effective when delivered or on the notice's effective date, whichever is later.

**VOLUME I**

**SECTION VI**

**SPECIAL CONDITIONS  
OF CONTRACT**



**SECTION VI**  
**SPECIAL CONDITIONS OF CONTRACT**

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## **SPECIAL CONDITIONS OF CONTRACT**

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict the provisions herein shall prevail over those in the General Conditions of Contract the corresponding clause number of the GCC is indicated in parentheses, if applicable.

### **1.0 CLIMATE CONDITION**

Precaution and protection against the specific climate conditions in India such as heavy rain, high temperature, high humidity, gales, excessive sunshine, flooding or any other climate conditions which could cause damage upon the Equipment or otherwise interfere with the execution of the works shall be taken. The Equipment to be supplied shall be tropicalized.

### **2.0 CONSUMABLES AND SPARE PARTS**

#### **2.1 Supply of Consumables and Spare Parts**

The Contractor shall provide the consumables and spare parts as per requirement of Operation & maintenance of CAAQMS Stations.

#### **2.2 After Sales Services**

The Contractor shall guarantee the availability of all consumables, spare parts, maintenance and repair work for each Equipment at cost basis for at least five (5) years after the O&M period specified in Clause 7 of SCC, unless otherwise specified in the Specifications.

Bidder should submit certificates from the manufacturers in support of available service centers and availability of spares parts and consumable in India as per Attachment no. 5 of Section III.

### **3.0 NAME PLATE (GCC CLAUSE 12)**

The Contractor shall affix the name plate with the following description in English on all the Equipment:

- 1) Name of the station
- 2) Name of the Equipment

- 3) Manufacturing date
- 4) Production serial number
- 5) Equipment model number
- 6) Name of manufacturer
- 7) Ratings of the Equipment
- 8) Logo of MPPCB

#### **4.0 MARKING (GCC SUB-CLAUSE 13.2)**

The Contractor shall mark the following information in the sequence described below and in a frame commensurate with the size of packing and/or the Equipment.

- 1) Consignee: M. P. Pollution Control Board, E-5 Sector, Paryawaran Parisar, Arera Colony, Bhopal, India
- 2) Name of the Works. Supply and O&M of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for MPPCB at Indore, Gwalior, Bhopal, Jabalpur, Satna, Rewa, Shahadol, Sagar, Katni and Chhindwara.
- 3) Name of the Project: Supply and O&M of Continuous Ambient Air Quality Monitoring Station (CAAQMS) for MPPCB at Indore, Gwalior, Bhopal, Jabalpur, Satna, Rewa, Shahadol, Sagar, Katni and Chhindwara.
- 4) Contract number:
- 5) Contractors name:
- 6) Port or airport of discharge:
- 7) Country of origin:
- 8) Item, and if applicable, package number in sequence, and quantity per package and/or Equipment:
- 9) Description of Equipment:

- 10) Net and gross weight and cubic measurement:
- 11) Shipper's name and/or marks:
- 12) Caution marks, if applicable:
- 13) Other markings required by the Board:

## **5.0 SHIPMENT (GCC CLAUSE 14)**

The Contractor shall be responsible for the delivery of the Equipment to each Site designated by the Board and for the coverage of shipping charges, freight, insurance premiums up to handling over the Equipment at Sites, inland transportation and temporary storage.

### **5.1 Notification and Submission of Documents**

Upon shipment, the Contractor shall notify the Board and the Insurance Company by cable of the following details of the shipment.

- 1) Contract number
- 2) Description and quantity of the Equipment
- 3) Name of vessel and air cargo
- 4) Number and date of bill of lading and airway bill
- 5) Date of shipment, port of discharge, expected date of departure and expected date of arrival
- 6) Invoice amount of shipment
- 7) Name of a claim settling agency in India.

5.2 The Contractor shall mail the following documents to the Board, with a copy to the Insurance Company.

#### **(1) Equipment of Foreign Origin:**

- i) Four (4) Copies of the contractor's invoice showing the Equipment's description, quantity, unit price and total amount

- ii) Original and Four (4) copies of the negotiable, clean, on-board bill of lading marked freight prepaid and four copies of non-negotiable bill of lading;
- iii) Four copies of the packing list identifying contents of each package
- iv) Insurance certificate
- v) Manufacturer and Suppliers warranty certificate
- vi) Factory test and inspection certificate
- vii) Certificate of country-of origin

The above documents shall be received by the Board at least one week before arrival of the Equipment at the port or place of arrival and. If not received, the Contractor will be responsible for any consequent expenses.

Partial shipment and transshipment is allowed.

**(2) Equipment to be Supplied from within India:**

Upon delivery of the Equipment to the transporters, the Supplier shall notify the Board and mail the following documents to the Board.

- i) Four copies of the Supplier's invoice showing the Equipment's description, quantity, unit price and total amount
- ii) Acknowledgement of receipts of goods from the consignee i.e. receipted delivery note, railway receipt (RR), or truck receipt (LR)
- iii) Supplier's and/or Manufacturer's warranty certificate
- iv) Factory test & inspection certificate and Material Dispatch Clearance Certificate (MDCC) issued by the Board.
- v) Insurance certificate
- vi) Certificate of country of origin

The above documents shall be received by the Board before arrival of the Equipment and, if not received, the Supplier shall be responsible for any consequent expenses.

**6.0 WORKS SCHEDULE (GCC CLAUSE 16)**

**6.1 Equipment to be supplied from Foreign Country:**

Delivery Period for all the packages shall be **90 days from the date of the opening of Letter of Credit (L/C)**. It relates to completion of delivery on CIF (designated Sea Port / Air Port) basis for equipment of foreign origin. Further transportation to the site where the CAAQMS's is to be installed and commissioned shall be completed by the contractor **within Sixty (60) days** from the date of arrival of equipment at port of de-embarkment.

#### **6.2 Equipment to be supplier from India:**

All the equipment shall be received at Continuous Ambient Air Quality Monitoring Station Site (1 no.), within 90 days from the date of notification of award and are to be installed and commissioned within sixty (60) days from date of receipt at site.

#### **6.3 Commissioning and others incidental services:**

All the equipment of the awarded package shall be commissioned within **150** days after the date of opening of Letter of Credit (L/C) including all the incidental services i.e. training etc.

#### **6.4 O&M Contract**

The contractor shall carry out Operation & Maintenance of Air Monitoring Stations after one year of warranty for a period of five (5) years from the date of commissioning of the station, which can be extended up to extended (5) years at all mutually agreed rates and terms & conditions.

### **7.0 WARRANTY / O & M CONTRACT (GCC CLAUSE 18)**

#### **7.1 Period of O&M Contract**

The complete CAAQMS shall be under Operation & Maintenance Contract from the date of commissioning of the station and maintenance of all the equipment including supply of all material shall be the responsibility of the Contractor during the validity of Operation & Maintenance Contract. The Contractor shall, in addition, comply with the performance guarantees if specified under the Contract. If, for reasons attributable to the Contractor, these guarantees are not attained in whole or in part, the Contractor shall make such changes, modifications, and/or additions to the Equipment or any part thereof as may be necessary in order to attain the contractual guarantees

specified in the Contract at its own costs and expenses and to carry out further performance test.

## **8.0 INSURANCE (GCC CLAUSE 19)**

- A) The **insurance (Comprehensive) shall be in an amount of equal to One Hundred Ten (110) percent** of the value of the Equipment up to handing over of the Equipment to the Board on "All Risks" basis, including war risks and strikes, naming the Board as the beneficiary.
- B) The Contractor shall take the comprehensive all risk insurance cover for the complete station during O&M period including statutory insurance of Contractor's personnel. The value shall be 110% of the total value of the stations depreciated annually as per standard norms.

## **9.0 INSTALLATION (GCC CLAUSE 20)**

Bidder shall depute Engineer / supervisor for on-site assembly, installation, commissioning and start up of the supplied equipment. Bidder shall also furnish tools required for assembly, commissioning and maintenance of equipment during O&M period.

## **10.0 INSPECTION AND TEST (GCC CLAUSE 21)**

### **10.1 Unpacking Inspection**

Unpacking inspection shall be performed by the Contractor to inspect whether all the items and quantity of the Equipment have been delivered in conformity with the Equipment and packing list without any damage during the shipment.

The Contractor shall submit the unpacking inspection report to the Board.

### **10.2 Site Inspection**

The Contractor shall carry out site inspection of the Equipment at each Site at the completion of installation works to confirm that the installation works and the function of the Equipment is satisfactory for the requirements specified in S/W and the Specifications.

The Contractor shall carry out the functional test to ensure that the consumables and spare parts are good for the operation, maintenance and replacement in future.

As a result of site inspection, the Equipment regarded as unsatisfactory or unacceptable by the Board shall be promptly remedied by the contractor. The Contractor shall submit the site inspection report to the Board and the Consultant.

### **10.3 Performance Test**

The Contractor shall carry out the performance test to inspect and witness the function of each of the equipment supplied under the awarded package at site.

Performance test shall be carried out in accordance with Sub-clause 4.3 of S/W for all the Equipment supplied.

In case the Equipment for performance test requires the supplemental and/or supporting Equipment, the Contractor shall carry out the performance test including such Equipment.

Performance test will be considered to be complete only after successful completion of performance test of each equipment pertaining to respective packages.

In case of results of such performance test found to be unsatisfactory by the Board same shall be promptly reminded by the Contractor.

The Contractor shall prepare the performance test procedures for approval by the Board at least thirty (30) days prior to the testing schedules.

The Contractor submits the performance test report to the Board.

### **11.0 COMPLETION (GCC CLAUSE 23)**

The Contractor shall complete all the Works up to installation and commissioning of CAAQMS's within 150 days after the date of opening of Letter of Credit **(LC)**.

### **12.0 SUBMISSION OF DOCUMENTS (GCC CLAUSE 24)**

#### **12.1 Work Program**



Within thirty (30) days from the notification of award of the Contract, the Contractor shall submit the detailed Works program and schedule to the Board indicating the following items:

- a. Equipment supply program and Equipment layout plan (if applicable)
- b. Design drawings and utility list, if required
- c. Subcontractor list for installation work of the Equipment if not already specified in the Techno-commercial Bid
- d. Program for factory, pre-shipment, unpacking and site inspections and performance test
- e. Installation program including personnel organization chart of the Contractor.

The Contractor shall be responsible for any discrepancies, errors or omissions or delay in delivery and submission of the work program, and any expenses resulting there from shall be borne by the Contractor.

## 12.2 Other Documents

The Contractor shall submit the following documents within forty five (45) days after the notification of award.

Item	Number of Documents to be sent to MPPCB
Catalogues, product data and test reports	10
Installation manuals	10
List of consumables and spare parts	10
Manufacture's specifications	10
Training program	10

Besides the documents here above, the Contractor shall submit the following documents at the designated time for submissions as follows:

Item	Number of Document	Time of Submission
	Board	
Inspection report	10	At the time of completion of factory, pre-shipment unpacking and site inspections (if applicable)

Training manual	10	At the time of commencement of installation of Equipment
Operation and maintenance manual	10	At the time of commencement of installation of Equipment
Training program	10	By the time of completion of installation of Equipment
Report of performance test	10	At the time of completion of performance test
Video CD (Optional)	10	By the time of commencement of training
List of Equipment supplied	10	At the time of completion of the Work

Besides the documents here above, the Contractor shall submit the notices, reports, and other documents when deemed necessary, in accordance with the direction of the Board.

### **13.0 PAYMENT (GCC CLAUSE 25)**

#### **13.1 Method of Payment**

The payment shall be made in the currency specified in the contract by means of an irrevocable Letter of Credit (LC) for equipment against dispatch.

The bidder shall provide exclusive company profile including necessary certificates / license for manufacture the product from DGTD / SSI/SIA etc. The bidder shall also provide Bank Name, Account Name, Account Number, Account Type, Branch IFSC Code for safer & easier payment transaction through RTGS/NEFT.

#### **13.2 Terms and Conditions of Payment**

Bids with terms and conditions of payment other than that specified below shall be rejected.

- (a)** Payment for goods and services (excluding O&M charges) supplied from abroad:

- i) **On shipment:** Seventy Five (75) percent of the contract price of the Goods shipped shall be paid through irrevocable Letter of Credit opened in favour of the supplier in a bank in his country and upon submission of the documents specified in sub-clause 5.2 (1) of SCC including : (i) Packing list and (ii) Supplier's certificate that the amounts shown in the invoice are correct in terms of the contract and that all the terms and conditions of the contract have been complied with and
  - ii) **On Final Acceptance:** Balance Twenty Five (25) percent of contract price of the equipment including 100% of the local costs, incidental cost, cost of training after satisfactory completion of installation & commissioning including Training (to be certified by the Board) of all the Equipment of the package at specified site(s) and submission of acceptance certificate as per Attachment 4 of SCC.
  - iii) 100% Payment of local currency portion including agency commission shall be paid after satisfactory completion of installation & commissioning including Training (to be certified by the Board) of all the Equipment at specified site(s).
- (b) Payment of goods and services (excluding O&M charges) supplied from India.
- i) **On Delivery:** Seventy Five (75) % of the contract price shall be paid (through LC) on receipt of Goods and upon submission of the documents specified in Clause 5.2 (2) of SCC: and
  - ii) **On Final Acceptance:** Balance Twenty Five (25) % percent of contract price of the equipment including 100% of the local costs, incidental cost, costs of training after satisfactory completion of installation & commissioning including Training (to be certified by the Board) of all the Equipment of the particular package at specified site and submission of acceptance certificate as per Attachment 4 of SCC.
- (c) Payment of Operation and Maintenance charges:

O&M cost of each year shall be paid after end of every quarter in equal installments based on submission of required air quality report as per annexure X<sub>1</sub> to X<sub>5</sub> along with data obtained from calibration documentation. Any penalties applicable if any as referred in Scope of Work for O&M Contract and as per notification of award of contract shall be deducted from the quarterly payment.

- (d) i) Where payments are to be effected through Letter of Credit (LC), the same shall be subject to the latest Uniform Customs and Practice for documentary credit, of the International Chamber of Commerce.
- ii) The LC will be confirmed at Supplier's cost if requested specifically by the supplier;
- iii) If LC is required to be extended / reinstated for reasons not attributable to the Purchaser, the charges thereof shall be to the suppliers account.
- iv) Any expenditure for the operation of LC out - side India shall be borne by the beneficiary.

#### **14.0 PRICES (GCC CLAUSE 26)**

The prices quoted **shall be firm** throughout the tenure of the Contract. Any increased cost incidental to the performance of the Works due to any economic dislocation either in the origin country or India or to any other causes such as currency restriction, price hike of the Equipment, wage hike for labor or revaluation of the currency can not be claimed by the Contractor to the Board.

#### **15.0 PERFORMANCE SECURITY (GCC CLAUSE 27)**

##### **15.1 Performance Security**

The amount of performance security as a percentage of the Contract Price shall be ten (10) percent.

#### **16.0 LIQUIDATED DAMAGES (GCC CLAUSE 31)**

##### **16.1 Rate**

The Contractor shall pay to the Board as liquidated damages a sum equivalent to half (0.5) percent of the contract price of each station for per week of delay in commissioning of each station after scheduled date of completion.

##### **16.2 Maximum Deduction**

The total liquidated damages on account of delay in supplies payable to the Board shall not in any case exceed ten (10) percent of the Contract price of supply portion only (Excluding O&M charges).

16.3 In addition to above Liquidated damages for delay, the Contractor is liable to pay penalty on account of failure of systems during O&M period as elaborated in Section – II (Scope of work) of this document.

#### **17.0 NOTICES (GCC CLAUSE 42)**

Any notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the party to whom the communication is addressed or when sent by registered mail telex, telegram, facsimile to such party at the following address:

**The Member Secretary,  
M. P. Pollution Control Board,  
E-5 Sector, Paryawaran Parisar,  
Arera Colony, Bhopal**

**Attachment 1**

**Form of Bank Guarantee for Performance Security**

(to be stamped in accordance with Stamp Act, if any, of the Country of the issuing Bank)

Bank Guarantee No. -----

Date : -----

Ref. No.:-----

**To,**

**The Member Secretary,  
M. P. Pollution Control Board,  
E-5 Sector, Paryawaran Parisar,  
Arera Colony, Bhopal**

Dear Sirs

THIS AGREEMENT is made on the -----days of----- 2018 -----  
Between [Name of the Bank] of ----- [address of the bank]  
(hereinafter called "the Guarantor") of the one part and M.P. Pollution Control Board, Bhopal-462016 (hereinafter called "the Board") of the other part.

**WHEREAS**

- (1) this agreement is supplemental to a contract number -----(insert Contract Number) (hereinafter called "the Contract") made between ..... [name of Contractor] of ----- [address of Contractor] (hereinafter called "the Contractor) of the one part and the Board of the other part whereby the Contractor agreed and undertook to execute the works of Supply and O&M of Continuous Ambient Air Quality Monitoring Station (CAAQMS) for MPPCB at against the Contract for the sum of ----- [amount in Contract Currency] being the Contract Price; and
- (2) the Guarantor has agreed to guarantee the due performance of the Contract in the manner hereinafter appearing.

NOW, THEREFORE, the Guarantor hereby agrees with the Board as follows;

- (a) If the Contractor (unless relieved from the performance by any clause of the Contract or by statute or by the decision of a tribunal of competent jurisdiction) shall in any respect fail to execute the Contract or commit any breach of his obligations there under then the Guarantor will indemnify and pay the Board the aggregate sum of ----- [amount of Guarantee shall be ten (10)% (Percent) of the said value of the Contract]----- [in words], such sum being payable in the types and amount of currencies in which the Contract Price is payable, provided that the Board or his Authorized Representative has notified the Guarantor to that effect and has made a claim against the Guarantor before the expiry of O&M period.
- (b) The guarantor shall not be discharged or released from his guarantee by an arrangement between the Contractor and the Board, with or without the consent of the Guarantor, or by any alteration in the obligations undertaken by the Contractor, or by any forbearance on the part of the Contractor, whether as to payment, time, performance, or otherwise, any notice to the Guarantor of any such arrangement, alteration, or forbearance is hereby expressly waived.

This guarantee shall be valid for one year after successful commissions of entire system from the date of expiry of O&M period as specified in the Contract.

Given under our hand on the date first mentioned above.

SIGNED BY -----  
 for and on behalf of the  
 Guarantor  
 (Seal of Guarantor)

in the presence of

-----  
 (Witness)

## Attachment 2

### FORM FOR CONTRACT AGREEMENT FOR SUPPLY AND OPERATION & MAINTENANCE OF CONTINUOUS AMBIENT AIR QUALITY MONITORING STATIONS (CAAQMS)

This operation and Maintenance Agreement ("Agreement") is made on this -  
----- day of by and between:

(Name of the Board), India which term shall include permitted assigns and successors (Hereinafter called as "The Board" or "the Owner").

And

M/s. ----- a company incorporated  
----- with Regd. Office at -----  
which term shall include permitted assigns and successors (hereinafter called  
as "Contractor" or "the Contractor")

#### RECITALS

Whereas the Owner had invited Bids under reference ----- for  
supply and Operation & Maintenance continuous ambient Air quality  
monitoring Station located at:

and M/s ----- had submitted their bid against the aforesaid  
invitation to bid and Owner has accepted the bid of M/s ----- and has  
decided to entrust the job of supply and Operation & Maintenance (O&M)  
of the one Air Monitoring Station located at to the Contractor vide Letter of  
Award ref.----- dated ----- at a total Contract Price for complete  
scope of work of ----- (Contract Price in Words and Figures) (Hereinafter  
"the Contract Price").

Whereas the Contractor has accepted the Letter of Award issued by the  
Owner in writing vide its letter no.----- dated ----- and has furnished  
Contract Performance Security for an amount of Rs. ----- [Rupees-----  
only] and which is initially valid up to ----- and Owner has accepted the  
said Contract Performance Security.

Whereas, Contractor is having expertise in the business inter alia, of supplying  
and operation & maintenance of Air Monitoring Stations and the owner has  
engaged the Contractor to supply and perform operation and  
maintenance of said Air monitoring stations upon the terms & conditions set



forth in this Agreement and the Letter of Award referred above issued by the Owner including all the documents referred in the above Letter of Award.

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS;**

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - i) Scope of Works;
  - ii) Financial Bid;
  - iii) Technical Specifications;
  - iv) General Conditions of Contract;
  - v) Special Conditions of Contract; and
  - vi) The Board's Notification of Award.

This Contract sets forth the entire contract and agreement between the parties pertaining to the supply of the Goods described herein and Operation & Maintenance of the Air Monitoring Stations and supersedes any and all earlier verbal or written agreements pertaining to the supply of the Goods.

This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

3. In consideration of the payments to be made by the Board to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Board to perform the Works and to remedy defects therein conformity in all respects with the provisions of the Contract.
4. The Board hereby covenants to pay the Contractor in consideration of the performance of the Works and the remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

5. Any notice under the Contract shall be in the form of letter, telex, cable or facsimile. Notices to either party shall be given at such address or addresses as such party shall specify from time to time by written notice to the other. In the absence of such notice to the contrary, notice to the Board shall be properly addressed to:

**The Member Secretary,  
M. P. Pollution Control Board,  
E-5 Sector, Paryawaran Parisar,  
Arera Colony, Bhopal**

And notice to the Contractor shall be properly addressed to:

[Contractor's address and electronic transmission address]

-----  
-----

A notice shall be effective when delivered or on the notice's effective date, whichever is later.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

-----  
**Signature of Board's Authorized  
Representative**  
-----

-----  
Signature of Contractor  
-----

Signed, Sealed and Delivered by the said  
\_\_\_\_\_

(For the Board) in the presence of  
\_\_\_\_\_

Signed, Sealed and Delivered by the said  
\_\_\_\_\_

(For the Contractor) in the presence of  
\_\_\_\_\_

**Attachment 3**

**PROFORMA OF CERTIFICATE FOR ISSUE BY THE MPPCB  
AFTER SUCCESSFUL COMMISSIONING OF EQUIPMENT**

No.:

Date: .....

M/s

**Subject: Certificate of Commissioning of equipment.**

1. This is to certify that the equipment as detailed below has / have been received in good condition along with all the standard and special accessories (subject to remarks in Para No.2) and a set of spares in accordance with the Contract / specifications. The same have been installed and commissioned.

- a) Contract No..... dated .....
- b) Name of CAAQM station/ city .....
- c) Description of the equipment .....
- d) Package No. ....
- e) Quantity .....
- f) Bill of Lading ..... dated .....  
(for import contract)
- g) Name of the vessel/transporter .....
- h) RR No. .... dated .....
- i) Name of the consignee .....
- j) Date of commissioning and performance test .....

2. Details of recoveries to be made on that account:

Sl. No.	Description	Amount to the recovered

3. The proving/performance test has been done to out entire satisfaction and personnel have been trained to operate the equipment.

BOARD

CONTRACTOR

4. The contractor has fulfilled his contractual obligation satisfactorily. Explanatory notes for filling up the certificates:
  - a) he has adhered to the time schedule specified in the contract in dispatching the documents drawing pursuant to Technical Specifications.
  - b) He has supervised the commissioning of the item in time i.e. within the period specified in the contract from the date of intimation by the Purchaser in respect of the installation of the plant.
  - c) Training of personnel has been done by the contractor specified in the contract.
  - d) in the event of documents/drawings having not been contractor or installation and commissioning of the plant have been delayed on act of the contractor, the extent of delay should always be mentioned.

**OR**

The contractor has failed to fulfill his contractual obligations with regard to the following i.e. instruction or training etc.

- a)
  - b)
  - c)
  - d)
5. The amount of recovery, on account of non-supply of accessories and spares is given under Para No. 2.
  6. The amount of recovery on account of failure of the contractor to meet his contractual obligations is as indicated in endorsement of the letter.

Signature .....

Name .....

Designation with stamp.....

**M. P. Pollution Control Board**

**Attachment 4**

**PROFORMA FOR BANK GUARANTEE  
TO BE FURNISHED BY O&M PARTNER  
(TO BE STAMPED IN ACCORDANCE WITH STAMP ACT,  
IF ANY, OF THE COUNTRY OF THE ISSUING BANK)**

Bank Guarantee No.....

Date .....

In consideration of M. P. Pollution Control Board (hereinafter referred to as "Employer" which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to ..... with its Head Office at.....(herein-after referred to as.....or "Contractor") a Contract for Supply and Operation & Maintenance of Continuous Ambient Air Quality Monitoring Stations (CAAQMS), vide Contract No. .... dated.....and the same having been unequivocally accepted by the Contractor resulting in a "Contract", which award is on the strength of Form of Certificate by the O&M Partner in India for Carrying out O&M of CAAQM's dated ..... (hereinafter referred to as "Undertaking") given by M/s..... (O&M Partner) having its registered office at ..... (hereinafter called O&M Partner), and the Contractor having further executed with ..... (O&M Partner) a Sub-Contract dated ..... and the same having been unequivocally accepted by the O&M Partner resulting in a Sub-Contract Agreement for ..... (hereinafter called "Sub-Contract Agreement") and..... (O&M Partner) having agreed to provide a Performance Guarantee amounting to 2% of the total contract price in addition to the Contract Performance Security to be provided by the Contractor to the Employer on the terms and conditions specified in the "Undertaking".

We..... Bank, having its Head Office ..... (herein-after referred to as the "Bank", which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay to the Employer on demand any and all monies to the extent of .....(Specify currency and amount in words and figures) only as aforesaid at any time up-to.....@.....without any demur, reservation, context, recourse or protest and/or without any references to "O&M Partner" or "Contractor". Any such demand made by the Employer on the Bank shall be conclusive and binding, notwithstanding any difference between the Employer and Contractor and/or between the Employer and O&M Partner or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantee herein contained shall be enforceable till ninety (90) days after expiry of its validity.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract or the Component Agreement by the O&M Partner. The Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the O&M Partner

and to exercise the same at any time, in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract or Undertaking or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under this presents by any exercise of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under law would, but for this provision have the effect of relieving the Bank from its obligations.

The Bank also agrees that the Employer at is option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against Contractor or O&M Partner and notwithstanding any security or other guarantee that the Employer may have in relation to Contractor's or O&M Partner 's liabilities.

Notwithstanding anything contained hereinabove our liability under this guarantee is restricted to ..... and, it shall remain in force up-to and including ..... @ ..... and shall be extended from time to time for such period (not exceeding one year), as may be desired by M/s ..... (O&M Partner) on whose behalf this guarantee has been given.

Date this ..... day of ..... 20..... at .....

**WITNESS :**

(Signature).....	(Signature).....
(Name).....	(Name & Designation).....
(Official Address).....	(Bank's Seal).....

Authorised vide Power of Attorney No.....

Date.....

\* Brief Name of the Contractor

@ The date will be ninety (90) days after the end of the defect liability period as specified in Contract.

**NOTE :**

1. The stamp papers of appropriate value shall be purchased in the name of the Guarantee issuing Bank.
2. (i) The Bank Guarantee from a Bank in the list of Banks at Attachment – 15 to Section – III of bid documents.

**Annexure – X<sub>1</sub>**

**MONTHLY FIELD CHECK LIST OF (To be filled by MPPCB officials deputed)  
CAAQM STATION UNDER OPERATION CONTRACT ----- (Name of the city)**

<b>S. No.</b>	<b>Description</b>	<b>----- (Name of the Station) Station</b>	<b>Remarks</b>
1.	Station Visit Date		
	(i) 1 <sup>st</sup> Week		
	(ii) 2 <sup>nd</sup> Week		
	(iii) 3 <sup>rd</sup> Week		
	(iv) 4 <sup>th</sup> Week		
2.	SOP Available at Station		
3.	Environmental Condition of Station		
4.	Protocol of Station available		
5.	Availability of Calibration Gas		
6.	Availability of Permeation Tube (NIST Traceable )		
7.	Bi Weekly Calibration Done (Precision check, two point calibration check)		
8.	Full Calibration Done (Multipoint Calibration check)		
9.	Insurance Validity		
10.	Electricity Bill Paid, if any		
11.	Telephone Bill Paid, if any		
12.	Security Guard Payment, if any		

13.	Servicing of ACs Installed, if any		
14.	Data Display Board Working		
15.	O&M Rate - Cheque payment, if any		
16.	Name of the Company Engineer Deputed/Present		
17.	Data Analyst at Central Station Deputed/Present		
18.	Log-Book maintained and observation entered.		
19.	Date Received (Daily / Monthly)		
20.	Name of the visiting Official of MPPCB		
21.	Special Remarks, if any		

.....  
**Signature of MPPCB official**



**M. P. Pollution Control Board**  
**Continuous Ambient Air Quality Monitoring Report**  
**(MAIN POLLUTANTS)**

To be submitted daily at 06 morning for that day ending at next 06 morning

Daily Report Station Name:----- Month:-----

Report No. : Date:-----.

Monitoring Location :

Data Interval: 1 Hr. Average

Monitoring Conducted By:-----

Hrs.	NO	NO <sub>2</sub>	NO <sub>x</sub>	NH <sub>3</sub>	SO <sub>2</sub>	CO	O <sub>3</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	Benzene	Toluene	Ethyl Ben	MP Xylene	O xylene
	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppb	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
06-07Hr.														
07-08 Hr.														
08-09 Hr.														
09-10 Hr.														
10-11 Hr.														
11-12 Hr.														
12-13 Hr.														
13-14 Hr.														
14-15 Hr.														
15-16 Hr.														
16-17Hr.														
17-18 Hr.														

18-19 Hr.														
Hrs.	NO	NO <sub>2</sub>	NO <sub>x</sub>	NH <sub>3</sub>	SO <sub>2</sub>	CO	O <sub>3</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	Benzene	Toluene	Ethyl Ben	MP Xylene	O xylene
	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ppb	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>
19-20 Hr.														
20-21 Hr.														
21-22 Hr.														
22-23 Hr.														
23-00 Hr.														
00-01 Hr.														
01-02Hr.														
02-03 Hr.														
03-04Hr.														
04-05 Hr.														
05-06 Hr.														
<b>MINIMUM</b>														
<b>MAXIMUM</b>														
<b>AVERAGE</b>														
<b>Data Captured</b>														
Note :														

**M. P. Pollution Control Board**

**Continuous Ambient Air Quality Monitoring Report  
(Mean Concentration of Main Pollutants)**

Year ..... Monitoring Location: .....

<b>Months</b>	<b>NO</b>	<b>NO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>NH<sub>3</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>	<b>O<sub>3</sub></b>	<b>PM<sub>2.5</sub></b>	<b>PM<sub>10</sub></b>	<b>Benzene</b>	<b>Toluene</b>	<b>Ethyl Ben</b>	<b>MP Xylene</b>	<b>O xylene</b>
	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>ppb</b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>	<b>µg/m<sup>3</sup></b>
<b>January</b>														
<b>February</b>														
<b>March</b>														
<b>April</b>														
<b>May</b>														
<b>June</b>														
<b>July</b>														
<b>August</b>														
<b>September</b>														
<b>October</b>														
<b>November</b>														
<b>December</b>														
<b>MINIMUM</b>														
<b>MAXIMUM</b>														
<b>AVERAGE</b>														

**Calculation of City-wise Payment for O & M Charges on Quarterly Basis for CAAQM Stations  
under O & M Contract**

Bill raised for O & M Charges by M/s .....		Invoice No. ....	Date .....				
Bill raised for spares and consumables		Invoice No. ....	Date .....				
Total Amount							
Name of the Station →		<b>STATION I (Location .....</b>	<b>STATION II (Location .....</b>	<b>STATION III (Location .....</b>			
Quarter No.: →							
Duration: →							
Year:→							
Percentage of valid monthly data captured rate →	Month 1						
	Month 2						
	Month 3						
Average Quarterly Data Captured Rate→							
		Price for service portion 70%	Price for material part & other incidental charges 30%	Price for service portion	Price for material part & other incidental charges	Price for service portion	Price for material part & other incidental charges
Base Amount per Quarter (as per NoA)(A)							
Proportionate Amount based on Valid Data Captured Rate(B) Formula: see at footnote* (Specimen Calculation sheet attached in <b>Annexure I</b> )							
Applicable Deduction as per penalty provision for continuous non-functioning(C) (Specimen Calculation sheet attached in <b>Annexure II</b> )							
Any Other Deduction, specify with justification(D)							
Applicable Taxes & Duties(E) - Service Tax - Education Cess - Secondary & Higher Education Cess - CST							
Net Amount Payable ( ` ) [ F = B- (C+D) + E ]							
<b>Total O&amp;M cost Payable(Station Wise)</b>		<b>(i)</b>		<b>(ii)</b>		<b>(iii)</b>	
<b>Total Amount Payable ( ` ) for O&amp; M cost for City for quarter no. 1/2/3/4 of year 2018 (I + ii + iii)</b>							

\* Percentage quarterly data captured rate/ 85% X A

**Annexure I**

**(Ref.: Invoice no-----dated-----for the period -----)**

Name of Station*	Name of non – functional system	Total period of continuous non-functioning (days)	Period considered for penalty calculation after grace period**	Penalty amount (period x unit rate)

**Total Penalty Amount (₹):**

**\* (To be prepared & submitted separately for each station)**

**\*\* Grace period of 7 days is applicable only once per quarter**

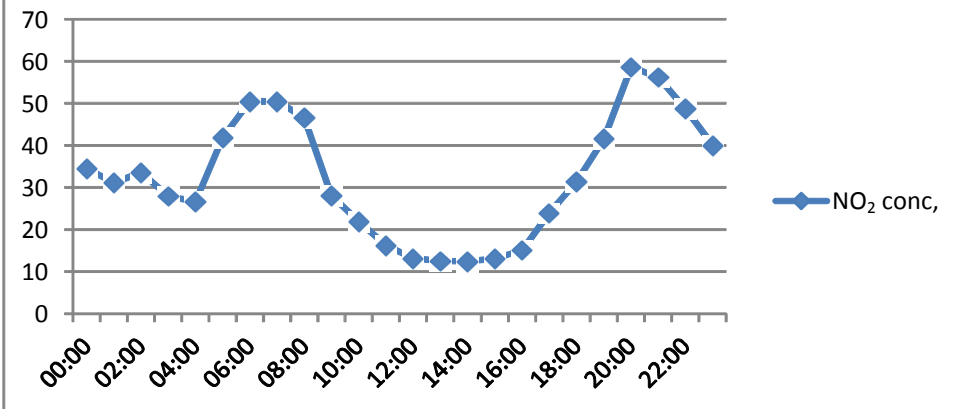
**Annexure II**

**(Ref.: Invoice no-----dated-----for the period -----)**

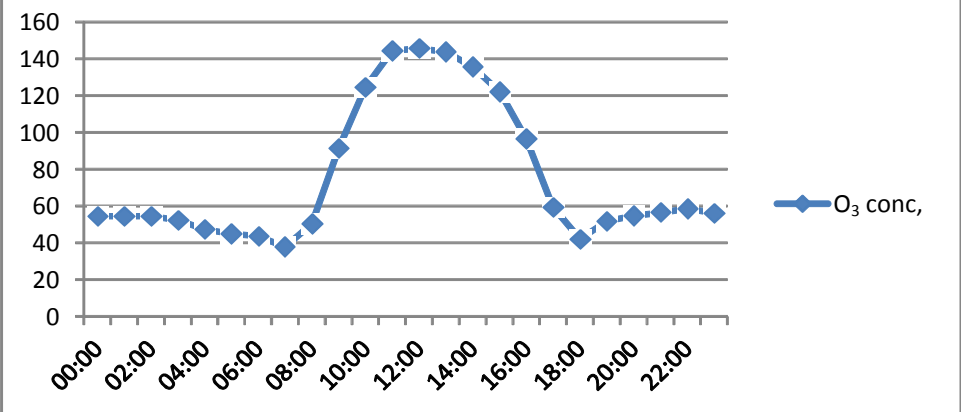
Name of Station*	Observed Monthly Data Captured Rate														Average Percentage Data Capture Rate
	For gases pollutant						Dust Particles		For Mat. Parameters						
	NO <sub>2</sub>	O <sub>3</sub>	SO <sub>2</sub>	CO	NH <sub>3</sub>	BTX	PM <sub>2.5</sub>	PM <sub>10</sub>	Temp.	RH	WS	WD	SR	RF	

\* (To be prepared & submitted separately for each station)

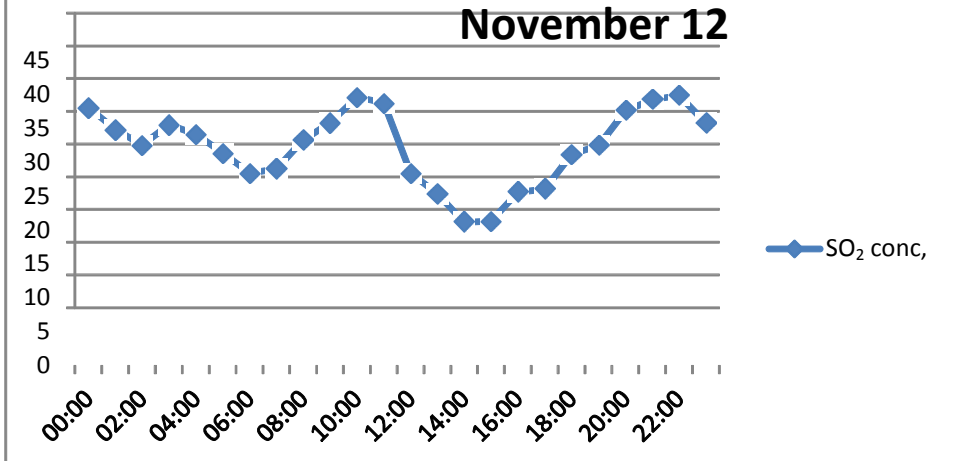
### Diurnal Variation of NO<sub>2</sub> in November 2012



### Diurnal Variation of O<sub>3</sub> in November 12



### Diurnal Variation of SO<sub>2</sub> In November 12



**Similarly seasonal variations and yearly graphs with  
Annual Report to be submitted by the successful bidder**



# **VOLUME -2**

## **TECHNICAL SPECIFICATIONS FOR ONE CONTINUOUS REAL TIME AMBIENT AIR QUALITY MONITORING ANALYSERS / STATION**

# TECHNICAL SPECIFICATIONS

## 1.0 MONITORINGS STATION

**1.1 Monitoring Station:** is designed for housing the ambient air quality monitoring instruments to protect them from dust and heat. Temperature and Humidity sensors shall be installed in the housing for checking the humidity and temperature inside the station. Three Nos. 19" racks shall be installed inside the station so that the analysers are easily accessible from front & back for calibration and maintenance.

**1.2 Dimensions:**

- Inside length: Approx. 4200 mm
- Inside width: Approx. 3500 mm
- Inside height: Approx. 2500 mm

**1.3 Frame:** All the material used for the construction of the floor, frame, roof frame etc, the 4 corner posts and 8 integrated, reinforced container corners should be of metal. The exterior panel of the container shall be made of pre-coated MS Sheet of approved colour shade. All other steel parts should be hot dipped galvanized having minimum rate of galvanisation of 275 gram per square meter. All joints of like metal such as steel-to-steel or aluminium-to-aluminium shall be protected against corrosion by liberal application of joining compound. All joints of dissimilar metals such as steel to aluminium shall be protected against corrosion due to galvanic action by liberal application of dielectric compound as well as jointing compound on both mating surfaces. For lifting / fixing the container, International Standard eyebolts should be provided at the corners.

**1.4 Paneling:** The outer paneling will be of 1.2 mm of Pre-coated MS sheet to withstand external impacts and abrasions. Outer side of the MS Sheet i.e. exposed face of the sheet, shall be permanently colour coated with silicon modified polyester coating of dry film thickness (DFT) 20 micron (min.) of approved colour shade over primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum 7 micron off-white colour. The inner paneling will be of PVC coated 2 mm thick aluminium sheet, fixed over an inlay of 4 mm marine plywood. 100 mm thick polyurethane insulation will be used between the outer and inner walls (Pre-coated MS sheet and Marine plywood) as insulating material. Z spacers if required shall be made out of at least 2 mm thick galvanized steel sheet of grade 275 as per IS:277

**1.5 Floor:** The floor will be laid in frame of 600 x 600 mm centre to centre with 50 x50 x 6 mm MS angle. The floor surface will be of 19 mm marine plywood covered with robust quality Vinyl flooring, 2 mm thick of approved colour. The floor should be of acid and alkaline resistant, waterproof, easily cleanable / washable. Bottom plate of thickness 2 mm hot dipped galvanized MS Plate shall be provided.

**1.6 Outer Door:** One door of size approx. 2000 x 900 mm will be provided at the front side (L = 4200 mm) of the station with isolated 3 – point locking & door handle flush fitted.

**1.7 Electric Power Supply Box:** Three - phase (3 Ø) electrical wiring will be laid in ducts. Copper wiring of appropriate gauge will be used. The terminal board should be mounted in a central power distribution box. Over voltage protection for each phase shall be provided along with the lightning arrester. 2 numbers Emergency cut off switch & Thermostat switch (35<sup>0</sup> C) for power disconnection, 6 free sockets and 3 fluorescent lamps for lighting will be provided. The station shall

be properly grounded with chemical earthing or as per BIS Standards with proper plate and only copper strip at-least on 2 corners (diametrically opposite). One three phase energy meter (Digital Type) shall be installed. Weatherproof cubicles / enclosure for housing of MCB / TP & N Switch of main power termination (outside shelter) and weatherproof telephone junction box for terminations of telephone line are to be provided. Proper earthing for telescopic mast of meteorological system shall be provided. There should be conduction between the telescopic mast of the meteorological system and the station. The guy ropes or wires shall be provided for supporting the mast.

### List of Consumables:

All Fuses	: 02 set
Lightning arrestor	: 02 set
Emergency Switch	: 02 pcs
Thermostat	: 01 pc

**1.8 The housing** will be partitioned as per drawing to create space for storing of gas cylinders, Meteorological mast & UPS. The size will be 2000 x 1400 x 2300 mm. A lockable door of size 900 x 2000 mm along-with 3 – Point locking system shall be provided on the outer wall of the housing. A 300 mm, single-phase (230 volts  $\pm$  10 volts AC and 50 Hz  $\pm$  3%) exhaust fan with safety grills will be provided. Mounting brackets in 2 levels for fixing of at-least 06 (six) gas bottles should be provided. The internal lights of the housing should be **sensor based**.

Air conditioners shall be mounted on proper rust proof supporting structures with rubber blocks to avoid vibration of structures. Proper caging / grill should also be provided for the safety of ACs. Sun shades for external AC units shall be provided with fabricated pre-coated MS sheet (same as monitoring station) with supporting arrangements. AC unit's external piping shall be placed in GI trays. Cable trays fixed on exterior wall shall be covered with pre-coated MS sheet, of same colour shade of monitoring station. Roof top sheet to be levelled and sloped properly. Rain water spout shall be fixed at top with rain water down pipe at two corners. The external lights of the station should be **Solar operated**.

### 1.9 Station Furnishing:

- (i) 19" racks – 3 Nos.
- (ii) Fire extinguishers – 2 Nos.
- (iii) Furniture:
  - a) Material - Furniture made of water resistant laminated board
  - b) Cupboard – As per drawing
  - c) Working table – Powdered coated MS frame size 1400 x 900 x 750 mm (w x d x h) and top 19 mm thickness Board
  - d) Revolving tilting chair – 2 Nos.

(iv) Miscellaneous

- a) The exhaust gases from the analyser should be collected and discharged by a common exhaust pipe and vented.
- b) Folding aluminium ladder for roof access
- c) Thermostat for measuring the temperature of the station
- d) Hygro Meter for measurement of Humidity inside the station
- e) Mounting bracket for the ladder
- f) No smoking stickers
- g) Vacuum cleaner of reputed make with minimum 100 watt power
- h) Tool Kit having following tools:
  - 1. One screw driver set
  - 2. One multi-meter (Philips, Mico make)
  - 3. One box spanner set
  - 4. One D spanner set
  - 5. One watch maker set
  - 6. One Hammer set
  - 7. One precision screw driver set
  - 8. One pliers set
  - 9. One Tong tester
- i) One Emergency LED Cluster light
- j) Sign boards along-with logo of Central Pollution Control Board, Delhi / State Pollution Control Board, to be embedded with size 1500 x 900 mm on the front of the container and on the two side of the container, The name of the Station i.e. Continuous Ambient Air Quality Monitoring Station, ( Location) both in English and Hindi or local language to be inscribed. The Signs boards to be mounted on the station with proper spacers.

#### 1.9.1 Security Cabin (Optional)

A 4 feet x 4 feet wooden / Paneled security cabin with chair and small folding table for security guard with covered over head selves to be provided separately with the station container.

#### 1.9.2 Container Foundation (RCC)

L X W 6000 x 6000 mm

Height 300 mm from ground

**Pillars:** Nine concrete pillars of 300 mm above the ground level and below the ground level with 200 x 200 mm beam and between pillar bricks to be used for filling the space. Outer wall of the foundation to be plastered with 1:4, Cement : Sand ratio and same has to be painted with weather proof coat.

**Top of the platform:** RCC 150 mm with concrete ratio of 1:1:2 and to plastered and painted with weather proof paint.

**Staircase:** Staircase to approach the main door of the container and the UPS / Gas room door in the side to be provided and each step should not be more than 150 mm

## **2.0 AIR CONDITIONER**

- 2.1 Type: 3 Nos. split type, roof mounted of 5 star rating with an automatic timer. Separate Voltage stabilizer will be provided with each unit.
- 2.2 Capacity: 2.0 Ton (2 Nos.) and 1Ton (1 No.). The indoor units should be running alternately at an interval of four hours with timer control and the temperature inside the station should be maintained at 25<sup>0</sup> C inside during peak summer months.
- 2.3 Nominal Cooling: Btu /hr – 24000, Kcal / hr: 6000
- 2.4 Fan type: Propeller Fan
- 2.5 Fan Motor type: Permanent Split Capacitor, 1/8 Horse power
- 2.6 Control Type: Remote
- 2.7 Compressor: Reciprocating
- 2.8 Refrigerant: Eco Friendly
- 2.9 Power supply: 230 volts ± 10 volts AC and 50 Hz ± 3%.

## **3.0 ON LINE UNINTERRUPTED POWER SUPPLY (UPS)**

**3.1** Single phase 10 kVA UPS along with Automatic Delayed Restoration Device (ADRD) with 1 hour backup in full capacity should be provided for the smooth operation of one 2 Ton capacity split AC at the station.

3.1.1	Capacity	:	10.0 kVA
3.1.2	Technology	:	PWM using IGBT / MOSFETS
3.1.3	Crest Factor	:	More than 3: 1
3.1.4	Input	:	Voltage
		:	Voltage Range
		:	Frequency
		:	230 V AC
		:	± 25%
		:	50 Hz ± 3%

3.1.5	Output	Voltage	: 230 V AC
		Voltage regulation	: ± 1%
		Frequency	: 50 Hz
		Frequency regulation	: ± 0.01%
		Waveform	: Pure sine wave
3.1.6	Battery	Battery type	: Sealed maintenance free
		Back up time	: 1 Hour at full load
		Battery Capacity	: For required backup time
		Recharge time	: 5 hrs to 90% after complete discharge
3.1.7	Distortion		: Less than 1% on linear load
3.1.8	Power factor		: 0.9 to 1
3.1.9	Indicator		: L.E.D. – Battery Charge, Load level, on Line, over load, on battery, replace battery
3.1.10	Alarm		: Audible alarm for battery backup, battery low, and fault
3.1.11	Protections	Surge	: Surge suppression meets BIS or International standard
		Overload	: Fuse & current limited
		Short circuit	: Fuse & current limited & cut – off
		Battery low cut – off	: No battery drain after cut - off
3.1.12	Overload Capacity		: 110% for continuous load
3.1.13	Efficiency		: More than 90%
3.1.14	Environment	Operating Temperature	: 0 – 50° C
		Operating Humidity	: 10% to 95% (Non condensing)
		Audible Noise	: Less than 45 db (at 1 meter)

**3.2** Single phase 5 kVA UPS along with Automatic Delayed Restoration Device (ADRD) with 2 hours backup in full capacity should be provided for the smooth operation of Analyzers and peripherals at the station:

3.2.1	Capacity		: 5.0 kVA
3.2.2	Technology		: PWM using IGBT / MOSFETS
3.2.3	Crest Factor		: More than 3: 1
3.2.4	Input	Voltage	: 230 V AC
		Voltage Range	: ± 25%
		Frequency	: 50 Hz ± 3%
3.2.5	Output	Voltage	: 230 V AC
		Voltage regulation	: ± 1%
		Frequency	: 50 Hz
		Frequency regulation	: ± 0.01%
		Waveform	: Pure sine wave
3.2.6	Battery	Battery type	: Sealed maintenance free
		Back up time	: 2 Hours at full load
		Battery Capacity	: For required backup time
		Recharge time	: 5 hrs to 90% after complete discharge
3.2.7	Distortion		: Less than 1% on linear load
3.2.8	Power factor		: 0.9 to 1

3.2.9	Indicator		:	L.E.D. – Battery Charge, Load level, on Line, over load, on battery, replace battery
3.2.10	Alarm		:	Audible alarm for battery backup, battery low and fault
3.2.11	Protections	Surge	:	Surge suppression meets BIS or International standard
		Overload	:	Fuse & current limited
		Short circuit	:	Fuse & current limited & cut – off
		Battery low cut – off	:	No battery drain after cut - off
3.2.12	Overload Capacity		:	110% for continuous load
3.2.13	Efficiency		:	More than 90%
3.2.14	Environment	Operating Temperature	:	0 – 50 <sup>o</sup> C
		Operating Humidity	:	10% to 95% (Non condensing)
		Audible Noise	:	Less than 45 db (at 1 meter)

#### **4.0 AIR QUALITY ANALYSIS SYSTEM**

(CO, SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, BTX, PM<sub>10</sub>, PM<sub>2.5</sub> and O<sub>3</sub> Analysers)

##### **(General Specifications for all Analysers)**

- 4.1 The analysers should be 19" rack mounting model with facilities for fixing the analysers from front side.
- 4.2 The ON / OFF switch and display of the entire important status signal viz. Sample flow, temperature, concentration, range switch, manual / auto mode, zero / span mode should be on front panel.
- 4.3 The analysers should operate at operating voltage 230 volts ± 10 volts AC and 50 Hz ± 3%. The power supply input to be protected against spikes from and to the analyser by an LC filter. The power connection cable should be CEE type complete with 15 Amperes plug adaptable to Indian mains socket.
- 4.4 The analysers must function properly in Indian conditions without any defect between 0 – 50<sup>o</sup> C ambient temperature, 10 – 95% relative humidity and in high ambient dust levels. The data capture rate should not be less than 90%.
- 4.5 The Manufacturer/supplier shall provide minimum of 2 days of operational & preventive maintenance hands-on training for 3 persons (maximum) per Station.
- 4.6 The analysers should be complete with calibration system. The calibration system should be delivered along-with respective span gas cylinder and permeation tubes. The span gas concentration should be within 60 – 90% of first measuring range. The analyser must have zero point internal calibration system and in agreement with minimum detection limit of each analyser. The calibration procedures are to be integrated into the software system for automatic calibration.
- 4.7 The permeation tube and the calibration gases provided with the system shall have Traceability to NIST.
- 4.8 The analysers shall be supplied with all ancillaries necessary for operation including external pump (if any) and any other items such as charcoal scrubber, Teflon air sample intake filter, drier, Teflon tubing suitable for connection to air sampling manifold. All such items are to be itemized. Dust filter in all the analysers should be provided before solenoid valve to protect frequent chocking of solenoid valve.

- 4.9 The connector systems for out-going signal for recording and the computer terminal should be on back panel with screw type connecting pins.
- 4.10 All ambient gas analysers shall conform with the USEPA automated reference / TUV / EN or equivalent method designation as required by the specification for individual equipment / parameters. Method of measurement used shall also comply with the stipulation on National Ambient Air Quality Standards (NAAQS) 2009 (Details of Methods of Measurement is available at MoEF and CPCB websites). All analysers shall be micro – processor controlled with automatic calibration using an external dilution calibrator and calibration standards. All analysers and sensors should be fully integrated in the rack cabinet, fully calibrated & tested before supply and ready for start – up at the respective sites. Analyzer must exhibit performance equal to or better than values specified in the Calibration & test certificate provided with each analyzer.
- 4.11 The manufacturer shall specify the cross sensitivity of measurement for all the analyzers.
- 4.12 Each set of analyzers shall be supplied with two copies of elaborate operation manuals comprising details in three parts:

Parts (I) should comprise installation, operational and troubleshooting details;

Parts (II) should have details about preventive, routine and corrective maintenance;

Parts (III) should comprise details of all electrical, electronic and pneumatic circuit diagrams, details of each spare parts, Catalogue No. etc. and details of each electronic card / PCB's; and

Parts (IV) Schematic diagram for possible repair & maintenance.

4.13 Digital Output:

- a) Multi drop RS 232 port shared between Analyzers, Dust Monitor (PM<sub>2.5</sub> & PM<sub>10</sub>), Meteorological Sensors and computer for data, status and control.

4.14 Quality Control and Standard

Data shall be collected and validated according to US EPA standards, using the methodologies included in 40 Code of Federal Regulations. All analyzers shall have current US EPA reference or equivalent method designation and shall be of the latest design.

The supplier shall submit a Standard Operating Procedure for the air quality monitoring stations to the Buyer at the time of bid submission. This Standard Operating Procedure shall be approved by the Buyer prior to award. The Standard Operating Procedure shall contain the following:

- i. Operating procedures for all analyzers and meteorological sensors
- ii. Calibration procedures
- iii. Calibration schedule
- iv. Maintenance procedures
- v. Maintenance schedule
- vi. Data validation procedures
- vii. Quality Assurance procedures
- viii. Sample quality assurance documentation
- ix. Sample Air Quality Report



The calibration procedures for analyzers shall conform to US EPA methodologies and shall include daily calibration checks, biweekly precision checks and linearity checks every six weeks. All analyzers shall undergo full calibration every six weeks. Data obtained from these calibration checks and copies of associated Quality Assurance and calibration documentation, shall be submitted to the Buyer along with the Air Quality Data.

Air Quality Data shall be submitted to the Buyer on a monthly basis in the form of an Air Quality Report. This report shall include tabular and graphic information on gas and dust concentrations as well as meteorological data for each site. The data shall be reported in the form of 15 minute averages and shall also include daily, weekly and monthly averages, minimums, maximums, standard deviations, total data captured and percent data capture. The Air Quality Report shall also include wind roses where wind speed and direction are measured.

Upon 24 hour notice from the Buyer, once per year, the supplier shall agree to submit to an audit of calibrations, conducted, using pre-approved US EPA methodologies, by a third party. The results of these audits shall be made immediately available to both the supplier and Buyer.

## **5.0 SPECIFICATIONS OF SAMPLING SYSTEM**

A suitable sampling system as specified by USEPA having 10 ports manifold and fitted with a suction pump to draw ambient air. System duly equipped with moisture removal systems should be provided for sampling of ambient air separately for gaseous and dust measurement.

Gases sampling system:

- |     |                                |   |
|-----|--------------------------------|---|
| 5.1 | Height of the sampling system: | Approx. 1.0 meter above the roof            |
| 5.2 | Roof entry cut out:            | Stainless Steel                             |
| 5.3 | Conduit:                       | Stainless Steel                             |
| 5.4 | Inner sampling system:         | Borosilicate glass                          |
| 5.5 | Sampling head:                 | Stainless Steel                             |
| 5.6 | Manifold:                      | 10 port for tubes 6 x 1 mm, self-tightening |

## **6.0 SPECIFICATIONS OF 19" RACK**

Suitable 19" Rack cabinet to accommodate all analyzers, calibrators, Zero air generators, data logger etc. The dimension of the rack without doors, with aluminum section and rear of 2 mm steel sheet, one removable roof plate, fitted with 4 filling eyebolts. Four roof fixing screws included in package to replace the lifting eyebolts. One gland plate three part, one pair of 475 mm (19") mounting angles depth adjustable in 25 mm pitch pattern fitted on two fixing angles approximately 150 mm unit from the front standard. To accommodate panel width of 19" size:

width = 600 mm, Height = 1400 mm and Depth = 800 mm. The 19" racks should be screwed to the floor of the station with anti-vibration pads. All nuts and bolts shall be cadmium coated.

## 7.0 AMBIENT AIR QUALITY MONITORING ANALYSERS

### (A) AMBIENT OXIDES OF NITROGEN (NO-NO<sub>2</sub>-NO<sub>x</sub>) ANALYSER Conforming to USEPA Automated Federal Reference Method (FRM) Designation

01.	Principle	:	Chemiluminescence
02.	Measurement	:	NO / NO <sub>2</sub> / NO <sub>x</sub> in Ambient Air
03.	Display	:	Digital
04.	Ranges	:	Auto ranging 0-2000 PPB
05.	Minimum Detectable Limit	:	1 PPB
06.	Noise Level	:	0.5 PPB
07.	Zero Drift	:	< 1 PPB/24 Hrs.
08.	Span Drift	:	< 2% in 15 days of full scale
09.	Response Time	:	30 seconds or earlier
10.	Linearity	:	± 1% of full scale
11.	Calibration	:	Please see Multi-calibration section (Sl. No. J) and also calibration section in General Specifications (4.6 & 4.7).
12.	Output Signals or Analog Output	:	3 Analog output 0 – 1 V, 0 – 10 V, 0 – 20 mA or 4 – 20 mA
13.	Digital Output	:	Multi drop RS 232 port
14.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

### (B) AMBIENT AMMONIA ANALYSER (NH<sub>3</sub>) Conforming to USEPA Automated Federal Reference Method (FRM) Designation

01.	Principle	Chemiluminescence NH <sub>3</sub> conversion to NO by oxidation. NO <sub>2</sub> also converted to NO. the difference obtained by measuring NO in output of two sample stream as equal to NH <sub>3</sub>
02.	Measurement	Ammonia in Ambient Air
03.	Display	Digital
04.	Ranges	Auto ranging 0-1000 PPB
05.	Minimum Detectable Limit	1 PPB
06.	Noise Level	0.2% of reading
07.	Zero Drift	< 5 PPB /24 Hrs.
08.	Span Drift	< 2% in 15 days of full scale
09.	NH <sub>3</sub> /NO converter	Quartz at approx 1000 <sup>0</sup> C
10.	Linearity	± 1% of full scale
11.	Response time	180 second
12.	Calibration	Please see Multi-calibration section (Sl. No. J) and also calibration section in General Specifications (4.6 & 4.7).
13.	Rise / fall Time 95% of the final value	< 30 Sec

14.	Digital Output	Multi drop RS 232 port
15.	Analog Output	0 – 1 V, 0 – 10 V, 0 – 20 mA, 4 – 20 mA
16.	Consumables and spares	Recommended requirements of 3 years operation along with the list of Items.

**(C) AMBIENT SULPHUR DIOXIDE (SO<sub>2</sub>) ANALYSER Conforming to USEPA Automated Federal Equivalent Method (FEM) Designation**

01.	Principle	:	Pulsed UV Fluorescence
02.	Measurement	:	Sulphur Dioxide in Ambient Air
03.	Lower Detectable Limit	:	1 PPB
04.	Ranges	:	Auto ranging 0 - 500 PPB
05.	Display	:	Digital
06.	Noise Level	:	0.50 PPB or 1% of the reading
07.	Zero Drift	:	< 1 PPB / 24 Hrs. With automatic zero compensation
08.	Span Drift	:	< 2 PPB full scale in 15 days
09.	Calibration	:	Please see Multi-calibration section (Sl. No. J) and also calibration section in General Specifications (4.6 & 4.7).
10.	Precision	:	0.5 ppb or 1% reading whichever is greater
11.	Output Signals or Analog Output	:	3 Analog output 0 – 1 V, 0 – 10 V, 0 – 20 mA or 4 – 20 mA
12.	Digital Output	:	Multiple drop RS 232
13.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

**(D) AMBIENT OZONE (O<sub>3</sub>) ANALYSER Conforming to USEPA Automated Federal Reference Method (FRM) Designation**

01.	Principle	:	UV Photometric
02.	Measurement	:	Ozone in Ambient Air
03.	Display	:	Digital
04.	Range	:	Auto ranging 0 - 500 PPB
05.	Minimum Detectable Limit	:	2.0 PPB
06.	Noise	:	± 1.0 PPB
07.	Zero Drift	:	< ½% per month
08.	Span Drift	:	< 1% per month
09.	Calibration	:	With built in Zero and span generator and also see Multi-calibration section (Sl. No. J)
10.	Linearity	:	Continuous ± 1%
11.	Output Signals or Analog Output	:	3 Analog output 0 – 1 V, 0 – 10 V, 0 – 20 mA or 4 – 20 mA
12.	Digital Output	:	Multiple drop RS 232
13.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

**(E) AMBIENT CARBON MONOXIDE (CO) ANALYSER Conforming to USEPA Automated Federal Reference Method (FRM) Designation**

01.	Principle	:	Non Dispersive Infra-Red (NDIR) with Gas Filter Correlation
02.	Measurement	:	Carbon Monoxide in Ambient Air
03.	Display	:	Digital
04.	Ranges	:	At least four ranges Auto ranging 0 - 100 PPM.
05.	Minimum Detectable Limit	:	0.1 PPM
06.	Zero Noise	:	0.05 PPM with time constant ± 30 seconds
07.	Zero Drift	:	< 0.2 PPM/7 days
08.	Span Drift	:	< 1% full scale in 24 hrs.
09.	Calibration	:	Calibration gas (CO) cylinder – 15 liters capacity. A Highly polished aluminum cylinder portable filled with 40 PPM NIST traceable Calibration gas has to be provided along-with the instrument for calibration purpose. It should also have pressure gas valve for Zero and Span gas.
10.	Linearity	:	Continuous ± 1%
11.	Output Signals or Analog Output	:	3 Analog output 0 – 1 V, 0 – 10 V, 0 – 20 mA or 4 – 20 mA
12.	Digital Output	:	Multiple drop RS 232
13.	Consumables and spares	:	Recommended requirements of 3 years of continuous operation along with the list of Items.

**(F) PM<sub>10</sub> MONITOR Conforming to USEPA Automated Federal Equivalent Method (FEM) Designation**

Based on the principle of  $\beta$ -ray attenuation by particulate sampled through the instrument and collected on fiberglass filter tape. Before and after sampling  $\beta$ -ray radiation is measured by scintillation / G.M. counter. An internal microprocessor handles all sequences and automatically calculates the concentration of SPM.

- 01. Principle : Continuous measurement of PM<sub>10</sub> in ambient air
- 02. Particle Size Cut Off : 0 - 10 Microns
- 03. Measuring Range : 0 to 2000  $\mu\text{g}/\text{m}^3$
- 04. Resolution : 1% of the concentration
- 05. Minimum Detectable Limit : 2  $\mu\text{g}/\text{m}^3$
- 06. Detector : Plastic Scintillator / GM Counter, Silicon Semiconductor Beta Detector
- 07. Air Flow Rate : At - least 1.5  $\text{m}^3$  / hrs. (Adjustable to 1  $\text{m}^3/\text{hr}$ )
- 08. Filter Material : Glass Fiber Filter
- 09. Display : LED / LCD

- 10. Sampling Head : Dynamic heated sampling head for measurement of PM<sub>10</sub>, with adjustable temperature 20 – 70 °C
- 11. Calibration : Reference membrane facility should be provided for calibration of analyser.
- 12. Compatibility : Analyser should be compatible with protocols mentioned in DAS section
- 13. Roll Length :  
Approximately 30 meters
- 14. Measurement Result : 1 hr average or shorter
- 15. Consumables and spares : Recommended requirements of 3 years of continuous operation along with the list of Items.

**(G) PM<sub>2.5</sub> MONITOR Conforming to USEPA Automated Federal Equivalent Method (FEM) Designation**

Based on the principle of β-ray attenuation by particulate sampled through the instrument and collected on fiberglass filter tape. Before and after sampling β-ray radiation is measured by scintillation / G.M. counter. An internal microprocessor handles all sequences and automatically calculates the concentration of SPM.

- 01. Principle : Continuous measurement of PM<sub>2.5</sub> in ambient air
- 02. Particle Size Cut Off : 0 – 2.5 Microns
- 03. Measuring Range : 0 to 1000 µg/m<sup>3</sup>
- 04. Resolution : 1% of the concentration
- 05. Minimum Detectable Limit : 2 µg/m<sup>3</sup>
- 06. Detector : Plastic Scintillator / GM Counter, Silicon Semiconductor Beta Detector
- 07. Air Flow Rate : At - least 1.5 m<sup>3</sup> / hrs. (Adjustable to 1 m<sup>3</sup>/hr)
- 08. Filter Material : Glass Fiber Filter
- 09. Display : LED / LCD
- 10. Sampling Head : Dynamic heated sampling head for measurement of PM<sub>2.5</sub> with adjustable temperature 20 – 70 °C
- 11. Calibration : Reference membrane facility should be provided for calibration of analyser. (Including kit).
- 12. Compatibility : Analyser should be compatible with protocols mentioned in DAS section
- 13. Roll Length :  
Approximately 30 meters
- 14. Measurement Result : 1 hr average or shorter
- 15. Consumables and spares : Recommended requirements of 3 years of continuous operation along with the list of Items.

**Or**

**(H) Ambient Particulate Monitor based on the principle "Tapered Element Oscillating Microbalance" (TEOM) Conforming to USEPA Automated Federal Equivalent Method (FEM) Designation (EQPM-0609-182)**

**SPECIFICATIONS**

**TEOM 1405-DF Ambient Particulate Monitor** 1405DF = Dual TEOM w/ FDMS

**Regulatory Designations**

- U.S. EPA approved PM-2.5 equivalent monitor (EQPM-0609-182)
- Menu-driven software for user interaction via 1/4 VGA display with touch screen
- Connecting and Interface Cables, and Vacuum Pump
- Consumables for average three year's operation (ambient)
- RPCOMM and ePort Software for Local or Remote Communication

**Instrument Performance (3 l/min, 1s, stable conditions)**

- Measurement Range: 0 to 1,000,000  $\mu\text{g}/\text{m}^3$  (1  $\text{g}/\text{m}^3$ )
- Resolution: 0.5  $\mu\text{g}/\text{m}^3$
- Precision:  $\pm 2.0 \mu\text{g}/\text{m}^3$  (1-hour average),  $\pm 1.0 \mu\text{g}/\text{m}^3$  (24-hour avg.)
- Accuracy for Mass Measurement:  $\pm 1\%$

**Data Averaging and Output**

- Real-time Mass Conc. Average: 1 hour rolling average updated every six minutes
- Long-Term Averaging: 1, 8, and 24 hr
- Data Output Rate: selectable from 10 sec to 24 hour

**Operating Range**

- The temperature of the sampled air may vary between -40 and 60 °C. The TEOM Sensor and Control Units must be weather protected within the range of 8 to 25 °C. An optional Complete Outdoor Enclosure provides complete weather protection.

**Sample Flow**

- Activol flow control system uses the mass flow sensors and the measured ambient temperature and pressure to maintain constant volumetric flow rates.
- Main Flow Rate: Fine PM filter: 3.0 l/min; Coarse PM filter: 1.67 l/min
- Bypass Flow Rate: 12.0 l/min

**Data Storage**

- Internal data logging of user-specified variables; capacity of 500,000 records.

**Filter Media**

- Sample Filter: Pallflex TX40, 13 mm effective diameter
- Sample Conditioner Filter: 47 mm diameter housed in an FRM-style molded filter cassette, maintained at 4°C. Suitable for collecting and archiving time-integrated PM samples for subsequent laboratory analysis.

## Sample Conditioning

- Sample Equilibration System (SES) dryer lowers the main flow relative humidity and allows for mass transducer operation at 5°C over the peak air monitoring station temperature
- Purge Filter Conditioner contains a heat exchanger that maintains the temperature of the main flow and particle filter at 4°C to efficiently filter the volatile and non-volatile PM in the sample.

## Data Output and Input

- ePort software to view and change system operation from PC
- Touch screen user interface
- Ethernet with embedded FTP server, USB, RS232, RS485
- 8 User-Defined Analog Outputs (0-1 or 0-5 VDC)
- 2 User-Defined Contact Closure Alarm Circuits
- 4 Averaged Analog Inputs (0-5 VDC) with user-defined conversion to engineering units

## (I) BTX MONITOR / ANALYSER

### 1.0 GENERAL

A complete monitor / analyzer system including continuous automatic sampling (pump etc.), sampling, analyzer, detector, calibrator, computer hardware and software for instrument control, data storage, display, acquisition, processing and for selective determination of volatile compounds in ambient air optimized for Benzene, Toluene, Ethyl Benzene and o, m, p -Xylenes. Compatible to power supply (voltage 230 volts  $\pm$  10 volts AC and 50 Hz  $\pm$  3%). Continuous unattended measurement system of individual BTEX should work without cryogenic cooling. System should have protocol compatible to communicate & transfer data to main computer through modem and subsequently to MPPCB website preferably having features of security, data validation & alarms etc. Raw data storage capacity without erase minimum for three month or more. The system should be delivered with all necessary spares, consumables, tubing etc. for making it functional

### 2.0 TECHNICAL SPECIFICATIONS

**2.1 AUTOMATIC SAMPLING (MONITOR)** with Sample volume controlled by thermal mass flow controller (dust protected). Sample flow range may be 20 -100 ml/min or more (adjustable). Sample volume should be between 400 ml – one liter or more of ambient air over a 10-15 min sampling cycle. All sample transfer tubing's should be in stainless steel flow / pressure sensor to be preferred with digital display. Sample volume should be controlled by flow controller (dust protected) with volume measurement saved in memory.

### 2.2 DETECTOR

Photo Ionization Detector (**PID**) or other equivalent detector **as per EPA/EU/TUV** approved specs, which do not require hydrogen or other gas to operate it. The system should have auto-clean & auto calibration facilities. PID Lamp eV should be 10.6eV. PID sensitivity sensor should be available to check sensitivity.

### 2.3 MINIMUM SPECIFICATIONS

Lowest detector limit : 0.1  $\mu\text{g}/\text{m}^3$  (0.03 ppb) or less for Benzene  
(There should be no interferences on Methyl-  
cyclopentane, 2, 2, 3 - trimethylbutane,

	2, 4 - dimethylpentane, Tetrachloromethane, Cyclohexane, 2, 3 - dimethylpentane, 2 - methylhexane, 3 - ethylpentane, Trichloroethylene, n - heptane, isooctane with BTX components.)
Temperature Range	: 5 - 35°C or more
Measuring Range	: 1 - 1000 µg / m <sup>3</sup> or better (0.3 ppb to 270 ppb)
Repeatability	: Retention Time : <0.1% RSD Amount : <1.0% RSD
Typical Cycle Time	: Total Cycle Time should not exceed 15/30 min. approx. i.e. Sample Collection Time - 15 min. approx. Analytical Time - 15 min. approx.

## **2.5 CALIBRATION UNIT WITH SPAN GAS / IN BUILT CALIBRATION WITH /PERMEATION TUBES AND GAS MIXING / DILUTION FACILITY**

In Built Calibration/Permeation Tubes Facility in the analyzer with the certified permeation tubes and span or calibration gas mixture (low conc. in ppb range, stable for at-least 6 months) with S.S. container/cylinder, regulators with filters should be provided. Calibration unit having gas flow (approx): 10 ml / min (calibration gas); 1.4-2.0 lit / min (dilution gas) with auto gas selection/dilution option for automatic calibration for ppb level calibration gas (10-30 ppb of individual compound of interest). Manual and software selectable valves for sample, calibration span and blank zero air gases. Dilution factor between 1 : 50 to 150.

## **2.6 MEMORY AND CONTROL FACILITIES**

Method auto load and system restart after power failure. Methods storage capacity with timed events programs for control of system parameters in permanent memory. Diagnostics & Fault status; gas supply (low press). System stability (temperature and sample flow). Detector signal (low) and communication should be in digital form on monitor by LED's & be controlled from computer. Output signals: Analog 0-1 mV, Serial RS 232 for data intermission and CP-BUS for monitor control from remote. Both digital & analog outputs should be available.

## **2.7 Hardware/Software(s)**

Latest PC with operating system/software. Basic Window based latest software's (English version) consisting instrumental control features as well as data storage, acquisition, processing and handling in desired/customized format including sorting of data (1 / 4 / 8 / 12 / 24 hourly, days wise /date wise reporting as microgram / m<sup>3</sup> or ppb (selectable) & averaging, data capture rate s etc.).

**Data presentation / graphical & statistical processing & data transfer to Excel including time series, correlation matrix etc. is required.**

**Communication software with protocol compatible to communicate & transfer data from BTX monitor to central computer through modem (preferably including sample chromatogram) and from central computer to MPPCB website preferably having features of security, data validation & alarms etc.**

System should have remote access to BTX monitor.



Resident program as well BTX control / monitor user program with monitor startup / off / status, blank / calibration and sample gas measured, fault status, carrier gas if any, and communication errors indications. Updation of response factors automatically after calibration run. Auto tune facility. Raw data storage capacity without erase minimum for three month or more.

### **3.0 SPARES FOR 3 YEARS**

The system should be delivered with 3 years comprehensive warranty including all necessary spares such as electronic boards/circuits consumables, tubing, filters for removal of dust & unwanted impurities (moisture / hydrocarbons etc.); septas, ferrules, teflon tubing, traps/columns if applicable etc. for making the analyzer functional / continuous operation without breakdown **along-with list of items with quantity.**

#### **(J) MULTICALIBRATION SYSTEM**

Calibration system should provide for the calibration of the air quality analysers, data acquisition system, meteorological equipment, and gas calibration system.

##### **a) Gas Calibration System:**

The calibration system for air monitoring equipment (listed above) should incorporate an automatic gas dilution calibrator, calibration gas standards and a high performance zero air generator to calibrate all of the analysers in the system. The calibration cycles should be able to be configured through the Data Acquisition System at any specific time during the day and night. It should be mounted on standard 19" rack.

The dilution calibrator should be able to perform mixing of source gas, from the calibration gas bottles, with zero air generator, in order to generate a wide range of calibration gas concentrations and minimising the number of calibration gas standards required. All the calibration gases provided along-with the system **MUST** be NIST Traceable (certificate should be provided). The system should include at least three permeation chambers and should accept a Permeation Tube up to 11 cm in total length and 2 cm in diameter. It should also have facility for Gas Phase titration (GPT), having Ozone generator of 6 PPM / Liters and the converter efficiency should be 100 % for conversion of NO<sub>2</sub> concentration to NO.

The system should also include calibration of Ozone analyzer.

##### **b) Meteorological, Flow and Electronics Calibration**

The supplier should provide calibration devices or calibration check devices for all the meteorological and other electrical equipment mentioned above as per the specifications of the manufacturers.

**Recommended Spare Parts and accessories required for the next three years for normal operation should be supplied along-with the calibration system.**

### **8.0 METEOROLOGICAL MONITORING SYSTEM**

The meteorological instrumentation should be interfaced directly with the Data Acquisition System after passing through a lightning protection isolation box. A crank - up telescopic 10

meters tower should be erected for mounting of meteorological sensors. The relative humidity and solar radiation sensors should be mounted on the tower. All sensors should be NIST (National Institute for Standards and Technology, USA) traceable. The specifications are follows:

**(a) WIND SPEED**

Range (Operation) : 0 – 60 m/s or better  
 Sustainability : Up-to 75 m/sec  
 Accuracy : ± 0.5 m/sec or better  
 Resolution : 0.1 m/sec  
 Sensor Type : Ultrasonic  
 Threshold : 0.5 m/sec or less  
 Response time : 10 sec or better

**(b) WIND DIRECTION**

Range : 0 – 359 degree  
 Accuracy : ± 5 degree or better  
 Resolution : 1 degree  
 Sensor type : Ultrasonic  
 Threshold : 0.5 m/sec or less  
 Response time : 10 sec or better

**(c) AMBIENT TEMPERATURE**

Range : -10 ° C to 60 ° C  
 Accuracy : ± 0.2 ° C or better (with radiation shield)  
 Response : 10 seconds in still air  
 Sensor type : Resistance type  
 Response time : 10 sec or better

**(d) RELATIVE HUMIDITY**

Range : 0 to 100% RH  
 Accuracy : ± 3.0 % or better  
 Resolution : 1%  
 Sensor type : Capacitive / Solid State  
 Response Time : 10 sec or better

**(e) SOLAR RADIATION**

Range : 0 to 1500 W/m<sup>2</sup> or better  
 Accuracy : ± 5.0 % or better  
 Resolution : 5W/m<sup>2</sup>

**(f) RAINFALL**

Range : 0.2 mm to 100 mm /hr  
 Accuracy : ± 5% or better  
 Resolution : 0.2 mm  
 Sensor type : Tipping bucket rain gauge or any other

Response Time : suitable sensor  
: 10 sec or better

**(g) TELESCOPIC CRANK – UP METEOROLOGICAL TOWER**

The wind speed, wind direction, temperature, relative humidity and solar radiation sensors are to be mounted on the Meteorological Tower. The tower is to be a free standing four section telescopic tower provided with a hand crank to raise and lower the instruments mounted on the tower. Specifications are as follows:

Extended Height : 10 meters  
Retracted Height : 2 metres  
Wind load Limit : 0.7896 sq. m. (8.5 sq. ft) at 50 mph  
Number of Sections : 4  
Construction material : Galvanised steel or aluminium

Note: Humidity and temperature sensors are to be supplied with weather and thermal radiation shield made of anodized aluminium and sensor should be supplied with all necessary cables, connector and mounting arrangements as required.

**(h) SPECIFICATIONS OF DATA LOGGER**

Data logger with 8 analog, 24 digital inputs and 18 bit resolution. Ability to log channels at different intervals and should have capability of averaging and displaying real time data and averaged data over a period of 1 min, 10 min, ½ hr, 1 hr, 4 hrs, 8 hrs, 24 hrs, 1 month and year. Communication between data logger and computer using standard multi drop RS 232 Connector. The data logger should have internal battery with charger. The data logger should support PSTN line or Internal GSM modem for data transfer.

**9.0 SPECIFICATION OF SOFTWARE FOR CAAQMS.**

**TABLE OF CONTENT**

**A. DATA ACQUISITION SYSTEM IN THE STATION**

**B. DATA ACQUISITION SYSTEM IN THE CENTRAL**

**C. COMPATIBILITY**

**D. SECURITY**

**E. OTHER TECHNICAL CONDITIONS**

**F. ANNEXURE – I**  
DETAILS OF DESIRED DATA VALIDATION SYSTEM

**G. LIST OF PROTOCOLS FOR WHICH SOFTWARE SHOULD SUPPORT**

**H. CHECKLIST TO COMPARE FIRM'S TECHNICAL CAPABILITY TABLE FOR SPECIFICATION OF SOFTWARE.**

**A DATA ACQUISITION SYSTEM IN THE STATION**

### **SPECIFICATIONS OF STATION SOFTWARE**

The station software captures data from all channels in the system and stores in the Personal Computer. Personal computer is used for calibration and configuration of each channel.

#### **1) Data Acquisition**

- a) Frequency of data acquisition
  - i) User selectable 1, 5, 30, 60, 120 second averaging duration online digitally.
- b) Channel size
  - i) 32 Channels or more supported
  - ii) Expandable to 64 channels, if required in future
- c) Data input
  - i) Either Analog (0-1 volt / 0-10 volt / 2-20mA / 4-20mA)
  - ii) Or Digital (firm will develop the protocol, if required without additional cost within project duration) to configure with the PC.
- d) User configurable channels, stations and equipments with communication parameters.
- e) Analyzer data channel should comprise of Name, Units, Communication Address, Validity Range, Operation and Error Status.
- f) Provision to incorporate conversion factors such as PPB to  $\mu\text{g}/\text{m}^3$  etc.
- g) Software should be equipped to configure the analysers with it, irrespective of the output mode i.e. Analog or Digital (RS 232) of the instrument.
- h) System should read raw data values of the analyzers and meteorological instruments and duration of averaging data should be user selectable like 10 / 20 / 30 / 40 / 50 / 60 seconds.
- i) The output should be converted into realistic data in prescribed units.

#### **2) Data Collection**

- a) Software should collect each second data.
- b) Average data over user selectable time (1, 5, 30, 60 seconds time interval) period.
- c) Operational status, Error status, calibration status and calibration values observed from the analyzer should be captured and should be made available along with the data with a frequency of maximum five minutes.
- d) System should collect of the diagnostics of the instrument comprising actual diagnostics parameters and their values at least once in every five minute to check the state of the health analyzer.

- e) Calibration parameters
  - i) Provision to entering calibration, span calibration values of gas cylinder/permeation to devices
  - ii) Provision for collecting zero calibration, span calibration values(pre calibration & post calibration) in to the database for further analysis.
  - iii) Provisions to collect electronic system pre calibration & post calibration to ascertain the percentage deviation/ correction apply during each calibration.

### 3) **Data Storage**

- a) Data along-with diagnostic, calibration, alarms should be stored at station computer at a defined path.
- b) Interval of data dumping will be same as defined in the data collection
- c) System should be capable to keep every second acquired data from 32 channels for a period of minimum five years.
- d) Data stored should be plain text format
- e) No data encryption should be done at the station and if encryption is done than decryption procedure should be made available in soft file format to check the data at station at any point of time. To convert data on continuous basis for exporting to any other software, if required, procedure should be available without any licensing.

### 4) **Data Display (Statistical analysis of data)**

- a) In 4-in-4 graphs, 4-in-1 graph and / or 16-in-1 graph formats
- b) In terms of 4-in-1 table format
- c) Real time multi – graphs over user selectable time period.
- d) Display of graphic & tabular display of the current data.
- e) Graphical form should comprise of 4-4 graphs, 4-1 graphs in user defined format i.e. 1, 5, 10, 15, 30 min, 1hour, 4, 8, 24 hour, 30 days and yearly. (user definable time series)
- f) Tabular form should comprise of 4 channel list in user defined format i.e. 1, 5, 10, 15, 30 min, 1hour, 4, 8, 24 hour, 30 days and yearly. (user definable time series)
- g) Station instruments basic configuration etc. should be visible on screen continuously.
- h) Main window for real time display of all measured parameters with status of all analyzers/sensors.
- i) Statistical analysis tools like regression analysis, co-relation analysis and other analysis as per industry standards in the field of environment should be available and if not the firm should develop these for MPPCB/CPCB within a time frame.
- j) The system should have procedures for normal analysis tools like calculation of data with respect to a threshold value, average, minimum, maximum, calculation of violating value with respect defined values (Air Quality Standards) for defined period for the database etc.
- k) Data analysis of diagnostics parameters
- l) Data analysis of Pre calibration and post calibration data (if facility not available can be developed)
- m) Data analysis of corrections applied of each calibration cycle (if facility not available can be developed)

### 5) **Data Backup**

- a) There should be defined data backup procedure through which data can be extracted from station computer in simple text format / excel (user definable).
- b) There should be defined restore procedure also to restore the data in case of data loss.
- c) A display screen should be available to update the user about data availability.

**6) Data Validation automatic checks at station software**

- a) Zero level and span level checks if performed cyclically and defined results are not obtained up to +/- 5% (user definable 0-10%) then system should alarm the user of system failure and the recorded alarm should be transmitted to central software.
- b) After instruments perform the calibration the results obtained should be recorded and should be transmitted to central computer.

**7) Data validation requests generated at station computer**

At least three tier request generation and request acceptance system procedure is desired. Details are given in the **Annexure –I**.

- a) Inbuilt checks capability may be provided, where if instrument throws erratic data software can check automatically and display message and send information in the form of corrected data in corrected database to be approved by the central software at central level. (facility if not available needs to be developed by the system provider)
- b) There should be provision of two databases one is raw database and another corrected database. (facility if not available needs to be developed by the system provider)
- c) Validation of data through calibration database Pre calibration & post calibration values collected.

**8) Calibration of systems**

- a. Calibration window for analyzer for the calibration from computer.
- b. Remote Access to Calibration: Calibration exercise need to be done remotely. All necessary arrangements for it should be made in the system.
- c. Calibration data file may be prepared separately.
- d. Calibration database need to be formed, stored and transmitted to central.
- e. Calibration cycles to be as per the models of the instruments.
- f. Calibration records should store the calibration values displayed by instrument.
- g. Diagnostics during calibration should also be recorded.

**9) Location of station**

- a) Fixed Station location to be recorded
- b) Moving station location to be recorded
- c) Latitude and longitude of stations be recorded

**10) Data transfer to Central**

All data captured at station computer should be transferred to central software.

- a) User selectable time frame for transmission of data to central server.
- b) Diagnostics (actual diagnostics parameter values recorded each time in the station), configurations(station channel configurations), alarms(generated alarms) should be transmitted.

**11) Data transfer to Display Boards**

The system provider is responsible to make necessary software provisions to connect output on display boards. The formats of files may vary, the formation of defined formats is the responsibility of system provider for the project duration.

- a) Software should be capable to transfer and display online data on display board at the station location.
- b) The data in user defined formats (customizable) should be made available for continuous display.

## **B DATA ACQUISITION SYSTEM AT THE CENTRAL STATION**

### **SPECIFICATIONS OF CENTRAL SOFTWARE**

Data communication system handles the data transmission of an ambient air quality network and receives incoming messages / signals from remote stations. The central software processes signals and data and displays it on the web and other interfaces. Detailed requirement is as below:

#### **1) Software at Central Station**

- a) Software should not have any restriction on number of locations and computers either technologically or in terms of licensing.
- b) Should display multiple stations on - line data (momentary values) in tabular text and graphic format.
- c) Data should be received by the central from all locations within 5minutes duration or at user defined time intervals.
- d) Data along-with diagnostics and calibration details should be transmitted at central from all connected locations.
- e) Should support dialup systems, broadband connectivity, wireless connectivity, 3G or 4G or any new technology which shall be in place during project time should be compatible and if not need to developed by the system provider up-to project duration without additional charges.
- f) Should have the remote control facilities for calibrations (Zero & Span) of instruments and measuring range modifications.
- g) Should have facility for displaying data communication error reports, image management which should be recorded and should be available for display.

#### **2) Data Display at Central**

- a) In 4-in-4 graphs, 4-in-1 graph and/or 16-in-1 graph formats
- b) In terms of 4-in-1 table format
- c) Real time multi – graphs over user selectable time period.
- d) Display of graphic & tabular display of the current data like simple 3D line and column chart, polar diagnostics and 3D perspective column chart.
- e) Graphical form should comprise of 4-4 graphs, 4-1 graphs in user defined format i.e. 1, 5, 10, 15, 30 min, 1hour, 4, 8, 24 hour, 30 days and yearly. (user definable time series)
- f) Tabular form should comprise of 4 channel list in user defined format i.e. 1, 5, 10, 15, 30 min, 1hour, 4, 8, 24 hour, 30 days and yearly. (user definable time series)
- g) Display of data using selectable name of different stations.
- h) Generation of Wind Roses, Pollution Roses (12 & 16 directional i.e. 0 degree, 22.5, 45, 67.5, 90 and 360 degree) with user defined time limits.
- i) Calculate vector mean of wind direction.
- j) Programmable down loading of data.
- k) Comparison of data w.r.t. Standards in Graphical form and tabular form with information of values exceeds the Standards.
- l) Specific data zooming facility
- m) Database correction procedure
- n) Separate user ID and Password for correction of database so that all regional level users if authorized can validate their regions data and the events be recorded along-with ID and time.
- o) Data validation trail recording.

**3) Data Export**

- a) Customizable data format developing capability required.
- b) Possibility to export the data files in Excel, Text and other formats Tabular form should be in user defined format i.e. 1, 5, 10, 15, 30 min, 1 hour, 4, 8, 24 hour, 30 days and yearly.

**4) Data Import**

- a) In case of communication medium phase there should a mechanism to shift the data into Pen drive (Physical medium for data collection) physically and a procedure to import the same on central software.

**5) Printing**

- a) Possibility to connect different types of printers and auto printing facility for all displays generated throughout the analysis of data at any point of time.

**6) Data Validation automatic checks at Central software**

- a) Zero level and span level checks if performed cyclically and defined results are not obtained up to +/- 5% (user definable 0-10%) then system should generate alarm the user of system failure and the recorded alarm should be transmitted to central software and stored. There should be provisions to read these alarms in a database for corrective actions and for comparison of data for acceptability or rejection.
- b) After instruments perform the calibration the results obtained should be recorded and should be transmitted to central computer and stored.
- c) There should be provisions to configure at least 08 alarms for any given instrument auto check.

**7) Data validation requests management at central computer (if not available facility may be developed by the firm)**

- a) Data validation requests sent by station computer should be recorded and the system should provide a window to user to accept or reject the reasons mentioned by the user end.
- b) Inbuilt checks capability should be provided, which can be configured by the administrator at central to put alarms according to requirement on data, errors generated or on diagnostics of systems.
- c) The software at central should have facility to log in data validation requests. These requests will carry the erroneous data for user selected period and for which user at station will request to change the data due to environmental or instrumental operation conditions. These requests will reside in central location and whenever user at central agrees the data will be changed in the validated database. Hence, system will have two types of databases 1) Raw database which can never be touched 2) which has to be modified and corrected as per agreed conditions. The detail of user requesting or applying changes in corrected database should be recorded with time.

**8) Data Display at Web (if not available facility may be developed by the firm)**

- a) System should have standard web display software in place.
- b) Central software should be capable to show the data in predefined formats at website on a physical map.
- c) The data from Corrected database shall be displayed on the web.
- d) Current data should be displayed on web page.
- e) There should be provisions to show no. of violations occurred, percentage of violation occurred at stations parameters comparing hourly, 8 hourly, 24 hourly and yearly standards



- f) Provision is required to change standard value, since standard values do change after certain period of time as per Govt. policy.
- g) Displayed web page should have facility of providing information to all with respect to environment as well as to provide specific files for downloading.
- h) The logo of MPPCB should be displayed on webpage.
- i) The disclaimer have to be provided on the webpage
- j) Some predefined queries have to be developed to display the data on web page. A search page needs to be developed for converting data into meaningful format for the general public. Help in developing such kind of systems can be taken from existing running system at [www.mppcb.nic.in](http://www.mppcb.nic.in)
- k) The current data displayed on the web should have comment inserting facility at individual data and for running data as well like if any station instrument out of order then station official should be able to display message "Instrument under maintenance".
- l) Similarly, when data goes beyond a defined limit it should automatically display a predefined message as comment on webpage as "Data under Scrutiny".
- m) Automatic e-mail messages to be generated for the identified end users to start a corrective action.
- n) Station photos to be uploaded for the display along-with the data.
- o) User defined 05 pages may be developed additionally, if required by MPPCB designs for which may be decided mutually.

**9) Data display at display board outside the office at central location also**

Data display is also required at regional and central locations for which software provision has to be made at each location.

**10) Remote Procedures (if not available facility may be developed by the firm)**

- a) Central software should have capability to allow to connect any station instrument through remote.
- b) Central software administrator should be able to go for remote calibration of any of the systems.
- c) Software should be capable to operate remote stations configurations.
- d) Control panel window should be available for controlling each analyzer.
- e) Alarm window for valid alarms of all analyzers and sensors.
- f) It should have transparent data – connection to each analyzer from remote.
- g) System should be capable to remotely configure all stations through remote location using configuration file to maintain the uniformity. The configuration command from central or from regional location should be active.

**11) Data Reports Generation**

- a) To prepare reports hourly, weekly, monthly, yearly in user defined interval and formats.
- b) Mean, Median, Percentile, Maximum, Standard deviation, Frequency analysis and Maximum Frequency analysis.
- c) System should have predefined user selectable procedures through which reports of any specific station or multi stations reports up to four parameters can be generated as per user selected time frame.
- d) Data Comparison  
Software should be able to compare any of the four channels irrespective of type of data in the system with respect to each other on a single time scale user selectable.
- e) Data Comparison on different time scale  
Software should be able to compare data on the basis of different time scales like one station (x) parameter (y) of one given date is compared with other station (z) parameter (y) on any other date in a single graph.

- f) Data reports, calibration reports and status reports with user time periods.
- g) Historic multi – curves / graphs over user selectable time period.
- h) Report generation over user selectable time period (instantaneous or averaged over a period of 1, 15, 30 min, 1 hr, 4, 8, 12, 16 and 24 hrs etc.).
- i) Diurnal variation, standard deviation, regression and other statistical parameter reporting possibilities with various available mathematical methods.
- j) If required separate report generation procedures have to be developed for which firm will be responsible for project duration.

**C. Compatibility**

Should have compatibility with the latest Operating System with a contract of 05 (five) years from the date of supply of software for providing assistance to operate system at MPPCB and all the new patches developed for the software during these 05 years without additional cost. Software should have capability of data transmission with the presently available PROTOCOL (list attached).

**D. Security**

- a. System should have the facility to have it Password protected or without password as decided by MPPCB at the time of implementation.
- b. System software should be totally secured and any antivirus software required to run the system for the complete project duration has to be managed by the system provider.

**E. Other Technical Conditions**

- 1. Hardware required for data transmission has to be made available by the firm and there should not be non-compatibility.
- 2. Firm should have the capability to develop the Software PROTOCOL for data transmission from any system available in the field in future during next 05 years or up-to the project period.
- 3. Should support the latest formats of Windows 32 bit or 64 bit or any other available platform like Linux etc.
- 4. Manual of complete system should be provided.
- 5. Firm should provide the hardware required for data acquisition along with all the software's required like OS, MS. Office, Networking software, Remote functionality software, Data uploading software on website, Data display software if required, and should maintain hardware for project duration.
- 6. Since, system has to be placed in NIC domain for which the web software developed along-with the database and web server software should be certified by CERT-IN empanelled vendors for vulnerability. The system provider is responsible for fulfilling all criteria required to place the system at NIC domain. The firm will be responsible for entire duration of the project for any vulnerability if noticed by NIC.
- 7. The computers required for the work will be procured by MPPCB and configuration for the same will have to be provided by the system provider.
- 8. Display board will be procured by the MPPCB.

## F. DETAILS OF DESIRED DATA VALIDATION SYSTEM

### Annexure-I

At least three tier request generation and requests acceptance procedure is desired in the system. It is presumed that level 1 is station, level 2 is Central location at regional level and level 3 at Central level.

The regional and central levels will have central station computers and software installed and stations will have station computer installed with station data acquisition software and data transmission software.

The flow of data has to be from station to Regional Level and then to Central level. It is desired that environmental database has to be corrected for instrumentation issues as well as for the environmental issues. Hence, officials available at stations will communicate with central and state levels through system itself by commenting on the data. The respective data can be picked up from the database at station itself, corrected to the desired numbers and then transmitted to regional level central computer where, the administrator of system if agrees to the changes desired then data flows to the next level else request is rejected. If request will come to Central server for accepting or rejecting then central level should have authority of accepting or rejecting the data. If central level agrees to the changes than data should be changed in the corrected database else request should be rejected. Hence, there should be provisions for accepting or rejecting data at all three levels accordingly. Here, whenever such requests are generated, concerned administrators need to be sent email alerts.

## G. List of protocols for which CAAQM software should support

Bayern-Hessen	Intercomp5	FH62 Konf.	ChemPro 100
Intercomp 6	Intercomp 1	PVM100	MultiPD II
LabCom	Metek USA-1	VC820	X am 7000
Unor, Oxor	AK R+P	TSI 30222/25	HG Monitor 3000
Defor	MBF	Blendmaster	ESM FH40G
Multor	Gemi	Klimet	Travelpilot DX-V
Adam Module	Uras 14 Modbus	Thygan	AK Conf.
CLD700	Binos1000	USA Turbulence	Thermo Instr.
FH62	HP34970A	Thies DL14/15	PR820R
Hygrowin	Almemo	Innova1312	PAC3
Gesytec II	Modbus	Multiwarn II	Data Collect SDR
RFM433	DGH Module	MeteoBus	VDO Navigation
NMEA183	BH/Timo 9600	Windobserver	

### H. Checklist to compare Firm's Technical capability table for specifications of Software

S. No.	Details	Capability of firm's software as on date	Firm agree or disagree to develop software in future	If firm agrees to develop application then time frame from individual activity
1.	Data transfer interval Max. 5 minutes from all locations?			
2.	System will transmit data along with diagnostics. If yes then how many channels diagnostics values shall be transmitted to central and at what duration?			
3.	System will transmit data along with Calibration values (Pre cal and Post Cal)?			
4.	System has remote calibration procedures in place for Regional level and central level both?			
5.	System has remote configuration facility for regional and central level both?			
6.	System has database validation procedure in place?			
7.	Web software already developed or not?			
8.	If Web software is available is it modifiable as per MPPCB need by the firm?			
9.	Whether agree to develop five web pages as per mutual discussion			
10.	Web software with password and or without password			
11.	Password providing facility available at regional levels			
12.	Statistical tools available at web software or not?			
13.	System provider is capable of placing system in NIC domain			
14.	System provider will provide certification from CERT-IN empanelled firms			
15.	Data import from other files			

16.	Data export to other files			
17.	Pre defined queries to be inbuilt for providing data to public whether these are already available or to be developed if yes then time frame?			
18.	Standards comparison and exceedances be reported on web			
19.	Different types of predefined formats of report preparation available or not?			
20.	support various protocols available till date as listed provided or not?			
21.	If new protocol based software is to be developed whether firm will			
22.	Unlimited Number of stations supported by Central Server software or not? If not then support for how many stations will be provided			
23.	System compatibility with Dialup/BB/2G/3G/Wireless available or not? If not then what technologies supported as on date? What time frame if other to be develop.			
24.	Software has Wind rose reports generating capability			
25.	Software has pollution rose generating facility			
26.	Software has diurnal variation facility			
27.	Software has mathematical tools			
28.	Software has 16 channels display at on page			
29.	Software has data communication error reports			
30.	System has error correction procedure			
31.	Software has parallel data display reports			
32.	Software has virtual channel deployment capacity			
33.	Software has data encrypting procedures at stations or not? If yes then data can be retrieved from station or not?			

34.	Software compatible for ANDROID technology			
35.	System Provider will provide all Hardware required at station and Central			
36.	System Provider all necessary software required for data acquisition, display, Analysis, website uploading etc.			

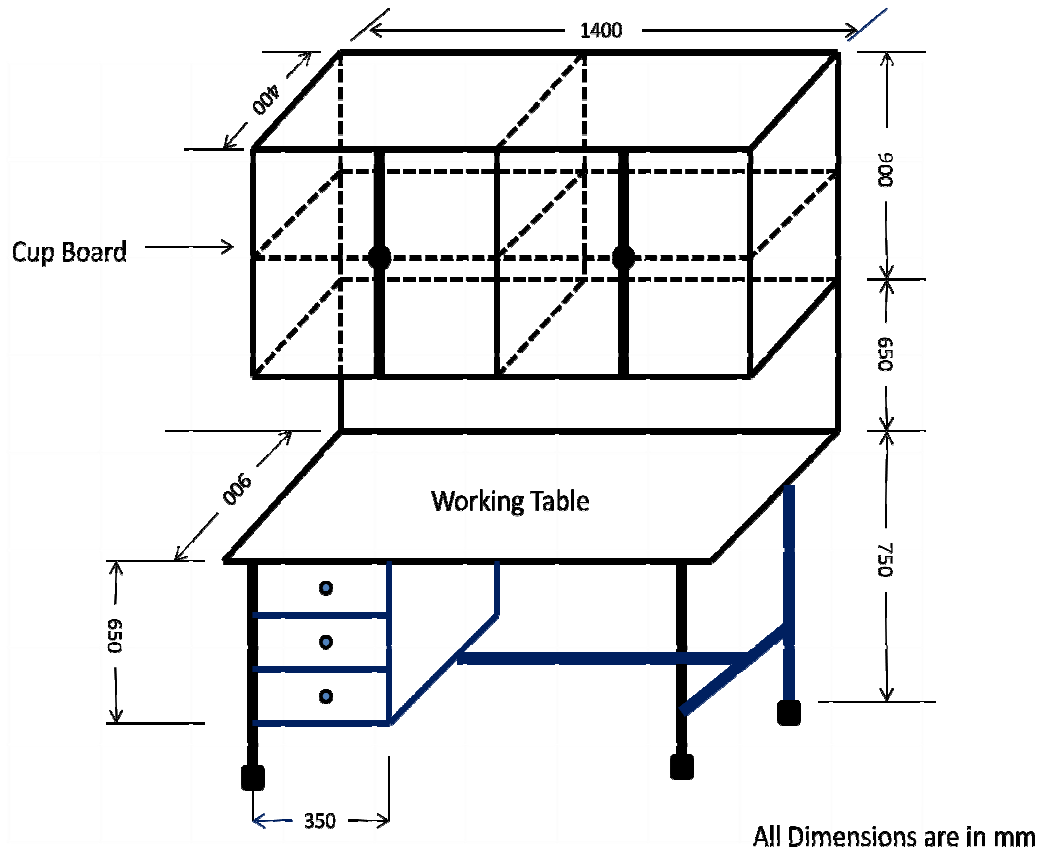
**10.0 SPECIFICATIONS OF DAY LIGHT & NIGHT VISIBLE DATA DISPLAY SYSTEM**

- 10.1 Size of display System : 4' x 12'
- 10.2 Visibility range : 200 Meters (Day Time)
- 10.3 Nos. of display Line : 4
- 10.4 Display of colour elements : Multi Colour (Red, Green and Blue)
- 10.5 Minimum life span of the system : 10 Years
- 10.6 Smallest Character Size : 260 mm x 190 mm (approx.)
- 10.7 Operating and Non Operating Temperature : 0 – 50 ° C
- 10.8 Humidity Tolerance Range : 0 – 100%
- 10.9 Languages supported by the display : English & Hindi
- 10.10 Color Gradient : Cluster LED based
- 10.11 Display Characters (Example):

S. No.	Parameters	Concentration (µg / m <sup>3</sup> )	Standard Limit (µg / m <sup>3</sup> )
10.11.1	Particulate Matter (PM <sub>10</sub> )	400	100
10.11.2	Particulate Matter (PM <sub>2.5</sub> )	160	60
10.11.3	SO <sub>2</sub>	35	80
10.11.4	NO <sub>2</sub>	79	80
10.11.5	CO	3320	2000
.....	.....	.....	.....
.....	.....	.....	.....

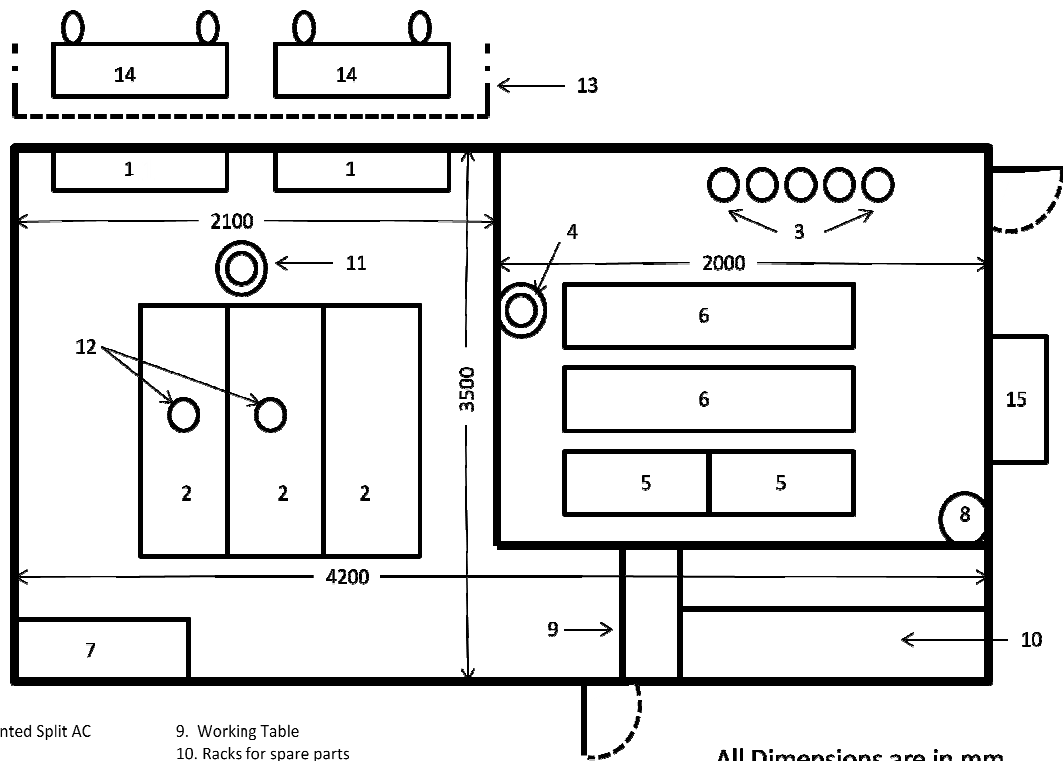
The display of above variable data should be supported with moving messages / slogans to be changed from time to time

- 10.12        Input Power requirement        : Cluster LED based
- 10.13        Display Mounting                        : Weather proof casing to cope up with local condition
- 10.14        Computer System                         : Software compatible with latest version
- 10.15        General                                    : The display system should be capable to transfer the data from computer to Display Board through Modem System. The system should also have the facility to display the environment message, environmental picture through video camera / VCR / CD Player etc. for public awareness.



**Drawing of Cup Board and Working Table**





- |                                    |  |
|------------------------------------|--|
| 1. Roof Mounted Split AC           | 9. Working Table   |
| 2. 19" Rack                        | 10. Racks for spare parts  |
| 3. Gas Bottles                     | 11. Ambient Air Sampling System                                  |
| 4. Mast for Meteorological Sensors | 12. Dust Sampling System (PM <sub>2.5</sub> & PM <sub>10</sub> ) |
| 5. Battery Box for UPS             | 13. Sun Shed   |
| 6. UPS Unit (5 and 10 kVA)         | 14. Air Conditioning unit  |
| 7. Electric supply Box             | 15. UPS Room AC (1 Ton Capacity)                                 |
| 8. Exhaust fan                     |  |

All Dimensions are in mm

**Drawing of Continuous Ambient Air Quality Monitoring Station**

**TENDER NO. MPPCB/PUR./06/2017-18  
(Part-F)**

**Supply, Installation, Commissioning and Operation & Maintenance services of Real Time Water Quality Monitoring Stations (RTWQMS)**

**Sub.: Sealed tenders for supply, installation, commissioning, operation maintenance, services of on-line Continuous Water Quality Monitoring System and its data display at 31 locations of River Narmada in Madhya Pradesh.**

M. P. Pollution Control Board desires to procure supply, installation, commissioning, operation maintenance, services of on-line Continuous Water Quality Monitoring System and its data display at 31 locations of River Narmada in Madhya Pradesh as per annexure-A . Sealed tenders are invited from the reputed manufacturers [approved by BIS/ISO] or their authorized representatives, specially authorized for this tender, who are capable of supply, installation, commissioning, operation maintenance, services of on-line Continuous Water Quality Monitoring System and its data display which are shown on the tender notice. The terms and conditions are as follows:

**[A] SPECIAL CONDITIONS:**

1. Prices should be quoted for supply, installation, commissioning, operation maintenance, services of on-line Continuous Water Quality Monitoring System and its data display including the cost of minor civil works, electrical fittings and cabling etc.
2. The technical specifications of the CWQMS are given on page no. 310-317. The technical specifications of the offered CWQMS should be furnished in annexure –1. The checklist is appended with the document.
3. The equipment offered should necessarily contain a guarantee for its trouble free performance for a period of 1 year from the date of installation.
4. The offer should clearly mention make, name of the manufacturer, detailed specifications, detailed literature about the equipment/circuit diagram/drawing of the mechanism and any other information relevant to the equipment. For any printing error / mistake in final bid will be the responsibility of the tenderer and no correspondence will be entertained by the Board in future.
5. The tenderer should furnish details of supplies made by him to important institutions, along with performance certificate, during last one year [Users' list]. The tenderer must submit Client list along with the previous purchase order copies of similar item [s] supplied to any Central /State Pollution Control Boards / any CSIR Laboratory.
6. The firm / manufacturer submitting the offer shall only quote for one most suitable model of the offered equipment whose specification matches the Board's specifications. No alternate offers shall be considered and, if submitted, the offer shall be rejected.

7. Earnest money be furnished by a demand draft in favor of Member Secretary ,M. P. Pollution Control Board, Bhopal in Envelope "A". Offers without earnest money shall not be considered and the relevant Envelopes [B & C] will not be opened and their offer shall be treated as rejected.
8. Tenderer using downloaded tender forms must submit tender fee by demand draft along with Earnest Money in Envelope "A" drawn of Member Secretary, M. P. Pollution Control Board, Bhopal. The tender will not be accepted from the firm to whom the document is not issued by the Board and the bid downloaded from net without tender fee will not be accepted.
9. The tenderer shall have to submit the copy of GST tax registration and Income Tax registration [PAN] along with Envelope "B" otherwise the offer shall be liable for rejection.
10. An undertaking shall be submitted by the tenderer that they are not black listed in any Govt. organization / institutions along with Envelope "B".
11. The tenderer shall provide exclusive company profile including necessary certificates / license for manufacture the product from DGTD / SSI/SIA etc.
12. The specifications are clearly mentioned in the document and the Tenderer is requested to submit Bid only if their offer strictly comply with these specifications. Please note that no deviation in the required specification will be permitted. The bidding for the instruments having different specification will be on Tenderer's risk as the Board will not entertain such Bids.

## **PROCEDURE FOR SUBMISSION OF TENDERS :**

Each tenderer shall submit his offer in three sealed Envelopes A, B and C. Envelope "A" shall contain earnest money and tender cost, if the tender document is downloaded from the web site. The Envelope "B" should contain technical specification, terms & conditions, company profile, copy of GST tax registration number, PAN number and authorization certificate from manufacturer for submission of offer for this tender, if offer is submitted by authorized representative. Envelope "C" shall contain financial offer.

- [a] **Envelope – "A" :** Envelope "A" should contain demand draft for the requisite amount of earnest money in favor of Member Secretary , M. P. Pollution Control Board, Bhopal . If the tender document is downloaded from web site, then separate demand draft for tender cost shall be submitted with Envelope" A". The name of instrument and the amount of the demand draft should be inscribed on the top of Envelope. Envelope "A" shall be opened on 05.03.2018 at 2.00 pm in the presence of the tenderer or their authorized representatives. Insufficient amount furnished as earnest money and tender cost shall make the offer liable for rejection.
- [b] **Envelope – "B":** Tenderer, who have furnished the desired amount of earnest money and tender cost, shall be liable for opening of the Envelope "B" of their offer. The Envelope "B" should contain detailed technical specifications in annexure –1, make & model of the equipment, functioning procedure of the equipment and other literature relevant to the equipment and company profile. If the offer is submitted by authorized representative, he should submit authorization letter in Envelope "B" from the manufacturer for submitting offer for this tender, otherwise tender offer of the firm shall not be considered and liable for rejection. The tenderer should furnish users' list and details of supplies made by him to important institutions along with performance certificate. The tenderer shall have to submit the copy of GST tax registration and income tax no. [PAN] along with the Envelope "B", otherwise the offer shall be liable for rejection. An undertaking shall be submitted by the tenderer, regarding whether they are not black listed in any Govt. organization / institutions, along with Envelope "B". The details of service station in Madhya Pradesh and India should be furnished with other details. Envelope "B" will be opened on dated 05.03.2018 at 2.00 pm.
- [c] **Envelope – "C":** The Envelope "C" shall contain financial offer in annexure 3 or 4 [whichever is applicable] of the tender document. Offers received in due time shall be evaluated technically by a committee constituted by the Competent Authority, M. P. Pollution Control Board and as per the recommendation of committee , depending upon the suitability of equipment with respect to application, performance, after sale service and service centers in Madhya Pradesh or in India etc., the financial offer shall be opened .

Notwithstanding anything stated above the competent authority of the Board reserves the right to assess the capability and capacity of the tenderer to perform the contract, should the circumstances warrant such an assessment in the overall interest of the Board.

NOTE: If the office happen to be closed on the last date of submission of the tender as specified in the tender, will be received and opened on the next working day at the same time and venue.

**[B] OTHER CONDITIONS:**

1. The Board reserves its rights to reject any or all the tenders without assigning any reason there for.
2. Tender found incomplete shall be rejected forthwith.
3. The indigenous equipment, for which an order has been placed, after acceptance of the tender, shall have to be delivered, installed & demonstrated to the consignee mentioned in the supply order within 60 days from the date of issue of supply order. In case of late supply of the material, 2% per month penalty shall be charged up to one month, there after supply order shall be treated as cancelled and earnest money shall be forfeited and the supply order shall be issued to the second lowest firm. The maximum penalty for late supply shall not exceed 10% of the total ordered value. In case of unavoidable delay in supply a prior permission shall be obtained for extension in delivery period.
4. The time limit for the supply of imported equipment shall be 90 days, which can be relaxed for additional 15 days by the Member Secretary. After scheduled time limit, 2% per month penalty or maximum penalty up to 10% of the total ordered value should be levied.
5. If the tenderer is not a manufacturer himself, should have a facility for repairing and maintenance of the instrument. The details of service centers in Madhya Pradesh and India should be furnished along with other details.
6. It shall be the responsibility of the tenderer to deliver the material to the consignee in sound condition without any damage. Any damage or loss during transit shall be on the account of the tenderer.
7. The tenders shall be valid for a period of 360 days from the date of opening of Envelope "A".
8. The prices should include all taxes like GST tax, excise tax or any other tax.
9. The approved firm / manufacturer shall have to submit 5 % security deposit of the ordered value in the form of Bank Guarantee for a period of one year, only after that work order for supply, installation, commissioning, operation maintenance, services of on-line Continuous Water Quality Monitoring System and its data display will be issued

10. In case the approved tenderer fails to effect supply, within the specified period as per work order, the earnest money and security deposit is liable to be forfeited.
11. The consignee or any other officer authorized by the Board shall have the right to reject any or all the items of the supply, if they do not conform to specifications mentioned in the supply order. The rejected items shall be lifted by the tenderer at their own cost. The consignee will not be responsible for the custody and safety of such items.
12. The Board reserves its rights to affect any reasonable increase or decrease in the quantity or number of items at the time of issue of supply order in the interest of the Board.
13. All the clearance including the obtaining NMI [Not manufactured in India] certificate, custom clearance and custom duty will be the responsibility of the tenderer. This office will open the letter of credit [L/C] as may be required and will only sign the documents wherever required.
14. In case, if any supplier quote their rates in Indian Rupees for imported equipment and do not require custom duty exemption certificate from the Board, then the supplier has to submit import document like bill of entry, custom duty paid and NMI [Not manufactured in India] certificate from the manufacturer.
15. The tenderer is expected to examine all instructions, forms, terms and conditions and specifications mentioned in the bid document. Failure to furnish all information required by the bid documents of submission of a bid not substantially irresponsible to the bid document in every respect will be at the tenderer's risk and may result in the rejection of its bid.
16. The terms of payment shall be as under:
  - [A] **Indigenous Items:** 75% of the cost of material would be paid after receipt of the material by consignee and balance 25% payment shall be released only after satisfactory installation and demonstration of the equipments / material at site.
  - [B] **Imported equipments:** The letter of credit will be opened for total ordered value, but 75% of the cost will be released on shipment of the material and balance 25% payment shall be released only after satisfactory installation & demonstration of the equipments / receipt of material at site.
17. Conditional offers will not be accepted and liable for rejection.
18. Cost of O&M of CAAQMS after one year of warranty for Five (5) years including insurance expandable up to next five years.
19. O&M cost (including insurance) for five years expandable up to next five years as Net Present Value discounted @15% per annum. Taxes and duties shall not be considered for the purpose of evaluation.
20. In case of human error regarding labeling of Envelope, the committee constituted for the opening of Envelope shall take appropriate decision.

21. In case of any dispute the decision of Competent Authority, M. P. Pollution Control Board shall be final & binding.
22. In order to comply the instructions of Department of Commerce & Industries, Govt. of M.P., and minimum 30% of the quantity of the items shall be reserved for the manufacturers / entrepreneurs from Scheduled castes/ scheduled tribes based at Madhya Pradesh.

***NOTE: The tenders shall be liable for rejection in breach of any of the special or other general conditions of the tender document and no correspondence in this regard shall be entertained in future.***

**Chief Scientific Officer**

# **M. P. POLLUTION CONTROL BOARD**

## **TENDER AND CONTRACT FOR SUPPLY, INSTALLATION COMMISSIONING, OPERATION MAINTENANCE, SERVICE OF ON-LINE CONTINUOUS WATER QUALITY MONITORING SYSTEM AND DATA CONNECTIVITY GENERAL RULE AND DIRECTIONS FOR THE GUIDANCE OF SUPPLIERS**

1. All suppliers proposed to be obtained by contract will be notified in a form of invitation to tender posted in public places/News Paper.
2. The tender form will State the supplies to be made, as well as the date for submitting and opening tenders and the time allowed for supply, also the amount of earnest money to be deposited with the tender.
3. In the event of tender being submitted by a firm it must be signed separately by each member thereof or in the absence of any partner, it must be signed on its behalf by a person holding a power of attorney authorizing him to do so, such power of attorney should be produced with the tender and it must disclose that the firm is duly registered under the partnership Act.
4. Any person who submits a tender shall fill up usual printed form stating at what rate he is willing to undertake supply of each item. Tender which propose any alteration in the work/supply specified in the said form of invitation to tender, or time allowed for carrying out work/supply will be liable for rejection.
5. The tender committee will open tenders in the presence of any tenderer who may be present at the time and will enter the amount of several tenders in a comparative statement in a suitable form. Receipts for earnest money will be given to all tenderers except those whose tenders are rejected and whose earnest money is refunded on the day that the tenders are opened.
6. The officer competent to dispose of the tenders shall have the right of rejecting all or any of the tenders.
7. Site Locations may be visited by any tenderer before tendering by making contact with concerned Regional Office, M.P. Pollution Control Board during office Hours.



## **CONDITIONS OF CONTRACT**

1. If the Tenderer shall be hindered in the supply of the materials so as to necessitate an extension of the time allowed in this tender he shall apply in writing well in advance or immediately after the cause occur to the Competent Authority, M.P. Pollution Control Board, who shall if in his opinion (which shall be final) reasonable grounds be shown therefore authorize such extension for a period not exceeding in 15 days. Any further extension shall be subject to the previous sanction of the competent authority.
2. The supplier shall give notice to the consignee officer of his intention of making delivery of materials and on the materials being approved a receipt shall be granted by him to the Consignee Officer or his assistant, and no material will be considered for payment until so approved.
3. Supply, installation, commissioning, operation maintenance, services of on-line Continuous Water Quality Monitoring System and its data display supplier shall be furnished with a certificate by the Consignee Regional Officer of M.P. Pollution Control Board.
4. The material shall be of the best description and in strict accordance with the specification and the supplier shall receive payments for such service only as are approved and passed by the Regional Officer /Consignee Officer.
5. In the event of materials being considered by the Consignee Officer to be inferior to that described in the specification the supplier shall on demand in writing forth with remove the same at his own charge and cost and in the event of his neglecting to do so within such period as may be named by the Consignee officer that officer may have such rejected material removed at the contractor's risk and expense incurred being liable to be deducted from any sum due or which may become due to the supplier.
6. Receipts for payment made on account of a Supply & Service when executed by a firm must also be signed by authorized signatory.
7. Under no circumstances whatever shall the contractor be entitled to any compensation from Board on any account.
8. The supplier shall supply at it own expense all tools, plant & implements required for the due fulfillment of his contract and the materials shall remain at his risk till the contract gets completed.
9. No materials shall be brought to site or delivered on Sunday/holiday without the written permission of the Consignee Officer.
10. The supplier shall not sublet this contract without the written permission of the Competent Authority , M.P. Pollution Control Board. In the event of the contractor subletting his contract without such permission, he shall be considered to have thereby committed a breach of the contract, and shall forfeit his earnest money and shall have no claim, for any compensation for any loss that may occur from the materials he may have collected or engagements entered into.
11. The decision of the competent authority M.P. Pollution Control Board, shall be final, conclusive & binding on all parties to the contract upon all questions relating to the meaning of specification and instructions herein before mentioned and as to qualify of materials or as to any way arising out of, or relating to the contract specifications, instruction orders of these conditions or otherwise concerning the supplies whether arising the progress of after the completion or abatement thereof.

12. On the breach of any term of condition of this contract by the supplier, the said competent Authority shall be entitled to forfeit the earnest money, security deposit and the balance thereof that may at that time be remaining and to realize and retain the same as damages and compensation for the said breach but without prejudice to the right of the said Board to recover any further sums as damages from any sums due or which may be come due to the contractor by M.P. Pollution Control Board, or otherwise howsoever.
13. The bidder or its associates as an O & M partner in India, (any authorized agency in India) should have well trained O & M personnel on its regular rolls as per following details and on award of LOI bidder shall submit the name of Technicians (Diploma holder in electronics/ instrumentation) and Data Processor for central data management and RTWQMS station respectively. Their resume, PF slip as a proof of their regular employment with the bidder. All personnel should be on pay roll of the O & M partner.
14. The O&M partner shall furnish an undertaking regarding carrying out satisfactory O &M of RTWQMS covered in this document as per terms & conditions of the document on behalf of the bidder. This information is to be provided as per Attachment.

**Annexure-A**

<b>S.No</b>	<b>Name of Locations</b>
<b>1</b>	Amarkantak from origin point
<b>2</b>	Amarkantak at Kapildhara
<b>3</b>	At Dindori U/s before mixing City domestic waste .
<b>4</b>	At Dindori D/s after mixing City domestic waste.
<b>5</b>	Mandla, Near Shamshanghat
<b>6</b>	Mandla, Near Rd/br.
<b>7</b>	Jabalpur, Jamtara, Near Railway Bridge
<b>8</b>	Jabalpur, Lalpur, Near water supply intake point
<b>9</b>	Jabalpur At Tilwaraghat
<b>10</b>	Jabalpur, Panchwatighat, before mixing
<b>11</b>	Jabalpur, Sarswastighat after mixing Bawanganga river
<b>12</b>	Barmanghat, 100 mds of mainghat
<b>13</b>	At Sandhiya Ghat near intake well Pipriya
<b>14</b>	Near Shahganj Rest House
<b>15</b>	Bandra Bhan Ghat Opp. Site, Hoshangabad
<b>16</b>	Hoshangabad, Near Korighat
<b>17</b>	Hoshagabad, Near Sethanighat
<b>18</b>	Hoshangabad, d/s after mixing SPM nalla
<b>19</b>	At Nemavar W/S. Ujjain
<b>20</b>	Indore, Near Punasa dam
<b>21</b>	At Omkareshwar d/s
<b>22</b>	Barwaha near Mortakka Bridge
<b>23</b>	At Mandleshwar near w/s. Jallod intake
<b>24</b>	At Mandleshwar D/s
<b>25</b>	At Maheswar D/s
<b>26</b>	At Khalghat
<b>27</b>	At Dharampuri (before mixing domestic nalla )
<b>28</b>	At Dharampuri d/s.
<b>29</b>	At Rajghat Badwani,
<b>30</b>	At Koteswar, Nisarpur, Dhar
<b>31</b>	At Kakrana, interstate boundry, Alirajpur

**TENDER SPECIFICATIONS VS OFFERED SPECIFICATIONS**

<b>Sl. No.</b>	<b>Tender Specifications</b>	<b>Offered Specifications</b>	<b>Documentary evidence/ leaflet Enclosed</b>

**Signature of Tenderer** -----  
**Name** -----  
**Business Address** -----

**Place:** -----  
**Date :** -----

**BID PRICE BREAKUP FOR O&M OF RTWQMS FOR THREE YEARS**

Sl. No.	Year of O&M	Service charges for O&M in Rs.		Cost of (Incidental charges consisting of security, Electricity, Phones/ internet, Manpower, AMCs material including spares & consumables for Operation & maintenance and other in Rs.		Total Charges for the year in Rs.	
0.	Warranty Period						
1.	1 <sup>st</sup> year						
2.	2 <sup>nd</sup> year						
3.	3 <sup>rd</sup> year						
<b>TOTAL</b>							

## NOTE:

- A. GST/Service tax shall be payable only on the service portion of O & M cost only (excluding supply of spares for maintenance & overhauling).
- B. Cost of material including spares & consumables for operation & maintenance shall be inclusive of all taxes & duties.
- C. The above ceiling O&M cost also include incidental charges (Security, Electricity, Data Connectivity, Stations Supervisor, Insurance) and services along with manpower at Central Server Stations of respective SPCB-Head Office as well as CPCB-Delhi.
- F. Health of the Stations should be sound for the entire period (03 years) so that the contract can be further renewed on mutual agreement.
- G. All the statutory taxes & duties as applicable in the State of India i.e. Duties and Taxes, as applicable will be paid as actual by the Vendor for simplification. However, these taxes will be reimbursed by the Board on production/submission of original bills.

**PRICE SCHEDULE FOR GOODS IMPORTED**

1	2	3	4	5	6	7
Sl. No.	Description	Country of origin	Quantity	Unit Price CIF New Delhi	Total CIF price per item	Unit Price of Inland delivery to final destination and unit price of other incidental services.

**Note: In case of discrepancy between unit and total price, the unit price shall prevail.**

**Signature of the Tenderer.....**

**Name .....**

**Business Address .....**

.....

**Place: .....**

**Date: .....**

Annexure – 4

**PRICE SCHEDULE FOR GOODS INDIGENOUS**

<b>Sl. No.</b>	<b>Name of equipment with make &amp; model</b>	<b>Unit Price in Rupees</b>	<b>VAT/CST or Any other Tax/duty</b>	<b>Unit Price including all taxes up To final destination</b>

**Note: In case of discrepancy between unit and total price, the unit price shall prevail.**

**Signature of the Tenderer .....**

**Name .....**

**Business Address.....**

**Place: .....**

**Date: .....**

### **Pre-Qualification for the Bidders for the Project:**

The Tenderer/Bidders shall need to qualify the following criteria to Bid for the mentioned job.

1. The Bidder should have a registered company /Office in India with at least 3 years of running track record of the organization.
2. The bidder should have experience of supply, installation commissioning, operation and maintenance and data transfer of at least 3 nos. Continuous water quality monitoring System i.e. for River/ETP/STP etc. to reputed organization via Server or Cloud. Documentary Proof is required to be submitted.
3. The Average financial turnover of the bidder during the last three years should be at least 3.00 Crores or above from the date of opening of the tender. The bidder has to provide the self certified balance sheet.
4. The Bidders should have supplied the system to measure at least 5 of the 6 parameters asked in the tender Online to at least 10 Locations in India and all the systems supplied should have been installed, commissioned and should be running at least for the past 2 years.
5. Proof in terms of Purchase Order and Satisfactory letter from the client shall be submitted by the bidder.
6. The Bidder must provide a material availability certificate mentioning that they should supply the material within 15 days from the date of issue of work order.
7. The bidder must note that all the accessories Consumables, Installation, commissioning service and operation related work except Sim card, power supply shall be in the bidder's scope.
8. Successful tender would bear the cost of insuring the equipment and facilities against any theft fire, natural calamity and deployed main power insurance during contract period.
9. If any break down in CWQMS occurs it will have to be rectified without any delay for this bidder should have CWQMS/Sensors in spare.
10. After installation of CWQMS if the situation arises Supplier will have to undertake the shifting of the instrument from the location of installation to another location within Madhya Pradesh.
11. The bidder shall take responsibility of shifting and de-attachment of CWQMS before monsoon and installation after monsoon within Madhya Pradesh during warranty period.



## Scope of Work

This project is planned for the Procurement of online Continuous Water Quality Monitoring system using standalone water quality monitoring stations

/ system powered with GSM / GPRS modem/Cloud or other advanced technology to be installed or any other available communication modes deployed to transmit the data at the scheduled interval of hourly average basis to a central server located at 31 different locations of River Narmada in Madhya Pradesh. The desired parameters required to be monitored and displayed are pH, Temperature, Dissolved Oxygen (DO), Bio-chemical Oxygen demand (BOD) with categorization of water quality as per CPCB norms.

- The true / validated data from all the desired locations shall only be transmitted to the Central Server at MPPCB and concerned Regional Offices.
- Central Server shall possess the capability to receive, analyze and archive the data received from the Remote stations.
- The trained data analyst (to be provided by the bidder) shall be available round the clock to qualify / analyse the received data from all the 31 stations for contract period . Proper training shall be imparted to persons assigned by MPPCB.
- The qualified / analyzed data shall than be displayed on local displays (LED's of size 4X5 feet minimum) installed at each location on the ghats or other location as decided by Board Madhya Pradesh shall remain in the scope of the bidder.
- All 31 Stations shall be manned/monitor for 24 × 7 remains in the scope of the bidder during the contract period to ensure seamless Continuous Water Quality Monitoring Data from the Water Quality Monitoring Stations. Bidder has to provide security on permanent basis to take care of the CWQMS during the project.
- Complete supply, installation and commissioning shall be in the bidder's scope. All manpower and tools etc., software required shall be in the bidder's scope.
- Laying of all cables for installation and commissioning of Online Continuous Water Quality Monitoring Station shall be in bidder's scope of work.
- Vendor will supply indigenous material within 60 days from the date of awarding the Work order to the vendor and imported material within 90 days from the date of opening of L/C. Installation and commissioning activity shall be completed within the 30 Days from the date of receiving 100% material.
- The full insurance of the offered CWQMS shall be in the bidder scope during the warranty period/O&M contract.

## **1.0 DETAILS OF PROJECT STRUCTURE**

- (a) Successful Tenderer would be awarded the project/work under a Supply and Service Agreement, which would entail:
1. Supply, installation and Commissioning of **Thirty One** Sets of CWQMS Equipment at the defined locations **at Madhya Pradesh.**
  2. Operation and Maintenance of the CWQMS for one year of warranty from the date of it's commissioning.
  3. Daily reporting of data pertaining to Water Quality to MPPCB. MPPCB would make payment for CWQMS as per schedule of requirement, for Supply, Installation and Commissioning of the system. MPPCB would procure all the CWQMS equipment on its name. MPPCB will make regular payments for the O&M and supply of Data at the end of each Month. The tenderers therefore need to quote For supply, installation, commissioning, operation maintenance and services of on-line Continuous Water Quality Monitoring Systems for period of one year from the commissioning and its data display on LED display board for one year/O&M Contract.

## **SCOPE OF SERVICES**

The Scope of Works under the package shall include:

- A) The supply including packing, transportation, insurance, custom clearance, port clearance and handling, inland transportation, inland transit insurance and delivery to site, installation, testing and commissioning of equipment and provision of training of MPPCB officials .
- B) Operation & Maintenance of water quality Monitoring Stations for a period of one (1) year from the date of commissioning of the station, which can be extended up to three (3) years at the mutually agreed rates and terms and conditions.
- C) Data & Report of data pertaining to CWQMS to MPPCB.
- D) On line transfer of data to MPPCB .

### **3.0 MINIMUM TECHNICAL SPECIFICATIONS**

The minimum technical specification requirements for the CWQMS to be installed are given in (Technical Specifications) of tender document. However, the actual technical proposal can have higher or better technical performance parameters and the minimum specifications proposed should not be taken as a constraint on the upper side. The technical specifications given in tender documents are descriptive and Selection Committee can consider technical proposals having similar specifications.

### **4.0 DATA MANAGEMENT AND QUALITY CHECKS**

Data shall be collected and validated according to APHA & Other BIS standards.

Successful tenderer shall submit a Standard Operating Procedure for the water quality monitoring station to the Board before award of contract. This Standard Operating Procedure shall be approved by the Board prior to award. The Standard Operating Procedure shall contain the following:

Operating procedures for all analyzers

Calibration procedures

Calibration schedule Maintenance procedures

Maintenance schedule

Data validation procedures

Data reporting as per attachment

Data obtained from these calibration checks and copies of associated Quality Assurance and calibration documentation, shall be submitted to the Board along with the water Quality Data.

Inventory of spares and consumables to be maintained and recorded from time to time and a buffer stock for any eventuality to be maintained.

### **GENERAL GUIDELINES**

**Working Hours:** The site for CWQMS operation should be manned by the employees of the Successful Tenderer for 24 hours a day. In addition the Successful Tenderer would arrange for a security of the site and equipments through appointment for security agency.

**Insurance:** Successful Tenderer would bear the cost of insuring the equipment (Comprehensive) and facilities against any theft, fire natural calamity like flood and other applicable provisions during tenure of contract period including O&M with a copy to MPPCB of an appropriate amount.

## 5.0

### **Operation & Maintenance of water quality Monitoring Stations**

The Contractor's responsibilities shall include without limitations the following works to be carried out on the water Quality Monitoring Stations installed under this Contract during the Operation & Maintenance of the stations:

- a) Operation and Maintenance of all the commissioned equipments and amenities as supplied by the Manufacturer under the Contract including services during forced and planned outages and overhauls.
- b) The Contractor shall take over the entire water Quality Monitoring Station (including all equipment) for O&M after execution of Indemnity Bond as per format placed at Attachments of tender document.
- c) The Contractor shall provide to the owner a monthly summary of all operation and maintenance activities performed by the contractor during each month.
- d) Operation and Maintenance Obligations:

In implementing its obligations to operate and maintain the facility under this Contract, the Contractor shall:

- i) Undertake comprehensive maintenance including i.e. schedule and breakdown maintenance & repair at site and keep Board Informed regarding status of equipments and forward daily data as per Attachments.
- ii) Obtain permission from the owner and inform the O&M for any assistance for which equipment is required to be sent to the works. Contractor shall arrange substitute equipment to keep CWQMS station operational.
- iii) Take reasonable action to assure that the Personnel deployed at water Quality Monitoring Stations and any subcontractors and agents are provided with a work place in compliance with applicable Law.
- iv) Keep the water Quality Monitoring Stations clean, well maintained and in good working condition.

- v) Security: It is the duty of the Contractor to secure the movable, immovable and other properties of the Owner at the water Quality Monitoring Station. The Contractor shall indemnify the loss caused to the Owner on account of any damage, loss or theft caused to the property of the Owner.
  - vi) Scheduled Maintenance: Unless Owner and Contractor mutually agree otherwise, perform all required Scheduled maintenance for all equipment, auxiliaries etc., in accordance with the O&M specifications.
  - vii) Unscheduled maintenance: Perform all unscheduled maintenance and repair for all equipment auxiliaries' etc. within (24) hours of the occurrence of the event requiring Unscheduled Maintenance, the operator shall provide the Owner with detailed written information on nature of the repair or replacement to be carried out, estimated down time and other necessary details as required.
  - viii) The Contractor shall source all the spares required for maintenance & repair of the installed equipment from O&M only.
- e) The Operator shall not:
- i) Make any modifications as to the Water Quality Monitoring Stations, other than in an Emergency, without the prior written approval of the Owner, or
  - ii) Dispose off any assets, settle law-suits or engage in transactions relating thereto on the Owner's behalf without the prior written approval of the Owner.
- f) The Contractor shall purchase spare parts, materials, supplies and other consumable items, and maintain an inventory thereof, for the Water Quality Monitoring Stations. All such material supplied and other items shall be the property of the Contractor However all the spares shall be sourced from OEM's only.
- g) The Contractor shall review all applicable Laws and initiate and maintain such prosecution, procedures and operating plans relating to operation of the Water Quality Monitoring Stations as are necessary to comply therewith or assist the owner in complying therewith as the case may be.
- h) The Contractor shall operate the equipment as per the laid out standards in the operating manual of the equipment and providing data for water to MPPCB on daily

basis in the suggested format. The daily monthly and yearly Reporting Formats should be maintained.

- i) The CWQMS has to be in operation for a minimum of 90% of the days in a year, 24 hours a day, and should not be inoperable for more than 7 days at a stretch except adverse natural conditions.
- j) Provide data collected through operation of the equipments on daily basis in suggested output formats given in the tender document.
  - i) Establish and maintain a daily and monthly and yearly reporting system to provide storage and ready retrieval of operation and maintenance data including such information necessary to verify calculations. The monthly reporting shall contain variances from targets.
  - ii) Provide access to the owner to the Water Quality Monitoring Stations and its data at all reasonable times and as and when required.
  - iii) Provide the operational data required to all competent authorities including, Government of India or concerned State Governments.
  - iv) On line transfer of data to MPPCB web site.
  - k) The Contractor shall ensure accuracy of the data provided as per standards.
  - l) The contractor shall ensure periodic re-calibration of all the equipments and maintain protocol calibration.

Owner shall arrange for the following and Contractor shall guide and assist the Owner:

- a) The Owner shall pay O&M charges to the Contractor as mentioned as payment condition in work order after submission of validated data.
- b) Owner shall pay all fees including GST Tax, etc., imposed upon Owner by the Applicable Law.
- c) The Owner shall identify and hand over the site for erection & commissioning of Water Quality Monitoring Stations free from all encumbrances.

- d) The Owner shall make the arrangement for electricity & telephone connection at the site. However monthly charges for both electricity and phone bill shall be borne by the Contractor.
- e) The valid data capture rate should be minimum 90%. The full payment shall only be made if validated data is 90% and all the calibration protocol maintenance scheduled and spare parts/ consumable replacement document are maintained and verified by the owner/ board. The contractor has to maintain records / Receipts/ bills paid available as and when required

**Handing Over of Station:** On expiry/closure/termination of the Contract Agreement, stations shall be handed over to Board in working condition to the satisfaction of Board. Few or all the spares procured by the Contractor and unused as on date of handing over may be purchased by the Owner at his discretion provided Contractor is able to provide reasonability of the costs of such spares. In addition the Contractor shall provide consumables equivalent to three months consumption on expiry/closure/termination of the Contract Agreement without any extra financial implication.

**Penalties:**

During O&M period, in case of any Analyses/ system failure, penalty will be charged by MPPCB @ Rs.1,000/- (one thousand) per day per Analyzer after a grace period of seven (7) continuous non-working days. The grace period of seven (7) continuous non- working days shall be given only once per quarter (3 months).

For a failure of Data display:

Board/panel, a penalty will be charged by MPPCB @ Rs. 1,000/- (one thousand) per day after a grace period of five (5) continuous non-working days. The grace period of Five (5) continuous non-working days shall be given only once per quarter (3 months).

Failure due to power outage and other Force Major conditions shall not be considered for levy of penalty.

Total penalty per year during O&M period on account of above conditions shall be limited to 30% of total O&M charges for one year. Failing which defective/ malfunctioning analyser / system has to be replaced.

In case penalty in the year exceeds 30% as above, the Contractor shall be required to replace the defective analyzer (s) or systems with new ones at his own cost, failing which the MPPCB shall have the right to terminate the O&M contract.

## **SCHEDULE**

Contractor shall complete all activities covered in the scope of work up to installation & commissioning of Water Quality Monitoring Stations within 90 days from date of opening of Letter of Credit.

The Contractor shall carry out Operation & Maintenance of Water Quality Monitoring Stations for a period of one year from the date of commissioning of the station, which can be extended up to further three (3) years at the mutually agreed rates and terms and conditions.

The operation and maintenance contract shall be executed by the concerned **Authorized Officer** of Madhya Pradesh Pollution control board having jurisdiction or the area under his control. The term and condition shall be governed as per the tender document.

After successful tendering all remaining contract/agreement & other paper work will be done as per standard format adopted by Board as in other tendering procedure.



ATTACHMENT

**DAILY REPORTING FORMAT FOR ALL FOUR LOCATIONS**

**DAILY WATER QUALITY DATA**

Location :

Water Parameter	pH	DO	BOD	Temp	Remark
Hrs.					
00-01					
01-02					
02-03					
03-04					
04-05					
05-06					
06-07					
07-08					
08-09					
09-10					
11-12					
12-13					
13-14					
14-15					
15-16					
16-17					
17-18					
18-19					
19-20					
20-21					
21-22					
22-23					
23-24					
Standards					
Min.					
Max.					
Average					

**ATTACHMENT**

**MONTHLY REPORTING FORMAT FOR ALL FOUR LOCATIONS**

**MONTHLY WATER QUALITY DATA**

Location :

Month:

<b>Water Parameter Hrs.</b>	<b>pH</b>	<b>DO</b>	<b>BOD</b>	<b>Temp</b>	<b>Remark</b>
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
Standards					
Min.					
Max.					
Average					

## Attachment

### INDEMNITY BOND FOR HANDING OVER CONTINUOUS WATER QUALITY MONITORING STATIONS INCLUDING ALL EQUIPMENT TO THE O&M CONTRACTOR

This Indemnity Bond is made this ..... Day of 2018..... By.....a Company registered under the Companies Act, 1956/Partnership firm / Proprietary concern having its registered office at .....

( hereinafter called as "Contractor" or "obligator" which expression

shall include its successors and permitted assigns) in favour of **M. P. Pollution Control Board** with Office at ..... (M.P.) which term shall include permitted assigns and successors, (hereinafter called "MPPCB" which expression shall include its successors and assigns).

Whereas MPPCB has awarded to the Contractor, a contract for O&M of the one no. of Continuous Water Quality Monitoring Stations (CWQMS) located at

-----, vide its Letter of Indent / Award Letter / Contract No..... dated

..... (hereinafter called the "Contract"), in the terms of which Contractor shall be responsible for the Equipments to be handed over to it by MPPCB for the purpose of performance of the Contract (hereinafter called the "Equipments").

Now, therefore this Indemnity Bond witnessed as follows:

1. That in consideration of various Equipments as mentioned in the Contract, valued at Rs.----- (Rupees.....) to be handed over to the Contractor for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep MPPCB indemnified, for the full value of the Equipment. The Contractor hereby acknowledges receipt of the Equipments as per details in the Schedule appended hereto.
2. That the Contractor is obliged and shall remain absolutely responsible for the safe custody of the Equipments at Continuous Water Quality Monitoring Stations (CWQMS) belonging to MPPCB against all risks whatsoever till the Equipments are duly used in accordance with all terms of the Contract. The Contractor undertakes to keep MPPCB harmless against any loss or damage that may be caused to the Equipment.
3. The Contractor undertakes that the Equipments shall be used exclusively for the performance/ execution of the Contract strictly in accordance with its terms and conditions and no part of the

Equipments shall be utilized for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purposes including legal / penal consequences.

4. That MPPCB is and shall remain the exclusive Owner of the Equipment free from all encumbrances, charges or liens of any kind, whatsoever. The Equipments shall at all times be open to inspection and checking by Project-in-Charge MPPCB shall always be free at all time to take possession of the Equipments in whatever form the equipments may be. If in its opinion, the equipments are likely to be endangered, misutilised or converted to uses other than those specified in the Contract, by any act of omission or commission on the part of the Contractor; he finds itself and undertakes to comply with the direction or demand of MPPCB to return the Equipments without any demur or reservation.
  
5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the Equipments or the same or any part thereof is misutilised in any manner whatsoever then the Contractor hereby agrees that the decision of the Project-in-Charge of MPPCB as to assessment of loss or damage to the Equipments shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and / or damaged Equipments at its own or remedy that may be available to MPPCB against the Contractor under the Contract and under this Indemnity Bond.
  
6. Now the condition of this Bond is that if the Contractor shall duly and punctually complies with the terms and conditions of this bond to the satisfaction of MPPCB, then the above bond shall be void, but otherwise, it shall remain in full force and virtue.

In witness whereof, the Contractor has hereunto set its hand through its authorized representative under the common seal of the company, the day month and year first above mentioned.

**SCHEDULE NO. 1**

Particulars of the Equipments handed over	Quantity	Value of the Equipment	Signature of Authorised Person

For and on behalf of  
M/s.....

Witness I

1. Signature

2. Name

3. Address

Name

Signature

Designation

Authorized representative

Witness II

1. Signature

2. Name

3. Address

(Common Seal)

(In case of Company)

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## **Validation of data**

Data that is delivered to the Employer by the Service Provider as part of this contract will be subjected to a data validation process. The data validation process, handled under a separate contract, will use the Service Provider's – audit self(calibration) process to qualify the data for purchase in addition to inspecting the data for artifacts and irregularities.

## **Data Collection**

Data will be collected from 31 locations which will comprise 31 fixed stations for measurement of hourly data for 24 hours.

## **Data Collection and Delivery**

All hourly and 24 hourly water quality data from all locations will be delivered initially to the Service Provider's the Employer dedicated's Data Center on server real time basis. Such server shall be set up and maintained by the Service Provider at his cost throughout the duration of the contract,. The data will immediately on receipt be transferred from the Service to the Provide Employer's server housed in the same Data Center on real time basis. The Service Provider shall provide the data as text files, one file for each transmission and the data will be placed in a directory as indicated by the Employer

/Data Qualification Consultant.

## **Data Collection**

The fixed stations will measure water quality parameters once per hour  $\pm 5$  five minutes and transfer all log data within 5 minutes of measurement.

## **Data Storage**

The Service Provider shall store all real-time data collected during the duration of the contract. This storage shall be 100% online. This means that any data values can be called up instantaneously through the duration of the contract. In the event of any contingency, the Service Provider will provide access on the Employer's downloading any part or the entire database maintained i

## **Quality Assurance and Control through Sensor Calibration**

The Service Provider is required to perform regular calibration and adjustment of instruments using traceable standards as available.

## **Calibration Frequency**

1. All instruments shall be calibrated at frequencies no longer than once every seven days. If the instruments are not calibrated within the seven days since the previous calibration, then any data delivered will not be taken up for validation and hence the same shall not qualify for payment. However, after the calibration is done and the same is witness by the Official of MPPCB, data will then be considered for validation/payment.

### **Traceable Standards**

The Service Provider will use portable meters for calibration of the sensors and the calibration be traceable to NIST standards. In case of two consecutive calibrations the "drift" found more is than double of the accuracy ranges indicated in the table of specification the Service Provider will require to replace the instrument.

### **Calibration Results**

Upon completing field calibration, the station parameters will be set to match the calibration results.

### **Documentation**

The results of the sensor calibration will be documented and made available in real-time on Employer's Data. The Center calibration entry must include the date, time, station, sensor initial reading, sensor adjustment through calibration, sensor final reading, comments on general station/sensor observations, and names of person(s) present during the calibration.

## **10 Completeness of Data Requirement for Payment**

The Service Provider shall maintain the equipments and sensors are in good working order throughout the period of contract. Data supplied for any hour shall be considered for validation and payment provided following conditions are satisfied:

- a) Measurements must be received from at least 90% of the total locations , and
- b) The measurements received from each such location shall not be less than 90% of the measurements specified for it.

## TECHNICAL SPECIFICATIONS OF CWQMS

The Remote Station for Water Quality Monitoring Station will include an advanced data acquisition terminal. The data acquisition system shall be appropriate for unattended, remote operation for continuous measurement of **all** parameters and with an onboard GPRS system & data storage memory of 4GB minimum as integral part.

The CWQMS shall comprise of the following:

S.No	Particulars
1.	Data logger and transmission system with build in display, software, cables, high speed 100Mb/s Ethernet interface for integration into larger networks, easy data transfer via USB-stick, process interface to SCADA via relay outputs, 4-20mA, SDI12, Modbus RTU/TCP, Profibus DP, integration of third party sensors via 4-20mA inputs, SDI-12, MODBUS RTU/TCP easily extendable with additional analog and digital I/Os utilizing eight available extension slots, GSM/GPRS modem as integral part (must have minimum 3G modem and tested in India) should have the capability to be operated as controller or just a terminal, Internal integrated data logger with minimum data memory for up to 5,00,000 data sets. The system should start automatically after the power is reset to the system (in case of power failure) , system should have service mode for cleaning (ultrasonic/compressed air), controller should storage the sensor configurations and calibrations, controller should have logbook to record the data.
2.	GSM/GPRS as integral unit of data logger terminal module
3.	Sensor package to include all multi-parametric or individual sensors indicated in specifications (sensors to be provided individually or collectively)
4.	Voltage regulator to get stabilized power supply & UPS in case of power failure
5.	Enclosures



**CWQMS Specifications:**

**Parameters to be measured and display Specifications:**

<b>S.No</b>	<b>PARAMETER</b>	<b>* Range</b>	<b>Accuracy(the greater of *</b>	<b>Resolution*</b>
1	pH	0.0 to 14 pH	± 0.2 pH	≤ 0.01 units of pH
2	BOD	0.0 to 50 mg/L (in River)	± 10%	≤ 1 mg/L
3	Dissolved Oxygen	0.0 to 20 mg/L	± 10%	≤ 0.01 mg/L
4.	Temperature	5 to 45 °C	± 2 °C	≤ 1 °C
5.	Categorization of water quality as per CPCB Norms	A, B, C, D, E		

\*Available information has been given above. However, the same will be finalized based on the inputs of the bidders.

<b>Data Acquisition</b>	
Display	Easily readable display in bright sunlight. Display will allow viewing data from each sensor, as well as data from the charging system. VGA color-display 7" TFT
Keyboard/Mouse	To facilitate viewing of data as well as data downloads.
Sensor Inputs	Accommodate all sensors prescribed as well as additional inputs to be used for expansion of more sensors.
Programming	Ethernet, USB, WIFI, 3G Modem, Modbus RTU
Local Data Retrieval	USB portable flash drive and PC download. Unit shall allow local data retrieval (download) without use of a PC or other external device other than the portable storage media.
System Data Storage	All parameters, hourly average basis, for one year, Non-volatile memory of minimum 4GB has to integral part
Telemetry	GSM/GPRS compatible with Indian Telecom system and available at each station as terminal integral unit
Network Connection	WIFI 300Mb/s, Ethernet LAN, via modem
Integrated GPRS	On-board GPRS to provide precise location and elevation of the station. This information will be recorded by the data collection platform with transmitting the parameters
Operating Temperature	0 to 60°C
Operating Humidity	5 to 95% non-condensing
Power Input	12 VDC Nominal
Data Validation, Event Detection Software and data Transmissions Tampering Alarms	Validated data and event detection software must be Performed at datalog terminal and must be integral part of terminal module at each station. Data transmission through the GPRS network. System shall send alarm based on missing data, power supply malfunction, and door alarms.

### **LED MOVING MESSAGE DISPLAY BOARD**

<b>S.N.</b>	<b>Specification</b>	<b>Requirement</b>
1.	Size of display System	4 feet X 6 feet
2.	Visibility range	200 Meters (Day Time)
3.	Nos. of display Line	4

4.	Display of colour elements	Multi Color (Red, Green and Blue)
5.	Minimum life span of the system	10 years
6.	Smallest Character Size	260 mm x 190 mm (approx.)
7.	Operating and Non Operating Temperature	0 – 50 ° C
8.	Humidity Tolerance Range	0 – 100%
9.	Languages supported by the display	English & Hindi
10.	Color Gradient	Cluster LED based
11.	Display Characters	The display should be in at least four columns such as Serial No., Parameters, Concentration Limit, Standard Limits with AQI Index. The display of above variable data should be supported with moving messages / slogans to be changed from time to time.
12.	Input Power requirement	Cluster LED based
13.	Display Mounting	Weather proof casing to cope up with local condition
14.	Computer System	Software compatible with latest version, with appropriate speed and memory
15.	General	The display system should be capable to transfer the data from computer to Display Board through Modem System or other relevant technology. The system should also have the facility to display the environment message, environmental picture through video camera / VCR / CD Player etc. for public awareness.

## **OVERALL REQUIREMENTS & FEATURES OF ONLINE CWQMS**

- All instruments must be operated according to the plug & measure principle. All measurement systems shall consist of standardized latest technology products are ready for use without the need for complex initial procedures on site.
- All instruments should be pre-calibrated.
- All instruments must have auto-diagnosis procedures are used to ensure best possible operation.
- No interference on analysis with chemical and physical basics of measuring sample.
- Signal output must be analog, digital and must be compatible to data acquisition system.
- Signal output analog and digital function can be used for necessary basic controls
- Automatic data validation in system is pre-requisite to remove outliers, false alarms and give user friendly diagnostics to handle concerns.
- Must have flexible design to measure very low to high effluent / influent characteristics.
- Onboard event detection and validation software on system for decision making and to have optimum process controls.
- Automatic Compensation to parameter cross sensitivities & matrix change.
- COD and BOD must have independent program for calibration, analysis and validation. Parameter calculation for one to another parameter such as COD to BOD to TOC is not recommended due to accuracy issues.
- Validation & accuracy checks of system must have provision to perform with reference to known standards such as KHP (Potassium Phthalate etc) and Formazin standards and shall remain the bidder's scope.
- Calibration shall be performed by the bidder on weekly basis and when and as required .

### **Enclosures**

The enclosure at each fixed CWQMS shall accommodate data logger, HMI, sensor cards, voltage regulator, transmitter unit etc. the enclosure shall provide protection from dust, humidity, precipitations, sunlight and environmental pollution. The material for the enclosure shall be of steel plate or resistant plastic, of protection IP 65 with safety lock of good quality. The enclosure shall be customized for cable entry openings.

The sensors shall be capable of working in river water, polluted (effluent/sewer etc) water.

## OVERVIEW AND SPECIFICATION FOR CENTRAL RECEIVING STATION

The **Central Receiving Station** will have servers and software will be established at the Head Quarter, M.P. Pollution Control Board, Bhopal (M.P.)

The Central Receiving Station shall comprise of the following:

S.No	Particulars	Physical unit
1.	Data collection and Data base server w/ most recent WINDOWS Server Edition, Virus/Firewall Software (Server 1)	One
2.	Data Collection Software with SQL Database (Post Gre SQL, SQL Server, or similar) to be installed on Server 1	One
3.	UPS for Computer Systems	One
4.	Computer Server Rack	One
5.	Network Router with Hardware with Firewall	One
6.	Network Switch (HUB)	One
7.	Color Laser Printer with 10 sets of high capacity toner cartridge	One
8.	42" LED Monitor	One

### Specification of Software for Central Receiving Station

The bidder will provide software to communicate between the Central Receiving Station and the remote stations. The bidder will provide a database management system. The bidder will provide time series analysis software for the quality control of posted water quality measurements.

#### Software Management:

- Software capable for requesting, downloading, editing, processing and representation and management of data.
- The software integrates the entire data request commands made to the stations in real time data or data saved in the memory.

## **Data Analysis**

- Data enquiry over several days
- Daily statistics enquiry
- Strip charts of the daily statistics.]
- **Visualization of Data**
- Enquiry of data in table form
- Enquiry of data in graph form

## **Communication and Data Presentation/Display**

The controller should be interfaced with a GSM/GPRS communication modem to seamlessly transmit the data from remote place to a central location over a pre-defined interval.

The communication to the system should be two way for ability to view settings and make changes to the configuration over the air, as and when required.

The system shall be able to transmit real; time water quality data to desired location via Sim based communication.

Keep the provision for display of other monitoring result conducted by MPPCB and Environment friendly slogan.

Control room should be set at MPPCB, Bhopal for displaying data for all display site.

## **Ward and Watch of the equipment at Site:**

Ensuring that the sensors, controllers, display board etc. safety and security of all the equipment shall be in the scope of the bidder.

The Bidder shall have to deploy their own manpower along with mobile & whatsapp facility and there should be Technical manpower at site 24 x 7 for any requirements needed at site by the client.

## **Installation at Site:**

The instrumentation system shall be installed and mounted on as per the locations decided by the Board. Utmost care to be taken to have sound installation at site as the system shall be installed in flowing water with often medium to high flow at site.

### **Any Room/Civil and Related Activity**

In case of any civil construction like mounting of Pillars, fabrication, stand, room, control room needed on the site, the same shall be in the scope of the Bidder and bid shall be inclusive of that by all means.

### **Commercial instruction to Bidders:**

Bidders to indicate what taxes shall be applicable that is Excise or GST on the system.

### **Certifications /References.**

Bidders shall submit the desired Documents to fulfill the eligibility conditions as mentioned in the Pre- Qualification Criteria.

Department shall under no circumstances give any additional amount during the time period /tenure as mentioned in the tender document.

In case the Bidders is found not adhering to the tender specs as mentioned in the tender the Department has the right to Blacklist the Bidder .This shall be important to ensure quality workmanship and quality product being provided to the Client.

**CHECK LIST**

ENVELOP "A"	<ul style="list-style-type: none"> <li>• Earnest Money of requisite amount and tender cost in case of tender document is downloaded from web site.</li> </ul>
ENVELOP "B"	<ul style="list-style-type: none"> <li>• Technical compliance details in Annexure "1"</li> <li>• Company Profile.</li> <li>• Leaf let / brochure of the applied item.</li> <li>• Copy of sales tax registration number.</li> <li>• Copy of PAN No.</li> <li>• Undertaking regarding not being blacklisted.</li> <li>• User's List, Copies of purchase order of any reputed organization.</li> <li>• Self attested certificate certifying average turnover of last three years is 3.00 crore or above.</li> <li>• Manufacturer's authorization certificate, in case the offer is not submitted by Manufacturer.</li> <li>• Commercial Terms &amp; conditions</li> </ul>
ENVELOP "C"	<ul style="list-style-type: none"> <li>• Price schedule for Indigenous items in annexure "4"</li> <li>• Price schedule for Imported items in annexure "3"</li> <li>• Price schedule for AMC in annexure "2"</li> <li>• Copies of latest purchase orders indicating price schedule in proof of reasonability of rates.</li> </ul>



**CHECK LIST**  
**[Tender No. MPPCB/Pur./06/2017-18]**  
**Part-A**  
**(Laboratory Equipments)**

<b>ENVELOP "A"</b>	Earnest Money of requisite amount and tender cost in case of tender document is downloaded from web site.
<b>ENVELOP "B"</b>	<ul style="list-style-type: none"> <li>• Technical compliance details in Annexure "2"</li> <li>• Company Profile.</li> <li>• Leaf let / brochure of the applied item.</li> <li>• Copy of GST registration number.</li> <li>• Copy of PAN No.</li> <li>• Undertaking regarding not being blacklisted.</li> <li>• User's List &amp; Performance reports etc.</li> <li>• Manufacturer's authorization certificate, in case the offer is not submitted by Manufacturer.</li> <li>• Commercial Terms &amp; conditions</li> <li>• Information regarding Bank Name, Account Name, Account Number, Account Type,, Branch IFSC Code for safer &amp; easier payment transaction through RTGS/NEFT.</li> </ul>
<b>ENVELOP "C"</b>	<ul style="list-style-type: none"> <li>• Price schedule for AMC in annexure "3"</li> <li>• Price schedule for Imported items in annexure "4"</li> <li>• Price schedule for Indigenous items in annexure "5"</li> <li>• Copies of at least two supply orders of the similar nature indicating detailed price schedule in order to examine reasonability of the quoted rates in te present bid.</li> </ul>

**Check List (Part-B)**  
*(to be submitted along with TQ bid)*

The following are the particulars of compliance/deviations from the requirements of the tender specifications.

<b>Sl. No.</b>	<b>Bid Document Reference</b>	<b>Remarks</b>
1.	EMD	
2.	Form TQ#1	
3.	Form TQ#2	
4.	Form TQ#3	
5.	Form TQ#4	
6.	Form TQ#5	
7.	Form TQ#6	
8.	Form TQ#7	
9.	Form TQ#8	
10.	Form C#1	
11.	Form C#2	

The specifications and conditions furnished in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement.

**Place:**  
**Date:**

**Service Provider's signature  
and seal**

**NOTE:** For every item appropriate remarks should be indicated like 'no deviation', 'agreed', 'enclosed' etc. as the case may be.

**CHECK LIST**  
**[Tender No. MPPCB/Pur./06/2017-18]**  
**Part-C**  
**(Rate Contract for Laboratory Chemicals, Glassware, Plastic ware)**

<b>SINGLE ENVELOP</b>	Demand Draft of tender cost Information in Annexure (Part-C) along with relevant documents Copy of Firms GST/ TIN No. [Registration Certificate] Copy of PAN Card Name, addresses and other contact details of Authorized Dealers / stockiest / distributors in annexure Current Price list of the manufacturer Copies of award of RC from vendors like CPCB / any SPCBs / any Govt. organization /PSU. Undertaking regarding not being black listed in any Govt. /PSU Organization
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**CHECK LIST**  
**[Tender No. MPPCB/Pur./06/2017-18]**  
**Part-D**  
**(Rate Contract for Sampling & Analysis of Environmental Parameters)**

<b>ENVELOP "A"</b>	Demand Draft of Tender cost
<b>ENVELOP "B"</b>	<ul style="list-style-type: none"> <li>• Copy of Valid Registration under E (P) Act, 1986</li> <li>• Copy of valid Registration of NABL</li> <li>• Company Profile.</li> <li>• Leaf let / brochure (if any)</li> <li>• Copy of GST / service tax registration.</li> <li>• Copy of PAN No.</li> <li>• Undertaking regarding not being blacklisted.</li> <li>• Documents related with work experience.</li> <li>• Laboratory Infrastructure facility along with Instrumentation.</li> <li>• Details of Technical &amp; Scientific Staffs along with CVs</li> <li>• Numbers of parameters having NABL Accreditation</li> <li>• Commercial Terms &amp; conditions</li> <li>• Information regarding Bank Details for safer &amp; easier bank transaction through RTGS/NEFT.</li> <li>• Other related documents (if any)</li> </ul>
<b>ENVELOP "C"</b>	<ul style="list-style-type: none"> <li>• Price schedule in annexure "8" (Part-D)</li> <li>• Copies of at least two recent supply orders of the similar nature indicating detailed price schedule in order to examine reasonability of the quoted rates in the present bid.</li> </ul>

**CHECK LIST**

**[Tender No. MPPCB/Pur./06/2017-18]  
(Part-E)**

**(Supply, Installation, Commissioning and Operation & Maintenance services  
of Continuous Ambient Air Quality Monitoring Stations (CAAQMS))**

**The Outer Envelop would contain following four Envelops:**

<b>ENVELOP "A" (First Envelop)</b>	Demand Draft of Tender cost & Bid Security
<b>ENVELOP "B" (Second Envelop)</b>	Qualification Requirements as shown in the document along with relevant documents (Part-E)
<b>ENVELOP "C" (Third Envelop)</b>	Technical Specification as shown in the document along with relevant documents (Part-E)
(Fourth Envelop) SEPARATE ENVELOP FOR FINACIAL BID	

**CHECK LIST**

**[Tender No. MPPCB/Pur./06/2017-18]  
(Part-F)**

**(Supply, Installation, Commissioning and Operation & Maintenance services  
of Real Time Water Quality Monitoring Stations (RTWQMS))**

**The Outer Envelop would contain following four Envelops:**

<b>ENVELOP "A" (First Envelop)</b>	Demand Draft of Tender cost & Bid Security
<b>ENVELOP "B" (Second Envelop)</b>	Qualification Requirements & Technical Specification as shown in the document along with relevant documents (Part-F)
<b>ENVELOP "C" (Third Envelop)</b>	Financial Bid as shown in the document along with relevant documents (Part-F) Copies of at least two recent supply orders of the similar nature indicating detailed price schedule in order to examine reasonability of the quoted rates in the present bid.