

**Office of the Dean of Research and Consultancy  
Indian Institute of Engineering Science and Technology (IEST) Shibpur  
P.O. Botanic Garden, Howrah – 711 103, West Bengal, India**

**Project Code: DRC/MOIL -CON /MIN /SS/080/17-18**

**Department of Mining Engineering  
Indian Institute of Engineering Science and Technology, Shibpur  
Howrah-711 103**

**Ref.: Advt. No. MN 1506, dated 12.06.2019**

**Notice Inviting Quotations**

Sealed quotations are invited for the supply of air quality sensors, data logging and transmission unit and dust control system for one mine site near Nagpur as per the technical specification provided in section II. The relevant bidding document can be downloaded from the website. The sealed quotations should be submitted at the office of the Mining Engineering Department within 07 days from the date of publication of the notice till 5.00 P.M. The relevant bidding document can be downloaded from the website.

**Dean (R & C)**

**(A. Code DRC-T016/19-20)**

**INDIAN INSTITUTE OF ENGINEERING SCIENCE AND  
TECHNOLOGY, SHIBPUR**

**BIDDING DOCUMENT**

**(Project Code: DRC/MOIL -CON /MIN /SS/080/17-18)**

**Supply of online air quality sensors, data logging and transmission unit  
and dust control system for one mine site near Nagpur**

**Under**

**R&D Collaborative Research Consultancy  
with Manganese Ore India Ltd.  
(MOIL)**

**Department of Mining Engineering**

**June 2019**

## **SECTION I: TERMS & CONDITIONS AND IMPORTANT INSTRUCTIONS FOR BIDDERS**

1. Bidders are invited to submit sealed quotation for supply of air quality sensors and installation of data logging system as per Technical Specifications in Section II to Dr.Suranjan Sinha, Professor, Department of Mining, within seven working days from the date of posting of the tender notice in the website of this institution.

2. No quotations will be entertained after last date of submission indicated in the website.

3. Date and time of opening of bid will be after seven days from the date of posting of this notice in the website and the place of opening of bid is office of the Department of Mining Engineering, Indian Institute of Engineering Science and Technology, Shibpur, Howrah-711103.

4. Bidders should submit the quotations in sealed cover in the Department of Mining Engineering in the following address:

**Professor Suranjan Sinha  
Department of Mining Engineering  
Indian Institute of Engineering Science and Technology, Shibpur  
Howrah-711103, India**

5. All bids should be submitted in ONE-BID (TECHNO-COMMERCIAL BID) Format in covers (Enquiry Number must be mentioned on cover).TECHNO-COMMERCIAL BID – Details of Supply of Supply of online air quality sensors, data logging and transmission unit and dust control system for one mine site near Nagpur (**detailed specifications are mentioned in Section II**) **should be clearly mentioned in the bidding document.** Please specify the payment terms along with the bid

6. Taxes including GST should be mentioned separately. Inclusion of Tax/Levy at a later stage will not be entertained.

7. Failure to comply with the terms and conditions, stated in this notice, will be deemed as breach of this agreement.

**8. Bills in triplicate should be presented for payment within 15 days of completion of work. No advance payment can be made. All bills are to be accompanied by Order copies and Challan Receipt. The Order Number is to be noted on both the Challan and the Bill.**

### **9. Documents to be submitted with the tender:**

Tender Documents/Terms & Conditions in Original duly signed by the Proprietor / Partner/ Director of the Company as a token of acceptance of Terms & Conditions of Tender.

**10. Indian Institute of Engineering Science and Technology, Shibpur, Howrah reserves the right to accept / reject all or any of the tenders without assigning any reason whatsoever.**

We accept the above terms and conditions.

Dated:

Signature of Bidders/Suppliers  
With date & Seal

## **SECTION II: TECHNICAL SPECIFICATIONS**

This part (Section - II) of the Tender Documents provide the information necessary for bidders to prepare responsive bids, in accordance with the requirements of the principal investigator of the collaborative project.

### **Supply of online air quality sensors, data logging and transmission unit and dust control system for one mine site near Nagpur**

#### **Technical specification of**

##### **I. Built-in Laser Particle Counter**

- a. Measurement parameters: PM2.5, PM10 in  $\mu\text{g}/\text{m}^3$  and US EPA AQI
- b. Particulate Matter 2.5 (PM2.5) Fine particulate Range: 0.0 – 999.9  $\mu\text{g}/\text{m}^3$
- c. Particulate Matter 10 (PM10) Course particulate Range: 0.0 -1999.9  $\mu\text{g}/\text{m}^3$
- d. Minimum resolution of  $< 0.3 \mu\text{m}$
- e. Relative error Maximum of 10% and  $\pm 10 \mu\text{g}/\text{m}^3$
- f. Operating Temperature Range -10 degrees C to +50 degrees C
- g. Operating Humidity Maximum Limit 70% RH

##### **II. Built-in Temperature Sensor**

- a. Range: -40 – 120 °C
- b. Accuracy: +/- 0.5 °C
- c. Power: 5uW standby, 3mw active
- d. Response: 10s (up to 20 minutes to balance if moved out of a location of excessive heat 35C+).

##### **III. Built-in Relative Humidity Sensor**

- a. Range: 0 – 100% humidity
- b. Accuracy:
- c. +/- 3%;
- d. +/- 4% up to 80% RH
- e. +/- 5% up to 90% RH
- f. Power: 5uW standby, 3mw active

##### **IV. Display: Alphanumeric (16x2 character, 5V DC operated)**

##### **V. Enclosure: IP65**

##### **VI. Network Connectivity: GSM Quad-band**

##### **VII. Local Data Logging: FAT32 Based Micro-SD card**

##### **VIII. Online Data logging: MQTT Secure connection**

##### **IX. Data logging Interval: Configurable from Web and App (5 Sec to 2 Hour)**

##### **X. Mobile App: Android 4.4 and above**

##### **XI. Power Supply: 230VAC operated**

##### **XII. Backup Power Supply: On board Li-ion battery based backup power supply**

##### **XIII. Suppression unit: to control the air polluting particles with dust particles by using resources properly**

**Detailed scope of work is as follows:**

- (i) Supply of online air quality sensors data logging and transmission units**
- (ii) Installation of data logging and transmission of online air quality sensor data for continuous monitoring of air quality parameters in two mines.**
- (iii) Data will be transmitted to a server at the mine office and customized to get continuous online data and graphs and generate SMS alerts to distant offices of mining company and government agencies.**
- (iv) Suppression unit for controlling the air polluting particles like PM10, PM 2.5 and dust particles near the surface at local mining areas.**
- (v) The bidder should have adequate experience, knowledge and expertise of supply of online air quality sensors and installation of online environmental quality monitoring systems at different mine sites.**