Ref: IF3/01/2020/15621

October 2, 2020

Tender No.: BARC / IF3 / 01 / 2020 / 15621
Due Date: 13/11/2020

Sub: The Installation of Hazardous gas leak detection system for solvent extraction setup at IF3.

Sealed quotations are invited for and on behalf of the President of India for “The Installation of Hazardous gas leak detection system for solvent extraction setup of IF3.”

The following should be superscribed on the top of envelope containing quotation:

- Tender due date
- Tender No.,
- Party’s Name & address and “Kind Attention to: D K Verma, Technical Officer, IF3, BARC, Mumbai-85

Sealed offers should reach at the following address by SPEED POST (INDIA POST) on or before DUE DATE: November 13, 2020, TIME: 16:00 Hrs.

Address: To,

Head, IF3
South Site, BARC
Trombay, Mumbai-085
Contact no.: 022 2559 4473/6383/4596
The scope of work, completion schedule, quantity and technical specifications are as given below)

(PART A)

SCOPE OF WORK: The Installation of Hazardous gas leak detection system for solvent extraction setup at IF3 includes the following gross scope of work.

1. Installation of Hydrocarbon Gas Transmitters. Quantity: 02 Nos.
   (Technical Specifications of Gas Transmitter)
   A. Type: 3 Wire Hydrocarbon Gas Transmitter (Flameproof Version) CE Certified for Ambient Application
   B. Range: 0 to 100% LEL
   C. Accuracy: ± 2% of full scale
   D. Detection method : Catalytic Bead Pellistor
   E. Supply Voltage: 18 To 36V DC Typically 24V DC
   F. Display: 8 X 2 Alphanumeric LED display with Backlit
   G. Enclosure Material : Cast Alluminium Alloy LM-6
   H. Protection Class : IP 66
   I. Indication: 8 LEDs to indicate status of instrument
   J. Output: Standard Output : 4 - 20mA Current Output
   K. Sensor Life : 18-24 months
   L. Transmitter setting: By using Magnetic pen
   M. Error Detection: During Sensor Break or Open the Display Shows SENSOR OPEN & During Over range the OVER RANGE

2. Installation of Nitric Oxide (for NOx) Gas Transmitters. Quantity: 02 Nos.
   (Technical Specifications of Gas Transmitter)
   A. Type: 3 Wire Nitric Oxide (for NOx) Gas Transmitter (Flameproof Version) CE Certified for Ambient Application
   B. Range: 0 to 250 ppm
   C. Accuracy: ± 2% of full scale
   D. Detection method : Electrochemical
   E. Supply Voltage: 18 To 36V DC Typically 24V DC
   F. Display: 8 X 2 Alphanumeric LED display with Backlit
   G. Enclosure Material : Cast Alluminium Alloy LM-6
   H. Protection Class : IP 66
   I. Indication: 8 LEDs to indicate status of instrument
   J. Output: Standard Output : 4 - 20mA Current Output
   K. Sensor Life : 18-24 months
   L. Transmitter setting: By using Magnetic pen
   M. Error Detection: During Sensor Break or Open the Display Shows SENSOR OPEN & During Over range the OVER RANGE.
3. Installation of Ammonia Gas Transmitter.  
Quantity: 01 No.

(Technical Specifications of ammonia gas Transmitter)

N. Type: 3 Wire Ammonia Gas Transmitter (Flameproof Version) CE Certified for Ambient Application

O. Range: 0 to 1000 ppm

P. Accuracy: ± 2% of full scale

Q. Detection method: Electrochemical

R. Supply Voltage: 18 To 36V DC Typically 24V DC

S. Display: 8 X 2 Alphanumeric LED display with Backlit

T. Enclosure Material: Cast Aluminium Alloy LM-6

U. Protection Class: IP 66

V. Indication: 8 LEDs to indicate status of instrument

W. Output: Standard Output: 4 - 20mA Current Output

X. Sensor Life: 18-24 months

Y. Transmitter setting: By using Magnetic pen

Z. Error Detection: During Sensor Break or Open the Display Shows SENSOR OPEN & During Over range the OVER RANGE

4. Installation of Acetic Acid Gas Transmitter.  
Quantity: 01 No.

(Technical Specifications of acetic acid gas Transmitter)

A. Type: 3 Wire Acetic acid Gas Transmitter (Flameproof Version) CE Certified for Ambient Application

B. Range: 0 to 100% LEL

C. Accuracy: ± 2% of full scale

D. Detection method: Catalytic Bead Pellistor

E. Supply Voltage: 18 To 36V DC Typically 24V DC

F. Display: 8 X 2 Alphanumeric LED display with Backlit

G. Enclosure Material: Cast Aluminium Alloy LM-6

H. Protection Class: IP 66

I. Indication: 8 LEDs to indicate status of instrument

J. Output: Standard Output: 4 - 20mA Current Output

K. Sensor Life: 18-24 months

L. Transmitter setting: By using Magnetic pen

M. Error Detection: During Sensor Break or Open the Display Shows SENSOR OPEN & During Over range the OVER RANGE

5. Installation work for Control panels (New & Old) of gas detection system.

Scope of the work: The following is the gross scope of the installation work for control panels.

(Installation work for new control panel to be supplied)

A. A new Multi channel gas monitor rack having 8 channels is to be installed.

B. Module Cards (02 Nos.) for Hydrocarbon are to be provided by the vendor and the same is to be installed in the new control panel (8 Channel control panel).

C. Module Card (01 No.) for NOx is to be provided by the vendor and the same is to be installed in the new control panel (8 Channel control panel).
(Installation work for existing control panel at BARC)

D. Module Card (01 No.) for NOx is to be provided by the vendor and the same is to be installed in our existing control panel (16 Channel control panel).

E. Module Card (01 No.) for Acetic Acid is to be provided by the vendor and the same is to be installed in our existing control panel (16 Channel control panel).

F. Module Cards 01 No. (NH3) is to be provided by the vendor and the same is to be installed in our existing control panel control panel (16 channel control panel)

(Re- installation work for existing control panel at BARC)

G. Module cards 02 Nos. (TBP & NOX) will be provided by us. The module cards are to be re-installed in the new control panel from our existing control panel.

(Technical Specifications of module cards)

H. Module card Input: 4 - 20mA output from 3 wire gas transmitter.

I. Module card Range - 0 to 999 in unit ppm or % LEL or programmable by user (% LEL, % LFL, ppm or % v/v)

J. Module card display: 3 Digits of 8 mm (heights) red LED display for gas concentration, 20 segments red color bar graph display for gas concentration (100% full scale) and 5% per Step LED.

K. Module card should also have the following LED indication
   - Failsafe LED
   - Signal transmitting LED
   - Signal receiving LED
   - Programming LED
   - Calibration LED

L. Alarm setting: 3 Independent alarms set point programmable by user (AL1, AL2 & AL3). Alarm setting by 4 keys on front panel 'Set/Next', 'Up', 'Down', 'Test / Ack'

M. Control panel:
   - Supply voltage: 24V DC normal for module card or 230V AC +/-10% for wall control panel.
   - M.S. powder coated housing (2 mm Thick)
   - Individual module in Alluminium housing rack with connector, motherbaord, module with all inside termination & wiring
   - Ventilation fan
   - Hooter and Flasher on the top
   - Reset and Acknowledge button
   - Mounting : Wall Mounting
   - Colour : Gray / light blue

N. Alarm annunciation : Flame proof hooter and flasher

6. Installation of instrument signal cable.  
   Quantity: 350 meters

   Instrument signal cable lying is to be done on the existing instrument cable tray/conduit with proper tagging, for ease of its identification. The control panel will be mounted at distance of 30-50 meters from the site of gas transmitter installation. The following instrument signal cable is to be installed from gas transmitters to control panel.
- Signal Cable: 3 Core X 1.50 Sq. mm
- Type: Shielded Armoured Cable.
- Conductor: 32/0.20 mm Stranded Conductor
- Conductor diameter: 1.30 mm.
- Conductor material: Annealed Bare Copper
- Insulation Material: PVC Type A.
- Core diameter: 2.50 mm.
- Insulation thickness: 0.60 mm.

7. Documentation:
- Test Certificate: Factory calibration test certificate shall be provided along with ordered material which is traceable to National / International standards.
- Warranee Certificate
- Instruction Manual.

8. Supplier's scope: The following materials will be in supplier's scope.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Item Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3 wire, Hydrocarbon Gas Transmitter (Flameproof Version)</td>
<td>02 Nos.</td>
</tr>
<tr>
<td>2</td>
<td>3 wire, Nitric oxide (NO\textsubscript{x}) Gas Transmitter (Flameproof Version) with module card</td>
<td>01 Set</td>
</tr>
<tr>
<td>3</td>
<td>3 wire, Nitric oxide (NO\textsubscript{x}) Gas Transmitter (Flameproof Version)</td>
<td>01 No.</td>
</tr>
<tr>
<td>4</td>
<td>3 wire, Ammonia (NH\textsubscript{3}) Gas Transmitter (Flameproof Version) with module card</td>
<td>01 Set</td>
</tr>
<tr>
<td>5</td>
<td>3 wire, Acetic Acid Gas Transmitter (Flameproof Version) with module card</td>
<td>01 Set</td>
</tr>
<tr>
<td>6</td>
<td><strong>Multi channel gas monitor rack having 8 channels with 03 module cards.</strong></td>
<td>01 No.</td>
</tr>
<tr>
<td>7</td>
<td>Spare sensor for acetic acid detector</td>
<td>01 No.</td>
</tr>
<tr>
<td>8</td>
<td>Flame proof hooter and Flasher</td>
<td>01 Set</td>
</tr>
<tr>
<td>9</td>
<td>Signal cable (specifications: as per S. No. 6) (as per site requirement)</td>
<td>200 meter</td>
</tr>
</tbody>
</table>

(Note: Items which are neither mentioned in the scope of BARC nor in that of supplier, execution of such items, if required, during the work at site, will have to be borne by the supplier.)

9. GENERAL CONDITIONS:
- The job is "important and urgent" in nature, hence vendor is expected to have a clear understanding of the job so that execution can be fast. **Hence, the vendor should be present in the Pre-bid meeting with the purchaser.**
- In technical bid, vendor should address all the points as mentioned in our detailed technical specifications. **No point should be kept blank or ambiguous - it may affect bid evaluation.**
- Vendor(s) should have sufficient expertise in carrying out Chemical Process Instrumentation and should provide supporting documentary proof.
- GSTIN & PAN should be clearly mentioned in the quotation, without which the offers will not be considered.
- The purchaser shall have the right to visit and evaluate fabrication facilities of the supplier and his sub-contractors.

10. **Purchaser's Scope:** Free water and electricity will be available at site.

**PART B**

**TERMS AND CONDITIONS**

11. **Confidentiality Clause:**
   1. **Confidentiality:** No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as "Proprietary" in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any other third party without the prior consent of the original disclosing party.
   2. **"Restricted information" categories under section 18 of the Atomic Energy Act., 1962 and "Official Secrets" under section 5 of the Official Secrets Act 1923:**
   3. Any contravention of the above mentioned provisions by any contractor, sub-contractor, consultant, advisor or the employees of a contractor will invite penal consequences under the aforesaid legislation.
   4. **Prohibition against use of BARC's name without permission for publicity Purposes:** The contractor, sub-contractor, consultant, advisor or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any media like press, radio, TV or internet without prior written approval of BARC.

12. **SAFETY:** Contractor shall take all the safety precautions while working in the department and shall be solely responsible for any incident happening to his employees during the course of work in the department.

13. **PRICE:** Offered cost shall be valid for the entire scope of work (materials, fabrication, supply, Installation, taxes, packing & forwarding, transportation etc). Maximum possible break-up price should be given in the offer.

14. **VALIDITY:** Offer should be firm and valid for next three months.

15. **TAX:** As applicable shall be indicated clearly and separately.

16. **COMPLETION PERIOD:** **08 weeks** from the date of the releasing the work order. The work completion schedule should be strictly adhered with. Any delay which is attributable to the contractor is liable for penalty @ 0.5% per week (max 5 %) on total work order value. In case extension in work completion period is required, request for it with proper and valid justification is to be sent to us positively before the expiry of work completion period.

17. **INCOME TAX:** Income Tax @1.5% will be deducted from vendor's bill.

18. **GST CONCESSIONAL CERTIFICATE:** The equipment to be fabricated shall be put in service for R&D purpose only. Hence, GST concessional certificate will be issued by department.
19. **PAYMENT:** 100% payment including taxes will be made after delivery of material and successful completion of work and submission of following documents:
   a. Original bill
   b. Advance stamped receipt
   c. Guarantee Certificate
   d. After receipt of site clearance certificate by the contractor issued from the BSMO (BARC Swatch Monitoring Officer).
   e. Contractor shall fill up the option for payment through ECS/RTGS with pre-stamped receipt at the time of payment.

20. **GSTIN INVOICE:** Invoice raised by a registered supplier of taxable goods/services along with other details specifically indicates:
   i) GSTIN
   ii) PAN
   iii) Location of supply
   iv) Tax component to be separately indicated in the invoice.
   v) An undertaking shall be submitted that the GST has been promptly deposited with the authorities.

(D K Verma)
Technical Officer-D, IF3
Tel: 022- 25594473, 4596, dkverma@barc.gov.in

इनtegrated Fuel Fabrication Facility
Bhabha Atomic Research Centre,
Mumbai - 400 085.