GOVERNMENT OF INDIA
Bhabha Atomic Research Centre
Reactor Safety Division

MF-(Enquiry)

Hall.No.7, Trombay
Mumbai 400 085

Ref: RSD/CSS/PG/MF/2020/47225

March 6, 2020

Sub: Minor Repairs/ fabrication- invitation to quote

Dear Sir,

Sealed quotations are invited by Head, RSD for Tender Enquiry for “Supply, fabrication, installation and commissioning of following works; (1) DRAIN, RELIEF and VENT LINES with isolation valves and associated supporting arrangement for Test Vessel of WASIF-II as per the Section A1 of Annexure-I. and (2) SPRAY WATER LINE for Test Vessel for WASIF-II, SRI, Kalpakkam as per the Section A2 of Annexure-I”.

SCOPE:
The scope of the work broadly involves:

a. The job involves Fabrication, installation, testing and commissioning of Drain and Vent lines with isolation valves and associated supporting arrangement as per section A1 of Annexure-I.
b. Insulation for pipe lines (complete installed length); Mineral wool, 4inch thickness, along with aluminum cladding as per section A1 of Annexure-I.
c. Fabrication, installation, testing and commissioning of Spray Water Line for Test Vessel along with full cone spray nozzle, isolation valves, associated supporting arrangement, Foundation for pump etc. as per section A2 of Annexure-I.
d. Insulation for pipe lines (complete installed length): Mineral wool, 4inch thickness, along with aluminum cladding as per section A2 of Annexure-I.

1. The quotations must reach Head, RSD, Engg. Hall No. 7, BARC, Trombay, Mumbai- 400 085 on or before 27.03.2020. The envelope should be super scribed “MINOR FABRICATION-WASIF Phase-II, CSS, RSD, Hall-7” and indicate this office reference no. & due date of opening clearly. The envelope should be sealed and sent through SPEED POST or REGISTERED POST.
2. The necessary items as given in the enclosed technical specifications will be provided by the supplier.
3. The bidder shall provide full details of technical specifications for all the items offered, along with product information catalogues showing model, make, type, constructional details, materials, material certificate etc. to facilitate speedy evaluation of the quotation. Without this information the purchaser reserves full right to reject the offer for evaluation.
4. Bidder shall quote, the item wise cost of each of the works described in the Annexure-I (Technical Specifications). The bidder shall submit a list of materials required including the quantity and applicable GST. The bidder shall submit complete information asked in the enquiry, otherwise the quotation will not be accepted. The quotation shall be on proper letter head mentioning Reference number, date, complete address, Phone numbers, fax number, email, PAN number/ GST registration, etc. Without these details quotation will be liable for rejection.
5. General terms and conditions are given in Annexure-II.
6. The quotation will be opened on 30.03.2020 at 14.00 Hrs.
7. **In case the bidder need to clarify and understand the full scope of this work before submitting the quotation, he may do so by prior appointment with Shri P. Goyal, SO/G, Engg. Hall No. 7, BARC, Trombay, Mumbai - 400 085 on Phone no. 25596916/25593547.**

8. Work should be completed within **90 working days** from the date of receipt of the order.

9. The price quoted should be valid for at least 90 days from the date of opening of the quotation.

10. The work is linked with the commissioning and experimental schedules of the WASIF, SRI, Kalpakkam, which is to be strictly adhered in view of the importance of the project. The contractor shall ensure to be timely present at the site as and when required.

11. A brief list of similar jobs executed earlier such as fabrication, commissioning of mechanical works, proof testing of thermal hydraulic facilities or other similar jobs if any and the name of the organization for which the work was carried out should be furnished with the quotation.

12. All Taxes, excise duty, etc. shall be quoted separately. Any tax exemption certificate, if applicable, shall be given along with the order.

13. Pro-rata payment i.e., splitting of order is not acceptable.

14. Bidder shall note that BARC is final consumer of the goods/service procured and does not intend to make any outward supply. BARC will not avail the benefits of input tax credit and hence the good can be supplied without quoting GSTIN of BARC, Mumbai on invoice. The invoices taxed under GST as per rates applicable under the GST schedule of rate will be admitted for payment.

15. GSTIN Invoice: The raised by the registered supplier of taxable goods/services along with other details specifically indicating: GSTN, PAN, Location of supply, tax component to be separately indicated.

16. No Free issue of Material will be provided.

17. Payment will be made as per Government Rules after successful and satisfactory completion of the job. No advance payment will be made before completion of entire job.

18. The minor fabrication work will be subject to inspection/Supervision by the indenting officer or his authorized representative.

19. The bidder shall specify that "whether he/she has any relation in BARC or the bidder himself is an ex-employee of BARC or the bidder has an ex-employee of DAE on his payrolls", if any, the supplier shall indicate full details of the concerned person in their quotation.

20. The fabricator should strictly follow “confidentiality clause” as per Annexure-III.

21. Head, Reactor Safety Division reserves the right to accept/reject any or all of the quotations received without assigning any reason whatsoever.

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Encl:- Annexure-I, Annexure-II and Annexure-III

Copy to:

1. Shri P. Goyal, CSS, RSD
2. Asstt. Stores Officer, Zonal 9, Engg. Hall 7
3. Accounts Officer (Works), CC, BARC, Trombay
Annexure – I

A. Scope of Work for WASIF II:

A1. Supply, fabrication, installation, testing and commissioning of DRAIN, RELIEF and VENT LINES with isolation valves and associated supporting arrangement for Test Vessel of WASIF. The schematic diagram of the pipe lines are shown in figure-1. The following works are to be carried out at WASIF, Enng Hall, SRI, AERB, Kalpakkam site. Job description and bill of material for drain, relief and vent lines are given in Table-1 and Table -2 respectively.

Figure-1: Schematic of WASIF Phase-II

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Material Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fabrication, installation, testing and commissioning of Drain, relief and Vent lines with isolation valves and associated supporting arrangement.</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>Insulation for pipe lines (complete installed length) ; Mineral wool, 4inch thickness, along with aluminum cladding</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

Table-2. Bill of material for Drain, Relief and Vent lines
<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Material Description</th>
<th>Range</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Piping (for vent and drain lines) up to isolation valve</td>
<td>2” inch Sch 80, SS304, Approx. Length 10m</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Valve (flanged end) for Isolation</td>
<td>Ball Valve (quarter turn, Size 2” inch. Material: SS, Make: HAMMER or equivalent</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Piping (for Relief, Vent and Drain lines) beyond Relief or Isolation Valve.</td>
<td>2” inch Sch 40, SS304, Approx. Length 25m</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Relief Valve (to be mounted vertically on vessel)</td>
<td>Self-actuating, Full lift, spring loaded with angular discharge. Set Pressure 7.0kg/cm²-g. Operating temp = 200°C, Size 2”, Pressure rating 300lbs, (Design sizing standard acc. to ASME Sec. VIII)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Solenoid valve</td>
<td>Two-way valve, Normally Closed (closed when de-energized and open when energized), Size 2”</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Flanges</td>
<td>Material : SS, Size = 2 inch. ASA 300 rating.</td>
<td>20</td>
</tr>
</tbody>
</table>

A2. Supply, fabrication, installation, testing and commissioning of SPRAY WATER LINE for Test Vessel. The schematic diagram of the Spray Water Line and associated equipment are shown in figure-1. The following works are to be carried out at WASIF, Engg Hall, SRI, AERB, Kalpakkam site. Job description and bill of material for spray water line are given in Table-3 and Table-4 respectively. Specifications for full cone spray nozzle are given in Table-5.

**Table-3. Job Description for Spray Water Line**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Material Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fabrication, installation, testing and commissioning of Spray Water Line for Test Vessel along with full cone spray nozzle, isolation valves, associated supporting arrangement, Foundation for pump etc.</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>Insulation for pipe lines (complete installed length) : Mineral wool, 4inch thickness, along with aluminum cladding</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

**Table-4. Bill of material for Spray Water Line**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Material Description</th>
<th>Range</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Piping</td>
<td>1” inch Sch 80, SS304, Approx. Length 10m</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Valve (flanged end)</td>
<td>Globe Valve, Size 1” inch. Material : SS Make: HAMMER or equivalent</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>Pump (Type : Centrifugal/Reciprocating) with support.</td>
<td>Capacity 20LPM, Delivery pressure : 10kg/cm²-g. Make : Crompton or equivalent</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Full Cone Spray Nozzle</td>
<td>Specifications given below in Table-6</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Flanges</td>
<td>Material : SS , Size = 1 inch. ASA 300 rating.</td>
<td></td>
</tr>
</tbody>
</table>

Note: The material of construction will be SS 304L unless otherwise stated.

**Table-5: Specifications for Full Cone Spray Nozzle**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Nozzle Parameters</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flow Rate through each nozzle</td>
<td>12 LPM (+/-10%)</td>
</tr>
<tr>
<td>2</td>
<td>Pressure difference across nozzle</td>
<td>5 bar</td>
</tr>
<tr>
<td>3</td>
<td>Spray nozzle type</td>
<td>Full Cone</td>
</tr>
<tr>
<td>4</td>
<td>Spray Angle</td>
<td>120° (+/-5°)</td>
</tr>
<tr>
<td>5</td>
<td>Coverage Area</td>
<td>1.0 meter diameter should be established at ~ 0.5 meter from nozzle exit</td>
</tr>
<tr>
<td>6</td>
<td>Mean Droplet size</td>
<td>0.5mm at 5 bar pressure difference</td>
</tr>
<tr>
<td>7</td>
<td>Droplet distribution</td>
<td>Log normal</td>
</tr>
<tr>
<td>8</td>
<td>End Connection</td>
<td>1/4&quot; NPT Male</td>
</tr>
<tr>
<td>9</td>
<td>Material of Construction</td>
<td>SS 304</td>
</tr>
<tr>
<td>10</td>
<td>Spray fluid temperature</td>
<td>Water at (20°C to 70°C).</td>
</tr>
</tbody>
</table>

* Bidder should give all documents with regard to spray nozzle characterization (such as droplet size, velocity distribution etc.) for the above mentioned flow conditions.

A3. The scope of supply also includes preparation of 2D & 3D CAD for equipment, piping and general assembly of above-mentioned assembly lines after doing erection and commissioning of the above setup.

**Table-6: 2D & 3D CAD of general assembly**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Material Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2D &amp; 3D CAD of general assembly drawing as mentioned in section A1 &amp; A2.</td>
<td>1 No.</td>
</tr>
</tbody>
</table>
ANNEXURE – II

General Terms and Conditions

A. Approval stages:
   i. Before proceeding to work, the vendor should submit a 3D drawing of piping layout, as per the site conditions, along with valves etc. and its connection to the Test vessel for approval.
   ii. After approval of drawings, the vendor shall go for mechanical fabrication, erection, installation, testing and commissioning of all the items mentioned in Annexure-I according to the relevant design practices and as directed by concerned engineer.
   iii. Material certificate from supplier shall be submitted for approval. After getting approval (or marking of plates/pipes) from the concerned engineer, the plates/pipes can be used for fabrication. Inspection report at every stage of fabrication and radiography films and testing report etc. shall be submitted for our approval.
   iv. The vendor should rectify the defects, if any, identified/occurred during inspection/testing/installation/transportation etc.
   v. Foundation design and drawing shall be carried out and submitted for approval before installation of piping's.
   vi. Vendor shall follow the approval stages strictly and the final installed product should be defect free, leak tight and qualify the safe operating requirements, otherwise, the department has the right to cancel the order.

B. Work Quality:
All work shall be done with good workmanship. Welding should be carried out by qualified welder. Our supervisor will supervise quality of work.

C. Security permission:
   i. Contractor shall appoint the required workers with high integrity and will be responsible for his workers. All SRI, AERB/IGCAR/BARC security rules will be applicable. Supplier must dispose of all the debris after completions of the job. Entry permit will be issued on monthly basis and contractor must have valid photo pass up to March, 2019.
   ii. The site is restricted area and permission to the personnel coming inside the premises for installation work, require security clearances. Hence firm has to obtain Police Verification Certificates (PVC) from Police Commissioner Officer (not local police)/District Magistrate office, for all the persons coming inside the premises for work. The copy of PVC shall be submitted along with offer. Otherwise offer will not be considered for evaluation.
   iii. Firms, who have not worked inside the DAE units (BARC/NPCIL/IGCAR/AERB) in past, have to go through security vetting procedure and this, may take some time to complete.
   iv. The entry passes for personnel coming inside premises are made by Security Section and require local residence proof and identification proof along with PVC.

D. Free issue Material and Work period:
No Free issue materials will be provided. After the supply of firm work order, the work shall be completed in 90 working days.
E. Fabrication and Installation:

i. The mechanical fabrication, erection, installation, testing and commissioning of all the items mentioned in Annexure-I shall be done according to the relevant design practices and as directed by concerned engineer. Minor changes suggested by BARC in design, if any, should be accommodated during fabrication. Variations in dimensions shall be within tolerance limits.

ii. All rubber bushes, lock nuts, inspection crosses, clamps, saddles, spacers, screws, nuts, bolts, washers, and other accessories shall be supplied by the contractor as required.

iii. The equipment and tools required for executing this work shall be arranged by the contractor. Free electricity will be provided by the department. However, hooking any instruments to the mains power supply shall be subjected to the necessary approval of the concerned engineer.

iv. The contractor shall have to maintain the area assigned to him for the work very clean and shall follow the instructions of Engineer in-charge in this regard. All equipment/tools etc. are to be removed and the site area to be cleaned after the end of the day’s work.

v. The technician required carrying out mechanical fabrication, erection, installation, testing and commissioning work shall be skilled and have requisite qualification/certificates. The documents are to be provided (in original) to engineer in-charge, before commencement of work at site. Unqualified/unskilled technician/workers will not be allowed to work at site.

F. Testing and commissioning

The testing and commissioning of all the above mentioned components shall be done according to the relevant practices and as directed by concerned engineer.

G. Price Schedule

i. The bidder shall quote unit rates for each item of work given in Tables for supply of material, fabrication, installation, testing and commissioning work. The amount for each item shall be worked out and the requisite total shall be given. NOT GIVING THIS BREAK-UP TO THE FULLEST DETAIL AS REQUIRED IN THE TABLE SHALL BE SUFFICIENT CAUSE FOR OUTRIGHT REJECTION OF THE OFFER WITHOUT ANY CONSIDERATION.

ii. Bidders shall go through the technical specifications and provide in the offer point by point compliance. The technical deviations, (if any) shall be indicated clearly in the offer. The necessary catalogues are required to be submitted for supply items along with the offer. It may be kindly noted that no further communication will be made to get the technical clarifications. THE OFFERS WITHOUT THIS INFORMATION WILL BE REJECTED WITHOUT ANY CONSIDERATION.

iii. The entire work is to be completed within 90 working days reckoned from the 5th day of date of issuance of work order (depending on the site availability). Offer with short period of completion time will also be taken into consideration.
iv. It may also be noted that any delay (in completion of work), which is attributable to the contractor is liable for penalty @½ % per week (max 5%) will be imposed on the contractor.

H. Completion of contract
The works to be executed by the contractor shall be deemed to be completed only when
i. The supply, fabrication, installation, testing and commissioning are carried out as per the technical requirements given in this tender document.
ii. Any defects, deficiencies brought out during testing are rectified and retested wherever necessary to the satisfaction of the engineer.
iii. The material should be transported safely to the site without any damage. Otherwise the finished product will not be accepted.

I. General Specifications:
1. Quality surveillance, inspection:
   All work covered by the specification shall be subject to quality surveillance / inspection by our authorized representative.
2. The fabricator shall not sub-contract any or all of the work without written consent from the purchaser. The fabricator shall be responsible to the purchaser for all work of the sub-contractor, if allowed.
3. All the safety precautions as per applicable code and practices shall be followed at site. The Personal Protective Equipment (PPE) shall be strictly used by workers while working at site. The safety instructions shall be followed in all respect. The contractor will be responsible for any injury/accident occurring at site, due to any reason, department will not pay or liable for any compensation.
4. Payment will be made only after satisfactory completion of the work and against submission of original bill and advanced stamp receipt.
5. Income tax of 2% and GST TDS @ 2% on the bill amount shall be deducted from the payment.

Priyanshu Goyal
SO/G, RSD

Approved by: J. Chattopadhyay
(Head, RSD)

Annexure II &III : Page 3 of 4
ANNEXURE -III

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 third party without the prior written consent of the original disclosing party. This clause shall also apply to the sub-contractors consultants, advisers or the employees engaged by a party with equal force.

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:**
   Any contravention of the above-mentioned provisions by any contractor, Sub-contractor, consultant, adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation.

3. **Prohibition against use of BARC’s name without permission for publicity purposes:**
The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC’s name for any publicity purpose through any public media like press, Radio, T.V. or Internet without the prior written approval of BARC.