GOVERNMENT OF INDIA  
Bhabha Atomic Research Centre  
Reactor Safety Division

Minor Fabrication - Enquiry

Hali. No. 7  
Trombay  
Mumbai 400 085

Ref: RSD/CSS/PG/MF/WASIF/2019/162918  
August 26, 2019

Sub: Minor fabrication - invitation to quote for Fabrication, Installation and Commissioning of

(1) 65 mm diameter Test Pipe section by replacing existing 40 mm diameter Test Pipe section for WASIF-I at SRI, Kalpakkam as per Annexure-I section A

(2) Pipelines for feed water supply assembly to a Test Vessel and walkway with ladder to access the Test Vessel for WASIF-II, SRI, Kalpakkam as per Annexure-I section B.

Sealed quotations are invited by Head, Reactor Safety Division for the minor fabrication job as per the following requirements:

Scope of the work:

(1) The job involves removal of instruments such as thermocouples, pressure transducers, accelerometer, strain gauges from the existing 40 mm dia Test Pipe section from WASIF-I, fabrication of 65 mm dia Test Pipe with compatible flange, replacement of existing 40 mm dia Test Pipe with fabricated 65 mm dia Test Pipe and the re-installation of removed instruments and commissioning of facility for in-situ pressure test as per Annexure I, section A. The job also involves the insulation of test pipe section.

(2) Supply, fabrication, installation, testing and commissioning of feed water supply assembly with isolation valves along with its associated supporting arrangement in WASIF-II. Supply, fabrication and installation of walkway along with ladder to access a Test Vessel (2.0m dia and 5.0 height) from outside. The scope of supply also includes preparation of 2D and 3D CAD for equipment, piping and general assembly of WASIF-II facility.

General:

1. Bidder should quote item wise cost of total work, i.e., quote separately for each of the items in the scope of work, mentioned above. GST shall be indicated separately. The bidder shall submit complete information asked in the enquiry, otherwise his/her quotations will not be accepted.

2. The quotations must reach Head, Reactor Safety Division, Engineering Hall No. 7, BARC, Trombay, Mumbai-400 085 on or before 23.09.2019

3. The envelope should be super scribed "Minor Fabrication - WASIF, SRI" and indicate the DUE DATE and Office Ref. No., clearly. The envelope should be sealed.

4. The quotation will be opened on 24.09.2019 at 14.30 Hrs.

5. The necessary items (if any) as given in the enclosed technical specifications (Annexure-I) will be provided by the supplier.

6. In case the bidder needs to clarify and understand the full scope of his work before submitting the quotation, he may do so by prior appointment with Shri Privyanshu Goyal, SO/F, RSD, Engg. Hall No. 7, BARC, Trombay, Mumbai-400 085 (for appointment please contact on ph. no. 022-25596916/022-25593550 or send e-mail at pgoval@barc.gov.in).

7. Duration of the work is 60 working days from the date of acceptance of the work order.

8. The price quoted should be valid for at least 90 days from the date of opening of the quotation.
9. The work is linked with the commissioning and experimental schedules of the WASIF Test Facility at 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.

10. A brief list of similar jobs executed, if any and the name of the organization for which the work was carried out should be furnished with the quotation.

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

12. Bidder shall note that BARC is the 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.

13. GSTIN Invoice: As 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. **GST @ 5 % is applicable to the items and services provided to BARC for R&D purpose as per government notification.** The necessary certificate shall be provided to the contractor in this regard.

14. No free issue material will be provided.

15. Payment will be made as per Government Rules after successful and satisfactory completion of the job.

16. The minor fabrication work will be subject to inspection/supervision by the officer in-charge or his authorized representative.

17. 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.

18. The job should strictly follow “confidentiality clause” as per Annexure-II.

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

20. **Quotations sent through registered post/speed post from India post are only acceptable. Quotations sent through any other means will be rejected.**

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Encl.: Annexure-I, Annexure-II

Copy to:
1. Shri Priyanshu Goyal, SO/F, RSD
2. Asstt. Stores Officer, Zonal 9, Engg. Hall 7
3. Accounts Officer (Works), CC, BARC, Trombay

Dr. J. Chattopadhyay  
(Head, RSD)

Dr. J. Chattopadhyay  
Head, Reactor Safety Division  
Government of India  
Mumbai-400085/Mumbai-400 085.
Annexure - 1

A. Scope of Work for WASIF I:

WASIF Phase -1 facility for CIWH studies is available at SRI, Kalpakkam. Presently, in the facility, Test Pipe section of diameter 40 mm and length 2.5 m (Fig. 1) is connected between steam and water reservoir. Instruments such as pressure transducers, thermocouples, accelerometer and strain gauges are installed in the Test Pipe section. The entire Test Pipe section along with installed instruments are covered by 4-inch insulation. The present job involved are listed below:

![Figure-1: Test pipe Section of WASIF Phase-I](image)

![WELD-A](image)

![WELD-B](image)

![Figure-2: Test pipe Section of WASIF Phase-I](image)
### Table 1: Job Description

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Removal of insulation from the existing 40 mm test pipe section</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>Removal of instruments from the existing 40 mm test pipe section.</td>
<td>22 Nos.</td>
</tr>
<tr>
<td></td>
<td>[5 thermocouples, 5 Fast pressure transducers, 5 Normal pressure transducers, 1 accelerometer, 6 strain gauges]</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fabrication of 65 mm pipe with compatible flange (Weld-B as shown in Fig.2). The test pipe should contain suitable penetrations for installation of above-mentioned instruments and 1&quot; stub for water injection.</td>
<td>1 No.</td>
</tr>
<tr>
<td>4</td>
<td>Replacement of 40 mm Test section with the 65 mm diameter Test Pipe section.</td>
<td>1 No.</td>
</tr>
<tr>
<td>5</td>
<td>Reinstallation of instruments in the 65 mm diameter Test pipe section.</td>
<td>22 Nos.</td>
</tr>
<tr>
<td></td>
<td>[5 thermocouples, 5 Fast pressure transducers, 5 Normal pressure transducers, 1 accelerometer, 6 strain gauges]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Insulation of 65 mm dia Test Pipe section</td>
<td>1 No.</td>
</tr>
<tr>
<td>7</td>
<td>Commissioning of facility for in-situ hydro test for 40bar pressure.</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

### Table 2: Bill of material

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Test pipe section (Length 2.5m with Sch 80) 65NB</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>100 NB flange bore suitable to 65 NB with 1500 lb rating - SS 316L</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>3</td>
<td>Bolts suitable for above mentioned flange</td>
<td>16 Nos.</td>
</tr>
<tr>
<td>4</td>
<td>Weldolet /threadolet (1/4&quot; NPT with female connection) along with suitable 100mm length stub for the connection to respective instruments.</td>
<td>15 Nos.</td>
</tr>
<tr>
<td>5</td>
<td>Gasket suitable for 200°C and 1500 lb rating</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>6</td>
<td>Insulation for pipe line (complete installed length) Mineral wool, 4inch thickness, along with aluminum cladding</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

Note: The material of construction will be SS 304L unless otherwise stated
B. Scope of Work for WASIF II:

B1. Supply, fabrication, installation, testing and commissioning of feed water supply assembly along isolation valves as per the attached figure 3. The following works are to be carried out at WASIF, Engg Hall, SRI, AERB, Kalpakkam site.

![Diagram of WASIF Phase-II](image)

**Figure-3: 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 feed water, supply assembly along with isolation valves and associated supporting arrangement.</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>Insulation for pipe line (complete installed length)</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

**Table 3. Job Description**

<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 50m</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>Valve (flanged end)</td>
<td>Ball Valve (quarter turn), Size 1” inch. Material : SS Make: HAMMER or equivalent</td>
<td>2 Nos.</td>
</tr>
<tr>
<td>3</td>
<td>Insulation for pipe line (complete installed length)</td>
<td>Mineral wool, 4inch thickness, along with aluminum cladding</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

**Table 4: Bill of material for feed water assembly line**

Note: The material of construction will be SS 304L unless otherwise stated.
B2. Supply, fabrication and installation of walkway along with ladder to access the test vessel (2.0m dia and 5.0 height) from outside.

Table 5. Job Description

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Material Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A walk way should be at height of 3.5m from ground and the width of the walk way should be around 0.6m from the test vessel diameter (a gap of 50mm is necessary between the Test Vessel and walkway). The walk way should be approached by a monkey ladder. A ladder arrangement should also be necessary beyond 3.5m height for accessing the test vessel top. Necessary railing should be given in walkway for the safety of personal using the walkway. Carbon steel material should be used for the fabrication and installation of walkway. After installation all the structural materials should be scrubbed off and coated with red-oxide primer followed by dark grey color paint. Overall carbon steel material used for this walk way construction should not less than 1300 kg.</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

B3. The scope of supply also includes preparation of 2D & 3D CAD for equipment, piping and general assembly of above-mentioned assembly lines.

Table 6. Job Description

<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 B1.</td>
<td>1 No.</td>
</tr>
<tr>
<td>2</td>
<td>2D &amp; 3D CAD of general assembly drawing as mentioned in section B2.</td>
<td>1 No.</td>
</tr>
</tbody>
</table>

General Terms and Conditions

C. 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.

D. Security permission:
   i. Contractor shall appoint the required workers with high integrity and will be responsible for his workers. All SRI, AERB/IGCAR 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 Apr, 2020.
   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/local police 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 (IGCAR/BARC/NPCIL) 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.
E. Free issue Material and Work period:
No free issue materials will be issued for this work.
After the supply of firm work order, the work shall be completed in 60 working days.

F. Fabrication and Installation:
   i. The fabrication and installation of all the above mentioned components shall be done according to the relevant design practices and as directed by concerned engineer.
   ii. All rubber bushes, lock nuts, inspection crosses, clamps, saddles, spacers, screws, nuts, bolts, washers, elbows 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 to carry out mechanical/instrumentation 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.

G. 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.

H. 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 60 working days reckoned from the date of acceptance of the work order.
   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.

I. 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.

J. General Specifications:
   1. Quality surveillance, inspection:
      All work covered by the specification shall be subject to quality surveillance / inspection by our authorized representative.
2. No insurance policy is required for free issue material as the job is done in house.
3. 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 subcontractor, if allowed.
4. 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.
5. Payment will be made only after satisfactory completion of the work and against submission of original bill and advance stamp receipt.
6. Income tax of 2% on the bill amount and surcharge as applicable shall be deducted from the payment.

Prepared by: (Priyanshu Goyal)
SO/F, CSS, RSD

Approved by: (J Chattopadhyay)
Head, RSD

Dr. J. Chattopadhyay
Head, Reactor Safety Division
Government of India
Bombay-400 085, Mumbai-400 085.
ANNEXURE -II

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.