

TENDER SPECIFICATION

| SI No | Tender Specification Number | Unit Number & Project |
|-------|------------------------------------|----------------------------|
| 1 | BHE/PW/PUR/ UKT-COND CLEANING/1462 | Unit #6, 500 MW GSECL UKAI |

**CHEMICAL CLEANING OF CONDENSER FOR 1x500 MW UKAI THERMAL POWER
PROJECT UNIT No # 6 AT GUJARAT STATE ELECTRICITY CORPORATION LIMITED
DIST- TAPI GUJRAT**

VOLUME – I

CONSISTING OF:

- Notice Inviting Tender,
- Volume-IA : Technical Conditions of Contract,
- Volume-IB : Special Conditions of Contract,
- Volume-IC : General Conditions of Contract
- Volume-ID : Forms & Procedures



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

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Tender Specification Issue Details

TENDER SPECIFICATION

| SI No | Tender Specification Number | Unit Number & Project |
|--------------|-------------------------------------------|-----------------------------------|
| 1 | BHE/PW/PUR/ UKT-COND CLEANING/1462 | Unit #6, 500 MW GSECL UKAI |

FOR

CHEMICAL CLEANING OF CONDENSER FOR 1x500 MW UKAI THERMAL POWER PROJECT UNIT No # 6

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR Refer Notice Inviting Tender

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING VOLUME-I AND VOLUME- II ARE ISSUED TO:

M/s.

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PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date :

1462

NOTICE INVITING TENDER

(Document No PS:MSX:NIT:Rev 01 dated 1st
Jun 2012)

Bharat Heavy Electricals Limited



Ref: BHE/PW/PUR/ UKT-COND CLEANING/1462

Date: 21/05/2015

NOTICE INVITING TENDER (NIT)
NOTE: BIDDER MAY DOWNLOAD FROM WEB SITES
OR
PURCHASE TENDERS FROM THIS OFFICE ALSO

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To

Dear Sir/Madam

Sub : NOTICE INVITING TENDER

Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting [PRE QUALIFICATION CRITERIA](#) as mentioned in Annexure-I) for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

1.0 Salient Features of NIT

| SL NO | ISSUE | DESCRIPTION | |
|-------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| i | TENDER NUMBER | BHE/PW/PUR/ UKT-COND CLEANING/1462 | |
| ii | Broad Scope of job | CHEMICAL CLEANING OF CONDENSER FOR 1x500 MW UKAI THERMAL POWER PROJECT UNIT No # 6 AT GUJARAT STATE ELECTRICITY CORPORATION LIMITED DIST- TAPI GUJRAT | |
| iii | DETAILS OF TENDER DOCUMENT | | |
| a | Volume-IA | <i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i> | <i>Applicable</i> |
| b | Volume-IB | <i>Special Conditions of Contract (SCC)</i> | <i>Applicable</i> |
| c | Volume-IC | <i>General Conditions of Contract (GCC)</i> | <i>Applicable</i> |
| d | Volume-ID | <i>Forms and Procedures</i> | |
| e | Volume-II | <i>Price Schedule (Absolute value).</i> | <i>Applicable</i> |
| iv | Issue of Tender Documents | 1. <u>Sale from BHEL PS Regional office at :</u> Start : 21/05/2015 , Closes: 29/05/2015 , Time : 16.00 Hrs 2. From BHEL website | <i>Applicable</i> |

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| | | www.bhel.com Tender documents will be available for downloading from website till due date of submission | |
| v | DUE DATE & TIME OF OFFER SUBMISSION | <i>Date : 01/06/2015, Time 15.00 Hrs</i> <i>Place : BHEL PS Regional office at :Nagpur</i> Tenders being submitted through representative shall be submitted at dispatch section of PSWR HQ Office after making entry/registration at the reception. For any assistance on the matter kindly contact following officials: <ul style="list-style-type: none"> • Pratish Gee Varghese / Sr Engineer (Purchase • Shivkesh Meena / Engineer (Purchase) | <i>Applicable</i> |
| vi | OPENING OF TENDER | <i>1 hours after the latest due date and time of Offer submission</i> <i>Notes:</i> (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day. (2) Bidder may depute representative to witness the opening of tender | <i>Applicable</i> |
| vii | EMD AMOUNT | <i>Rs 1,50,000/- (Rupees One Lakh Fifty Thousand Only)</i> | <i>Applicable</i> |
| viii | COST OF TENDER | <i>Rs 2000/-. (Rupees Two Thousand Only)</i> | <i>Applicable</i> |
| ix | LAST DATE FOR SEEKING CLARIFICATION | <i>Five days before the due date of offer submission.</i> <i>Along with soft version also, addressing to undersigned & to others as per contact address given below</i> | <i>Applicable</i> |
| x | SCHEDULE OF Pre Bid Discussion (PBD) | <i>Date :</i> | <i>Not applicable.</i> |
| xi | INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM) | | <i>Not Applicable</i> |
| xii | Latest updates | Latest updates on the important dates, Amendments, Correspondences, | |

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| | | Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendums) and not in the newspapers . Bidders to keep themselves updated with all such information | |
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- 2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, duly signed & stamped on each page, as part of offer. Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.
- 3.0 Unless specifically stated otherwise, bidder shall remit cost of tender and courier charges if applicable, in the form of Demand Draft drawn in favour of Bharat Heavy Electricals Ltd, payable at Power Sector Regional HQ at Nagpur issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against sl no iv of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Nagpur, Sundays and second/ last Saturdays
- 4.0 Unless specifically stated otherwise, bidder shall deposit EMD through Demand Draft/Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Nagpur. For other details and for 'One Time EMD' please refer General Conditions of Contract.
- 5.0 **Procedure for Submission of Tenders:** The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:
- PART-I consisting of 'PART-I A (Techno Commercial Bid)' & 'PART-I B (EMD/COST of TENDER)' in two separate sealed and superscribed envelopes (ENVELOPE-I & ENVELOPE-II)
 - PART-II (Price Bid) – in sealed and superscribed envelope (ENVELOPE-III)
 - One set of tender documents shall be retained by the bidder for their reference

6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. **(All pages to be signed and stamped)**

| Sl no | Description | Remarks |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| | Part-I A | |
| | <u>ENVELOPE – I superscribed as :</u> PART-I (TECHNO COMMERCIAL BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: | |
| | <u>CONTAINING THE FOLLOWING:-</u> | |
| i. | Covering letter/Offer forwarding letter of Tenderer. | |
| ii. | Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. <u>Note:</u> a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding. i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender | |
| iii. | Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria. It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph no, FAX no, etc. | |
| iv. | All Amendments/Correspondences/Corrigenda/Clarifications/ Changes/ Errata etc pertinent to this NIT. | |
| v. | Integrity Pact Agreement (Duly signed by the authorized signatory) | If applicabl |

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| | | e |
| vi. | Duly filled-in annexures, formats etc as required under this Tender Specification/NIT | |
| vii. | Notice inviting Tender (NIT) | |
| viii. | Volume – I A : <u>Technical</u> Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc | |
| ix. | Volume – I B : Special Conditions of Contract (SCC) | |
| x. | Volume – I C : General Conditions of Contract (GCC) | |
| xi. | Volume – I D : Forms & Procedures | |
| xii. | Volume – II (UNPRICED – without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item | |
| xiii. | Any other details preferred by bidder with proper indexing. | |

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| | PART-I B | |
| | <u>ENVELOPE – II superscribed as:</u> PART-I (EMD/COST of TENDER) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: <u>CONTAINING THE FOLLOWING:-</u> | |
| i. | 1. Earnest Money Deposit (EMD) in the form as indicated in this Tender <p style="text-align: center;"><u>OR</u></p> Documentary evidence for 'One Time EMD' with the Power Sector Region of BHEL floating the Tender 2. Cost of Tender (Demand Draft or copy of Cash Receipt as the case may be) | |

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| | PART-II | |
| | PRICE BID consisting of the following shall be enclosed | |
| | <u>ENVELOPE-III</u> superscribed as: PART-II (PRICE BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: | |

| | | |
|----|------------------------------------------------------------------------------------------------------------------|--|
| | CONTAINING THE FOLLOWING | |
| i | Covering letter/Offer forwarding letter of Tenderer enclosed in Part-I | |
| ii | Volume II – PRICE BID (Duly Filled in Schedule of Rates – rate/price to be entered in words as well as figures) | |

| | | |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | OUTER COVER | |
| | ENVELOPE-IV (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING: | |
| i | <ul style="list-style-type: none">○ Envelopes I○ Envelopes II○ Envelopes III | |

SPECIAL NOTE : All documents/ annexures submitted with the offer shall be properly annexed and placed in respective places of the offer as per enclosure list mentioned in the covering letter. BHEL shall not be responsible for any missing documents.

7.0 Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.

8.0 BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

9.0 VOID

10.0 Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc before quoting for this tender. They may

-
- also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.
- 11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.
- 12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.
- 13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
- 15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**
- 16.0 The Bidder has to satisfy the Pre Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.

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- 17.0** In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
- 18.0** Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.

- 19.0** BHEL reserves the right to decide the successful bidder on the basis of Reverse Auction process. In such case all qualified bidders will be intimated regarding procedure/ modality for Reverse Auction process prior to Reverse Auction and price will be decided as per the rules for Reverse Auction. .

However, if reverse auction process is unsuccessful as defined in the RA rules/procedures, or for whatsoever reason, then the sealed 'PRICE BIDS' will be opened for deciding the successful bidder. BHEL's decision in this regard will be final and binding on bidder.

- 20.0** On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
- 21.0** In case the bidder is an "Indian Agent of Foreign Principals", 'Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.
- 22.0** The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
- 23.0** Consortium Bidding (or Technical Tie up) shall be allowed only if specified in Pre Qualifying Requirement (PQR) criteria, and in such a case the following shall be complied with:
- 23.1** Prime Bidder and Consortium Partner or partners are required to enter into a consortium agreement with a validity period of six months initially. In case the consortium is awarded the contract, then the Consortium Agreement between the Prime Bidder and Consortium Partner or partners shall be extended till contractual completion period including extension periods if any applicable.

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- 23.2 'Stand alone' bidder cannot become a **'Prime Bidder' or a 'Consortium bidder' or 'Technical Tie up bidder' in a consortium (or Technical Tie up) bidding.** Prime bidder shall neither be a consortium partner to other prime bidder nor take any other consortium partners. However, consortium partner may enter into consortium agreement with other prime bidders. In case of non compliance, consortium bids of such Prime bidders will be rejected.
- 23.3 Number of partners for a consortium Bidding (or Technical Tie up) shall be as specified in the PQR
- 23.4 Prime Bidder shall be as specified in the Pre Qualification Requirement, else the bidder who has the major share of work
- 23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical 'Pre Qualifying Requirements' specified for the respective package, (ii) "Assessment of Capacity of Bidder" as specified in clause 9.0
- 23.6 Prime Bidder shall comply with additional 'Technical' criteria of PQR as defined in 'Explanatory Notes for the PQR'
- 23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified
- 23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.
- 23.9 Prime Bidder shall be responsible for the overall execution of the contract
- 23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats
- 23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.

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- 23.12 In case the prime Bidder withdraws, the whole contract shall be considered cancelled and short closed.
- 23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of two similar works with the same consortium partner or partners under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'stand alone' bidder for similar works, subject to certification from BHEL about the active involvement of the Prime Bidder for satisfactory execution of the works.
- 23.14 The consortium partner shall submit SD equivalent to 2% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value.
- 23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also
- 24.0 The bidder shall submit documents in support of possession of 'Qualifying Requirements' duly self certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
- 25.0 The bidder may have to produce original document for verification if so decided by BHEL.
- 26.0 Order of Precedence
In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:
- a. Amendments/Clarifications/Corrigenda/Errata etc issued in respect of the tender documents by BHEL
 - b. Notice Inviting Tender (NIT)
 - c. Price Bid
 - d. Technical Conditions of Contract (TCC)—Volume-1A
 - e. Special Conditions of Contract (SCC) —Volume-1B
 - f. General Conditions of Contract (GCC) —Volume-1C
 - g. Forms and Procedures —Volume-1D

It may please be noted that guidelines/rules in respect of suspension of business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', etc may undergo change from time to time and the latest one shall be followed.

for BHARAT HEAVY ELECTRICALS
LTD

AGM Pur

Enclosure

01. Annexure-1: Pre Qualifying criteria.
02. Annexure-2: Check List.
03. Annexure-3 Important Information.
- 04 Other Tender documents as per this NIT.

ANNEXURE - 1

PRE QUALIFYING CRITERIA

| | | |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| JOB | CHEMICAL CLEANING OF CONDENSER FOR 1x500 MW UKAI THERMAL POWER PROJECT UNIT No # 6 AT GUJARAT STATE ELECTRICITY CORPORATION LIMITED DIST- TAPI GUJRAT | |
| Sl No | Tender Specification Number | Unit Number & Project |
| 1 | BHE/PW/PUR/ UKT-COND CLEANING/1462 | 660 MW U # 4 |

| SL NO | PRE QUALIFICATION CRITERIA | Bidders claim in respect of fulfilling the PQR Criteria | |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------|
| | | Name and Description of qualifying criteria | Page no of supporting document. Bidder must fill up this column as per applicability |
| A | Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium/Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder) | NOT APPLICABLE | |
| B | <p><u>Technical</u> Bidder must have achieved B.1 and B.2 below in the last seven (7) years as on latest date of bid submission:-</p> <p>B.1.) Executed Chemical Cleaning of Condenser of at least 2 Units of 190 MW or Higher Steam Turbine Unit</p> <p>AND</p> <p>B.2</p> <p>B.2.1) Executed atleast ONE Chemical Cleaning of Condenser job in a power plant of value not less than Rs 20.00 Lakhs against Single Work Order.</p> <p>OR</p> <p>B.2.2) Executed atleast TWO Chemical Cleaning of Condenser jobs in a power plant, each of value not less than Rs 12.50 Lakhs against Maximum TWO Work</p> | APPLICABLE | |

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| | Order. OR B.2.3) Executed atleast THREE Chemical Cleaning of Condenser jobs in a power plant, each of value not less than Rs 10.00 Lakhs against Maximum THREE Work Order | | |
| C-1 | <u>Financial TURNOVER</u> Bidders must have achieved an average annual financial turnover (audited) of Rs 15.45 Lakhs or more over last three Financial Years (FY) i.e. 2012-2013, 2013-14, 2014-15 OR 2011-2012, 2012-2013, 2013-14 if Annual Accounts for FY 2014-15 are not audited. | APPLICABLE | |
| C-2 | <u>NETWORTH</u> (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive. | APPLICABLE | |
| C-3 | <u>PROFIT</u> Bidder must have earned cash profit in any one of the three Financial Years as applicable in the last three Financial Years defined in 'C-1' above based on latest Audited Accounts. | APPLICABLE | |
| D | Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT (if applicable) | NOT APPLICABLE | By BHEL |
| E | Approval of Customer (if applicable) Note: Names of bidders (including consortium/Technical Tie up partners in case consortium bidding is permitted) who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval. | Not APPLICABLE | BY BHEL |
| F | Price Bid Opening Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E | | BY BHEL |
| F | Technical Tie up criteria (if applicable) | Not applicable | |
| | <u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u> 1. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the | | |

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| | <p>respective years as indicated against C-1 above along with all annexures</p> <p>2. In case audited Financial statements have not been submitted for all the three years as indicated against C-1 above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e total divided by three.</p> <p>3. C-2:-NETWORTH : Shall be calculated based on the latest Audited Accounts as furnished for C-1 above. Net worth = Paid up share capital + Reserves. (Net worth is required to be evaluated in case of companies)</p> <p>4. C-3:- PROFIT : shall be NET profit (PAT + Non cash expenditure viz depreciation) earned during any one of the three financial years as in C-1 above</p> <p>5. 'Additional' Criteria in respect of 'Technical' criteria of PQR (as in 'B' above) for Civil, Electrical, CI, unless otherwise specified :</p> <p style="padding-left: 40px;">1. Bidder should have executed similar work of any one of the following:</p> <p style="padding-left: 80px;">a. One (1) work of value not less than Rs XXX</p> <p style="padding-left: 40px;">OR</p> <p style="padding-left: 80px;">b. Two (2) works of not less than Rs YYY</p> <p style="padding-left: 40px;">OR</p> <p style="padding-left: 80px;">c. Three (3) works of not less than Rs ZZZ</p> <p style="padding-left: 40px;">(Value XXX, YYY, ZZZ shall be as indicated by BHEL</p> <p style="padding-left: 40px;">2. 'Similar' work for criteria 5 above means</p> <p style="padding-left: 80px;">a. Civil or Structures or Civil & Structures or Chimney respectively as applicable to the tendered scope in respect of 'CIVIL' Works</p> <p style="padding-left: 80px;">b. Electrical works in respect of 'ELECTRICAL'</p> <p style="padding-left: 80px;">c. CI works in respect of 'CI' Works</p> <p style="padding-left: 80px;">d. Material Handling and/or Management works in respect of 'MM' works</p> <p>6. Time period for achievement of the 'Technical' criteria of PQR (as in 'B' above) will be the last 7 years ending on the 'latest date' of Bid submission</p> <p>7. 'EXECUTED' means the Vendor should have achieved the criteria specified in the Technical criteria of PQR (as in 'B' above) even if the Contract has not been completed or closed, Unless otherwise specified, for the purpose of 'Technical' criteria of PQR (as in 'B' above), the word 'EXECUTED' means:</p> <p style="padding-left: 40px;">1. "BOILER LIGHT UP" in respect of Boiler & Aux and ESP</p> <p style="padding-left: 40px;">2. Term 'Commissioning' indicated in PQR refers to 'assistance to commissioning' / 'commissioning'</p> <p style="padding-left: 40px;">3. "SYNCHRONISATION" in respect of STG/GTG and 'SPINNING' in case of HTG</p> <p style="padding-left: 40px;">4. "STEAM BLOWING COMPLETION" in respect of at least Main Steam Line of Power Cycle Piping</p> <p style="padding-left: 40px;">5. "HYDRAULIC TEST" of the system in respect of Structures, Pressure parts/IBR Piping</p> <p style="padding-left: 40px;">6. "CHARGING" in respect of power Transformers, Bus ducts, HT/LT switchgears.</p> <p style="padding-left: 40px;">7. "Completion of RCC Shell and liner (steel or brick as per tendered scope)</p> |
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| | <p>up to the HEIGHT specified using slip form” in case of RCC Chimney.</p> <p>8. Achievement of physical Quantities as per respective PQRs in respect of Civil & Structures and Piling Works</p> <p>9. ‘Readiness for coal Filling” in respect of Bunker Structure Work.</p> <p>8. Boiler means HRSG or WHRB or any other types of Steam Generator consisting of Boiler structure, Non pressure parts and pressure parts.</p> <p>9. Critical/Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines</p> <p>10. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating in terms of MW shall be considered for evaluation.</p> <p>11. In case the experience/PO/WO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI, unless otherwise specifically indicated in the PQR.</p> <p>12. Scope for capital overhaul of STG shall cover Bearing Inspection work and overhauling of all cylinders of the Turbine unless otherwise specifically indicated in the PQR.</p> <p>13. In case the tendered scope is not a Pulverised Fuel Boiler, experience of Oil/Gas Fired Boilers also can be considered unless otherwise specifically indicated in the PQR</p> <p>14. The value of work (Experience submitted against PQR B) shall be updated as per the PVC indices for “All India Avg. Consumer Price Index for Industrial Workers” with base month as date of execution (completion of contract/work) and indexed upto two months prior to bid opening month.</p> |
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BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

BIDDER SHALL CLEARLY INDICATE IN THE TABLE BELOW, HOW THEY ARE SATISFYING TECHNICAL PQR. EXPLANATION AND THE DOCUMENTS REFERRED IN THE TABLE BELOW SHALL ONLY BE CONSIDERD BY BHEL FOR TECHNICAL PQR EVALUATION:

Bidder's Response to BHEL TECHNICAL PQR (WHICHEVER IS APPLICABLE)

| PQR No | Pre-Qualifying Requirement | Credentials based on which bidder is claiming PQR | Reference of the documents | Page No |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------|---------|
| B.1 | Executed Chemical Cleaning of Condenser of at least 2 Units of 190 MW or Higher Steam Turbine Unit | | | |
| B.2.1) | Executed atleast ONE Chemical Cleaning of Condenser job in a power plant of value not less than Rs 20.00 Lakhs against Single Work Order. | | | |
| B.2.2) | Executed atleast TWO Chemical Cleaning of Condenser jobs in a power plant, each of value not less than Rs 12.50 Lakhs against Maximum TWO Work Order. | | | |
| B.2.3) | Executed atleast THREE Chemical Cleaning of Condenser jobs in a power plant, each of value not less than Rs 10.00 Lakhs against Maximum THREE Work Order | | | |

NOTE:

BIDDERS MUST CLEARLY INDICATE IN THE TABLE ABOVE, HOW THEY ARE SATISFYING TECHNICAL PQR ALONG WITH THE REFERENCE OF THE SUPPORTING DOCUMENTS AND THE PAGE NUMBER IN WHICH THE REFERRED DOCUMENTS ARE ANNEXED IN THE BID DOCUMENT. BHEL WILL NOT CONSIDER ANY OTHER DOCUMENT OTHER THAN THOSE SPECIFIED BY THE BIDDERS IN THE TABLE ABOVE FOR EVALUATION OF TECHNICAL PQR. BIDDER MAY ATTACH SEPERATE SHEET IF NECESSARY

BHEL PSWR
Notice Inviting Tender

Tender Specification No : BHE/PW/PUR/KNT-OH/

Page 22 of 56

| | | | |
|----|--------------------------------------------------------------------------------------------------------------|----------------------------------|--------|
| 8 | Copy of PAN Card | Applicable /Not Applicable | YES/NO |
| 9 | Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed | Applicable /Not Applicable | YES/NO |
| 10 | Integrity Pact | Applicable /Not Applicable | YES/NO |
| 11 | Declaration by Authorised Signatory | Applicable /Not Applicable | YES/NO |
| 12 | No Deviation Certificate | Applicable /Not Applicable | YES/NO |
| 13 | Declaration confirming knowledge about Site Conditions | Applicable /Not Applicable | YES/NO |
| 14 | Declaration for relation in BHEL | Applicable /Not Applicable | YES/NO |
| 15 | Non Disclosure Certificate | Applicable /Not Applicable | YES/NO |
| 16 | Bank Account Details for E-Payment | Applicable /Not Applicable | YES/NO |
| 17 | Capacity Evaluation of Bidder for current Tender | Applicable /Not Applicable | YES/NO |
| 18 | Tie Ups/Consortium Agreement are submitted as per format | Applicable /Not Applicable | YES/NO |
| 19 | Power of Attorney for Submission of Tender/Signing Contract Agreement | Applicable /Not Applicable | YES/NO |
| 20 | Analysis of Unit rates | Applicable /Not Applicable | YES/NO |

NOTE : STRIKE OFF 'YES' OR 'NO', AS APPLICABLE. TENDER NOT ACCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS** ARE LIABLE TO BE SUMMARILY REJECTED.

DATE :

AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

Annexure-4

IMPORTANT INFORMATION

Sealed Tenders shall be submitted at following address to AGM /Purchase BHEL PSWR NAGPUR:

BHEL PSWR, SRIMOHINI COMPLEX , 345 KINGSWAY, NAGPUR 440001, INDIA

All correspondences regarding this tender shall be addressed to AGM / PURCHASE BHEL PSWR at above address. Bidders may also opt to correspond with following BHEL officials regarding this tender through email at following email ids . However please be informed that sealed tenders shall necessarily be submitted in original at above address:

AGM Purchase, Email id: ska@bhelswr.co.in. Ph: +91 – 712 – 3048633

Sr Engineer Purchase, Email: pgv@bhelswr.co.in, Ph: +91 – 712 – 3048713

Engineer Purchase, Email id: svm@bhelswr.co.in , Ph: +91 – 712 – 3048715

- 1. The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site (www.bhel.com ---> Tender Notification -> List of Banned Firms)**
- 2. Refer Chapter XII of Volume IB Special Conditions of Contract regarding Suspension of Business Dealings: The abridged version of extant ‘Guidelines for suspension of business dealings with suppliers/ contractors’ has now been uploaded on www.bhel.com on “supplier registration page” at the following link: http://www.bhel.com/vender_registration/pdf/Suspension-of-Business-Dealings-with-Supplier-issued-Sept13_abridged.pdf**
- 3. All Statutory Requirements as applicable for this project shall be complied with.**
- 4. Please take note of following Revised Tender Clauses:**
 - i. Notice Inviting Tender: Sl No 9
 - ii. General conditions of Contract: Clause No 1.15.13 (New), Clause No 2.8.3, 2.8.4 and 2.8.5
5. Following Notes are added to Form F- 15 of Volume I D ‘Forms & procedures’

-
- i. It is only indicative and shall be as per the online format issued by BHEL time to time.
 - ii. No request will be entertained after specified date of the current month w.r.t the changes requested in the scores of immediate previous month.

6. Acceptance of Bank Guarantee (BG)

Revision in Acceptance of Bank Guarantee (BG) Clause no. 1.10.3 (V) of Vol I C GCC:

Clause No. 1.10.3 (V) of Vol IC GCC is revised as below:-

“Bank Guarantee issued by:

- a. Any of the BHEL consortium bank listed below :

State Bank of India
ABN Amro Bank N.V.
Bank of Baroda
Canara Bank
Citi Bank N.A.
Corporation Bank
Deutsche Bank
HDFC Bank Ltd.
The Hongkong and Shanghai Banking Corporation Ltd.
ICICI Bank Ltd.
IDBI Ltd.
Punjab National Bank
Standard Chartered Bank
State Bank of Travancore
State Bank of Hyderabad
Syndicate Bank

- b. Any public sector Bank (other than consortium banks) with a clause in the text of Bank Guarantee that it is enforceable at Nagpur, Maharashtra
- c. Any private sector banks, with a clause in the text of Bank Guarantee that it is enforceable by being presented at any branch of the bank

Note: “Bank Guarantees issued by Co-operative Banks are not acceptable”.

7. Following Clauses of GCC shall not be applicable or amended as below:

- a. PVC is not applicable
- b. Progress Monitoring, Monthly Review and Performance Evaluation of Vol-I BCD is not applicable. Separate Performance evaluation as per SAS format shall be considered for evaluation purpose.
- c. Overrun compensation is not applicable
- d. Interest bearing recoverable advances is not applicable

-
- e. Quantity variation is not applicable
 - f. Extra works in man-hours is not applicable
 - g. Workmanship guarantee period shall be 2 months.
 - h. Retention Amount shall be 1 % instead of 5 % in GCC

8. Broad Terms & Conditions of Reverse Auction

In continuation to Clause 19.0 of NIT (Notice Inviting Tender) following are the broad terms and conditions of Reverse Auction is given in Annexure V of NIT:

- 8.1. Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).
- 8.2. BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids. In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 8.3. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- 8.4. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit ‘online sealed bid’ in the Reverse Auction. Non-submission of ‘online sealed bid’ by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 8.5. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.

-
- 8.6. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
- 8.7. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
- 8.8. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
- 8.9. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for noncompliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
- 8.10. Reverse auction will be conducted on scheduled date & time.
- 8.11. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
- 8.12. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
- 8.13. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL’s standard practice.
- 8.14. Bidders shall be required to read the “Terms and Conditions” section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the “Business Rules of Reverse Auction”, which will be communicated before the Reverse Auction.
- 8.15. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
- 8.16. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
- 8.17. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.



TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

CONTENTS

| SI No | DESCRIPTION | Chapter | No. OF PAGES |
|-----------|--------------------------------------------|--------------|--------------|
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| 2 | Scope of Works | Chapter-II | 12 |
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| 4 | T&Ps and MMEs to be deployed by Contractor | Chapter-IV | 3 |
| 5 | Quality Requirements | Chapter-V | 2 |
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I : PROJECT INFORMATION

| | |
|-----|---------------------|
| 1.0 | Project Information |
|-----|---------------------|

(A) INTRODUCTION

BHEL's Client M/s Gujarat State Electricity Corporation limited (GSECL) has their existing 6 units pulverized Coal based Power Plant at Ukai Thermal Power Plant Distt-Tapi Gujarat. The Ukai TPS is about 90 km from Surat .The site is approachable by road .The nearest railway station is Ukai- Songarh.

(B) LOCATION & APPROACH

- 1) Project : Thermal Power Station Unit#6 (500 MW), Ukai
- 2) Project location : UKAI,DIST:TAPI,GUJARAT STATE

Nearest Railway Station: SONGARH on the broad gauge, connected from Surat junction on Howrah line. Power Station is having broad gauge private railway siding served through Rly. Station at distance of about 10 Kms.

ROAD: The site is also connected by roads from SURAT-DHULIA through highway SH-6 at a distance of 10 Kms from Songarh.

The Bidder shall visit site and get acquainted himself with the conditions prevailing at site before submission of the bid. The information given here in under are for general guidance and shall not be contractually binding on BHEL/ Owner. All relevant site data/information as may be necessary shall have to be obtained /collected by the Bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

SCOPE OF WORK

The work under the scope of these specifications is broadly as follows.

PRE SHUTDOWN WORK

1. Mobilization of site.
2. Arranging Gate pass & Accommodations to the contract personnel.
3. Shifting of material store and T&Ps.

SCOPE OF WORK

1. Determination of Chemicals/consumables, solvents and their quantities. Details shall be submitted to BHEL for approval.
2. Arrangement of required materials and installation of all equipments like Motors, Pumps, various sizes of Piping and Valves, Dissolving tank, Electric Panels etc. installation of dummies at inlet and outlet of water boxes required for Chemical cleaning / Passivation including hook-up connections to condenser.
3. Carrying out complete chemical cleaning process.
4. Neutralization of spent acid and other chemicals, effluents in neutralization pit as per prevailing Pollution Control Board Norms.
5. Dismantling of the equipments including dummies after the completion of Acid Cleaning / Passivation.
6. Normalization of system Post acid cleaning jobs like restoration of CW lines , plugging of leaked tubes found during chemical cleaning or condenser fill test after completion of chemical cleaning process etc.
7. Supply of all required chemicals / consumables as specified by the BHEL in the procedure for the completion of Acid Cleaning / Passivation/ Neutralization.
8. Deputation of expert services (such Chemists etc) during the chemical cleaning process.
9. Arranging required lab ware for analytical work and reagents etc. during chemical cleaning for monitoring and declaring the process completion

PART A: SUPPLY OF CHEMICALS:

Indicative list of chemicals /consumables required for the chemical cleaning to be supplied by the contractor is mentioned in the procedure .

Note:

1. The quantity of chemicals projected is for 425 m³ of water volume, which includes water boxes and condenser tubes.
2. The chemical suppliers must be asked to provide “Test certificate” (to ensure the quality) for the above chemicals.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

PARTB:

EXECUTION OF PREPARATORY ACTIVITIES BY VENDOR FOR THE ACID CLEANING

1. Arrangement of Equipment / Materials required for the whole process such as dissolving tanks, circulating electric pumps, valves & piping, headers of various sizes, etc. as per requirement.
2. Deployment of adequate trained and experienced staff of various categories for the execution of work in smooth manner.
3. Necessary electrical equipments such as control panels, starters and cables for motors of circulating pumps.
4. Execution of complete process as per the procedure and monitoring the process in the laboratory.
5. Erection of pump sets and control panels including preparation of foundations as required.
6. Fabrication and laying /installation of temporary piping circuit and connecting with condenser.
7. Removal of loose debris & other impurities from the condenser and manual cleaning of condenser for inspection.
8. All instruments in the circuit will have to be removed /isolated to avoid damage by chemicals and re-installed after purging and restored back.
9. Laying of pipeline for taking the drains to neutralization pit for a distance up to 50 Mtrs
10. Proper stacking of chemicals supplied at an identified area and transportation of same to the work spot.
11. The scaffolding pipes, wooden planks, scaffolding clamps, welding electrodes, industrial gases, Argon gas cylinder, etc. are to be arranged by the contractor.
12. It shall be contractor's responsibility to provide all the safety equipments such as safety helmets, hand gloves, goggle; shoes, aprons, etc., to all the personnel engaged.
13. The work is of specialized nature and contractor should be fully conversant with latest practices and carry out the work in consultation with BHEL Site In charge.
14. Inhibitor healthiness testing with test coupon before use.
15. Carrying out the Chemical Cleaning process as per the procedure given below.
16. Arranging required lab ware for analytical work and reagents etc. during chemical cleaning for monitoring and declaring the process completion.
17. Removal of all temporary lines and cleaning of the area after completion of job.
18. All the works mentioned in below mentioned procedure shall be completed by contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

NOTE

1. Adequate power supply, steam, general service water and DM water and MS dummy plate of thickness 12-15 mm thick for blanking condenser inlet and outlet will be provided free of cost.
2. Any other work not listed in scope of work but required for smooth execution of work will be deemed to have been covered in the scope of work and no extra claims for the same shall be entertained.

CHEMICAL CLEANING PROCEDURE

CONDENSER DESCRIPTION:

SURFACE CONDENSER TO CONDENSE STEAM COMING FROM LP TURBINE OUTLET AND/ FROM BYPASS SYSTEMS OF TURBINE AND CONDENSES BY MEANS OF COOLING WATER.

CONDENSER PARAMETERS:

| SL.No | DESCRIPTION | VALUE | UNIT |
|--------|----------------------------------------|------------------------|------------------------|
| (I) | DESIGN C.W TEMPRATURE | 33 | ⁰ C |
| (II) | C.W. TEMPRATURE RISE | 8.2 | ⁰ C |
| (III) | CONDENSER BACK PRESSURE | 76.00 | MM HG (A) |
| (IV) | C.W.FLOW QUANTITY | 54000 | M ³ /HR |
| (V) | C.W. SIDE PRESSURE DROP | 4.3 | MWC |
| (VI) | NO. OF C.W. PASS | 2 | |
| (VII) | TOTAL NO. OF TUBES | 24398 | NOS |
| (VIII) | TUBE DIMENSION | | |
| | (A) TUBE OD X THICKNESS | DIA 31.75X0.7112 | MM |
| | (B) TUBE OD X THICKNESS (TOP TWO ROWS) | DIA 31.75X0.889 | MM |
| | LENGTH OF TUBE | 15.0 | METERS |
| (IX) | TUBE MATERIAL | | |
| | (A) CONDENSING ZONE | SS.(ASTM A 249,TP304) | |
| | (B) A/C ZONE | SS.(ASTM A 249,TP304) | |
| (X) | WATER BOX DESIGN PRESSURE | 5.0 | KG/CM ² (G) |
| (XI) | WATER BOX HYDRAULIC TEST PRESSURE | 6.5 | KG/CM ² (G) |

Water holding capacity : Appox 425 m³ including water boxes.
Average thickness of scale is appox 0.5 -1.0 MM

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

CONTENTS:

- 1. PLANT DETAILS**
- 2. OBJECTIVES**
- 3. PROPOSALS**
- 4. SERVICES REQUIRED**
- 5. EMERGENCY PROVISIONS**
- 6. EMERGENCY PROCEDURES**
- 7. STATE OF THE PLANT**
- 8. PROCESS PROCEDURE**
- 9. COMPLETION CRITERIA**
- 10. CHEMICAL CLEANING WASTE TREATMENT & DISPOSAL**
- 11. APPENDICES**
 - A) ANALYTICAL PROCEDURES**
 - B) LOG SHEET FORMATS**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

1. OBJECTIVE OF CHEMICAL CLEANING:

- A) TO REMOVE DEPOSITS FORMED DUE TO SCALING (MAINLY DUE TO DEPOSITION OF CaCO_3) IN THE INNER PART OF CONDENSER TUBES.
- B) TO ENSURE THE CONDENSER OPERATION IN ITS MAXIMUM EFFICIENCY MEANS THE REQUIRED HEAT TRANSFER OCCUR PROPERLY.
- C) TO ACHIEVE DESIRED DEGREE OF COOLING PROVIDED ALL OTHER PARAMETERS INCLUDING VACUUM IN THE CONDENSER AS WELL AS COOLING WATER TEMPERATURE IS WITHIN LIMIT.

2. SCOPE OF CLEANING:

- A) CONDENSER TUBE INTERNALS
- B) FRONT AND REAR WATER BOXES.

3. SPECIFICATION AND QUANTITY OF CHEMICALS (APPROX)& WATER:

| | |
|-----------------------------|-------------------|
| 1. INHIBITED SULPHAMIC ACID | 50 TON (APPROX) |
| PURITY: 95% | |
| 2. INHIBITOR | AS PER REQUIREMNT |
| 3. SODA ASH | AS PER REQUIREMNT |
| 4. LIME | AS PER REQUIREMNT |

4. BASIC TECHNIQUE:

Initially all the tubes will be cleaned with high pressure jet to remove the loose layers of deposit and expose the hard layer to acid. Cold water flushing is to be done to flush all the loose deposit and debris from the tubes and water boxes till the effluent is clean. Drain the condenser completely.

Prior to the start of acid cleaning of the condenser tube, the inhibitor healthiness test has to be ensured with coupon.

Fill the condenser with DM water upto $\frac{3}{4}$ th of total volume. Raise the temperature to 55-60 deg C by admitting heating steam into the mixing tank. Hot water circulation at elevated temp (55-60 degC) is continued which is followed by sulphamic acid treatment and neutralization. This is carried out to remove total hardness.

Fabrication, erection, commissioning and operation of the mixing tank, requisite capacity of sufficient no of chemical pumps assembly capable of recirculation in the system, all temporary piping, necessary valves along with all associated items like electrical panel and other accessories etc. required for cleaning operation shall be arranged by Vendor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Pump details:

Capacity: 270 m³/hr @ 2-2.5 kg/cm²

1. All necessary site fabrication and installation including inlet/outlet line blanking plates & the welding joint of partition plates in the outlet water boxes shall be arranged by vendor.
2. All other necessary arrangements like blanking of condenser inlet/outlet lines, partition plates in the outer water boxes (top & bottom parts of both sides of condenser) as and where required for carrying out chemical cleaning shall be arranged by Vendor
3. Mixing tank of requisite capacity(15-20 m³) and sufficient number of pipes with suitable diameter for connecting acid inlet & outlet portion of all four compartments of the condenser after making partitions at the outlet water boxes.(back side of the condenser), piping for vents, steam piping up to n-pit shall be arranged by Vendor
4. The condenser shall not unduly **PRESSURIZE DURING** the chemical cleaning process thus avoiding any tube leakage. The pressure of chemical cleaning never exceeded the design pressure of CW by Vendor.
5. Execution of acid cleaning works was to be followed by successive neutralization with soda ash and then high pressure water jet cleaning with high pressure jet pumps having discharge pressure of 550-600 kg/cm² (approx) by Vendor
6. The loose scales in the dead pockets of the tubes to be cleaned properly by high pressure water jets to the maximum possible extent taking proper care to avoid any damage to the tubes by Vendor
7. Leakage test of the cleaned condenser tubes will be carried out after the completion of cleaning process. Leakage tubes will be properly blanked with the blanking plugs by vendor.
8. As condition of condenser tubes is not known, leakage may develop at some places of the condenser tubes (where tubes are covered with scale products which may get exposed during acid cleaning). Suitable action needs to be taken to prevent contamination in condensate site and such tubes are to be plugged.
9. Sufficient lime should be poured over any acid spillage to ensure neutralization of the acid.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

6. SAFETY PROVISIONS

A) SAFETY EQUIPMENTS:

ENSURE THE AVAILABILITY OF

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1. GUM BOOTS (VARIOUS SIZES) | 6 PAIRS |
| 2. RUBBER GLOVES | 6 PAIRS |
| 3. RUBBER OR POLYTHENE APRONS | 6 NOS. |
| 4. HELMETS | 12 NOS. |
| 5. SAFETY GOGGLES PLAIN GLASS | 6 NOS. |
| 6. FACE MASK (TRANSPARENT , PLASTIC) | 4 NOS. |
| 7. FIRST AID BOX (CONTAINING DILUTE AMMONIUM HYDROXIDE, 50% SODIUM BICARBONATE SOLUTION, EYE LOTION, BANDAGES, TINCTURE IODINE, COTTON, BURNOL ETC) | |

NOTE: ABOVE NUMBERS ARE INDICATIVE AND ACTUAL DEPLOYMENT SHALL BE AS PER REQUIREMENT.

B) EMERGENCY PROVISIONS

A. *FLUSHING AND WASHING WATER SUPPLIES*

1. Ample supplies of tepid flushing and washing water (DM & Service) shall be provided at all possible points of discharge, spillage or escape of chemicals.
2. Adequate provisions shall be made by Vendor for emergency treatment of the eyes, comprising eye wash bottles, located conveniently to places where discharge, spillage or escape of chemicals can occur.
3. Safety shower shall be provided by vendor.
4. Suitable first aid treatment room with outside telephone facilities shall be provided by Vendor within a reasonable distance of the place where chemicals are being used.
5. The protective clothing and apparatus required for emergency use shall be made available by Vendor near the acid cleaning area.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

B. FIRST AID TREATMENT

1. Splashes of the eye
2. Immediately flood the eye with water. To be effective the eyelids must be opened. The eyelids should be pushed apart using the thumb and index finger of the left hand. The casualty will probably not be able to open the eye himself because of painful spasms.
3. If an eye wash bottle is used the jet should not be directed at the front of the eye. It should be directed in from the side, so that flow is over the surface of the eye.
4. Irrigation should be continued for 5 – 10 minutes after which the casualty should be taken to the first aid room.
5. Irrigation should be continued in the first aid room. Remember vision is saved by through irrigation, no other treatment can prevent damage if this is omitted.
6. After thorough irrigation the eye should be covered with a pad; the patient should be referred for medical opinion.

C. IRRITATION OF THE SKIN

1. If signs of skin irritation occur the persons should be removed from contact and referred for medical opinion. In the event of the splashing of the skin with chemicals the effected area should be washed thoroughly avoiding spreading contamination to the face and eyes.

D) SAFETY OF PLANT:

Condenser tube shall not be pressurized unduly so that tube failure occurs.

GENERAL

1. Test area will be cordoned off and unauthorized persons entry shall be prohibited. Suitable signboard shall be displayed.
2. Whenever any inspection is made during the cleaning process, the location should be adequately ventilated

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

E) EMERGENCY PROCEDURES:

1. The testing team should be aware of the operating procedures of fire extinguishers to be used for quenching minor or major fires.
2. The testing team should be aware of the procedure to be followed in case of accidents involving personnel injury.
3. In case of failure of running pump the stand by pump should be started immediately without delay.
4. An operator posted at the pump area, should be instructed to stop the pumps and properly isolate the system in the event of emergency. All operators of Vendors should be well conversant with the emergency operating.

7. PROCEDURE:

INITIAL CLENAING & COLD WATER FLUSHING:

The tubes are cleaned with high pressure jet so as to remove the loose dirt from the tubes and make the tubes ready for acid cleaning. Then requisite quantity of cold water (clarified water) is taken in the temporary cleaning tank and started sending to the condenser via temporary inlet line to the condenser with continuous make up of the tank until water is coming out from the outlet line of the condenser and from the vent. Adjust the flow of process water to maintain a lower level in the tank keeping the space for the incoming dirt and scale. Level indication shall be provided to see the level from outside. It is necessary mainly at the time of dirt removal process because the enhancement of level may lead to overflow of the solution (because of frothing). Drain the system completely once the effluent is clean.

STEAM HEATING:

After cold water flushing fill DM water (with $\frac{3}{4}$ th of water volume) in the condenser, steam is charged to the tank. Steam injection system consists of steam (at 8-10 kg/cm² @ 180-200deg C) Spurger (perforated distributor). Water is heated up to 55⁰C to 60⁰C slowly. This is the initial step before preparing acid solution. This process may time depending upon the availability of steam, clarified water and volume of the condenser.

ACID DOSING

- 1) Start dozing inhibited Sulphamic acid(>98 % pure) in the system monitoring the acid level. Generally the acid concentration is maintained between 4-5 % (w/w). Add 0.1-0.2 of technical grade Ferric Chloride to the acid solution. At no point of time the pH of the system should drop to less than 1.5.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

- 2) As soon as the desired level of acid concentration is attained, stop adding of acid. Circulation has to be maintained in the system. During this period the temperature of the solution should be maintained between 60-65 deg C by passing heating steam. Sufficient venting is to ensured during this process.
- 3) Monitor levels of pH, Iron, hardness salts in inlet and outlet to the condenser frequently (every fifteen to thirty minutes). Monitor the free acid level also. Maintain the temperature between 60-65 deg C. Circulation is to be continued till stable condition is achieved (Circulation is to be maintained for six to eight hours after acid strength is attained).
- 4) Inlet and outlet line samples are collected (mainly outlet) and tested for Ca-hardness (optional) and total hardness. During analysis sometimes it is observed that suddenly the hardness value reduces which indicates CO₂ removal is not sufficient. In that case check the parameters for reaction like temperature, percentage of acid, addition of inhibitor powder etc. If one of these parameters found not maintained properly, try to maintain it properly. Pump discharge pressure kept less than 1 Kg/cm².
- 5) When hardness value attains a constant value, change over the acid solution flow lines (inlet and outlet) to give the acid flow in opposite direction. This is because due to the pressure drop the rear position of inside tube banks adequately filled up with scale (tube area line pressure at rear side is less) which cannot be removed in forward flow. So reverse flow is given (pressure drop is less) which removes the scale. Reverse flow is given for one hour by maintaining the acid concentration (not less than 1% of concentration) and then system again changed over to normal flow direction.
- 6) After completion of process discussed above , when analysis shown constant hardness (Total), second pump will be started for removing adherent particles.(discharge pressure kept 1.2-1.5 Kg/Cm²).This process will continue for some time ,when it is observed that hardness not increasing beyond the previous highest value, stop the process and drain the solution to N-Pit.

WASHING AND NEUTRALIZATION

- 1) Wash the system with hot water followed by cold water flushing. Make a solution of soda ash in water (~1%), send and circulate the solution in the system. Check the pH of the effluent, process of neutralization declared complete after getting pH near 7.0. Drain the system completely to N-Pit. Effluent in the N-Pit contains mainly acidic sludge. Neutralize with lime before disposal.

HIGH PRESSURE WATER JET CLEANING

After successful completion of the above steps, it is necessary to remove the unbound scales by high pressure water jet treatment where pressure is maintained 550-600 Kg/Cm² provided no tube failure.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

In practice more high pressure water jet is required for upper part tube banks because of more unbound hardness (due to low pressure of treated acid solution at acid cleaning stage) & pressure maintained 400-600 Kg/cm², pressure depending upon the scaling severity and varies tube to tube in a particular zone. Lower tube banks required less pressure.

8. PROCESS COMPLETION CRITERIA

When the hardness of the solution is showing a constant value including less or no difference between the inlet and outlet acid percentage acid cleaning process will be declared complete.

9. INSPECTION CRITERIA:

Tube internals shall be visually inspected jointly by BHEL and customer for checking the cleanliness.

10. CHEMICAL CLEANING WASTE TREATMENT & DISPOSAL.

The spent sulfamic acid chemical solution after the cleaning process is drained into a pit. The pH of the effluent will be acidic and hence further treatment for pH adjustment is required with soda ash as it would meet the pH requirement for disposal.

Compressed air shall be used to destroy the organics and the effluent shall be disposed after aeration for a few days.

TERMINATION CRITERIA AT A GLANCE

1. ACID CLEANING:

- a) Cleaning process is declared complete till Ca and total hardness at inlet and outlet in three consecutive samples show equilibrium status. Also the percentage of acid at the inlet and outlet shall be same or nearly same value in three consecutive samples.
- b) When the hardness in the cleaning solution is constant, it indicates that total hardness have been dissolved. Moreover acid percentage at inlet and outlet when shows almost same value that also indicates that no more acid is required for reaction with the scales.

2. NEUTRALIZATION WITH SODA ASH:

Completion criteria will be with soda ash:

After circulating required soda ash solution when it is found that the incoming solution from the condenser contains pH nearly 7.0 process is declared complete.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

3. HIGH PRESSURE WATER JET CLEANING:

After injecting water jets to the tube internals they shall be inspected visually for cleanliness.

4. CHEMICAL CLEANING WASTE TREATMENT & DISPOSAL:

pH: 7.0 to 9.0 to be maintained before disposal.

LOG SHEET

PROJECT :

DATE : / /

UNIT NO. :

ACTIVITY : ACID CLEANING OF CONDENSER

I. ADDITION OF CHEMICALS:

| SL. NO. | DATE | TIME | NAME OF CHEMICAL ADDED | QUANTITY |
|---------|------|------|------------------------|----------|
|---------|------|------|------------------------|----------|

II. ANALYTICAL DATA:

| SL. No. | DATE | TIME | SAMPLE POINT | ACID % | CA/TOTAL-HARDNESS |
|---------|------|------|----------------|--------|-------------------|
| | | HRS. | (INLET/OUTLET) | | PPM |

1.
2.
3.
4.
5.

LAB WARES required for analytical work during chemical cleaning.

Any lab wares, chemicals, reagents required for execution of job shall be in the scope of contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS & CONDITIONS

3.1 SPECIAL TERMS AND CONDITIONS:

- 1.0. The time schedule is essence of this contract. Contractor should complete the all work within **7+15 days (7 days for mobilization and preparatory works and 15 days for actual cleaning)** of schedule.
- 2.0. contractor should assure that the repair of the equipment covered in the scope of this offer will be conducted with the best of skills and know how available with contractor and in conformance with the clearances and adjustments set forth in manufacture's drawing instruments and other information's furnished to contractor.
- 3.0. All welding electrode (special type also) required for the welding will be bidder's scope.
- 4.0. The various setting, clearances, adjustments and benchmarks will be restored to the extent possible during rectification to the condition as per the erection and commissioning log sheets available with customer. If however we are not able to produce erection / commissioning log sheets, efforts will be made to attend the best possible parameter or the conditions as observed at the time of dismantling of the equipment in consultation with us.
- 5.0. Contractor must prepare PERT CHART/BAR CHART. Daily monitoring will be done jointly and log sheets of important activities should be noted down and signed jointly.
- 6.0. All the works shall be carried out as per the instructions and to the satisfaction of the Engineer In-charge.
- 7.0. The contractor will attend contributory to faulty and poor workmanship during commissioning and trial run of the equipment.
- 8.0. Round the clock working under expert supervision shall be ensured by the contractor deploying two equal parallel strength of groups in 12 hrs. Shift with equal T&P for all the jobs so as to complete the work in stipulated period or earlier.
- 9.0. It is the responsibility of contractor to keep the plant, equipment, machinery and surrounding area clean.
- 10.0. The names of working persons like Site in-charge, supervisors, foreman, main fitters to be deployed during the job with full details has to be submitted stating their area of work and experience and specialization of the work to site in-charge before the start of work. BHEL may ask to change/delete the person not found suitable for the work at any point of time during execution of job. For any addition and deletion of the working person prior permission from BHEL shall be taken.
- 11.0. Subcontractor has to ensure that all the key persons must continue till completion of job i.e. machine comes on load.
Work distribution sheet for all the workers/supervisors deployed shall be submitted to BHEL one day in advance on daily basis.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS & CONDITIONS

- 12.0. Subcontractor should mobilize additional resources such as plant, equipments, material as may be required by site in-charge to improve the progress of the work if the progress of the work is not satisfactory.
- 13.0. Subcontractor should get registered under relevant sales tax and or work contract Act (VAT) where the jobs are executed.
- 14.0. Party has to quote lump sum rate for all activities mentioned in the price bid.
- 15.0. Radiography and stress relieving, wherever mentioned are in the scope of the contractor.
- 16.0. Scrap & insulation etc. is to be shifted to scrap disposal area as indicated by the Engineer-in-charge.
- 17.0. One administrative personnel to control the resources and attendance of the workers to be ensured.
- 18.0. Argon, Oxy- Acetylene gas shall be arranged by the contractor with cutting/welding set / argon welding set and other welding appliances.
- 19.0. If the duration of work continues beyond stipulated period due to any reason, no claim for compensation will be entertained.
- 20.0. The work details are brief & for Subcontractor knowledge only. Subcontractor will have to do all the related works as per requirement.
- 23.0. The contractor will be responsible to pay the damages to the property of Board or individual caused by his worker during the course of contract. If the contractor fails to pay the same it will be recovered from his bill.
- 24.0. No compensation claimed for idle labor for any reason will be entertained by BHEL.
- 25.0. All general tools and plants for execution of the work will have to be arranged/ maintained by the contractor at his own cost & risk.
- 26.0. In normal course, the interpretation of the under signed on any matter or decision given by him on any disputable points will be final and binding on the contractor.
- 27.0. Successful bidder is to obtain labor license before the start of the work.
- 28.0. Successful bidder is to obtain necessary "No Dues" certificate before de-mobilization from site.
- 29.0. Successful bidder has to arrange 5 copies of reports which will include various protocols with necessary data/ MOMs / important correspondences / log sheets etc. and the book shall be spiral bound with thick acetate papers in front and back along with BHEL logo printed suitably on thick art paper at the front.
- 30.0. Sufficiently adequate man power T&P and other resources should be mobilized by the contractor to operate round the clock work progress with standby technicians to be deployed immediately if need arises. Offer should be submitted considering these requirements.
- 31.0. Accommodation for the sub-contractor's manpower will be provided if made available by the customer as per the applicable charges..
- 32.0. Scaffolding pipes and 40 mm thick wooden planks are to be arranged by Sub-contractor for various platforms.
- 33.0. Adequate numbers of tarpaulin are to be arranged by the sub-contractor for covering of various equipments during insulation removal / application.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS & CONDITIONS

- 34.0. List of anticipated quantities of chemicals / consumables required for the chemical cleaning job is furnished in the scope of work and these are to be arranged by the contractor as per requirement. Lot of care has been taken to arrive at the required quantities of bulk chemicals, however if any extra quantities are needed depending upon deposit analysis report, same are to be arranged by the contractor without extra cost and contractor may take back any excess /left out chemicals after completion of acid cleaning. List of general consumables required for the job is mentioned. Test certificates are to be submitted for the chemicals supplied.
- 35.0. Any additional work comes up during the acid cleaning process at the time of execution for successful completion of chemical cleaning work shall have to be taken up by the contractor without any extra cost subject to a maximum of 10% of the total contract value. In case BHEL decides to do any additional work if exceeds by 10% by engaging contractor manpower, then average man-hour rate (inclusive of your profit, overhead, supervision, normal T&P and consumables) @Rs.60/- will be paid. Alternatively BHEL may also offer to carry out the extra/additional work on lump sum rate basis, the discretion of operating the basis of man-hour rate or lump sum rates lies with BHEL. The lump sum rate will be decided on mutual agreement between the subcontractor and BHEL.

3.2. LAISON WITH ALL STATUTORY AUTHORITIES:

- a) Compliance of statutory provisions, whether mentioned in this contract or not shall be binding on the contractor.
- b) If there is any change in labour laws after the contract has been awarded, then the new law shall automatically be binding on the contractor.
- c) No additional financial compensation shall be paid by BHEL to the contractor on account of increased expenditure caused by a) and b) above.
- d) Liaisoning with local commercial tax dept. to obtain Coml. Tax exemption certificate.

3.3 void

3.4 SUBMISSION OF DOCUMENTS:

The contractor shall submit following documents at appropriate time either before or during the execution of the work and as directed by Site in-Charge.

1. Test certificates of Pulling and Lifting machines and appliances.
2. Details of workers to be deployed with name, address, category.
3. Details of supervisory staff to be deployed.
4. Labour license specific to the contract.
5. List of T&P brought into plant premises along with their serial numbers and dates/years of purchase.
6. All the Staff/Workers deputed for the Job should have Insurance Cover and document in this regard should be submitted along with 1st RA Bill.
7. List of consumables brought into plant premises along with their serial numbers and dates/years of purchase, along with test certificates wherever applicable.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS & CONDITIONS

8. Insurance policy for the workers to be deployed in this contract.
9. Safety undertaking.
10. Proof of Payment of Service Tax.

The contractor shall submit following documents in report form within 15 days from completion of work:

- Details of work executed.
- Measurements against different schedules in compiled form.
- Material issue details.
- Material consumption details.
- Material returns details.
- Copies of pay sheets to workmen.
- Details and proof of remittance of PF to workmen (before final bill).
- No dues clearance from different stores of customer.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS & CONDITIONS

3.5 LIST OF MANPOWER REQUIRED

| SL.NO | CATEGORY | No. |
|-------|--------------------|-----|
| 01 | Site In charge | 01 |
| 02 | Supervisor | 02 |
| 03 | Chemist | 02 |
| 04 | Fitter | 03 |
| 05 | Electrician | 02 |
| 06 | Helper | 05 |
| 07 | Rigger | 04 |
| 08 | Store keeper | 01 |
| 09 | Unskilled worker | 10 |
| 10 | LP Welder | 02 |
| 11 | Grinder/Gas Gutter | 03 |

This is an indicative list; the contractor shall deploy adequate manpower to carry out the work round the clock and as per requirement of the site during execution.

Note : Site in-charge should be qualified Engineer, B.E.(Mechanical) and all the supervisors should have diploma in engineering.

Successful bidder has to arrange suitable mobile communication facility for BHEL site-in charge

3.7 **Void**

3.8 **Statutory Inspection**

Please refer General and Special Conditions of Contract. In addition to it the scope includes getting the approvals from the statutory authorities,(like anti-pollution authorities, labour officials etc). This includes arranging for inspection visits of such authorities periodically as per requirement, submitting documents etc. and payment of fees connected with it.

3.9 **Safety:**

Strict Safety measures have to be followed at Site.

Contractor shall also adhere to all the safety provisions of our customer. In case violation of any provision at site fine of Rs.500/- to Rs.2000/- at the discretion of our site in-charge shall be imposed for each of such occasion and shall be recoverable from the contractor's bill.

3.10 **Security Deposit**

Please refer our "General and special conditions of contracts".

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS & CONDITIONS

3.11 Other terms and conditions

- 1.0 A copy of tender document with each page duly signed and stamped shall be submitted along with your offer as a token of your unconditional acceptance to this tender condition. Also any deviation to the tender conditions shall be submitted in a separate paper duly signed by the bidder, any overwriting / correction by the bidder on the tender will not be recognized and the offer may be rejected on this ground.
- 2.0 General and special conditions of contract' enclosed herewith will be fully applicable, except otherwise stated in this enquiry. In case of any conflict, the conditions specified in this enquiry letter will prevail over that of the 'General and special conditions of contract'

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

LIST OF TOOLS AND PLANTS TO BE ARRANGED BY CONTRACTOR

1. Feeler gauge sets/ feeler strips.
2. Dial indicators with magnetic bases.
3. Micrometers (inside and outside upto 300 mm, 450mm, 600mm & 1000mm).
4. Try square.
5. Set of parallel blocks/ V blocks.
6. Vernier calipers, (150 and 300 mm), measuring steel tapes and 5 meters steel rulers.
7. Precision spirit level (with micro head).
8. 2 sets of D.E. and Ring spanners (6-36mm).
9. 2 sets of ox spanners (6 to 20mm and 22-50mm).
10. Allen keys of various sizes (from 2mm. Onwards).
11. D.P. Test Kit (with consumables)
12. Crowbars tin cutters, pliers (cutting plier, nose plier grip plier circlip-outside and inside).
13. Screw drivers and sledge hammers – 10 lbs – 1 lbs.
14. Adjustable wrenches, pipe wrenches and heck saws.
15. Single ended spanners (36 Mm and above).
16. Flat, half round, triangular bearing scrappers-8", to 12".
17. Drilling machine with magnetic stand upto -30 mm with drill bits.
18. Flexible grinders with grinding stones and cutters of different Shapes and sizes, Angles
19. Grinders and Sander machine.
20. Steel wire brushes, wire brush wheels, nylon wire brushes and Painting bushes.
21. Lifting devices eye bolts, D-shackles, slings of various sizes Guide rods etc.
22. Chain pulley blocks upto 5 tons, 2 tons pull/lift.
23. Copper/Brass rods dia ½" to 1 ½" X450 mm.
24. Torch light/hand lamps with cables, 230/24 V transformer.
25. Hand glover-asbestos, Manila rope, asbestos cloth leather and Rubber gloves.
26. Air blower – electric.
27. Gas cutting and heating set with torches regulators, hoses and cylinder minimum two sets).
28. Arc welding generator/rectifiers with regulator, cables, Electrode holders and shields, TIG welding holders.
29. Hose pipes for compressed air.
30. Electric switchboards and flood light arrangements.
31. In addition to above T and P contractor will be required to fabricate fixtures such as pullers etc. for removal of any other equipment related to the scope of work.
32. Pedestal fans/air coolers.
33. Wooden sleepers.
34. Magnifying glass.
35. Plastic helmets, Fibre helmet.
36. Gas cutting/welding goggles, Grinding goggles.
37. Tarpaulin.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

38. Electric pump sets with standby arrangement having required head capacity for acid cleaning process including electric panel.

39. Complete piping of various sizes along with valves, fittings, tanks, etc.

40. Safety accessories

Any other T and P as per requirement and as per our General and special conditions of contracts.

NOTE

The above list is only indicative and not exhaustive. Arrangement for any other T and P required for completion of the job shall be the responsibility of the contractor and shall be arranged by him.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

3.1 GENERAL CONSUMABLES TO BE ARRANGED BY CONTRACTOR

1. Kerosene oil.
2. Rustolene.
3. Petrol/white Petrol/Benzyne/CRC
4. Grease/Graphite Grease.
5. Hacksaw Blades.
6. Waste cloth/Cotton.
7. Marking/lint free cloth/Muslin.
8. Asbestos cloth/Asbestos cord.
9. Prussian blue.
10. Graphite (flaked) powder/Molycote/Mosil.
11. Cardiom compound.
12. Holdtite/shellac/Gasket sealing compound.
13. Cutoff wheels.
14. Grinding wheels.
15. D. P. test chemicals.
16. Gas Cylinders for cutting/welding.
17. Chalk pieces, marking pens, thermo chalks up to 400 deg c
18. Insulation tape, Johnson Tapes.
19. Sander discs and wheels.
20. Polythelene sheets.
21. Araldite, M. Seal, Instabond, Dendrite.
22. CRC 2-26, white spirit.
23. Electric fuse wire, cables for the connections.
24. Material for Blast cleaning purposes. (A1203, Sand or Ash etc.
25. Oxy -Acetylene, Argon gases, welding electrodes

NOTE

The above list is only indicative & not exhaustive. Arrangement for any other consumables required for completion of the job shall be the responsibility of the contractor & shall be arranged by him.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: QUALITY REQUIREMENT

QUALITY REQUIREMENT

- 1.0 Various inspection/ quality control / quality assurance procedure/ methods at various stages will be as per BHEL/ customer quality control procedure/ codes/ IBR and other statutory provisions and as per BHEL Engineer's instructions.
- 2.0 Preparation of quality assurance log sheets and protocols with customer's engineers, welding logs, other quality control and quality assurance documentation as per BHEL Engineer's instructions, is within the scope of work/ specification.
- 3.0 A daily log book should be maintained by Area In-charge of contractor on the job incorporating erection / alignment / welding clearance /radiography / progress of work etc. and the same shall be submitted to BHEL. Also, daily reports shall be submitted to BHEL.
- 4.0 All the important measurements like pre-assembly checking of alignment leveling/ centering work etc. shall be recorded in the daily log book with sketches based on BHEL drawings indicating readings/ measurements actually taken and signed by BHEL/ Customer/ Contractor representatives.
- 5.0 The inspection/measuring and testing equipments should be of brand, quality and accuracy, as specified by BHEL engineer and should have valid calibration certificates traceable to national/international standards.
- 6.0 Total quality is the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He will follow the instructions as per BHEL drawings and quality standards.
- 7.0 The welder's performance will be reviewed from time to time as per the BHEL/ IBR standards and any welder not performing to the standards set by BHEL/ IBR standards will be removed from working, Contractor shall arrange for the alternate welders immediately.
- 8.0 **STAGE INSPECTION BY BHEL / CUSTOMERS ENGINEERS**
Apart from day-to-day inspection/ stage inspection of equipments by BHEL engineers, the equipments may be checked at various stages by customer's engineers and quality assurance teams. Contractor shall arrange all labour, tools/tackles etc. for such inspections free of cost.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

6.1 TIME SCHEDULE & MOBILIZATION

After receipt of fax LOI, Contractor shall discuss with Project Manager / Construction Manager/BHEL In charge regarding initial mobilization. Contractor shall mobilize resources as per requirement to commence the work within a period of 7 days from date of LOI/intimation from BHEL.

The entire work of overhauling shall be completed within a period of **7 + 15 days** (7 days for preliminary works like mobilization and preparation and **15 days** for carrying out the acid cleaning process including dismantling of Piping etc and normalizing of the system).

The tentative outage schedule for shutdown as informed by GSPECL, UKAI shall be in the First week JUNE 2015.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

7.1 Payment will be released on completion of activities as below:

1.0 90% after the Mobilization & completion of entire Chemical cleaning process., submission of Insurance & Labour License (5% for T & P and consumables, 5% for Deployment of manpower). Penalty of 1% per day of the total contract value will be levied for improper mobilization of manpower and 1% per day for T & P and consumables separately subject to maximum 10% of the contract value shall be deducted from your bill

2.0 Final 10% after dismantling of temp. equipment and normalization of site etc. and also on payment of all dues and submission of all the documents like No Dues certificate from Customer, EPF challan, Insurance, Labour License, Labour Payment sheets, proof of payment of service tax etc).

Note: While submitting invoices, Vendor should mention their Bank Account No. on each of their invoices for making e-payment.

7.2 Retention money: **shall be** 1% instead of 5 % in GCC Clause No 2.22.1

7.3 The bill due for payment shall be submitted to the Engineer in-charge of BHEL at site for necessary verification and processing through proper channel. It may be noted that payment will be released from the office of the RSM/Nagpur after minimum fifteen days from the date of receipt of the duly verified bill from site.

7.4 Workmanship Guarantee: 2 months after completion of job instead of 12 Months in GCC clause No 2.24.1..

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII TAXES & DUTIES

8.0 TAXES, DUTIES, LEVIES (Consolidated Rev 04 dated 14/05/2015)

8.1. For All types of works excepting works covered under sl no 8.2

8.1.1

The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

However, provisions regarding Service Tax and Value Added Tax (VAT) on output services and goods shall be as per following clauses.

8.1.2 Service Tax & Cess on Service Tax

Contractor's price/rates shall be exclusive of Service Tax and Cess on Services. In case, it becomes mandatory for the contractor under provisions of relevant act/law to collect the Service Tax & Cess from BHEL and pay the same to the concerned tax authorities, such applicable amount will be paid by BHEL at the prevailing Service Tax Rate (presently 12.36 %) on the admitted bill value.

Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract. Contractor shall submit serially numbered Service Tax and Cess Invoice, signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely,

- 1. The name, address and the registration number of the contractor,**
- 2. The name and address of the party receiving taxable service,**
- 3. Description, classification and value of taxable service provided and,**
- 4. The service tax payable thereon.**

All the Four conditions shall be fulfilled in the invoice before release of service tax payment.

Wherever, more than one route/option are available for discharge of service tax liability under a particular service, (e.g. "works contract Service"), contractor shall obtain prior written consent from BHEL site before billing the amount towards Service Tax.

8.1.3 VAT (Sales Tax /WCT)

As regards Value Added Tax (VAT)/CST on transfer of property in goods involved in Works Contract (previously known as Works Contract Tax) applicable as per local laws, the price quoted by the contractor shall be inclusive of the same and in no case input or output VAT/CST will be reimbursed extra.

In any case the Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the

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first RA bill. Contractor will submit all the details of VAT/CST paid for the contract in the prescribed format of the respective state VAT laws. Also, the contractor will issue the tax Invoices to BHEL as per the Tax laws of respective state on monthly basis. Contractor shall also be required to furnish to BHEL necessary proof of VAT remittance on monthly basis.

Deduction of tax at source shall be made as per the provisions of law and is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made.

Further, if BHEL, at the instance of customer or otherwise adopts the specific route for discharging output VAT liability itself, benefit of the reduction in liability of the contractor will be passed on to BHEL.

In case, BHEL is forced to pay any VAT liability on behalf of contractor, the same will be recovered from contractor's bill or otherwise as deemed fit

8.2 'Enabling Works'

~~The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit. (~~
i.e. rates quoted by bidder shall be inclusive of Service Tax, VAT/WCT and all other taxes and duties)

~~However, Since the proposed work is in the nature of 'Works Contract service' as per Service tax law, Hence, For non corporate contractors being Individual, HUF, Proprietary Firm, Partnership Firm or Association of Persons (AOP), BHEL shall recover the applicable Service Tax under reverse charge mechanism from the contractor and remit the same with the Government as per the provisions of Law. Necessary advice/confirmation of remittance shall be issued to the contractor. The contractor shall not be eligible for any refund/reimbursement of such service tax from BHEL. It shall be the responsibility of the contractor to submit proper invoice giving all the requisite details as per Service Tax Law for the determination of the service tax liability of BHEL under reverse charge mechanism. BHEL reserves the right to determine such liability based on the invoice submitted by the contractor or otherwise independently and remittance of the same with the Government.~~

8.3 New Taxes/Levies

In case the Government imposes any new levy/tax on the output service/ goods/work after award of the contract, the same shall be reimbursed by BHEL at actual.

In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer, the Bidder/Contractor must convey its impact on his price duly substantiated by

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documentary evidence in support of the same **before opening of Price Bid**. Claim for any such impact after opening the Price Bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price Variation/Adjustment Clause (PVC) if any. In case PVC is not applicable for the contract, Bidder has to make his own assessment of the impact of future variation if any, in rates of taxes/duties/ levies etc. in his price bid.

8.4 BOCW Cess

The quoted rates shall be exclusive of the BOCW Cess which shall be paid extra by BHEL against Documentary evidence. However, the applicability of the BOCW Cess shall be got confirmed from BHEL in writing, before remitting such Cess/tax.

8.5 GST: As and when GST becomes applicable to this contract, the net differential (negative or positive) financial liability of the bidder to the Authorities (as compared to such liability prior to applicability of GST), if any, shall be to the account of BHEL. For this purpose, all available options under the GST shall be explored, and the decision of BHEL in this regard shall be final and binding on the bidder.