



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 03

Ref: PSER:SCT:BAR-P1688:TCN-03

Date: 22-08-2015

| | | |
|-----|--|--|
| Sub | Tender change notice (TCN) 03 | |
| Job | Handling at site, storage yard, stores, transportation to site, erection, testing, commissioning and handing over of Power Cycle Piping & Auxiliaries for unit 1&2 of 3x660 MW Barh Project, Stage-1, Bihar. | |
| Ref | 1.0 | Tender no PSER:SCT:BAR-P1688:15. |
| | 2.0 | BHEL's NIT, vide reference no PSER:SCT:BAR-P1688:4631 Date: 06-08-2015 |
| | 3.0 | BHEL's TCN-01, vide reference PSER:SCT:BAR-P1688:TCN-01, dated 18-08-2015. |
| | 4.0 | BHEL's TCN-02, vide reference PSER:SCT:BAR-P1688:TCN-02, dated 20-08-2015. |
| | 5.0 | All other pertinent issues till date. |

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 The clarifications to bidders queries are attached at **Annexure-A**.
- 2.0 Introduction of Volume-IF-TS-PAINT SPECIFICATION.
- 3.0 Extension of due date of submission of offer from 27-08-2015 to **04-09-2015** (15:00 hrs).
- 4.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 5.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Sr. ENGR (SCT)


Encl : As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091


फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

| CLAUSE NO. |  | | | |
|---|--|---|--|---------------|
| 17.00.00 | <p>operation of unit (at MCR). The disturbance factor during steam blowing (ratio of momentum of flow during purge to that during MCR) shall be more than 1.4.</p> <p>h) The blow off shall be done with steam which is exhausted through adequately sized, open ended temporary piping. Temporary piping and motor operated valves shall be installed for steam blowing operation. Pressure shall be built up in the boiler and the piping warmed before release of steam by quick opening of motor operated valve located on temporary piping. The cycle shall be repeated until steam from the blow out pipe is determined to be clean.</p> <p>i) If erected already flow nozzles and control valves etc. shall be removed and replaced by spool pieces before steam blowing. The removed flow nozzle and control valves etc. shall be put back after steam blowing.</p> <p>j) The motor operated valves used for steam blowing shall have special characteristics like minimum loss of pressure, resistance to wear during grave working conditions (high velocity and carry over of water and solid particles), quick opening time, minimum effort on electric actuator etc..</p> <p>k) Cleanliness of system shall be checked by means of test plates (target plates) made of suitable materials / specification as recommended by Turbine OEM (As per Turbine OEM standard practice), which will be installed in the centre line of the piping system. The steam blowing termination criteria will be</p> <p style="margin-left: 40px;">I. Acceptable target plate condition</p> <p style="margin-left: 40px;">II. Measured D.F. (disturbance factor) more than 1.4 for Critical Piping System (i.e Main Steam, Hot Reheat, Cold Reheat, and HP & LP Bypass system piping) and for other piping system it will be decided during detailed engineering.</p> <p>The bidder/ contractor shall also give all assistance & support for carrying out steam blowing of piping in TG package contractor/others as per the scheme finalised with TG package contractor/others.</p> <p>SPECIFICATION FOR SURFACE PREPARATION & PAINTING</p> <p>a) Surface preparation methods and paint/primer materials shall be of the type specified herein. If the contractor desires to use any paint/primer materials other than that specified, specific approval shall be obtained by the contractor in writing from the employer for using the substitute material.</p> <p>b) All paints shall be delivered to job site in manufacturers sealed containers. Each container shall be labelled by the manufacturer with the manufacturer's name, type of paint, batch number and colour.</p> <p>c) Unless specified otherwise, paint shall not be applied to surfaces of insulation, surfaces of stainless steel/nickel/ copper/brass/ monel/ aluminum/ hastelloy/lead/ galvanized steel items, valve stem, pump rods, shafts, gauges, bearing and contact surfaces, lined or clad surfaces.</p> <p>d) All pipelines shall be colour coded for identification as per the NTPC colour coding scheme, which will be furnished during detailed engg.</p> | | | |
| BARH STPP (3 X 660MW) POWER CYCLE PIPINGPACKAGE | Bid Doc. No.: CS-9558-102D-2 | TECHNICAL SPECIFICATIONS SECTION VI, PART-B | SUB SECTION B-01 POWER CYCLE PIPING | Page 23 of 28 |



| CLAUSE NO. | | | | |
|---|--|--|--|----------------------|
| <p>18.00.00</p> | <p>SURFACE PREPARATION</p> <p>All surfaces to be painted shall be thoroughly cleaned of oil, grease and other foreign matter. Surfaces shall be free of moisture and contamination from chemicals and solvents.</p> <p>The following surface preparation schemes are envisaged here. Depending upon requirement any one or a combination of these schemes may be used for surface preparation before application of primer.</p> <p>SP1 Solvent cleaning</p> <p>SP2 Application of rust converter (Ruskil or equivalent grade)</p> <p>SP3 Power tool cleaning</p> <p>SP4 Shot blasting (shot blasting shall be used as surface preparation method for hot worked pipes prior to application of primer)</p> <p>SP4* Shot blast cleaning/abrasive blast cleaning to SA21/2 (near white metal_ 35-50 microns)</p> <p>SP5 Phosphating</p> <p>SP6 Emery sheet cleaning/Manual wire brush cleaning.</p> <p>APPLICATION OF PRIMER/PAINT</p> <p>a) The paint/primer manufacturer's instructions covering thinning, mixing, method of application, handling and drying time shall be strictly followed and considered as part of this specification. The Dry film thickness (DFT) of primer/paint shall be as specified herein.</p> <p>b) Surfaces prepared as per the surface preparation scheme indicated herein shall be applied with primer paint within 6 hours after preparation of surfaces.</p> <p>c) Where primer coat has been applied in the shop, the primer coat shall be carefully examined, cleaned and spot primed with one coat of the primer before applying intermediate and finish coats. When the primer coat has not been applied in the shop, primer coat shall be applied by brushing, rolling or spraying on the same day as the surface is prepared. Primer coat shall be applied prior to intermediate and finish coats.</p> <p>d) Steel surfaces that will be concealed by building walls shall be primed and finish painted before the floor is erected. Tops of structural steel members that will be covered by grating shall be primed and finish painted before the grating is permanently secured.</p> <p>e) Following are the Primer/painting schemes envisaged herein:</p> <p>PS3 - Zinc Chrome Primer (Alkyd base) by brush/Spray to IS104.</p> <p>PS3* - Zinc Chrome primer (Alkyd base) by dip coat.</p> | | | |
| <p>BARH STPP (3 X 660MW) POWER CYCLE PIPING PACKAGE</p> | <p>Bid Doc. No.: CS-9558-102D-2</p> | <p>TECHNICAL SPECIFICATIONS SECTION VI, PART-B</p> | <p>SUB SECTION B-01 POWER CYCLE PIPING</p> | <p>Page 24 of 28</p> |

| CLAUSE NO. |  | | | |
|---|---|---|--|---------------|
| | PS4 PS5 PS9 PS9* PS13 PS14 PS16 PS17 PS18 PS19 | - - - - - - - - - - | Synthetic Enamel (long oil alkyd) to IS2932. Red Oxide Zinc Chrome Primer (Alkyd base) to IS 2074. Aluminium paint to IS 2339. Heat resistant Aluminium paint to IS:13183 Gr.-1. Rust preventive fluid by spray, dip or brush. weldable primer-Deoxaluminat or equivalent. High Build Epoxy CDC mastic `15'. Aliphatic Acrylic Polyurethane CDE134, % VS=40.0 (min.) Epoxy based TiO2 pigmented coat Epoxy Zinc rich primer (92% zinc in dry film (min.), %VS=40.0 (min.) All weld edge preparation for site welding shall be applied with one coat of weldable primer. For internal protection of pipes/tubes, VCI pellets shall be used at both ends after sponge testing and ends capped. VCI pellets shall not be used for SS components and composite assemblies. 1. FOR TYPE TEST SHALL BE AS SPECIFIED ELSEWHERE IN THE SPECIFICATION | |
| BARH STPP (3 X 660MW) POWER CYCLE PIPINGPACKAGE | Bid Doc. No.: CS-9558-102D-2 | TECHNICAL SPECIFICATIONS SECTION VI, PART-B | SUB SECTION B-01 POWER CYCLE PIPING | Page 25 of 28 |

| Sl. No. | Description | Surface Preparation | Primer Coat | | | Intermediate Coat | | | Finish Coat | | | Total Min. Painting DFT (Microns) |
|---------|--|--|-----------------------------------|------|------------------------|-------------------|------|------------------------|-------------|------|------------------------|-----------------------------------|
| | | | Sys-tem | Coat | Min.DFT/coat (Microns) | Sys-tem | Coat | Min.DFT/coat (Microns) | Sys-tem | Coat | Min.DFT/coat (Microns) | |
| 1. | All insulated piping, fittings/components, Pipe clamps, Vessels/ Tanks, Equipments etc. | SP3 / SP4 | PS 5 | 2 | 25 | — | — | — | PS 4 | 1 | 25 | 75 |
| 2. | All un-insulated Piping, fittings/components, Pipe clamps, Vessels/ Tanks, Equipments etc. | SP3 / SP4 | PS 5 | 2 | 25 | — | — | — | PS 4 | 3 | 35 | 155 |
| 3. | Constant Load Hanger (CLH) and Variable Load Hanger (VLH) | SP4* | PS 19 | 1 | 35 | — | — | — | PS 17 | 1 | 30 | 65 |
| 4. | Piping hangers/supports (other than (3) above) (un-insulated) | SP4 (SP 6 - for cleaning of weld joints after erection) | PS 5 | 1 | 40 | PS 4 | 1 | 40 | PS 17 | 1 | 40 | 120 |
| 5. | Valves | | | | | | | | | | | |
| | (a) Cast | SP1/SP2/SP3 | PS4/PS9 | 1 | 40 | Polyamid Epoxy | 1 | 100 | PS 17 | 1 | 40 | 180 |
| | | | #PS9* | 1 | 20 | — | — | — | #PS9* | 1 | 20 | 40 |
| | (b) Forged | SP1 & SP5 | PS13/ Phenolic fortified alkyd | 1 | 40 | Polyamid Epoxy | 1 | 100 | PS17 | 1 | 40 | 180 |
| | | | #PS9* | 1 | 20 | — | — | — | #PS9* | 1 | 20 | 40 |

| Sl. No. | Description | | Surface Preparation | Primer Coat | | | Intermediate Coat | | | Finish Coat | | | Total Min. Painting DFT (Microns) | Colour Shate |
|---------|---------------------------------|--|--------------------------------------|-------------------------------|------|------------------------|-------------------|------|------------------------|------------------------------|------|------------------------|-----------------------------------|--------------|
| | | | | Sys-tem | Coat | Min.DFT/coat (Microns) | Sys-tem | Coat | Min.DFT/coat (Microns) | Sys-tem | Coat | Min.DFT/coat (Microns) | | |
| 6. | All Structural Steel Components | Outside TG building and in SG envelope | SP4* | Inorganic Ethyl Zinc Silicate | 1 | 75 | PS18 | 1 | 75 | (a) Epoxy coat | 2 | 35 | 250 | |
| | | Within TG building | SP4* | -do- | 1 | 35 | PS18 | 1 | 35 | (b) Final coat of paint PS17 | 1 | 30 | | |
| 7. | Weld Edges | | SP6 (Hand cleaning by wire burshing) | PS13 (Weldable primer) | 1 | 25 | — | — | — | — | — | — | — | |

| Sl no | Ref. clause | Bidder's query | BHEL's clarification |
|-------|--------------------|---|--|
| 1 | Sl. No.1 of TCN-1 | Please clarify that if bidder can take deviations | Deviations are not allowed/acceptable. |
| 2 | Sl. No.5 of TCN-1 | While clarification is given that vendor shall arrange the consumables and chemicals, page 29 of 30 of revised TCN 01 say that all lubricants and chemicals required for testing, acid cleaning etc. will be provided by BHEL free of cost. | Acid/Alkali flashing/cleaning chemicals shall be provided by BHEL free of cost. Rest by vendors at their cost. |
| 3 | Sl. No.13 of TCN-1 | We have asked as to what will be the situation in case of total awarded value goes beyond +/- 15%. | Refer clause no 2.14 of GCC VOL-1B |
| 4 | Sl. No.15 of TCN-1 | We have asked the specifications of paints required i.e. whether these will be Epoxy, PU or Synthetic Enamel as there is lot of difference in the rates also confirm the total DFT of painting or provide NTPC painting schedule. | Painting spec attached with this TCN.. |
| 5 | Sl. No.17 of TCN-1 | Please clarified as to how are we responsible for trial run of unit as whole. We presumed that we shall be responsible for trial run of equipments under our scope only. | Responsibility of repair/ rectification is limited to erected pipelines/items of this package only. |
| 6 | Sl. No.21 of TCN-1 | Which clause is applicable i.e. Clause-39 of TCC or Clause-40 of TCC | As per tender. |
| 7 | Sl. No.24 of TCN-1 | Please clarify that manpower is required for Kolkata office or at project site as there is a difference in wages/salaries of workmen deployed at the said places. | Already clarified in TCN-01 |

| TENDER NO – PSER:SCT:BAR-P1688:15 | | ANNEXURE-A to TCN- 03 | PAGE 2 OF 2 |
|-----------------------------------|-------------|-----------------------|----------------------|
| Sl no | Ref. clause | Bidder's query | BHEL's clarification |

| | | | |
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| 8 | Line 3 on page 1 of 30 of Volume-1F Technical Specification Rev-01. | It is mentioned Volume-II instead of Volume-1F. | Volume-II shall be read as Volume-IF. |
| 9 | Sl. No.9 on page 26 of 30 of Technical specification (Rev-01) | List of consumables to be provided by contractor. Please clarify whether hydraulic oil is required for contractor's equipment or also for BHEL equipment. In case hydraulic oil is required for BHEL equipment, confirm the approx quantity of oil required. | No Hydraulic oil requirement for BHEL equipments. |
| 10 | Sl. No.67 of page 28 of 30 of Technical specification (Rev-01) | We do not find Annexure-IV in tender documents. Please provide the same. | The line " AS PER ANNEXURE-IV " stands deleted. |
| 11 | Technical specification (Rev-01) | Please confirm that clarifications provided by BHEL supersede the condition of Technical specification (Rev-01) sent vide TCN-01. | Refer Clause no. 31 of NIT. |

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
 Power Sector - Eastern Region,
 Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
 Kolkata – 700 091

| | | |
|-----|--|--|
| Sub | No Deviation Certificate. | |
| Job | Handling at site, storage yard, stores, transportation to site, erection, testing, commissioning and handing over of Power Cycle Piping & Auxiliaries for unit 1&2 of 3x660 MW Barh Project, Stage-1, Bihar. | |
| Ref | 1.0 | Tender no PSER:SCT:BAR-P1688:15. |
| | 2.0 | BHEL's NIT, vide reference no PSER:SCT:BAR-P1688:4631 Date: 06-08-2015 |
| | 3.0 | BHEL's TCN-01, vide reference PSER:SCT:BAR-P1688:TCN-01, dated 18-08-2015. |
| | 4.0 | BHEL's TCN-02, vide reference PSER:SCT:BAR-P1688:TCN-02, dated 20-08-2015. |
| | 5.0 | BHEL's TCN-03, vide reference PSER:SCT:BAR-P1688:TCN-03, dated 22-08-2015. |
| | 6.0 | All other pertinent issues till date. |

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized representative of the bidder)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

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