

 <p><b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b>  <b>BHARAT HEAVY ELECTRICALS LIMITED</b>  <b>रामचन्द्रपुरम, हैदराबाद - 502 032</b>  <b>RAMACHANDRAPURAM, HYDERABAD - 502 032</b>  <b>(बाह्य सेवाएँ विभाग / EXTERNAL SERVICES DEPARTMENT)</b></p>	<p><b>भारत हेवी इलेक्ट्रिकल्स लिमिटेड</b>  <b>BHARAT HEAVY ELECTRICALS LIMITED</b>  <b>रामचन्द्रपुरम, हैदराबाद - 502 032</b>  <b>RAMACHANDRAPURAM, HYDERABAD - 502 032</b>  <b>(बाह्य सेवाएँ विभाग / EXTERNAL SERVICES DEPARTMENT)</b></p>
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## NOTICE INVITING TENDER

Name of the department : EXTERNAL SERVICES  
Tender Notice No : ES/K/2017/WC/01

Date: 15.06.2017

1. Bharat Heavy Electricals Limited, a Government of India Public Sector undertaking having its Registered Office at Siri Fort, New Delhi. BHEL Ramachandrapuram, one of its manufacturing Units, invites sealed tenders in two part bid from eligible Contractors, who fulfill qualification criteria as stipulated in NIT, for the works, **“Erection and commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra”**.
2. Sealed quotations in single cover consisting of two inner sealed covers (containing Technical bid as Part A and Price bid as Part B super scribing the Tender Enquiry No., Name of work, Contractor name & address will be received at the office Up to **11.00 Hrs.** on or before **06.07.2017** at vendor complex, beside administrative building, BHEL Ramachandrapuram. Technical bid will be opened at **14.00 Hrs.** on the same date and further information if any, may be obtained from the office.
3. While submitting the tender documents, a demand draft/cash paid at BHEL, Hyderabad cash office towards cost of tender document should be enclosed. The tender documents submitted without demand draft for the specific value will be summarily rejected. **Corrigendum if any shall be put in the BHEL web site [www.bhel.com](http://www.bhel.com) only.**
4. The salient features of the tender documents are as follows :

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Signature and Stamp of the tenderer

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**1.0 NOTICE INVITING TENDER:**

Sl. No.	Tender Notice No. and Date	Name of the work	Approx. Estimated Value of work (in Lakhs)	Earnest Money Deposit (EMD) (in Lakhs)	Period of Contract (Days from Mobilization)
1	ES/K/2017/WC/01, Date: 15/06/2017	Erection and commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra	135.78 (45.26 X 3) Lakhs	2.72	18 months, However the work is to be completed within 21days for each unit

Sl. No.:	Description
1	Cost of tender documents Rs.500/-
2	Date of issue of tender 15.06.2017
3	Last Date for receipt of tender 06.07.2017 at 11:00hrs
4	Date, time and place of tender opening 06.07.2017 at 14:00hrs , at VENDOR COMPLEX, BHEL, RC Puram, HYD-502032
5	Any corrigendum Tenderers may please note that the corrigendum (if any) shall be put in the BHEL web site <a href="http://www.bhel.com">www.bhel.com</a> only

**2.0 PREQUALIFICATION REQUIREMENTS:**

The following conditions have to be satisfied by the tenderer, with documentary proof to be enclosed with tender bid (Technical):

- 1) Average annual financial turnover during the last 3 years, ending 31st March of the previous financial year (should submit balance sheet & P & L account for last 3 years – certified by Chartered Accountant), should be at least 30% of the estimated cost. Further, if the tenderer fails to submit the figure (s) for 3 years, non-submitted year will be considered as “0” (Zero) for averaging the turnover. In the 3 years’ turnover, previous year (2015-16) turnover is compulsory.
- 2) Particulars of experience / credentials for the works executed of similar nature i.e. Turbine/compressor overhauling projects, revamping not older than 7 years (Completion and experience certificate of the works to be enclosed) ending last day of month previous to the one in which applications are invited should be either of the following:
  - a. Three works completed/executed successfully costing not less than the amount equal to 40% of the estimated cost of each work. **Or**
  - b. Two works completed/executed successfully costing not less than the amount equal to 50% of the estimated cost of each work. **Or**
  - c. One work completed/executed successfully costing not less than the amount equal to 80% of the estimated cost.

**Similar work means “Mechanical and CIE E & C work of Turbine / compressor or Revamping & retrofitting work of Turbo compressor” (Turbine rating should be more than 4 MW & below 28 MW).**

Note: Experience certificate issued by BHEL, RC Puram: In case any work executed for BHEL, RC Puram for past three years has any adverse remarks in the experience certificate, will be a disqualification factor.

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In case of experience certificate issued by Non BHEL entities, form 26 AS shall also be submitted for the respective financial years. **Form 26 AS to accompany the tender. (To verify contract execution and payments)**

- 3) “The offers of the bidders who are on the banned list and also the offer of the bidders, who engage the services of the banned firm, shall be rejected. The list of banned firms is available on BHEL website [www.bhel.com](http://www.bhel.com)”.
- 4) Contractor shall furnish valid ESI Code Number and PF Code Number. (If Applicable)
- 5) It is required to furnish VAT registration certificate issued by Commissioner, Commercial Taxes or Service Tax registration certificate in respect of all works, wherever applicable.
- 6) Contractor shall furnish PAN No. (In case not available, proof of having applied with Acknowledgement from concerned authority) & Income Tax Assessment/declaration copy for the last three (3) year shall be enclosed with the bid (self-attested copies).
- 7) **Only those Bidders who have previous experience in the work of the nature, description and scope detailed in this specification shall quote for this work and such Bidders shall detail their experience particularly in the erection, testing and commissioning. Customer certificates regarding satisfactory completion also should be submitted.**
- 8) **Each Bidder shall also submit a declaration to the effect that the Bidder is an Engineering Construction Company or an Associate or Firm which has successfully carried out large works of this nature and has adequate organization and experienced personnel to handle this type and magnitude of work.**

## 2.1 INSTRUCTIONS TO TENDERER

### 2.1.1 Tender is a two part bid system.

The tender documents consist of Part – A and Part - B as detailed below:

Part ‘A’: Techno-commercial Bid (*To be submitted in sealed cover enabling us to open on 06.07.2017*)

Part ‘B’: Price Bid to be submitted in sealed cover as per Tender conditions.

### **Submission of tender covers for the work shall be as given below:**

- 2.1.2 Cover ‘A’ -for Technical and Commercial Bid (sealed cover) super scribing the Tender Enquiry No., name of work, Contractor name & address and Part – A (Techno-commercial Bid). The format for Technical and Commercial Bid is attached to the Tender Document.

Note:

- The tenderer shall not indicate the price or rate in the Part-A: Techno-commercial bid.
- If any Contractor submits combined bid i.e., Tech. Bid and Price Bid in one cover, such offer shall be summarily rejected.
- The tenderer shall expressly accept all the terms and conditions of the Tender. The tender which does not comply with the BHEL’s Terms & Conditions may be rejected as Non-responsive/non-conforming and non-acceptable.

- 2.1.3 Cover ‘B’ -for Price Bid (sealed cover) super scribing the Tender Enquiry No., name of work, Contractor name & address and Part – B (Price Bid). The format for Price Bid is attached to the Tender Document.
- 2.1.4 Cover ‘C’- This cover shall contain sealed Cover ‘A’ (Techno-commercial bid) and sealed Cover ‘B’ (Price bid). The cover shall be sealed and super scribed with Tender Enquiry No., name of work and Contractor name & address.
- 2.1.5 The Techno commercial Bid (Part - A) and general terms and conditions shall be attached to Techno-commercial offer with each page duly signed by the tenderer (at the bottom of each page) as a token of acceptance.

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- 2.1.6 Part 'B' – the price Bid should not carry any conditions. **Price / rate** should be quoted in clear terms in the format given by BHEL.
- 2.1.7 Part 'B' Price bid will be opened only in respect of those tenderers who are qualified in Techno-Commercial Bid.
- 2.1.8 The tender forms both Part 'A' & 'B' duly filled in all respects shall be signed on each page by the tenderer. Any alteration, erasure or over-writing will render the tender invalid. Alteration neatly carried out and duly attested over with the full signature of the tenderer however is permitted.
- 2.1.9 The tenderer should submit the tender documents intact without detaching any page/ pages.
- 2.1.10 The Name of the tenderer should be written or the contractor's seal to be put on the sealed envelope.
- 2.1.11 Before making the offer, the tenderers are advised to carefully go through the terms and conditions, which form part of the Agreement.
- 2.1.12 All entries in the tender document should be in one Ink. Corrections, over writing, cuttings etc. are not permitted. All the columns in the tender form should be filled without leaving any column blank in any page of the tender. In case any of the columns is left blank, the tender would be rejected.
- 2.1.13 **Each and every page of tender documents should be stamped & signed by the tenderer.**
- 2.1.14 Tender documents consisting of Part 'A' & 'B' duly sealed in separate envelopes should be sealed in another envelope and should be deposited in the Vendor Complex, BHEL-RC Puram, Hyd-32 addressed to Dy. General Manager/Purchase, Co-ordn., BHEL, RC Puram, Hyderabad-32 so as to reach on or before **11:00** hrs. on **06.07.17**. The tender documents may also be sent either by registered post / Speed Post / Courier so as to reach on or before the said date and time. Part 'A' of tender form i.e. Techno-commercial Bid will be opened on **06.07.17** at **14:00 hrs.** on the same day in the presence of tenderers or their representatives who are present for the tender opening. Tenderers who qualify in the Techno-commercial Bid will be intimated to attend the tender opening of part 'B' - price bid at a date to be notified separately. Part 'B' i.e. price Bid will be opened at the specified date in the presence of the tenderers or their representative who are notified to attend the tender opening.
- 2.1.15 For any further details required, **AGM/ES**, BHEL, RC Puram, Hyderabad-32 may be contacted in person or through Telephone Nos.**040-2318 5242**.
- 2.1.16 **BHEL reserves the right to assess the capacity and capability of the parties for pre-qualification. The company also reserves the right to accept or reject any or all the tenders or any part thereof at any stage of process without assigning any reason whatsoever. The company has no obligation to accept the lowest tender. Offer of the Tenderer if prima-facie found not comparable with the quantum of work envisaged and the bid is a desperate effort to be L1, then the offer is liable to be rejected. BHEL's decision in this regard shall be final and binding.**
- BHEL reserves the right to reject the tender of bidder, who committed default and having bad track record in execution of previous contracts in BHEL. For the purpose of this clause default and bad track record means violation of labour laws (such as nonpayment of wages within time, nonpayment of ESI, PF contribution, payment of bonus (if applicable)) and backing out from contract after reverse auction or after receipt of LOI / entering of agreement etc.,
- 2.1.17 **PRICE BID** - The tenderers are required to submit their quotation for all the items listed in the Price Bid format given along with the tender documents. The price should be quoted for each activity after careful study of the actual job requirement so that, in case the contract is awarded, contractor should not express any difficulty in execution of the contract.
- 2.1.18 The Minimum Wages as per statute at site or BHEL notified wages revised (as applicable) from time to time are payable. The tenderer would be required to pay allowances/incentives as decided and communicated by BHEL.
- 2.1.19 **VALIDITY OF RATES:** The rates quoted should be valid for 120 days initially from the date of opening of the Techno-Commercial bid.

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2.1.20 The tenderer will be required to quote the rates against each item of work under each group.

2.1.21 **REVERSE AUCTION:** 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 RA.

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.

Start price for Reverse Auction will be the estimate or L1 of on-line sealed bids, whichever is less.

2.1.22 **DISCREPANCY IN WORDS & FIGURE QUOTED IN PRICE BIDS:**

- i) If, in the price structure quoted for the required goods / services / works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
- ii) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and.
- iii) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (i) and (ii) above

If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

2.1.23 Wherever it is quantity based work, including main work and sub-work, the tenderer should quote his rates against each item /work (main as well as sub-work/item).

2.1.24 In case of quantity based work contracts, the tenderer should quote the rates against each item keeping in view the prevailing applicable Minimum wages / BHEL wages whichever is higher statutory payments and other payments if any and other obligations as per the statutory provisions and amendments thereto and also as directed by BHEL from time to time.

2.1.25 BHEL reserves the right to award the contract to one or more contractors simultaneously as deemed fit at the initial stage or during the contract period.

2.1.26 BHEL reserves the right to reject any bid, which is technically unacceptable and unworkable. Further, BHEL also reserves the right to reject any or all tenders without assigning any reasons thereof.

2.1.27 BHEL reserves the right to cancel the contract at the initial stage or during the contract period without assigning any reason to the tenderer.

2.1.28 Wherever prescribed formats are specified for the tenderers use, he shall use the same for making his Claims.

2.1.29 Tender document should be complete in all respects.

2.1.30 **Successful tenderers shall enter into an Agreement on stamp paper of Rs.200/- for having accepted the rates, terms and conditions of the contract as per the pro-forma given by BHEL.**

2.1.31 The Offers should be in full conformity with the terms and conditions of this tender. No contra conditions are acceptable. Incorrect and incomplete tenders are liable to be rejected. Tenders not submitted in the prescribed forms will be rejected.

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- 2.1.32 BHEL reserves the right to accept or reject any tender in part or full at their discretion without assigning any reason.
- 2.1.33 If a tenderer deliberately gives wrong information in his tender or creates conditions favorable for the acceptance of his tender, then BHEL reserves the right to reject such tender at any stage.
- 2.1.34 If the tenderer indulges in any unethical practice for securing the contract, the offer of such tenderer shall be rejected.
- 2.1.35 Any written communication required to be sent to the contractor in writing shall be sent at the address mentioned on the tender form or to any other address subsequently intimated by Contractor in writing to BHEL HPEP for the contract purposes or to his e-mail address.
- 2.1.36 **SITE VISIT:**
- Before quoting, the tenderers are advised to inspect the site of work and its environments and be well acquainted with the actual working and other prevailing conditions, position of materials and labour related procedures & practices. They should be well versed with BHEL General Conditions of Contract, Instructions to tenderers, drawings wherever applicable and specifications and all other documents which form part of the agreement to be entered into subsequent to the awardal of work. The tenderers shall specially note that it is the tenderer's responsibility to provide any item which is not specially mentioned in the specification or drawing, but which is necessary to complete the work
  - The tenderer/Bidder and any of his authorized personnel or agents will be granted permission by BHEL to enter upon the site premises and lands for the purpose of site visit. However, the bidder shall express condition that he, his personnel, and agents will be responsible against all liability in respect thereof, including death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection. This is subject to approval by customer.
  - The Bidder should inform BHEL at least **Two working days** (time may be fixed in consultation with tender issuing authority) in advance about the proposed site visit. The Bidder, at his own responsibility and risk is encouraged to visit, inspect and survey the Site and its surroundings and satisfy himself before submitting his bid as to the form and nature of the Site, the means of access to the Site, the accommodation he may require, etc.
  - In general, Bidders shall themselves obtain all necessary information. A Bidder shall be deemed to have full knowledge of the Site, whether he inspects it or not and no extra claims due to any misunderstanding or otherwise shall be allowed. The cost of visiting the Site shall be at the Bidders' own expense. Any deviations of information in the report and the actual site will not be the responsibility of BHEL.

### **3.0 GENERAL TERMS AND CONDITIONS**

- Contractor shall obtain Labour License (Central / State Government) before commencement of work as applicable.
- In case Contractor engages labour from other than native State to execute the said work, he is required to obtain license under Inter State Migrant Workmen (RE & CS) Act 1979.
- BHEL reserves the right to split up the work into convenient portions and award them to different contractors.
- The tenderer shall keep the contents of his tender and rates quoted by him confidential.
- The rate for each item shall be reasonable and not unbalanced / impracticable. In case BHEL come across any unbalanced / impracticable rates i.e. 10% or less than 10% estimated value, Tenderer / Bidder may require to furnish detailed analysis to justify the same. If after its examination, BHEL still feels the rates are unbalanced / impracticable, BHEL may ask the tenderer for additional Performance Security or other safeguards to protect BHEL / Employer's interest against financial loss which may occur to BHEL on

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account of such unbalanced / impracticable rates, failing which the tender submitted by the tenderer, shall be liable to be rejected by the BHEL, who may award the Contract to any other tenderer.

6. All expenses in preparation and submission of bids and visits to the office or any place in connection with the preparation of Bid shall be borne by Bidder. BHEL in no case shall be responsible or liable for these costs regardless of the outcome of the Bidding process.
7. The bid prepared by the Bidder including all correspondence etc. relating to his offer/ bid shall be in ENGLISH language only.
8. **The bidder along with its associates /collaborators/sub-contractors/sub-vendors /consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.**
9. **All the terms & conditions of the contract with respect to Taxes & Duties are subject to the new taxation laws introduced from time to time (e.g., GST). The terms & conditions will be modified in accordance with the provisions of new laws (e.g., GST).**

### 3.1 ELIGIBILITY CRITERIA

- 3.1.1 In case the contractor is a Partnership Firm or a Company, the same should be a registered under the relevant Indian Partnership Act 1932 or Companies Act, 1956 and well established organization having at least three years existence in business consecutively for the past three years.
- 3.1.2 The Successful tenderer has to obtain the license from Central Labour Dept., under Contract Labour (Regulation & Abolition) Act 1970 for the areas and nature of work, which they will be performing as part of the contract.
- 3.1.3 Tenderer should have independent ESI Employer code under ESI Act 1948, wherever applicable.
- 3.1.4 Tenderer should have independent PF code under Employee Provident Fund and Miscellaneous Provisions Act 1952, wherever applicable.
- 3.1.5 Photocopy of letter from ESI Corp. and PF Commissioner's Office to establish that tenderer is independently registered as an employer under ESI and PF to be produced, wherever applicable.
- 3.1.6 The tenderer shall also mention the PAN Number issued by Income Tax Department, copy of the PAN card or PAN number allotment letter shall be submitted along with the tender documents.
- 3.1.7 There should be no litigation or charge under investigation / enquiry / trial against the Tenderer, or conviction in a court of law or suspension or blacklisting by any organization on any ground. Tenderer shall confirm this in the Declaration. During the course of work, if any such information comes to light, the contract may be terminated.
- 3.1.8 The opinion / decision of BHEL regarding the bid shall be final and conclusive. BHEL reserves the right to reject any or all the bids at any time without assigning any reason.
- 3.1.9 In case the tenderer has a relative employed in BHEL, the authority inviting tender shall be informed of this fact in writing at the time of submission of tender, failing which the tender may be disqualified, or if such fact comes to light subsequently, the contract may be terminated.
- 3.1.10 For the works which are continuous in nature, and which require regular interaction and monitoring, the contractor shall have an Office/Establishment in Hyderabad / Site as applicable. Absence of such an arrangement may lead to disqualification of the Tenderer.

### 3.2 EARNEST MONEY DEPOSIT:

- 3.2.1 An amount of **Rs. 2.72 Lakh / One-Time EMD of Rs. Two Lakhs** towards EMD shall be paid in cash at BHEL cash office or by Demand Draft/Banker's cheque drawn on any nationalized bank / scheduled bank in the name of "Bharat Heavy Electricals Limited" payable at Hyderabad and shall be enclosed to the tender bid. EMD / any money due to the tenderer from BHEL shall not carry any interest. No other means of payment shall be accepted.

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- 3.2.2 Tenders received without EMD as specified above shall be rejected. If EMD Accompanies price bid, such bids shall not be considered and will be rejected. No adjustment of EMD shall be made with EMD submitted earlier with other tenders of BHEL or any outstanding amount. If EMD is not in line with amount called for, the EMD as well as the quotations will be returned unopened to the tenderers.
- 3.2.3 EMD of unsuccessful bidders shall be returned promptly upon award of Contract and EMD of successful bidder will be returned upon the bidder's accepting the contract and furnishing the requisite security deposit.
- 3.2.4 EMD may be forfeited if after opening of tenders, a tenderer revokes his tender or increases his earlier quoted rates or after acceptance of his tender does not commence the work in accordance with the instructions of BHEL
- 3.2.5 The EMD will be forfeited if the accepted tender is withdrawn. If only a part of the work included in the tender had been awarded to the tenderer, proportionate amount of EMD will be retained
- 3.2.6 The Contractors who are having one time EMD certificate shall submit copy of the certificate towards exemption for payment of EMD for the work.

### 3.3 SECURITY DEPOSIT

- 3.3.1 Upon acceptance of his tender, the successful tenderer must deposit within the time specified in the letter of intent. Security Deposit should be collected from the successful tenderer. The rate of Security Deposit will be as below:

The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

- 3.3.2 The successful tenderer on receipt of letter of intent can convey his acceptance in writing for conversion of EMD into security deposit.
- 3.3.3 If the work is awarded, the agency has to pay 50% of SD in advance on contract value before commencement of work after adjusting of EMD amount.
- 3.3.4 Security Deposit may be furnished in any one of the following forms.
- i) Cash (as permissible under the Income Tax Act)
  - ii) Pay Order, Demand Draft in favour of BHEL
  - iii) Local cheques of scheduled banks, subject to realization.
  - iv) Securities available from India Post such as National Savings Certificates, Kisan Vikas Patras etc.
  - v) Bank Guarantee from scheduled Banks / Public Financial Institutions as defined in the Companies Act subject to a maximum of 50% of the total security deposit value. The balance 50% has to be remitted either by cash or in the other form of security. The Bank Guarantee format should have the approval of BHEL
  - vi) Fixed Deposit Receipt issued by scheduled Banks / Public Financial Institutions as defined in the companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back.
  - vii) Security Deposit can also be recovered at the rate 10% from the running bills. However, in such cases at least 50% of the Security Deposit should be deposited before start of the work and the balance 50% will be recovered from the running bills.
  - viii) EMD of the successful tenderer shall be converted and adjusted against the security deposit.

**Note:** Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be adjusted to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.

- 3.3.5 Failure by the successful tenderer/bidder to deposit the security deposit amount as mentioned above within the stipulated time, which will include any extension that may be granted by the authorities, will render his earnest money deposit liable to forfeiture and his tender shall be considered as withdrawn. Security Deposit shall not be refundable to the contractor except in accordance with the terms of the contract.

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- 3.3.6 The Security Deposit will be released along with the final bill or after completion of maintenance period for the work, whichever will be later, subject to the condition that nothing is outstanding against the Contractor.

### **3.4 STATUTORY REQUIREMENTS:**

- 3.4.1 While quoting the rate, the tenderers are advised to take note of minimum wages / BHEL Fair Wages / Central Govt., / State Govt., (whichever is higher) payable to workmen.
- 3.4.2 The tenderer will be required to comply with all the statutory provisions such as Bonus (if applicable) (% as prevailing in BHEL R.C. Puram), PF (12%), EDLI (0.5%), ESI, Gratuity, Service Tax and other applicable taxes, BHEL Fair Wages prevailing at the time of payment or arrears thereof, declared Holidays, leave, AP / Telangana Labour Welfare Fund etc. The contractor shall submit the documentary evidence of payment on account of submission of statutory payments made to the concerned agencies every month and same may be submitted for clearance of bill.
- 3.4.3 The tenderer shall comply with the provisions of the Factories Act 1948, Contract Labour (Regulation and Abolition) Act 1970, ESI Act 1948, Employees Provident Fund and Miscellaneous Provisions Act 1952, Minimum Wages Act 1948, Payment of Gratuity Act 1972, Industrial Disputes Act, 1947, Payment of Bonus (if applicable) Act 1965, Employers Liability Act 1938, Inter State Migrants Workmen (Regulation of employment and conditions of Service) Act 1979 AP/Telangana Labour Welfare Fund Act, and or any other Laws and Rules that may be applicable from time to time to the workers engaged by him. The tenderer, when required by the Company shall produce the registers and records for verification and comply with other directions issued by the company for compliance of the statutory provisions.
- 3.4.4 The tenderer shall fully indemnify the loss if any caused to BHEL due to any default or non-observance of any of the laws, or any omission or commission or inability on the part of the Tenderer or his representative.
- 3.4.5 The tenderer shall, keep and produce for inspection at all times, forms, registers and other records required to be maintained under various statutes in order to enable scrutiny by the Company whenever required.
- 3.4.6 The tenderer shall produce to the Company whenever asked for, the documentary proof of payment of the said statutory dues. Non-observance of the provisions will be construed as default by the Tenderer in making such payment, and payment of his bill will be deferred despite other legal action.
- 3.4.7 The Income tax as applicable will be deducted from the bill of the contractor.
- 3.4.8 Each tenderer will be required to maintain the daily attendance of his labour in the prescribed Pro-forma for accounting payment of wages, deduction towards ESI & PF Contributions, payment of Bonus (if applicable), leave etc.
- 3.4.9 The tenderer will have to follow the provisions of Payment of Bonus (if applicable) Act 1965 and Rules 1975, and is liable to pay Bonus (if applicable) to his workers. Minimum prescribed bonus (if applicable) at present is 20% of annual wages subject to a maximum wage ceiling of Rs.3500/- per month.
- 3.4.10 The tenderer will have to extend paid National Holidays and Festival Holidays to their workmen as per BHEL R.C. Puram direction or as per the provisions of the relevant Act and the Rules thereof. However, if due to exigencies of work the contractor engages his workmen on National Holidays or Festival Holidays contractor shall pay additional wages as prescribed under the provisions of the Act.

### **3.5 MANPOWER:**

- 3.5.1 The Contractor shall provide the required manpower **round the clock (3 shift basis)** for executing the contracted work. The contractor shall not engage a person who is less than 18 years of age.
- 3.5.2 The contractor shall be responsible for safety of his workers while they are engaged for work connected with the contract. The Contractor shall be responsible for the appropriate usage of the Uniform and PPE's by their workmen.

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- 3.5.3 The contractor, as the employer of his workmen, shall manage them. In the event of any dispute arising between the Tenderer and his employees, the Tenderer alone is solely responsible for resolving the dispute between them and BHEL will in no way be responsible for settling the dispute either statutory or otherwise.
- 3.5.4 The contractor will be solely responsible for executing the agreed work and the employees of BHEL will only oversee the proper execution of work. The contractor or his representatives shall be available in the factory to control and supervise his workers and take down instructions from the designated officials of BHEL. The cost of deployment of Supervisor has to be borne by the Contractor.
- 3.5.5 The contractor shall have full control over his workmen w.r.t determining service conditions, discharge, dismiss, or otherwise terminate their services at any time. The contractor shall be solely responsible for any claim arising out of employment or termination of employment of his employees and for statutory payments.
- 3.5.6 The contractor shall employ only such personnel who are medically fit. The company has right to direct the contractor to remove from the premises such of his personnel who may be physically, hygienically, clinically or medically unfit.
- 3.5.7 The contractor shall employ only such personnel who have not been found unfit for employment in Organizations such as Central/State/Public Undertakings by the Police authorities. Persons against whom criminal cases are pending or under investigation and persons found guilty of offences involving moral turpitude shall not be engaged for executing work.
- 3.5.8 The Contractor shall comply with all the operational rules and regulations, including safety and security rules framed by the company from time to time wherein the Contractor or his workmen happen to be operating / working. In the event of any of the workmen of the contractor violating any of the said rules and regulations, the Contractor would be required to remove forthwith such workmen from the company's premises.
- 3.5.9 Out of total manpower to be deployed the Contractor shall to the extent possible to deploy 15% scheduled castes and 7.5% of scheduled tribe community.

#### 3.5. A. SAFETY:

- I. All safety equipment such as safety belts, helmets & other equipment (as required for this work) are to be positioned by the contractor & used as per requirement.
- II. Any casualty or damage caused to the property or person by any untoward incidents while executing this contract will be at the contractor's risk & cost.
- III. Violation of applicable safety, health & environment related norms, a penalty of ₹5,000.00(Rupees Five thousand) per occasion shall be imposed.
- IV. Violation as above resulting in any physical injury a penalty of 0.5% of the contract value shall be imposed (maximum of ₹20,000.00) per injury in addition to ₹5,000.00 as mentioned above.
- V. In case of fatal accidents, a penalty of 1% of the contract value (maximum of ₹10, 00,000.00(Rupees Ten lakhs) per fatality in addition to ₹5,000.00 as mentioned above.

#### 3.6 PERIOD OF CONTRACT

- 3.6.i.1 The contract shall be, initially, for a period of **18 months, however the Erection commissioning work is to be completed within 21 days for each unit.**
- ii) The parties, if mutually agreed upon, may extend the period of contract for a further period of one year on the same terms and conditions with a price variation clause providing for any increase in wages of the workmen and consequential increase in PF, ESI etc., by appropriate Government or by BHEL from time to time.

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If the rate quoted/contract is valid for two years, Company may issue LOI initially for a period of one year. The company reserves its right to issues LOI /contract for the second year to the contractor on successful and satisfactory completion of first year contract. The contractor is bound to execute the contract for second year without any demur. If the contractor fails to execute the contract, BHEL reserves the right to execute the contract through any other contractors at the risk and cost of the contractor and the company reserves the right to take appropriate action against the defaulted contractor (where ever applicable).

- iii) BHEL is at liberty to terminate the Agreement by giving 30 days' notice in writing.

### **3.7 FAILURE TO COMPLY WITH CONTRACT**

- i) Notwithstanding anything contained in any other clause, BHEL reserves the right to terminate the contract due to any failure on the part of the Tenderer in discharging his obligations under the contract or in the event of his becoming insolvent or going into liquidation. The decision of the BHEL about the failure on the part of the Tenderer shall be final and binding on the tenderer.
- ii) In case of any damage to the existing building, structures, materials, tools, furniture and fixtures, machines etc., caused from contractor's end directly or indirectly, the cost of its repairs or replacement will be recovered from the contractor. If there is any work stoppage in any area of the Plant due to the fault of the contractor, the contractor is liable to compensate the same.
- iii) In the event of any failure on the part of the tenderer, BHEL shall have the right without prejudice to any other right or remedies, to get the work done through any other agency and the Tenderer shall be liable to compensate BHEL for any losses on this account. The additional cost, loss, if any incurred by BHEL will be recovered from the bills, security deposits, other dues, directly from the Tenderer or by initiating appropriate legal action.

### **3.8 PAYMENT TO THE CONTRACTOR**

- i. Normally, the periodicity of payment to the contractor shall be on a calendar month basis. The Contractor shall raise the bill for payment as per the contractual terms & conditions mentioned in the contract, which should be duly certified by the BHEL official in charge of the contracted work.

In certain cases due to direct association of work with customer project, payment is made after completion of work. In such cases same will be specified in the NIT/enquiry and the agreement entered into post award of job.

The Contractor shall raise the bill for payment as per the contractual terms and conditions mentioned in the contract, duly supported by attendance sheet for all the contract labour capturing therein for each of the Contract labour total time engaged during each day on the job and the same to be duly certified by the BHEL official in charge of the contracted work.

Contract is to be expressed both in terms of required categories of labour and number of labour against each category to ensure that the contractor discharges all the contractual and statutory obligations in respect of labour engaged on the job. At the same time required output in terms of units, tonnage etc. is also to be stated to correlate achieved output vis-à-vis desired output.

Following conditions shall be adhered strictly during the contract period:

- a. In case there is fall in the achieved output vis-à-vis desired output, contractor is to be warned in two spells.
  - b. If the unsatisfactory performance repeats, contract is liable to be short closed.
- ii. The Contractor shall initially pay the wages, and other statutory payments etc., with in the specified time, related to his workmen and then claim bills from BHEL. The contractors would be required to submit their Claims along with the proof of payment of wages, PF, ESI etc., to the respective Departments. The claims will be scrutinized and certified for payment by the respective department and forwarded to Accounts Department along with HR/IR clearance certificate for effecting payment.

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- iii. The Contractor shall provide two pairs of Uniform to each of his workmen along with stitching charges and cap as specified by BHEL. The Contractor is required to submit their claims along with proof of expenditure incurred and acknowledgement from his workmen for providing uniform, subject, however, the maximum reimbursement of claim amount will not exceed a total amount of Rs.1000/- (including all) for two pairs of Uniform to each workmen. BHEL will not entertain any additional / excess claims than the ceiling limit provided herein and contractor agrees to accept the same.
- iv. The contractor shall pay bonus (if applicable) to all his workmen as per the applicable provisions of the payment of Bonus (if applicable) Act 1965 and its rules for contract period and also as per the instructions / guidelines of BHEL regarding payment of Bonus (if applicable) (at present 20%). In this connection, the Contractor shall submit actual Bonus (if applicable) payable statement for the relevant period before submission of final bill. BHEL shall release actual bonus (if applicable) payable amount after verification of necessary documents such as attendance & wage registers.
- v. The contractor shall provide Personal Protective Equipment including one pair per year safety shoe of standard specified by BHEL safety department and two pairs socks to all his workmen during the contract period. The contractor is required to submit their claims with proof of expenditure incurred in providing Personal Protective Equipment to his workmen, subject, however, the maximum reimbursement of claim amount will not exceed a total amount of Rs. 800/- for Personal Protective Equipment to each workmen for the whole contract period. BHEL will not entertain any additional / excess claims than the ceiling limit provided herein unless the contractor offers such additional / excess claims in the Price Bid and BHEL accepts to the same.
- vi. **Refer sub clause 2 of 7.1 of price bid documents**

### **3.9 SUB-CONTRACTING**

The contractor shall not sub-contract, transfer, or assign the contract in full or any part thereof to any other person, firm, or company without the previous express written approval of BHEL.

### **3.10 LAWS GOVERNING THE CONTRACT**

- i) The contract will be governed by the Laws of India for the time being in force and as amended or made from time to time.
- ii) All disputes shall be settled in accordance with the Laws of India for the time being in force and as amended from time to time.
- iii) All disputes arising out of or in relation to this contract or Agreement shall be settled by mutual discussions through Conciliation and in the event of failure of conciliation, such disputes shall be referred to Arbitration in accordance with the provisions of Arbitration and Conciliation Act, 1996.

### **3.11 LEGAL JURISDICTION:**

In respect of all matters arising out of or pertaining to the contract, the cause of action thereof shall be deemed to have arisen only at RC Puram, Hyderabad, where BHEL - HPEP is situated. All legal proceedings pertaining to the above matters or dispute shall be instituted only in courts having territorial jurisdiction over the place where BHEL-HPEP is situated and no other court shall have the jurisdiction.

### **4.0 DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR:**

- 4.1 The duties, responsibilities and obligations of the contractor including statutory responsibilities mentioned in this document are indicative and not exhaustive. Contractors are required to confirm with the concerned authorities for proper and complete compliance.
- 4.2 The contractor will abide by the provisions of Child Labour (Prohibition & Regulation) Rules 1988. He should issue appropriate Appointment Letter to his Workmen.

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- 4.3 The following documents / forms under Contract Labour (Regulation & Abolition) Act 1970 and relevant rules therein shall be maintained by the contractor:
- (i) A notice showing the wage period and date of disbursement of wages to be displayed at the place of work and a copy sent by the contractor to the HR Department (Rule 75).
  - (ii) A register of workmen Form XIII (Rule 75)
  - (iii) Employment card Form XIV (Rule 76)
  - (iv) Service Certificate Form XV (Rule 77)
  - (v) Muster Roll, Wage Register, Deductions Register, overtime Register Etc.
  - (vi) Half yearly return to be sent (In duplicate) by the contractor to the licensing officer. Form – XXIV (Rule 82 (I)) with a copy to HRM Department regularly.
  - (vii) All statutory registers and records shall be preserved in original for a period of Ten years and should be made available even after the contract is over for verification.
- 4.4 The contractor shall comply with the provisions of Contract Labour (R & A) Act 1970 including provisions relating to welfare and Health facilities as provided under the Contract Labour (R& A) Act 1970 and relevant rules.
- 4.5 All the Contractors shall submit the half yearly / yearly returns to Regional Labour Commissioner (Central), Hyderabad or appropriate authority as required under contract Labour (Regulation & Abolition) Act 1970 and forward a copy to HR Department / Site In charge.
- 4.6 If the site is a Notified Area under the provisions for ESI Act 1948, the contractor shall comply with the provisions of ESI Act, and will be responsible for any liability arising during the tenure of the work contract under the Act. The contractor should ensure ESI coverage and facilities to his workers (i.e. ESI code no. and ESI card etc.) as per ESI Scheme from ESI authorities including Medical Benefit etc. The contractor shall arrange for filing of family declaration forms in respect of their contract labors and deposit the same in ESI office for issue of Identity card by ESI authorities. The contractor may deduct required ESI contribution from the wages of their employees as per law and deposit the same (Employees share) along with his contribution to the ESI authorities.
- 4.7 Workmen insured under ESI Act only shall be deployed in contract work. For the Persons not covered under the provisions of ESI Act, the contractor shall take required insurance under Employees Compensation Act 1923 with medical benefit.
- 4.8 The tenderer shall submit bi-annual return in Form 6 along with monthly Challans to the appropriate authority under the provisions of Employee's State Insurance Act 1948, under intimation to HR Dept./Site In charge.
- 4.9 Notwithstanding anything contrary to this, in the event of accident, the contractor shall be required to submit accident / injury report to the concerned authorities with a copy of the same to the designated BHEL Executive immediately and ensure the compliance of the ESI Act and rules made therein.
- 4.10 The tenderer shall submit the following returns to the appropriate authority under the provisions of Employee's Provident Fund and Misc. Provisions Act 1952, Employee's Pension Scheme 1995 under intimation to HR Dept.
- (i) Monthly return in Form 12 A along with form 5 & 10 (addition and deletion) and monthly Challan or any other form as modified by PF authorities
  - (ii) Annual Return in Form 6A along with Form 3A. (till this procedure is discontinued by the PF authorities)
- 4.11 The Contractor shall maintain the following records as required under the Employees Provident Fund and Miscellaneous Provisions Act 1952, Employee's Pension Scheme 1995
- Declaration of Nomination, Form No.2 Para 33 and 61 (1).
  - Attendance.
  - Wage Register.
  - Any other documents / registers as required

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- 4.12 The contractor shall regularly on or before prescribed date of every month pay the amount of contribution (employer's contribution as well as the employee's contribution) as per the Employee's Provident Fund and Miscellaneous Provisions Act 1952, Employee's Pension Scheme 1995 and Employee's State Insurance Act 1948
- (i) The contractor may recover from his workmen, the employee's contribution in accordance with the provisions of the said act and the Scheme but shall not recover the employer's contribution or the other charges from his employees in any manner.
  - (ii) The contractor shall submit along with monthly bills to BHEL, statement showing the recoveries of contributions in respect of employees employed by or through him along with the proof of Deposit of such contribution with the Concerned Authority and shall also furnish to BHEL such information, in the capacity of principal Employer, as required to be furnished under the provisions of the schemes under the Employees PF and Misc. Provisions Act 1952 and ESI Act, 1948 to the authorities under the said Acts.
  - (iii) The Contractor shall arrange for his own PF and ESI Code Number from the PF and ESI authorities respectively. The expenditure incurred by the contractor towards payment of the Employers Contribution and PF Administrative charges is already included in the estimated price of BHEL.
- 4.13 In case of revision of Wage/DA by appropriate Government or by BHEL after the award of work, BHEL will bear the difference of increase during the currency of the Contract. Any failure to comply with the statutory requirements on the part of contractor shall disqualify such contractor from all contracts awarded to him and his name shall be black-listed for further tenders / contracts. In addition, the Contractor's security deposit shall be forfeited apart from consequential legal action against him (If Applicable).**
- 4.14 The contractor shall maintain Form D as per Rule 5 of the Payment of Bonus (if applicable) Act, 1965. The contractor is further liable to pay bonus (if applicable) to his employees in accordance with the payment of Bonus (if applicable) Act 1965 (Max. 20%) on completion of contract and to keep all the records in Form C as per the said Act.
- 4.15 The contractor will be required to contribute towards gratuity payment of his employees (contract workers) required as per Payment of Gratuity Act. He will also be responsible to pay retrenchment compensation under the Act. In case of short closing of contract by either side, the Contractor shall settle all dues payable to workmen including Bonus (if applicable) on last working day.
- 4.16 In case the contractor employs women, he will discharge his obligation under law in respect of such women workers such as prohibition of engaging them during night hours, prohibition of employing them more than 9 hours per day, provision of crèche facility, grant of maternity leave as per rules etc.
- 4.17 The Wage period for the Workmen of Contractors engaged on long contracts shall be Calendar Month and the contractor shall be responsible for making payment of wages within 7 days of the closure of the wage month (on 07th day of the calendar month following the wage month) The disbursement shall be proponed to the 6th day, if the 7th day happens to be a holiday. The Contractor would be required to open an Account for Electronic Fund Transfer (EFT) of his Bills/Claims from BHEL as well as EFT of wages/OT/other payments of his workmen from his Bank Account to the Bank Accounts of his workmen so that risks associated with cash transactions can be avoided.
- 4.18 The Contractor shall be required to issue monthly Wage slips /OT Slips to their workmen. Further, the Contractors claims are to be accompanied by a Certificate from BHEL Official certifying that "the Wage /OT Slips for the previous month/current month have been issued by the contractor to all their workmen". Further, the contractor would be required to issue Annual PF Statement from the PF Authorities for all his workmen engaged at BHEL site before submitting Claim for refund of Security Deposit for the respective years.

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- 4.19 In case contractor fails to make payment of wages to his employees or remittance of contribution to the concerned authorities, the Security deposit / other dues payable under the contract can be utilized by BHEL to discharge the liability of the contractor.
- 4.20 The workmen of the contractors shall wear uniform while attending duty in BHEL campus. The uniform shall be provided by Contractor to his workmen. The Contractor/his authorized representative shall ensure wearing of the Uniform by his workmen at BHEL site premises.
- 4.21 The liability for compensation on account of injury sustained by an employee of the contractor will be exclusively that of the contractor.
- 4.22 **NATIONAL & FESTIVAL HOLIDAYS** (as declared by BHEL): The contractor will give paid National Holidays and Festival Holidays to the workers as per Section 5 of National and Festival Holidays Act. However, if due to the exigency of work if any of his workmen is required to work on National Holiday or Festival Holiday, the contractor has to pay wages as per Section 5, sub section 2 and 3 of the said Act.
- 4.23 Besides the four national holidays i.e. 15<sup>th</sup> August, 26<sup>th</sup> January, 2<sup>nd</sup> October and 1<sup>st</sup> May (May day) if Govt. declares any other day as a national holiday same will be treated as paid holiday for the purpose of this contract. Accordingly, the contractor shall be required to provide paid holiday to its workers for the same. If any of the contract workers works on such additional declared national holiday, he will be entitled to additional wage for the said day.
- 4.24 In addition to the above holidays mentioned at Clause 39, in the event the Central / State Government declares any other holiday/s and if such Holiday/s is/are applicable to at BHEL site also, then the tenderer/contractor shall extend paid Holiday/s to his workmen. The tenderer shall take into account all such occasions while quoting in the tender.
- 4.25 **GENERAL ELECTIONS:** If the general elections are held for State Assembly / Parliament and Government declares a public holiday for exercising the franchise, the contractor shall give their workmen half day leave in "First" shift only. The contractor's workmen working in "Second" and "Night" shifts will be required to exercise their franchise during their own time.
- 4.26 The Contractor shall maintain the following Documents, Registers, Forms as required under the FACTORIES Act 1948 and Rules 1950 thereof
- |      |                |             |
|------|----------------|-------------|
| (I)  | Leave Register | Form No. 15 |
| (II) | Nomination     | Form No. 25 |
- 4.27 The contractor will extend leave with wage to his workers @ of one day for every 20 days' work. To facilitate the proper execution of the Factories Act, these leaves shall be allowed during the same calendar year. The contractor will pay the un-availed portion of leave in cash along with monthly wages / at the end of Contract period.
- 4.28 Contractor has to ensure that all his workmen are granted one day weekly off after every 48 hrs. of working. The workmen working for more than 48 hours in any week shall be paid wages twice the ordinary rate of wage in accordance with the provisions of Section 59 of the Factories Act, 1948 read with the A.P / Telangana Factories Rules 1950.
- 4.29 The contractor shall follow safety rules and regulations as per provisions of Factories Act 1948, and Rules at his own expense and arrange for the safety provisions as appended to these conditions or rules framed by the government from time to time.
- 4.30 **Refund of Security Deposit:** Security Deposit of contractor will be refunded only after the expiry of the contract period and based on the certification of successful completion of the contract and payment of PF, ESI and applicable statutory dues by the concerned Officials / department and submission of an Undertaking from the contractor, that in case of Claims from any of the statutory authorities, the same would be indemnified by the Contractor.
- 4.31 The Contractor shall be required to deposit Service Tax as applicable as assessed by Central Excise Authority (Service tax cell) before 15th of the following month, as applicable as per rules in force from time to time. The amount so spent can be claimed from BHEL after submitting the proof of the same.

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- 4.32 Contractor shall inform his PAN to BHEL. Income tax as applicable will be deducted at source by BHEL from the bills of contractor.
- 4.33 All the Registers and Records, forms, Notices maintained under the relevant Acts and Rules should be produced on demand before the Inspector or any other authority under the Act, failing which the contract may be terminated without any notice.
- 4.34 Contractor shall be required to submit a list of his workers to be deployed for the works contract giving details regarding Name of contract worker, Fathers Name, permanent and Present Address, Date of Birth, Qualification, Caste-SC/ST/OBC, ESI No, PF No. and the family details.
- 4.35 The contractor shall abide by all the labour legislations and other laws including the provisions of Contract Labour (Regulation & Abolition) Act, 1970, the Factories Act, 1948, the Payment of Wages Act, 1936, the Minimum Wages Act, 1948, ESI Act, 1948, Employee Provident Fund Act, 1952, AP / Telangana Labour Welfare Fund Act, Payment of Bonus (if applicable) Act 1965, Payment of Gratuity Act 1972, and other relevant Acts applicable to his workmen under this Contract.
- 4.36 BHEL shall be indemnified against all losses, Claims, prosecutions etc. under any law.
- 4.37 The contractor shall promptly furnish all information and document required by BHEL authorities for the purpose of complying with the responsibilities of Occupier of the factory and shall render all the necessary assistance for the same.
- 4.38 The contractor will maintain proper discipline of his workmen and will ensure that his workers do not cause any loss or theft or damage to any company's property. The contractor will also be responsible for the good conduct of his workmen.
- 4.39 The contractor shall ensure and maintain uninterrupted progress of the work in accordance with instructions given to him on behalf of BHEL from time to time.
- 4.40 In case the contractor makes default in commencing the work within the time specified by BHEL without any reasonable cause, disputes any of the terms and conditions of the contract or refuses to execute the contract or any part thereof at any stage, the contract shall, without prejudice to any other right or remedies available to BHEL, be liable to be cancelled / terminated in part or in whole. In the event of such cancellation / termination of contract, the contractor shall be liable; to compensate BHEL for all losses incurred by BHEL including the loss suffered on account of having the work executed through any other contractor or department as may be convenient to BHEL, in accordance with the exigencies of the work. In case only a part of the contract is cancelled, the remaining portion of contract may be allowed be executed by the contractor.
- 4.41 The Contractor shall without fail give up-to-date information in writing of the attendance of the workers engaged by him. The Contractor will also submit the required documents and certificates as prescribed from time to time for the clearance and the payment of the Bill.
- 4.42 Whenever any sum of money is found to be recoverable from or payable by the contractor, the same will be deducted from any sum that may due or which at any time there after becomes due to the contractor under this contract or under any other contract or from his security deposit. In case the recoveries are not complete even after such deduction, the contractor shall pay the same or the balance thereof from the security deposit. The contractor shall immediately thereafter pay such further sums as may be required to replenish the shortage caused by such recoveries in the amount of security deposit.
- 4.43 During the currency of contract, if the contractor is awarded any other job work contract in BHEL, the contractor will have to inform the designated BHEL official before accepting the other work.
- 4.44 In case of failure on the part of the contractor to execute the work awarded to him within the stipulated time, the sum equivalent to the EMD as per BHEL Works Policy shall be forfeited as per the Undertaking provided by tenderers, after a week's notice issued by the awarding officer and BHEL may in its discretion award the contract to any other party.

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- 4.45 In case of any extra work executed by the contractor, the contractor will be paid on pro-rata basis.
- 4.46 All the Terms and Conditions as mentioned in Work Order will also form a part of the Agreement.
- 4.47 BHEL shall have the right to deduct any sum from the bill of the contractor for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract, Non- payment of wages or of deduction made from his or their wages which are not justified by the terms of the contract or non-observance of the said contract Labour regulations.
- 4.48 The contractor shall be responsible for observance of local laws, employment of personnel, payment of taxes etc. As far as possible, workers shall be engaged from the local areas in which the work is being executed.
- 4.49 The contractor shall be wholly responsible for the behavior of the workmen at the work place and outside, in the BHEL premises.
- 4.50 The contractor shall be responsible for safe custody of BHEL's property like materials, tools etc., entrusted to him and if necessary arrange insurance at his own expense.
- 4.51 The contractor shall be responsible to make good and rectify at his own expense any defect, which may develop or may be noticed within the period of the contract.
- 4.52 BHEL shall be entitled to recover any payment made on behalf of the contractor under any law or otherwise.
- 4.53 BHEL Officer In-charge shall have the right to stop the work at any stage or at any time by giving the contractor seven days' notice in writing.
- 4.54 **ARBITRATION:** All disputes arising in connection with the contract shall be settled by mutual consultation. If no agreement is reached the dispute shall be settled in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and the rules made there under. The dispute shall be referred for arbitration to any arbitrator to be appointed by the Head of the Unit/his nominee as per the extant rules of the Company read with the provisions of The Arbitration and Conciliation Act, 1996 and amendments thereto. The award of the arbitrator shall be final and binding on both the Parties. The venue of the Arbitration shall be Hyderabad in India. The Award to be given by the Arbitrator/Arbitral Tribunal shall be a speaking award. All questions, disputes, differences arising under, out of or in connection with this contract shall be to the exclusive jurisdiction of Sangareddy Courts.

#### **4.0.A SPECIAL TERMS & CONDITIONS OF CONTRACT**

1. The quantity of raw materials drawn, if any from the Stores and balance unused should be accounted and returned to the Stores.
2. Ensure cleanliness of the preparation area/work spot before and after the work on daily basis.
3. The quantity will be counted, measured and weighed and certified by the authorized persons.
4. The quantity may slightly vary depending on the requirement which will be informed in advance by BHEL.
5. The payment will be as per actual quantity prepared, executed and accounted.
6. In case of delay of payment of wages to the contract labour by the contractor, for more than a week, the contract executing officer will initiate action for payment of wages directly from BHEL side and recover the same from the payments due to the contractor along with penalty as decided by the respective product head. In case, the contractor default/fail to pay wages to the contract labour repeatedly (more than once) the contract executing officer shall take action for payment of wages directly by BHEL and contract may be short closed despite blacklisting/banning the said contractor from participating in the future bidding/tendering in BHEL.

#### **4.0.B EVALUATION OF PRICE BID:**

1. A single rate must be quoted for each category mentioned in the price bid Proforma.
2. Evaluation of the L-1 offer shall be computed on overall lowest cost to BHEL basis. (Grand Total Price for all the items indicated above minus tax credit, if, any).
3. In the event of two or more tenderers becoming L1, the said tenderers would be called for negotiation and will be instructed to submit fresh price bid offers. Further, in the event of two or more tenderers becoming L1, the selection of the tenderer for the purpose of awarding contract will be on the basis of LOTTERY to be held in presence of representatives of L1 tenderers.
4. Contractor shall take total care to educate himself to know the prevailing wages payable to contract labours at BHEL / at site and quote rates taking into account all aspects of contract.
5. **If in the opinion of the tender committee, that the rate quoted by the L1 contractor is not viable, the tender committee shall reject the tender of such L1 contractor and go for next lowest bidder. In case the rate of next lowest bidding also not viable the tender committee shall cancel the tender and advise for fresh tender.**

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#### **4.0.C GENERAL TERMS & CONDITIONS OF THE CONTRACT:**

##### **1.0 DEFINITIONS:**

The following terms shall have the meaning hereby assigned to them except where the context otherwise required:

- 1.01 "BHEL" shall mean Bharat Heavy Electricals Limited, Hyderabad- 502032 or its administrative Officers or its site Engineer/Officer, or it's Resident Engineer/Resident Manager or other Engineers/Officer authorized to deal with any matters with which these persons are concerned on its behalf.
- 1.02 "Resident Engineer/Resident Manager" or "Project Manager" or "Engineer-in charge" "Manager-in-charge- or "Engineer" shall mean officer deputed by Bharat Heavy Electricals Limited, Hyderabad 502032 to be in charge of the erection work of the turbo sets supplied by Bharat Heavy Electricals Limited, at the site of the work as well as Manager, External Services.
- 1.03 "Executive Director" or "Group General Manager" or "General Manager" shall mean the Officer in Administrative charge of Bharat Heavy Electricals Limited, Hyderabad-502032.
- 1.04 "Manager or Sr.Manager or Dy. General Manager, External Services" shall mean the Officer of Bharat Heavy Electricals Limited Hyderabad-502032 who directs the erection work at site from the headquarters at Hyderabad-502032.
- 1.05 "BHEL Staff" shall mean any employee of Bharat Heavy Electricals Limited, Hyderabad-502 032.
- 1.06 The terms "Approved" or "Directed" or "Instructed" shall mean approved, directed or instructed by Bharat Heavy Electricals Limited, Hyderabad-502032.

##### **2.0 SINGULAR AND PLURAL ETC.**

Words carrying singular number shall also include plural and vice versa where the context so required. Words imparting the masculine gender shall be taken to include the feminine gender and words imparting persons shall include any company or Association or body of Individuals, whether incorporated or not.

##### **3.0 HEADINGS:**

The headings in this document are solely for the purpose of facilitating reference and shall not be deemed to be part there of or be taken into consideration in the interpretation or construction thereof of the Contract.

##### **4.0 CONTRACTOR'S DEFAULT:**

If the Contractor shall fail or neglect to execute the work with due diligence and expediency, or shall refuse or neglect to comply with any orders given to him by the Engineer (BHEL) in connection with the work or shall contravene the provisions of the Contract, the Engineer (BHEL) shall give notice in writing to the contractor to make good such failure, neglect or contravention. Should the Contractor fail to Comply with the notice within the period specified in the notice, the Engineer shall be at liberty forthwith, to execute such part of the work as the Contractor may have failed or neglected to do, or without prejudice to any other right BHEL may have under the contract to take the work wholly or in part out of the Contractor's hand and contract, with any other person to complete the work or any part thereof and in that event BHEL shall have the free use of all construction equipment and other things that may be at any time on the site in connection with the work, without being responsible to the contractor for fair wear and tear thereof, and to the exclusion of any right of the Contractor over the same and BHEL shall be entitled to retain or withhold and balance amount which may be otherwise due under the Contract to the Contractor or such part thereof as necessary to the payment of the cost of executing the said part of the work or by completing the work as the case may be and of meeting claims of third parties against BHEL arising from

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or in consequence of the Contractor's failure, neglect, refusal or contravention as aforesaid. If the cost of Completing the work or executing a part there of or of meeting claims of third parties as aforesaid shall exceed the balance due to the Contractor. The Contractor shall pay such excess to BHEL.

#### 5.0 **LIQUIDATED DAMAGES FOR DELAY IN COMPLETION:**

In the event of failure on the part of the Contractor to complete the work under this specification within the stipulated period (21 Days for each unit form the day of handing over of the machine from the customer) or such extended period as may be agreed to by, BHEL in this regard, the contractor shall be liable to pay to BHEL as liquidated damage and not by way of penalty, a sum equivalent to 0.5% (Half percent) of the total value of the contract for each day of the delay between the scheduled time and actual time of completion of work, subject to a maximum of 10% of the total contract value.

#### 5.01 **STAY BEYOND CONTRACT PERIOD:**

Stipulated rate of progress is based on the anticipated receipt of equipment and materials at site and also the man power, tools and tackles deployed by the contractor. In the event contractor's stay at the site becomes necessary beyond the contract period for reasons not attributable to BHEL, no compensation shall be payable to the contractor. No over- run charges are payable.

#### 6.0 **STRIKES AND LOCKOUTS:**

In the event of the Contractor's Labor resorting to strike or the contractor resorting to lock-out and if the strike or lock-out declared is not settled within a period of one month the BHEL shall have the right to get the erection work executed in whole or part employing its own labor or through any other agency or both and the cost so incurred by BHEL shall be deducted from the Contractor's bill as per the **clause no. 4.0 "Contractor's Default"**.

#### 7.0 **STORES SUPPLIED BY BHEL:**

7.01 It is not obligatory on the part of BHEL to supply any tools & tackles or other materials other than those specifically agreed to by BHEL. However, subject to availability, BHEL/Customer's handling equipment and other plants, tools and tackles may be made available to the Contractor wherever possible on payment of the hire charges as fixed subject to the conditions laid down by BHEL/CUSTOMER from time to time. Unless paid for in cash in advance, such hire charges shall be recovered in one installment from the Contractor's first available bill and if it becomes necessary the same may be adjusted against the Security Deposit with BHEL.

7.02 All the properties of BHEL/their client loaned whether with or without deposit to the Contractor in connection with the Contract, shall remain the properties of BHEL / their client as the case may be. The Contractor shall use such properties for the purpose of execution of the Contract and for no other purpose whatsoever. The contractor shall not sub-loan such properties from his end.

7.03 All 'such properties shall be deemed to be in good conditions when received by the Contractor unless he shall have immediately on receipt of the same thereof, notified the BHEL to the Contrary. If the Contractor fails to notify any defect in the conditions or quality of such properties, he shall be deemed to have lost the. right to do so at any subsequent stages.

7.04 The Contractor shall be responsible for the safe custody of any special equipment and plants supplied to him and shall return them in good condition whenever required by BHEL. In case of non-return, loss, breakage, damage, repairs etc., due to negligence or misuse or otherwise or any other cause for which the Contractor is found responsible, the cost thereof will be recovered from the Contractor. The decision of Engineer regarding the loss or damage and the amount to be recovered shall be final and binding on the Contractor

#### 8.0 **ALTERATIONS IN "SCOPE OF WORK" :**

If at any time after the Commencement of the work, BHEL shall for any reason whatsoever (but not attributable to the Contractor) not require the whole work there of as specified in the tender to be carried out, the Engineer of BHEL shall give notice in writing of the fact to the Contractor who shall have no claim to any payment or Compensation whatsoever on account of any profit or advantage which he might

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have derived in consequence of the full amount of the work not having been carried out, nor shall the Contractor have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

## 9.0 ALTERATIONS IN WORKS :

BHEL may require such alterations to be made in the work during its progress, as may be deemed necessary, and after due consideration of the relation which such alterations bear to the work and price stipulated there for in the Contract, BHEL will determine the amount, if any, which shall on that account be added to or deducted from the Contract price, and this decision thereon shall be final and binding on the Contractor. No variation of the Contract shall be valid unless made in writing and agreed to by BHEL.

## 10.0 DAMAGES AT THE WORK SITE :

10.01 If the Contractor or his agents or his workers or servants or other associates shall break, deface, injure or destroy any part of a building, roads, road kerbs, fence enclosures, water pipes, cables, drains, electric or telephone posts or wires, trees, grass or grasslands, or any other property or cultivable grounds contiguous to the premises on which the work or any part of it is being executed, or if any damage shall happen to the work, while in progress, from any cause what-so-ever, the Contractor shall make good at his own expense, or in default, the Engineer may cause the same to be made good by other workmen or by other means and deduct the expense (of which the certificate of Engineer shall be final) from any sums that may then be due or at any time thereafter become due to the Contractor, or from his security deposit, or the proceeds of sale thereof, or a sufficient portion thereof.

10.02 In case of damage to or loss of any, erected or otherwise, equipment or components of the BHEL/client or any property belonging to BHEL/client, caused by the Contractor's men while handling or erecting, due to negligence and carelessness on their part, the responsibility of making good the loss shall rest with the Contractor without loss of time or hindrance to work. The actual cost of damage without loss of time or hindrance to work. The actual cost of damage of loss together with the overheads will be recovered from the Contractor's bills. Decision of the Site Engineer, regarding the cause and extent of the damage/loss shall be final from the execution of work in full but which he did not derive.

## 11.0 CONTRACTOR TO ARRANGE FOR ALL PLANTS, SCAFFOLDING, LADDERS AND MAINTENANCE OF THE SITE IN A CLEAN CONDITION :

11.01 The Contractor shall supply at his own cost all materials (except such special materials, if any, as may in accordance with this Contract be supplied by BHEL) plants, tools, appliances, implements, ladders, cordage, tackle, scaffolding, shuttering and temporary work whether original, altered or substituted, and whether included in the specification or other documents forming part of the Contract referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with requirements of the Site Engineer or to any matter as to which under these conditions he is entitled to be satisfied or which he is entitled to required together with carriage there for to and from the work. The Contractor shall also supply without charge the requisite number of persons with means and materials necessary for the purpose of setting out the works, counting, weighing and assisting in the measurement of examination at any time and from time to time of the work or materials. On his failure to do so the same may be provided by the Engineer at the expenses of the Contractor and the expenses may be deducted from any money due to the Contractor or from his security deposit or the proceeds of sale thereof or a sufficient portion thereof. The Contractor shall be entirely responsible for the true and perfect setting out and for the Correctness of all parts of the work. If at any time, any errors shall appear in any part of the work the Contractor shall at his own cost, rectify such errors to the satisfaction of the Engineer. The Contractor shall not deposit materials in such places as to cause inconvenience to public /BHEL/client/other cases and will provide all necessary fencing and lights required to protect the public from accidents and shall be bound to bear all the legal expenses for any suit, action or other proceedings of law that may be brought on by any person for injury sustained owing to neglect of the above precautions and to pay the damages and costs which may be awarded in any such suit, action or proceedings to any such persons or which may with the consent of the Contractor be settled or compromised by any such person.

11.02 It shall be responsibility of the Contractor to keep the storage, (pre-assembly yard erection) site and offices used by him, clean and free from all extraneous materials to the satisfaction of Site Engineer. The contractor shall arrange for removing all such materials and depositing them at a specified place at the end

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of each day. Up-on completion of the work the Contractor shall arrange to remove from the vicinity of work all scrap, packing materials, rubbish unused and other materials and deposit them in areas specified by the Site Engineer. In the event of his failure to do so, the same will be arranged to be done by other means and the expenses so incurred will be deducted from the Contractor's bills.

#### 12.0 **SUMS PAYABLE TO BHEL BY WAY OF COMPENSATION :**

All sums payable to BHEL by way of Compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of BHEL without reference to the actual loss or damage occurred, and whether or not any loss or damage shall have been occurred.

#### 13.0 **GUARANTEE**

Even though the work will be carried out under the supervision of BHEL Engineers, the contractor will be solely responsible for the work and he shall guarantee the work done for a period of twelve months from the date of completion of work as certified by the Engineer for good workmanship 'in Erection/Testing & Commissioning and shall rectify free of cost all defects due to faulty workmanship by him detected during the guarantee period starting from the date of completion of work duly guaranteeing such repairs also for a period or six months after the repairs.

#### 14.0 **FORCE MAJEURE:**

14.01 The following shall amount to Force Majeure: Acts of God, acts of any Government. war, sabotage, Riots, Civil commotion, Police action, revolution, flood, fire, cyclones, earthquake, epidemic disease and other similar causes over which the Contractor has no control.

14.02 If the Contractor suffers delay in the execution of the Contractual obligations due to delays caused by Force Majeure as defined above, the agreed time of completion of the job covered by this Contract or the obligation of the Contractor shall be extended by a period of time equal to the period of delay provided that on the occurrence of any such contingency the Contractor immediately reports to Bharat Heavy Electricals Limited, in writing the causes of each delay.

#### 15.0 **CANCELLATION OF CONTRACT:**

BHEL whose decision shall be final without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to BHEL, cancel the contract in any of the following cases:

##### 15.01 **FOR CORRUPT ACT:**

If the Contractor shall offer or give to any person in the service of BHEL, any gift or consideration of any kind as in inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for BHEL.

OR

15.02 If the Contractor shall enter into a contract with BHEL in connection with which commission has been paid or agreed to be paid by him or with his knowledge unless the, particulars or any such commission and the terms of payment, thereof have previously been disclosed in writing to the Accepting Officer.

OR

15.03 If the Contractor shall obtain contract with non BHEL as a result of ring tendering or by non-bonafide methods of competitive tendering without first disclosing the fact in writing to the Accepting Officer.

##### 15.04 **FOR INSOLVENCY OR ASSIGNMENT OR TRANSFER OR SUBLETTING OF CONTRACT OR CHANGE IN THE FIRM**

15.05 If the Contractor being an individual or a firm, any partner thereof, shall at any time be adjudged bankrupt or order for administration of his state made against him shall take any proceedings, for liquidation or composition under any bankruptcy Act for the time being in force or make any conveyance or assignment of his effects of composition or arrangement for the benefit of his creditors or support to

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do so, or if any application be made under any bankruptcy Act for the time being in force for the sequestration of his estate or if a trust deed be granted by him on behalf of his creditor

OR

- 15.06 If the Contractor being a company, shall pass a resolution or the Court shall make an order for the liquidation of its affairs, or a receiver or Manager on behalf of the debenture holder shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or Manager .

OR

- 15.07 If the Contractor, assigns. Transfers, sublets or attempts to assign, transfer or sublet any portion of the work without the prior written approval of the accounting officer. (Any such consent shall not relieve the Contractor from any obligation, duty or responsibility under the Contract.)

OR

- 15.08 If the Contractor being a Partnership Firm introduces a new partner in the firm except with the previous consent in writing of the BHEL which may be granted only upon production of a written undertaking by the new partner to perform the Contract and accept all liabilities incurred by the firm under the Contract prior to the date of such undertaking.

OR

- 15.09 If the Contractor being a Partnership firm, on the death or retirement of any partner of the Contractor's firm before he completes performance of the contract.

OR

**NOTE:** If the Contract is not determined as provided in relevant clause before retirement of a Partner from the firm, he shall continue to be liable under the Contract for the act of the firm until a copy of the public notice given by him under section 32 of the Partnership Act has been sent by him to BHEL by registered post with acknowledgement due.

#### **15.10 FOR NONFULFILLMENT OF CONTRACTUAL OBLIGATIONS:**

If the Contractor withdraws or abandons the Contract before completion of the works or pleads his inability to carry on the works covered under this contract or BHEL finds during the execution of work the contractor to be inefficient or otherwise incompetent to complete the work as per the time schedule of the Contract, fails to improve the rate of progress of work as stipulated by BHEL from time to time or the Contractor fails to fulfill any of the contractual obligations or contravenes any provisions of the contract at any time, or persistently disregards the instructions of the Engineer at site or fails to take steps to employ competent or additional staff and labor as required under the contract or fails to afford the Engineer or his representative proper facilities for inspecting the work or any part thereof, he shall be deemed to have not fulfilled the contractual obligations.

#### **16.0 CONSEQUENCE OF CANCELLATION:**

- 16.01 Whenever BHEL exercises its authority to cancel the contract under the **clause no. 15.0 "CANCELLATION OF CONTRACT"** that may complete the work by any means at the Contractor's risk and expense provided always that in the event of the cost of completion (as certified by the Engineer which is final and conclusive) being less than the Contract cost the advantage shall accrue to the BHEL and that if the cost of completion exceeds the moneys due to the Contractor under the Contract, the Contractor shall either pay the excess amount ordered by the Engineer or the same shall be recovered from the Contractor by other means. This will be in addition to the forfeiture of Security Deposit and recovery of liquidation damages as per the tender conditions.

- 16.02 In case BHEL completes the work under the provisions of this condition the cost of such completion to be taken into account in determining the excess cost to be charged to the Contractor under this condition shall consist of the cost of material purchased and/or labor provided by BHEL with an addition of such percentage to cover superintendence and establishment charges as may be decided by BHEL whose decision shall be final and conclusive.

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#### **4.0.D TECHNICAL TERMS AND CONDITIONS OF CONTRACT FOR ERECTION WORK**

##### **1.01 SCOPE OF CONTRACT:**

The intent of specifications is to provide erection services according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient erection of the plant shall not relieve the Contractor of the responsibility of providing such facilities to complete the erection.

1.02 Should any error or ambiguity be discovered in the specification or information furnished to him the Contractor shall forthwith bring the same to the notice of Engineer of BHEL before commencement of work. The Engineer's interpretation in such cases shall be final and binding on the Contractor.

1.03 Any part of work for which there is no specification laid down in the contract shall be carried out as per the instructions and requirements of the site Engineer.

1.04 **The contractor shall be responsible for safely bringing material from customer store/ place of storage to place of execution of work. NO separate payment shall be made for handling the material inside customer premises.**

##### **2.00 ERECTION RATE:**

The tenderer shall quote the lowest rate in the Proforma prescribed in the price bid for the complete work listed in the tender notice and as detailed in scope of work, under the conditions stipulated in this tender specification. No extra claim on any account whatsoever shall be allowed by BHEL unless otherwise specifically mentioned in the tender specification.

2.01 The rates quoted by the tenderer shall be firm for the entire duration of the contract irrespective of any variations in the cost of living index, prices of materials, wages of the labor or any other developments arising subsequent to the date of tender.

2.02 The rates quoted by the tenderer shall remain uncharged even if the actual quantities erected by the Contractor deviate from the figures in spec given irrespective of the extent and magnitude of such deviation.

##### **3.00 IDLE LABOUR CHARGES:**

BHEL will have no liability to any stoppage/delay caused in the work resulting in the labor of the Contractor being idle either due to maintenance work or breakdown of the erection equipment, tools and tackles to be supplied by BHEL/their clients, if any, or due to any other causes arising from the manner of execution of the work.

##### **4.00 EXTRA CHARGE FOR MODIFICATION, RECTIFICATION & REPAIR:**

4.01 Major modification and rectification if any due to design and manufacturing deficiencies which warrant major revamping at site, will be considered as extra on submission, after completion of work at the discretion of Resident Engineer. For extra claim, the Contractor may quote man hour rate which means only skilled category including all consumables, tools & tackles etc.

4.02 All the works such as cleaning, leveling, aligning, assembling temporary erection for alignment, scaffolding, checking, dismantling for checking and cleaning, surface preparation, edge preparation of pipes, tubes and plates for welding, cutting, grinding welding, straightening, scraping, fitting up etc., which in the opinion of the Engineer- in-charge are incidental to the final erection and necessary to complete the erection work satisfactorily, shall be carried out by the Contractor for which no extra claim shall be allowed.

##### **5.00 PERIOD OF COMPLETION:**

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- 5.01 The time schedule for entire work of erection and commissioning shall be governed by **7-A, Erection schedule.**
- 5.02 For this Purpose, the erection will be deemed to be completed in all respects, only when the trial runs, commissioning and handing over of the equipment to our client are over. The decision of the Engineer-in-charge in this respect shall be final and binding on the Contractor.
- 5.03 In the event of the date of commissioning being extended beyond the period specified it shall be the responsibility of the Contractor to complete the work to suit the revisions in the program keeping the rates specified in the price tabulation firm during the extended period without any claim for extra payment on this account

**6.00 MEASUREMENT AND PAYMENT FOR THE WORK EXECUTED:**

- 6.01 All items having financial value shall be entered in BHEL Measurement Book by BHEL engineer.
- 6.02 Work carried out for agreed lump sums will be described and similarly recorded.
- 6.03 Lump sums omissions will be entered for deduction; Measurement shall be restricted to that for which it is required to ascertain the financial liability of BHEL under this contract.
- 6.04 Work which is to be measured in detail shall be measured as per standard procedure without reference to any local procedures excepting where it is otherwise stated in the tender documents. The measurement shall be taken jointly by persons duly authorized on the part of BHEL and the contractor.
- 6.05 The Contractor shall bear the expenditure involved if any, in making the measurement. The Contractor shall without extra charges, provide all the assistance with appliance and other things necessary for measurement.
- 6.06 BHEL Engineer will enter the measurement in BHEL Measurement Book and shall certify regarding the actual work executed in the Measurement Book and bills prepared based on the same.
- 6.07 The Measurement entered in the Measurement Books and the bills prepared shall be signed and dated by both the Contracting parties.
- 6.08 If at any time due to any reason whatsoever, it becomes necessary to re-measure the work done in full or in part, the expense of such measurement shall be borne by the Contractor.
- 6.09 The Contractor will be intimated by Site Engineer of the proposed date of Measurement. If the Contractor's representative fails to participate in the joint measurement, the BHEL Engineer shall have power to proceed by himself to take measurements and in that case the measurement shall be accepted by the Contractor as final.
- 6.10 The contractor shall once in every month submit to site Engineer of BHEL with a copy to Manager (External Services), details of the claims by him up to and including the previous month which are not covered by the Contract Agreement in any of the following respect

1. Deviation from the items and specifications, provided in the Contract Agreement.

2. Extra items /new items of work

3. Items in respect of which rates have not been settled.

He should in addition furnish a clean certificate to the effect that the claims submitted by him as aforesaid cover all his claims and no further claims shall be raised by him in respect of the work done up to and including the period under report.

**7.00 Terms of Payment: Refer sub clause no.2 of clause 7.1 of price bid documents.**

No levy or payment of charge made or imposed shall be by reasons of any clerical error or by reasons of any mistake in the amount levied or demanded or charged.

**8.00 CONTRACTOR's PERSONNEL: FACILITIES & SERVICES**

The Contractor shall provide services and facilities including all the specially skilled labor such as high pressure welders (gas, TIG, and arc), millwright fitters, pipe fitters, erectors etc. in addition to other

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skilled, semi-skilled and unskilled labor required for the erection work contemplated under this specification. In case the labor strength/ services/facilities have to be increased to complete the erection work to suit the program given from time to time, the same has to be complied with as per the requirements of the Resident Engineer without any claim for extra payment.

- 8.01 The Contractor shall employ only fully trained and competent men with previous experience on this job. They have to hold valid certificates wherever necessary as per statutory requirements and also as required by the Engineers of BHEL. BHEL reserves the right to decide the suitability of workers and other personnel who may be employed by the Contractor.
- 8.02 It is the responsibility of the Contractor to have the required number of qualified supervisory engineering staff who can read the drawings and execute the work as per drawings and understand and carryout works as per BHEL Engineers instructions in the absence of drawings wherever required and control the Contractor's labor force
- 8.03 It must be clearly understood that the day to day working and utilization of the labor employed by the Contractor shall be regulated solely according to the instructions of the Engineer of BHEL.
- 8.04 The supervisory staff employed by the Contractor shall also ensure proper out-turn of work and discipline by the labor put on the job by the Contractor and III general ensure that the works are carried out in a safe and correct manner and in coordination with labor or staff employed directly by BHEL or any other Contractors of BHEL/ their client.
- 8.05 Contractor shall submit a weekly progress report of works on approved proforma to the Engineer. Contractor shall also plan and carryout works according to the target and state the deviation, if any, in the progress report.
- 8.06 Contractor shall also furnish the Site Engineer of BHEL a daily/ weekly labour report showing by classification, the number of employees engaged in various Categories of work.

#### **9.00 ISSUE OF MATERIALS FROM STORES:**

- 9.01 The Contractor shall receive the materials from the stores maintained by BHEL at site with due acknowledgement on printed stores issue vouchers. Any loss or damage to the materials duly received by the Contractor will have to be made good by him promptly without any loss of time. Delay in progress of work due to loss or damage of materials will be entirely attributable to the Contractor.
- 9.02 All the tools and tackles, lifting devices, transporting equipment required by the Contractor for transporting from storage yard to the pre-assembly area, pre -assembly areas to erection site and for erection and commissioning shall be arranged by the Contractor himself.

#### **10.00 TOOLS AND PLANT:**

- 10.01 The tools and plant given in the list at Annexure-1 are only for erection and commissioning. Tools and plant required for unloading, loading, storage, transportation etc. for the components are not covered in the list and additional tools and plant required for this purpose shall be arranged by the Contractor at his own cost.
- 10.02 If, any equipment and material issued to the Contractor are damaged or lost, the Contractor shall immediately report to the Engineer the particulars and the circumstances in which the damage or loss took place, for lodging insurance claims. Failure to report in time will result in summary recovery of the item lost or damaged, from the running bills of the Contractor. In case the claims are not realized from the Insurance Company either partly or in full, then necessary recoveries corresponding to the Contractor's liability in this regard will be made from the monthly bills/deposits of the Contractor.
- 10.03 Reconciliation of stores issued to the Contractor for work is the primary responsibility of the Contractor. All the surplus/damaged unused materials, package materials/containers, gunny bags etc., supplied by/belonging to BHEL shall be returned to BHEL in the condition in which they were received. All the materials shall be stored 15 cm above the ground by use of concrete blocks or wooden sleepers. No material shall be allowed to remain on ground at any time. All openings in the components shall be kept covered till they are in final position. This work should be taken up and completed as required by BHEL. Necessary recovery will be affected from the Contractor for the materials not returned or accounted for as per BHEL's rules.

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- 10.04 The Contractor, during the progress of work should provide, erect and maintain at his own cost necessary tool crib, store room and office room in the machine hall. He shall also provide temporary workshops required for proper and efficient execution of the work at his own cost. The planning, location and erection of these shall have the approval of the Engineer of BHEL.

#### **11.00 FOUNDATION AND CIVIL WORKS:**

- 11.01 Buildings and other necessary civil works for equipment etc. will be provided by the client of BHEL. However, all adjustment of the foundation level, dressing and chipping of foundation surfaces, foundation bolt pockets and grouting of equipment, auxiliaries after alignments etc. as may be required for the erection of equipment/plants will have to be carried out by the Contractor at his own cost. Supports for pipes, valves, flanges etc. are to be grouted wherever necessary, by the contractor with cement concrete at his own cost, as per instructions of the BHEL Engineer. All materials like cement, steel, sand, gravel etc. for the purpose of grouting shall be arranged by the contractor at his own cost including special grout mixes.

- 11.02 Any civil work damaged by the Contractor in the execution of the work shall have to be made good by contractor at his own cost to the satisfaction of BHEL/its client

#### **12.00 PRE-ASSEMBLY:**

The Contractor shall transport the equipment and materials requiring pre-assembly from the storage yard to the pre-assembly areas. The contractor shall take delivery of the components and equipment from the storage yard after getting the approval of the Engineer on standard indent forms to be specified by the BHEL Engineer. After completion of erection work, complete and detailed account of the equipment so erected shall be submitted to BHEL duly certified by BHEL Engineer, by the Contractor.

- 12.01 Any fabrication including supply of Engineering materials required for pre-assembly or erection of pre-assembled blocks/pieces other than those made available by BHEL or their clients at site shall be Contractor's responsibility at his cost.

#### **13.00 METHOD OF ERECTION:**

The components of equipment are sent in partly assembled and partly disassembled condition for convenience of transport. They are to be dismantled, cleaned, assembled stage by stage, erected, matched (including minor modification), aligned and adjustments carried out.

Valves, fittings and pumps are to be thoroughly cleaned where necessary by dismantling the same before erecting and aligning. Valves requiring hydraulic testing, checking of operation and setting are to be done by the contractor. Any test rig required for these operations will be fabricated by Contractor with his material. All the above activities are to be carried out by the Contractor within his stipulated rates. Careful handling of equipment while lifting and transporting is required. Highest care should be taken, especially while lifting heavy equipment like compressor barrels and casings, turbine casing, rotors, condensers and other heat exchangers etc.

#### **14.00 ERECTION:**

- 14.01 The scope of erection shall include transporting to work spot the materials from storage yard/pre-assembly area, erection work alignment pre-heating, welding, post heating, heat treatment, stress relieving and X-raying, leveling adjusting etc. till the turbo-set and other equipment are finally tested and approved for acceptance and are taken over by BHEL/their clients for putting into commercial operation.

- 14.02 The Contractor shall provide at his own cost in sufficient quantity all consumables

- a) Sealing material, shellac compound, hemp fiber- klingerite, permanite, CAP gaskets, gland packing, adhesive and other tapes etc.
- b) Lubricants, oils, paints, varnishes, thinners etc.
- c) Cleaning material like washing soda, soap, dungy cloth, cotton waste, carbon tetrachloride etc.
- d) Adhesive papers, tapes, grinding and lapping stones, emery cloth, emery paper etc.
- e) Soldering and welding material including thermo chinks, fluxes, all electrodes, oxygen, acetylene, argon (for carbon, steel, alloy steel & stainless steel) etc.
- f) Hardware items including nuts, bolts, structural steel etc. for enabling works.
- g) Electrical items such as cables, bulbs, switch etc. for enabling works.
- h) Packing plates and shims for leveling and aligning equipment
- i) Scaffolding etc.
- j) Miscellaneous items of consumables nature not specifically mentioned but required for erection purposes incidental to such works. The materials so supplied and used shall be of the best quality and subject to prior approval of BHEL.

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- k) All grout mixes.

#### 15.00 PROTECTION:

The Contractor shall take all reasonable care to protect the work under erection till such time the erected equipment are taken over by BHEL/their client. Wherever necessary, suitable fencing and lighting shall have to be provided by the Contractor as a safety measure against accidents and damage of property of BHEL/their clients. Caution notices shall be displayed by the Contractor to give warning to the persons working at site of access to any part which may be deemed to be unsafe and hazardous.

#### 16.0 PAINTING:

All the items erected-main equipment, auxiliaries, piping, etc. will have to be painted by hand or spray as directed by the Engineer with paint procured by Contractor. For items received painted, two coats of finish paint over one/two coats of primer are essential. For items received and erected without any paint, two coats of finish paints over two coats of primer are essential. The quality, specification, colors and brand of paint are subject to approval by the Engineer. The scope of work includes scraping off old paint where required, color bands, lettering, arrows, etc., as directed. Provision of scaffolding, consumables etc. incidental to the work are to be arranged by the contractor at his own cost. The work is subject to inspection/approval by BHEL's clients. Paint weight is not considered for tonnage purposes. Painting of all equipment and piping is to be carried out by the contractor. All shop painted equipment is to be painted with two coats of finish paint using ""APCODUR" of Asian Paints or equivalent. All the piping to be painted with primer and two coats of finish paint of approved color and brand with Synthetic enamel paint. The contractor shall arrange for the painting deploying his own tools, tackles, manpower, etc.

- 16.01 In case of damage or loss to any equipment or components or any property thereof of BHEL or their clients caused by the Contractor's men while handling and erecting the same due to negligence and carelessness on the part of the Contractor's workmen, the responsibility of repairing or replacing shall rest with the contractor. In case the Contractor fails to make good loss or damage within a reasonable time, the actual cost of damage or loss together with overheads will be recovered from Contractor's bill. Decision of BHEL regarding the cause as well as extent of the cost of damage shall be final and binding on the Contractor. Delay in progress or works due to this will be attributable to contractor.
- 16.02 Until the plants or equipment are deemed to have been taken over, the Contractor shall be liable for and shall be deemed to have agreed to indemnify BHEL or their clients occasioned by negligence or fault of the Contractor or his personnel.
- 16.03 The erection devices, alignment fixtures, including supply of materials for same, tools and tackles, lifting device and all other materials necessary to carry out the entire work shall be arranged by the Contractor. Before putting into use all such fixtures, devices, etc. shall have to be approved by BHEL.
- 16.04 The contractor shall execute the work in the most substantial and workman like manner. Accuracy of work in stipulated time is an essential part of this contract. The Contractor shall be responsible to ensure the assembly and workmanship to confirm to the dimensions and tolerances given in the drawing, specifications, quality or suitability or measurements, or as per the instructions of Engineer. If any portion of work is found to be defective, in specification or measurements, the Contractor shall dismantle and redo the work at his cost to the satisfaction of BHEL. Time lost on this account will be attributable to the Contractor.
- 16.05 Fabrication of pipes 2" & below for which isometric drawings are not given, like governing oil lines, and seal oil lines, has to be done at site as per the site conditions, for which pipes are supplied in commercial lengths. Fabrication of bends, tees elbows, reducers etc. for pipes of dia. up to 2" and below will also be done at site by the contractor at no extra cost from the above pipes supplied in commercial lengths. However, bends, tees, elbows, reducers etc. above 2" will be supplied readymade.
- 16.06 Permanent supports for the pipes of all diameters wherever required are to be fabricated at site by the Contractor within his quoted rates. However special supports like spring suspensions, clamps, and hanger rods will be supplied by BHEL. Material for fabrication such as plates, angles, channels, rods, I - sections, pipes etc. will be supplied in running lengths. Fabrication as above will include adjustments by cutting and welding as required. Temporary supports will have to be provided wherever required at contractor's cost.

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- 16.07 The pressure parts shall be erected in conformity with the provision of Indian Boiler Regulations and will be subject to inspection by the chief inspector of Boilers, or anyone appointed by him in his sole jurisdiction.
- 17.00 HYDROSTATIC TESTING:**
- 17.01 All pressure parts and some of the low pressure parts shall be subjected to the hydrostatic pressure test as required by the Indian Boiler Regulations & API. ASME, STDS, TEMA, ASAB, 31.3 IBR, ASME APC (ASAB 31.3) Contractor shall supply all necessary labor and equipment required for conducting the test.
- 17.02 The test shall be performed by the Contractor to the complete satisfaction of the Boiler Inspector and the Engineer. All leaky joints shall be cut out repaired or re-welded as directed and test repeated until satisfactory results are obtained.
- 18.00 INSPECTION AND TEST RUN:**
- The Contractor shall provide personnel for the test run of all equipment erected by him to work under the direction of the Engineer, in case any defect is detected during test run such as loose components, undue noises or vibration, strain on connected equipment etc., the Contractor shall immediately attend to these defects and take necessary corrective measures.
- 18.01 Contractor shall provide personnel for the testing of all equipment erected by him to work under the direction of the engineer, after the solo run of the turbine, the contractor shall provide personnel for the bearings inspection.
- 19.00 COMMISSIONING:**
- 19.01 The Contractor shall carry out all tests such as hydrostatic pressure test, function test OT pumps & motors, sole run of Turbine, leak test of compressors etc. as per standards followed by BHEL. Necessary skilled and unskilled personnel and supervisory staff as may be required shall be supplied by the Contractor during start up, testing and commissioning of the equipment.
- 19.02 Contractor shall install temporary piping if required in connection with testing and commissioning of these units at various points, as required by the Engineer and shall remove them in a neat and workman like manner after tests are over all at no extra cost.
- 19.03 The erection, testing and commissioning of the (Turbo compressors) units should be carried out in accordance with drawings and specifications which shall be supplied to the Contractor by the Engineer from time to time under the supervision/ guidance of and to the entire satisfaction of the Engineer of BHEL. This shall, however in no way relieve the Contractor of his responsibility of providing adequate and competent supervisory staff. Drawings and specifications will be supplied only after ensuring that the contractor has employed qualified, trained Engineers/Supervisors for supervising the job. Drawings and specifications will not be handed over to the unqualified men of Contractor.
- 20.00 DRAWINGS AND DOCUMENTS:**
- 20.01 The drawings enclosed with this specification are intended only to illustrate and generally indicate scope and nature of erection work involved and shall not necessarily be considered as final and accurate in any or all aspects and some changes may be made as required at a later date.
- 20.02 Upon award of Contract all the detailed erection drawings sufficient to carry out the erection work will be loaned to the Contractor.
- 20.03 All the detailed drawings/notes which will be available with the Engineer at Site shall form an integral part of the Contract.
- 20.04 Any documents, drawings, or designs supplied by BHEL to the Contractor in pursuance of the Contract shall remain the property of BHEL and any information derived there from Or otherwise communicated to the Contractor shall be regarded as secret and confidential and shall not, without the consent in writing of BHEL be published or disclosed either in full or in part to any third party or be made use of by the Contractor except for the purpose of implementing this contract. On completion of work, the documents, drawings and designs supplied shall be returned to BHEL in good condition failure of which will entitle the BHEL to recover the cost of the same if BHEL decides so. The decision of BHEL in this regard will be final and conclusive and binding on the Contractor.

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**21.00 FACILITIES PROVIDED BY BHEL/THEIR CLIENTS AT SITE:****21.01 LAND:**

BHEL/client will allot sufficiently leveled area, storage sheds for storage of Turbo- compressors & components and pre-assembly area at a suitable location. For contractor's Office shed sufficient area will be allotted on rent as charged by BHEL's client. The remittance of rent shall be as directed by BHEL/their clients. Upon completion of the work, the contractor shall dismantle and clear all debris as directed by BHEL.

**21.02 ELECTRICITY:**

a) Electricity for construction purpose will be made available at 3 Ph. 415 V 4 wire systems "At a single point in the project site. The bidders are advised to visit site and ascertain full details of the same before submitting their offers." Power will be charged at the rate charged by BHEL's clients. Further distribution of power to various erection equipment and power tools shall be arranged by Contractor by providing his own underground cable, main switch board, distribution switch board, service connections etc. and shall meet all the local statutory requirements.

b) The Contractor has to make his own arrangements for metering equipment which should be kept under the custody of the owner/purchaser.

c) The Contractor shall not be entitled to any compensation on account of interruptions /shut downs or temporary power failures.

**21.03 WATER SUPPLY:**

Water (including drinking water) required for construction purposes will be supplied at one point for each purpose. The consumption of water will be charged at the rates fixed by BHEL's client. The Contractor shall make necessary arrangements at his cost for further distribution and storage of water for various purposes as required.

Metering of the water consumption for different purposes shall be arranged at the cost of the contractor and should be kept under custody of owner/purchaser.

21.04 BHEL reserves the right to draw water and electricity without charges, from the distribution line laid by the Contractor. However, the consumption will be paid for at the same rates as charged by clients of BHEL. The Contractor shall have no compensation for claim of extension of time for failure or short supply of water and electricity. He should make alternative arrangements so as to ensure the completion of work within the time stipulated.

**21.05 OTHER FACILITIES:**

Customer's workshop facilities and cranes and other heavy equipment required for construction may be made available to the Contractor at the rates as may be fixed by Customers, subject to their availability and provided they do not affect the Customer's work.

The Contractor shall arrange for instruments as included in list of tools and plants at his own cost.

21.06 Instruments used by Contractor for work purposes shall be made available to BHEL Engineers whenever required without any extra charge.

21.07 BHEL shall provide instruments required by their Engineers for commissioning of turbo- compressors. However, the Contractor shall arrange for instruments as included in the list of tools and plants at his own cost.

21.08 BHEL will arrange for Engineers required for commissioning. However, the Contractor shall arrange workers and supervisory staff round the clock where necessary during commissioning and till handing over of the set.

**22.00 PROJECT SITE RULES:**

In addition to what has been mentioned in the general and special conditions, the site rules mentioned hereinafter shall be strictly observed by the Contractor and his employees. Contractor's work shall be also subject to inspection by Customer's Engineers and the Contractor shall provide all necessary assistance for such inspections.

**22.01 PRE-COMMISSIONING TEST AND TRIAL OPERATIONS:**

On completion of mechanical erection by the Contractor each item of the equipment and plant shall be thoroughly inspected by BHEL for correctness and for completion of thermal insulation etc. The Contractor shall also carryout within his quoted rates the installation of metering and connected wiring

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and piping works, laying out connected cables, cable jointing and generally carry out all works connected with their testing and commissioning and thereafter the Contractor shall put forth the equipment and plants for pre-commissioning tests at site. The procedure for pre-commissioning tests to be performed at site shall be as per agreement between BHEL and Customer.

**22.02 TESTING AND INITIAL OPERATION:**

The Contractor shall at his own cost perform the following work to be completed before trial operation as defined. The works to be carried out for this purpose shall include the following but details of the same shall be strictly in accordance with the drawings, specifications and technical information furnished by the BHEL and duly approved by Customer.

1. Pressure test and/or pneumatic test of all pipeline system
2. Initial and preliminary checking of all wiring, tubing and cabling before energizing.
3. Function test of control valves and other valves.
4. Function test of all electrical items and pumps.
5. Painting of all structures and impulse pipes, pipes/tubes where needed
6. Trial operation of Hot well pumps.
7. Trial operation of all auxiliary units
8. Turbine Spin Test
9. Adjustment of turbine trip device.
10. Adjustment of steam inlet governor and extraction governor.
11. Test of safety valves
12. Compressor and turbine tandem trial run

**22.03 GUARANTEE TESTS AT SITE:**

The guarantee tests of the plant shall be carried out after achieving 100% output of the equipment which may take around six months from the date of commissioning immediately after the conclusion of the operation. Detailed tests for conducting the guarantee tests shall be given later. Guarantee tests shall be carried out jointly by the representatives of BHEL and the Customer. The worker and supervisory personnel required during guarantee tests shall be provided by the Contractor without any extra charge.

**22.04 LOCATION OF HUTS:**

Temporary huts shall not be erected by the Contractor until the position and the type of construction have been agreed by BHEL.

**22.05 EXCAVATION:**

No excavation shall be started without the written permission of the BHEL who will inform the position of any known buried pipes or cables.

**22.06 INSPECTION OF CONSTRUCTIONAL PLANT:**

BHEL shall have the right to inspect any constructional plant and to forbid its use, if in the opinion of the BHEL, it is found unsuitable and no claim arising there from shall be made by the Contractor. Any defective or rejected constructional plant shall be removed from the site by the Contractor if directed to do so by BHEL.

**22.07 FIRE:**

The Contractor shall use all reasonable means to prevent an outbreak of fire and shall render immediate assistance in case of fire.

All inflammable materials shall be stored at site strictly as directed by the BHEL. No fire shall be lit without the permission of the BHEL.

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The Contractor shall arrange for necessary hand extinguishers in his store workshop and at work sites to deal with fires on the spot.

The Contractor shall report immediately to the Site Engineer BHEL of any outbreak of fire in or near the Contract site.

**22.08 STAGING AND SCAFFOLDING:**

Properly constructed staging with safe means of access shall be provided for all works that cannot be done from the ground or other safe means of support. No staging shall be less than 625 mm wide except for suspended scaffolds. Trestle scaffolds and scaffolds

on the outside of any sloping roof which shall be at least 450 mm wide. As far as possible, scaffolding shall be of tubular steel structure. BHEL shall have the right to declare any staging or scaffolding as unsafe and require the Contractor to effect necessary improvement before using such staging or scaffolding. No claims arising from rejection of any staging or scaffolding shall be made by the Contractor.

**22.09 BARRIERS:**

All construction areas in or near existing plant buildings, access routes or through fare shall be adequately protected with barriers by the Contractor.

**22.10 IONIZING RADIATIONS:**

The Contractor shall not consign or bring to the Site any radioactive substance nor use thereon such substance or any X-ray apparatus, until he has obtained written instructions in regard to such use from BHEL and he shall comply with all such instructions.

If the Use of such substance or apparatus by the Contractor on the site has been agreed, the Contractor shall obtain the permission of BHEL before such use.

**22.11 OBSERVANCE OF RULES:**

The Contractor shall explain to each of his employees, the site rules in a language which is understood by the employees.

The Contractor shall be responsible for the compliance by his employees with the site rules and shall make their compliance therewith a condition of employment.

**22.12 IDENTIFICATION OF EMPLOYEES:**

The Contractor shall arrange to issue individual identity card/token to all his employees. Contractor's employees will be allowed only on production of the Identification cards/tokens as the case may be.

**22.13 WITHDRAWAL OF IDENTIFICATION CARDS ETC:**

When a person ceases to be employed by the Contractor the Contractor shall collect back the identification cards/tokens from such persons.

**22.14 NOTICES ON THE SITE:**

The Contractor shall inform his employees that all site rules and all notices in any place on the site shall be strictly complied with. (Attention is drawn to the fact, that in certain areas smoking is not permitted and naked flames are not allowed).

**22.15 HOURS OF WORK:**

Contractor's employees shall conform to the starting, finishing and meal break-time as per site regulations. For work outside normal working hours, the Contractor shall obtain beforehand the written permission of BHEL.

**22.16 STORAGE AND CARE OF MATERIALS:**

The Contractor shall store his plant and materials only in areas allocated to him.

He shall be solely responsible for the care of all his plant, tools and materials and shall make no claim against BHEL for any loss or damage thereto.

The Contractor shall be responsible for keeping the site neat and tidy to the entire satisfaction of the customer. Pieces of wood, packing box timber, shuttering planks, brickbats, excavation soil etc., will not be allowed to remain scattered on the site. Such and any other rubbish must be disposed off as per instructions of BHEL.

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- 22.17 **REMOVAL OF MATERIAL FROM SITE:**  
No Plant, tools or material, whether belonging to the Contractor or otherwise shall be removed from the site without written permission of BHEL.
- 22.18 **PARKING OF VEHICLES:**  
The Contractor or his employees shall park their vehicles including personal cars only in areas allocated for the purpose.
- 22.19 **RELIGIOUS FUNCTIONS:**  
The Contractor shall not allow his employees to hold any religious function at site except with the written permission of BHEL.
- 22.20 **FEMALE WORKERS:**  
No woman shall be employed on the site by the Contractor except between hours 6.00 am and 7.00 pm.
- 22.21 **TOILET FACILITIES:**  
The Contractor shall arrange for suitable toilet facilities, separate for men and women employees on the site and maintain the same in proper hygienic condition.
- 22.22 **EATING ETC. ON SITE:**  
The Contractor shall ensure that his employees take their food only at specified places. Eating directly on the job shall not be permitted.
- 22.23 **WASTAGE OF WATER:**  
Contractor shall ensure that no water is wasted in any manner. He shall use press type taps if the customer so directs to prevent loss of water arising from Contractor's employees leaving the taps open.
- 22.24 **FOSSILS ETC.**  
All fossils, coins, and similar articles of value or antiquity discovered on the site shall be handed over to site Engineer of BHEL by the Contractor.
- 22.25 **LIVING ON SITE:**  
No Contractor's employees will be allowed to live on the site. Outside working hours no employee shall be allowed to remain on the site without the prior permission of the Site Engineer, BHEL.
- 22.26 **INFECTIOUS DISEASE:**  
The Contractor shall report to Site Engineer, BHEL any cases of infectious disease amongst his employees and shall remove such cases from the site forthwith.
- 22.27 **ACCIDENTS:**  
All accidents must be reported to the Site Engineer, BHEL without fail. The Contractor shall be responsible for complying with all statutory requirements in case of accident major or minor.
- 22.28 **DISCLOSURE OF INFORMATION:**  
The Contractor's employees must not communicate to persons other than BHEL any information on the design or performance of the plant or machinery. The Contractor must not take away from the site any samples, plans or drawings without written permission of BHEL.
- 22.29 **PHOTOGRAPHS:**  
The Contractor may take photographs of progress of his work only with prior permission from BHEL.
- 22.30 **SMOKING:**  
A Contractor's employee must not smoke on those parts of the site where notices prohibiting smoking are displayed.
- 22.31 **INTOXICATING LIQUOR:**  
Anybody found to be under the influence of intoxicating liquor shall be refused admittance to the site or evicted from the site.  
Intoxicating liquor must not be brought to the site nor be accepted from any person on the site.

**22.32 PRIVATE TRADING:**

A Contractor's employee must not conduct any form of private trading including money lending on the site.

**22.33 MEDICAL FACILITIES:**

Since no medical facility other than the standard medical kit will be available at site, medical facilities beyond the above will not be provided to the Contractor's supervisory staff & workmen. Contractor shall make his own arrangements for such medical facilities at his own cost.

**22.34 PROVIDENT FUND:**

The tenderer should have been covered under the Employees Provident Fund and Miscellaneous Provisions Act, 1952 as an un exempted unit and should furnish the code No. allotted to him by the provident Fund Authorities. In case his is an exempted unit the code No. allotted for the same by the Provident Fund authorities should be quoted. Please note that tenders not complying with the above requirement will not be considered.

**22.35 FOR ELECTRICAL:**

Laying, jointing and termination of power cables shall be done by certified electrician holding valid license from licensing authority of the state where the work is being carried out and must qualify himself from engineer in charge at site.

The Contractor should possess valid work license & on electrics from inspectorate authority of the state where the work is being carried out.

**23.00 FIRST AID:**

At the work site there shall be maintained in a readily accessible place, first aid appliances and medicines including an adequate supply of sterilized dressings and sterilized cotton wool. The appliances shall be kept in good order. They shall be placed under the charge of a responsible person who shall be readily available during working hours.

**23.01 DRINKING WATER:**

- a) Water of good quality fit for drinking purposes shall be provided for the workers on a scale of not less than five liters per head per day.
- b) Where drinking water is obtained from an intermittent public water supply each worksite shall be provided with a storage tank where such water shall be stored.
- c) Every water supply storage tank shall be at a distance of not less than 15M from any latrine, drain or other source of pollutions. Where water has to be drawn from an existing well which is within such proximity of any latrine, drain or other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells be entirely closed and be provided with a trap door which shall be dust proof and water proof.
- d) A reliable pump shall be fitted to each well; the trap door shall be kept locked and opened only for inspection or cleaning which shall be done at least once a month.

**23.02 WASHING AND BATHING PLACES:**

Adequate washing and bathing places shall be provided separately for men and women. Such places shall be kept clean and well-drained. Bathing or washing should not be allowed in or near any drinking water well.

**23.03 LATRINES AND URINALS:**

There shall be provided within the precincts of every worksite, only water flushed latrines and urinals in an accessible place and the accommodation, separately for each of them shall be on the following scale or on the scale so directed by the site engineer of BHEL in any particular case.

1. Where the number of persons employed does not exceed 50
2. Where the number of persons employed exceeds 50 but does not exceed 100
3. For every additional 100

If women are employed, separate latrines and urinals screened from those for men, shall be provided on the same scale.

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**23.04 SHELTERS DURING REST:**

At the worksite there shall be provided free of cost two suitable sheds, one for meals and the other for rest for the use of workers.

**23.05 CRÈCHES:**

At every work site at which 50 or more woman are ordinarily employed, there shall be provided huts of suitable size for the use of children under the age of 6 years belonging to such women. One hut shall be used for infant's games and play and the other as their bed-room. The huts shall not be constructed on a standard lower than the following:

1. Thatched roofs
2. Mud floors and walls
3. Planks spread over the mud floor and covered with matting

The use of the huts shall be restricted to children, their attendants and mothers of the children.

**23.06 CANTEENS:**

A cooked food canteen on a moderate scale shall be provided for the benefit of workers if it is considered expedient.

**23.07 SHED FOR WORKERS:**

The Contractor should provide at his own expense sheds for housing the workers. The sheds shall be of a standard note less than the cheap shelter type to live in which the workers in a locality are accustomed. A floor area of about 6' x 6' for 2 persons, shall be provided. The sheds are to be in rows with 5' clear space between sheds and 80' clear space between roots if conditions permit. The worker's camp shall be laid out in units of 400 persons, each unit to have a clear space of 50' on each side.

**NOTE:** In case where alternative facilities exist in regard to the amenities mentioned rules 1 to 8 of the relevant rules should be scored out with due attestation at the time of implementing the agreement.

**24.00 SAFETY INSTRUCTIONS:**

1. All the work shall be preplanned regarding the safety measures before they are taken up in hand. The workers shall be instructed as to how to work safely.
2. Fire precautions and safety regulations shall be observed by one and all.
3. Safety lectures shall be organized in the interest of the person's life, health and safety during work.
4. *Fire:-extinguishers, buckets of sand and water shall be provided in working area within the reach of each working area.*
5. Fire alarm switches shall be fixed in such a way that any layman can operate the same in emergency.
6. Near every telephone the phone number of the fire station shall be mentioned in a visible place.
7. Warning boards, 'Dangerous Zone' boards, 'No admission' boards and 'No smoking' boards shall be displayed wherever necessary
7. Safety instructions in languages understood by workers and other staff shall be displayed in prominent places.
8. First aid cabin with a compounder shall be kept at a convenient place at site. An 'Ambulance Van' shall also be kept ready in working hours near the cabin.
9. First aid instructions chart for electrical shock shall be displayed at prominent places
10. The workers shall be provided with the appropriate safety equipment for job
11. In work place, only the authorized passage for entrance and exit shall be used.
12. Persons wearing cloth like Nylon and Terylene shall not approach the fire when there is a fire accident.
13. Workers shall wear tight fitting clothes as loose cloths are liable to be caught in equipment in motion. Workers shall also use footwear giving proper protection.

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14. No person shall be allowed to work under the influence of intoxicating drinks.
15. Before entering the prohibited area necessary permission shall be obtained.
16. Holes and pits shall be covered with suitable planks, slabs and chequered plates.
17. It should be ensured that no unauthorized person is allowed to operate drain valves of the tanks filled with fluids such as soil etc. or any other valves meant for equipment that is under operation.
18. Unauthorized persons shall not be allowed to repair any machines or equipment.
19. Dropping of tools and tackles is forbidden.
20. Any equipment shall be started or put into operation only by authorized persons.
21. Tools and tackles shall be in sound condition and proper tools shall be used for proper work.
22. No person shall be allowed to lean over the tack-welded structures or hand railing. Also no load shall be applied on tack-welded joints.
23. Placing the fingers in holes of the couplings, in between the flange joints and between any moving parts shall be avoided.
24. Using compressed air for joke or even pointing hose at another person shall not be done.
25. Working spots shall be kept clean and in order.
26. Whenever repair work is to be done on a running machine or in any charged line (with hot water, steam pressure line, acid line, power line) written clearance shall be obtained from the concerned authorities. Before commencing the work, it shall be ensured that the safety steps are actually followed by them.
27. Continuous watch shall be kept over the men working in closed places like condenser tanks and cable ducts, so that they can be removed out, if they feel suffocated. If necessary, sufficient light and ventilation shall be provided.
28. LIST OF SAFETY PRECAUTIONS TO BE OBSERVED BY THE CONTRACTOR:
  - 28.01 The contractor shall take all necessary safety precautions and arrange for appropriate appliances as per direction of BHEL to its authorized officials to prevent loss of human lives, injuries to personnel engaged, and damage to property.
  - 28.02 The contractor shall provide to its work force and ensure the use of the following personal protective equipment as found necessary and as directed by the authorized BHEL officials:
    - i) Safety Helmets conforming to IS-2925, 1984
    - ii) Safety Belts conforming to IS-3521, 1983
    - iii) Safety shoes conforming to IS-1989, 1978
    - iv) Eye & Face Protection devices IS-8520, 1977 and Conforming to IS-8940' 1978
    - v) Hand & body protection IS-2573, 1975, IS-6994, 1973  
Devices conforming to IS-8807, 1978, IS-8519, 1977
  - 28.03 The contractor shall not use any hand-lamp energized by electric power with supply voltage of more than 24 volts.
  - 28.04 All portable electric tools used by the Contractor shall have safe plugging system to sources of power and be appropriately earthed.
  - 28.05 All tools, tackles, lifting appliances, scaffolds, cradles, safety nets, ladders, equipment etc. used by the contractor shall be of safe design and construction. The authorized BHEL officials shall have the right to ban the use of any item, if such use is considered to be dangerous by the concerned BHEL officials. :

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- 28.06 If the Contactor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carryout instructions issued by the authorized BHEL officials, BHEL shall have the right to take corrective steps at the risk and cost of the contractor.
- 28.07 The contractor shall take all necessary fire safety precautions as per directions of the authorized BHEL official.
- 28.08 In case of a fatal or disabling injury accident to any person due to lapses by the contractor, BHEL shall have the right to impose appropriate financial penalty on the sub-contractor and recover the same from payment due to the contractor for suitably compensating the victim or his/her dependents. Before imposing the penalty, appropriate enquiry shall be held by BHEL.
- 28.09 In case of any damage to property due to lapses by the contractor, BHEL shall have the right to recover the cost of such damages from the payments due to the contractor after holding an appropriate enquiry.
- 28.10 In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor, BHEL shall have the right to recover cost of such delay from the payments due to the contractor, after notifying the contractor suitably.
- 28.11 If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so, BHEL shall have the right to terminate the contract and get the job completed at the risk and cost of the contractor,
- 28.12 If the contractor succeeds in carrying out its job in time without any fatal or disabling injury accident and without any damage to property, the BHEL shall favorably consider rewarding the contractor suitably for its performance.

## **25.00 HANDLING OF LOADS:**

1. Only the authorized operator should be allowed to operate a crane.
2. The operator should operate the crane only on the instructions from the slinger or the supervisor in charge for the work concerned.
3. The operator shall immediately stop the crane as soon as he gets the stop signal.
4. The operator and the slinger should be fully conversant with the operating signals and the slinger should be very careful to give appropriate signal for each movement of the crane. Necessary codes will be given by our representative at the site.
5. It is always advisable to engage experienced personnel for handling the loads
6. Intermediate signaling man shall be provided whenever the operator cannot be seen by the slinger.
7. If the crane brake does not work properly, the crane shall not be operated and the defect shall be rectified immediately.
8. Work with utmost care when having the hook near its, extreme line.
9. Before leaving the crane the main switch must be switched off by the operator.
10. Inclined pull or pulling of heavy loads is forbidden.
11. The lifting capacity of the crane should not be exceeded at any time.
12. All slings shall be tested initially and later periodically. They shall carry a metal ring or its safe lifting capacity shall be marked. This limit shall not be exceeded.
13. While selecting the sling, the safe load carrying capacity shall be ensured on the basis of angle between the sling ends. A chart showing the relation between the sling capacity and safe load carrying capacity at various angles should be available.
14. Marks on the case for placing the slings shall be looked for before lifting the case there are no markings, decide carefully suitable place for putting the sling.

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15. Fastening the slings around the sharp edges shall be avoided, soft packing like soft wool, gunny bag pieces and tin sheet etc., shall be provided where necessary.
16. The crane hook shall be properly centered to the load to avoid swinging of load before the load is lifted.
17. Wherever the lifting tackles are provided the same shall be utilized for lifting the equipment.
18. Equal distribution of loads on the slings while lifting is essential.
19. Before lifting a load, all the loose parts shall be fastened with main load properly and all the unwanted material shall be removed from it to prevent them from falling down.
20. Where special care to prevent a heavy load on crane from rotating or swinging is necessary, the load may be tied with manila ropes, which shall be guided by holding tight. Care shall be taken to move the load very slowly and to ensure that the ropes do not get entangled with any object.
21. Transporting the loads over the running machines, equipment under erection (like turbine and Compressor) and over the persons is prohibited.
22. Keeping the loads hanging on the crane hook for a long period should be avoided.
23. No person shall be allowed to stand on the load or under the load where it is either lifted or moved.
24. The bearing capacities of the floor shall be ensured before placing any load on the same.
25. Whenever slings, ropes or chains are carried crane hook, care shall be taken to fasten them to the hook and they should not be allowed to swing or to get entangled with other objects. Otherwise they may damage other equipment.
26. Slings ropes and chains used for handling the loads are to be inspected regularly and shall be stored on sling stand and preserved against the weather influences.
27. In case of any rope-breakage and knots in slings the operator shall immediately arrange for off-loading the sling.
28. Stretching of sling or cracks are the indication of breakage of the rope.
29. Knotting and winding the slings around the hook for reducing its length is forbidden.
30. Only tested tackles shall be used for joining chains or slings.
31. The crane ropes are to be lubricated with acid less adhesive grease.
32. The slings chains hooks and shackles shall not be dropped or dragged on the floor.
33. All valves shall be lifted with their bodies and not by their wheels.

**26.00 INSTRUCTIONS ON TRANSPORT OF IMPORTANT PARTS FROM STORE TO SITE:**

1. Proper planning is necessary to shift the equipment safely from the stores to the required spot.
2. The actual weight and the dimensions of the equipment shall be checked so as to arrange the suitable crane and trailers, wagons, trucks etc.
3. Route shall be decided in advance to transport the equipment over the culverts below the overhead power lines and below the telephone lines etc. Sometimes cables may have to be lifted up to allow the heavy weights with the trailer to pass.
4. Line clear shall be obtained (in writing if necessary) a day earlier to transport the important equipment like Rotors of Turbine and compressor, turbine casing,
5. Precision mechanical and electrical equipment shall not be left open on the road because of any break down of the transport vehicles.

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6. Responsible Officer shall be present at the time of the movement of heavy and special equipment.
7. Heavy equipment shall not be allowed to pass through the bends on the road.
8. In case of non-availability of overhead cranes or gantry crane, a mobile crane with required capacity shall be arranged for transportation.
9. Stoppages of the loaded trailers shall be minimized while transporting from stores to the site.

#### **27.00 HANDLING AND USING OF CYLINDERS ETC.:**

1. At the erection site gas cylinders and oil barrels shall be transported by crane only with suitable carrier fabricated for this purpose.
2. Valve protection caps shall not be removed while transporting the cylinders.
3. Carrying the cylinders on the shoulder is prohibited
4. In case of work spots not easily accessible by passages, a cylinder may be transported by 20 men by using a thick and strong, wooden beam on their shoulder and tying the cylinder to it. The cylinder shall be kept near to the ground. One more man should accompany them for assistance.
5. No cylinder shall be rolled down on the ground.
6. On plain surfaces the cylinders can be rolled in a slant position by keeping them on the edge of the base.
7. Sudden dropping of cylinders, hammering them, tapping on them the live electrode for testing the arc, smoking near the cylinders and sitting on the cylinders are prohibited.
8. The cylinders shall be secured in vertical position before using the same for work. Acetylene cylinders shall always be stored and utilized in vertical position,
9. Before connecting the respective regulators on the cylinders, clean the threads and valve passage by opening the cylinder valve momentarily. Then secure the union of the regulators in respective direction of the threads (Acetylene in anti- clockwise direction and oxygen in clock- wise direction).
10. The cylinders shall be kept away from hot plates, hot air, steam line, falling molten metal from welding or cutting work, oil line. They shall be kept away from electrical circuits also.
11. After utilizing the cylinders the valves shall be kept in closed position.
12. The cylinders shall not be utilized as supports or as rollers for moving some equipment.
13. Tampering with the cylinder valve and its serial number are strictly prohibited.
14. If any continuous leakage is found in the cylinder the same shall be shifted to a safer place, while returning the cylinder, the number and the defect shall be intimated to the supplier.
15. Do not use defective regulators, hose, cutting & welding torches.
16. Unauthorized persons shall not meddle with the above said apparatus.
17. Proper wrenches shall be used for this operation.
18. On the empty cylinders words 'EMPTY' or 'MT', shall be written and they shall be kept in separate place.
19. Slings and electrical magnets shall not be used to handle the cylinders.
20. Grease should not be used on any part of Oxyacetylene apparatus.

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**28.00 SCAFFOLDING AND ITS SAFETY PRECAUTION:**

1. Even without the individuals demand scaffolding shall be arranged for any worker when the job is beyond his reach.
2. To ensure the stability of scaffolding shake the platform with both the hands and ensure its stability before boarding on the same.
3. Material for scaffolding shall be a sound one especially, wooden plank pipe, clamp, bolt, nut, binding wire etc.
4. Using any of type ropes except binding wire or clamps on the scaffolding for welding work is prohibited.
5. Lifting of any heavy object from ground by standing on the scaffolding shall be avoided
6. Persons working on elevation shall be provided with all the safety coverings like hand gloves goggles" safety belts and also helmets, if any work is going on above them.
7. Scaffolding shall be provided with hand railings or some thick manila rope can be utilized for the same purpose if it has to remain for a longer periods.
8. Placing or storing of heavy material on the scaffolding shall be prohibited.
9. Unwanted items shall be collected in a bag or in a bucket and then lowered manually by some rope instead of throwing the same on the walk way.
10. Testing, the arc of electrodes on the scaffolding pipes is prohibited.

**29.00 SAFETY REGARDING WELDING:**

1. Necessary safety equipment should be supplied to the welders, chippers and grinders (i.e. shield with 'good glass, apron, hand gloves, leg guards, goggles etc.)
2. Do not allow anybody to look at the welding arc with naked eye.
3. Welding cable shall be checked periodically to ensure that its insulation is preserved in perfect condition
4. Do not allow welding cable to mix or lie with the power cable or with oxy-acetylene hoses
5. Welding cable shall not be allowed to come in contact with the important surfaces of equipment (especially on the parting plane of the turbine, flange joints and over the threads of pipe, bolts and nuts.
6. No inflammable material shall be left below the welding work (for example cotton waste, cloth pieces wooden material, papers, tarpaulin oil and petrol barrels and oxy -acetylene cylinders etc.)
7. Only an authorized welder shall be allowed to work on the jobs for which he is qualified. .
8. Welding generator or transformer shall be switched off whenever not being used.
9. Gas cylinder valve shall be closed as soon as gas welding or cutting work is over.

**30.00 'X' RAY AND ISOTOPES:**

1. Only authorized employees shall be permitted to handle the 'x' ray equipment and isotopes.
2. Necessary precautions shall be taken while handling x- ray equipment and isotopes as advised by the manufacturer of the same.
3. 'Danger Zone' boards shall be displayed around the spot of testing over the specified area.
4. Periodical medical check-up shall be taken by the individual who handles the isotope and 'x- ray equipment and he shall act as per the doctor's advice.

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5. This work should preferably be carried out on holidays or in the night when there are very few persons around.
6. Methods of storing and the plan of the building (stores) shall be obtained from the manufacturer/supplier of those equipment.
7. The container shall be sealed before keeping in the store.
8. Persons including the 'X'-ray tube operator should not expose themselves to direct beam of X-ray.
9. Even authorized persons should have shield to protect themselves from direct or scattered radiation.
10. The safety precautions and procedures shall be instructed to all the persons.
11. All the authorized persons who handle the X-Ray and Isotope equipment shall be kept informed of the harmful effect on human body and shall be utilized only for the minimum required period.
12. While handling such equipment, hands and body shall be kept away. Tongs and other suitable devices shall be used when handling the equipment.

### **31.00 ELECTRICAL:**

1. All the electrical equipment like switches, starters, welding machines, motors and transformers shall be protected against weather conditions,
2. All the electrical connections shall be periodically checked by the authorized certified electrical supervisor.
3. Whenever electrical faults are noticed they must be immediately attended to.
4. All the portable lamps shall be suitable for 24V supply.
5. Operating the electrical equipment or activating the circuits with wet hands is forbidden.
6. Protective rubber gloves and rubber shoes shall be used before working on electrical lines.
7. Before switching any new electrical equipment, proper earthing shall be done. Effectiveness of earthing connection shall be checked periodically.
8. Direction of rotation shall be checked just after giving connection to welding machine motor, etc.
9. Indicating lamps shall be fixed on the provisional cubicles on different floors as well as on overhead crane live wires.
10. Whenever the supply fails in all the phases or in any one of the phase, all the electrical machinery shall be put off immediately (especially 3 phase motors and welding generators).
11. Repairs to electrical equipment or lines shall not be carried out unless the main switch is switched off and fuses are removed. A board with words 'DO NOT SWITCH ON MEN AT WORK' shall be hung on the switch. Before commencing the repairs, the terminals shall be tested with a tester to ensure that the supply is off.
12. No unauthorized person shall switch on any switch or interfere with the electric circuit

### **DANGEROUS RADIATIONS**

#### **32.00 X-Rays:**

1. No X-Ray tube operator or other worker shall deliberately expose himself to a direct beam of X-Rays.
2. All X-Ray tubes used shall be of self-protected shock-proof type
3. The protection of the tube shall be of full protective thickness

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4. Any continuously-excited X-ray tube shall be provided with a lead shutter of full protective thickness and so arranged that it can be operated and closed only from the control panel
5. The control panel of mobile X-Ray sets used in industry shall be placed and operated from behind fixed or temporary screening of adequate protective thickness
6. During X-Ray exposures all persons other than the control operator shall be:
  - a) Shielded from direct or scattered radiation by screening of adequate protective thickness.
  - b) Excluded from any area around the X-Ray tube and the article being radio graphed be determined by competent authority in each particular case
7. The area as determined by the above paragraph shall be temporarily delimited by roping off or by other suitable fencing
8. Visible warning signs or audible signals or both shall be provided and operated immediately prior to and during radiographic exposures of X-Ray units
9. Wherever possible' the useful X-Ray beam from X-Ray units shall be directed away from alt occupied spaces and the beam cross section limited to the smallest area necessary for work.

### **33.00 RADIOACTIVE SUBSTANCES:**

#### **33.01 GENERAL:**

1. The persons who are employed in the radiographic work shall be medically examined particularly for chest and blood analysis prior to .their employment.
2. They shall be medically examined periodically during their employment in radiographic work and workers found to be having the maximum permissible amount of radium in the body shall be removed forthwith from further exposure to radio-active substances and shall not return to work involving such exposure until medically advised that they are permissible.
3. All persons handling the radio-active substance shall be kept informed of the harmful effects on human body and shall handle only minimum quantities necessary for Work, remain in proximity to such substances only for the minimum time necessary and keep the hands and body as far away as possible from such substances by handling them with tongs or other suitable devices.
4. All persons shall be thoroughly instructed about the safety precautions and procedures.
5. Persons exposed to radioactive substance should have a high calcium diet.

#### **33.02 STORAGE & TRANSPORTATION:**

1. The isotope shall be sealed and kept in a store house specially built for this purpose.
2. The store house with the isotope shall be reliably protected from entry of unauthorized persons.
3. Sign boards shall be exhibited in the store house to forbid the entrance of unauthorized persons.
4. Only authorized persons shall be permitted to handle the isotopes or X-Ray equipment.
5. The ampoule shall be transported to the place of work either by a wheel barrow 1 .5M long or by men with the help of rod keeping a minimum distance of one meter between the container and persons who carry it. It shall never be carried on shoulders.

#### **33.03 HANDLING:**

1. In field radiography protection can be obtained by distance alone. Hence steps must be taken to ensure that all the persons are far away from the radiation source to ensure safety.
2. To limit the exposure to other persons it is recommended to cordon off the area and exhibit warning sign boards.

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3. The permissible doses for man to be exposed by radiation shall not be more than 0.5 per day.
4. Unauthorized persons shall not be allowed in the radiation area.
5. No person shall be permitted to handle radiation sources without wearing the film badge of the Atomic Energy Establishment or any other registering instrument such as Dosimeters etc.
6. As the radiation hazards are deleterious to health it is advisable to carry out the works during the night shift or when minimum numbers of persons are working around.

### 34.0 LIST OF TOOLS AND PLANT

Description 1.	Specifications 2.	Quantity 3.
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#### A. HANDLING & LIFTING EQUIPMENT:

1. Hydraulic jack.	Capacity-25 T lift = 200 mm Dia of the table, piston = 90 mm Min. height above the ground level = 260 mm  Force on the lever = 30 Kg. Length of the level = 625 mm	4 Nos.
2. Screw Jack (ratchet type)	Capacity: 5T lift 200 mm	4 Nos.
3. Jack bolts	Min. ht. 75 mm, lift- 30 mm dia of bolt -36 mm	16 Nos.
4. Hand ratchet Jack	Capacity -5T stroke: 370 mm Height above the ground level 90 mm Force on the level -50 Kg	2 Nos.
5. Hand ratchet Jack with chain and hooks.	Capacity- 1.5 lift-- 2M Arm length -440 mm force on the lever-55 Kg. Min. distance between the top and bottom Hook: 440 mm, Hook size = 40 mm	6 Nos.
6. Chain pulley blocks	Capacity - 3T, lift -6m	4 Nos.
7. Steel ropes with loops as per Site requirement,		
8. Eye bolts CSNO2 as per site requirement		

#### B. MACHINERY:

1. Power saw	H. P. -1.5 Blade length 600 mm throats 200 mm, strokes/min = 60	1 No
2. Elec. Air compressor With air receiver (Tank) pressure = 7 atp	Capacity -5m <sup>3</sup> /minute  Tank capacity = 3.5 M3 3 phase electrical motor: 440 V, 50 C/s air cooled With pressure gauge, starter for Motor, auto-start/stop, necessary Valves, tank with drain and Safety valve  OR 2 of 2.6 M3/min. 6 atp tank:	1 No

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1. 8 M3 all other things are same as above.

3. Elec. Bench grinder with two  
Wheels  
H. p. =1, RPM =2900, wheel dia =200 mm  
Thickness = 25 mm, 440V 3 phase 50 c/s 1 No
4. Portable electrical drilling  
Machine dia: 15 mm  
Dia. of the drill =15 mm  
Power=350 watts 250V, 50 c/s 2 Nos.

Description 1.	Specifications 2.	Quantity 3.
5. Flexible shaft portable elec. Grinding machine	Shaft dia, =20 mm, Length- 5M Min. RPM = 2800 Input -1.3 kW With various shaped grinding wheels	1 No.
6. Portable pneumatic drill with Morse taper No-3 dia 32 mm	Drill dia. 32 mm Air condenser 1.8 M3/min. working pressure 5/7 atp RPM -190/360	1 No.
7. Portable pneumatic grinder	Wheel dia=100 mm Thickness=20 mm Working pressure 5/7 atp	1 No.
8. Portable pneumatic grinder	Wheel dia =200 mm, Thickness = 40 mm, Working pressure 5/7 atp.	1 No.
9. Chamfering machine Portable size 75 to 250 mm dia	Czechoslovakian make (CKD) 6.8 KW  415 V motor with a starter on a trolley with a universal shaft coupling chamfering tool. Jaws are to accommodate the sizes 75 to 250 mm. OR similar one	1 No.
10. Hydraulic pipe bending machine, hand operated	1/2" to 2" mean radius of bend 45 to 230 mm with the blocks for 1/2", 3/4", 1", 1 1/4", 1 1/2", 1 3/4" and 2"	1 set
11. Gas welding & cutting set with pressure gauges for oxygen and acetylene	Cutting & welding up to 50 mm	1 set
12. Welding transformer set with regulator	350 A, AC Max = 450 Amps Min = 75 Amps  About 30 KVA Secondary = 85 V, Primary = 400/440V	2 sets
13. Welding D. C. Generator set with regulator	320 A, DC 90 V, Max: 320 Amps, Min: 30 A Motor KVA: 20, 2910 RPM 440V.	2 sets
14. Annealing Transformer and inductor	Full set suitable for annealing alloy steel pipes (Mat. 13 cr. 44 Mo), after welding max, pipe size/-150 x 14 variation of annealing temp. reqd. 600°C to 720°C similar to A.C.L.C. Belgium makes)	1 set
15. Argon welding equipment		2 No
16. Electrode drying oven automatic with temp control	Capable of accommodating 6 or 8 packets electrodes	1 No.

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17. Camera for Iridium 192 5 curies isotope and manipulator rod. Iridium\ 192 isotope		1 No.
18. Plastic cassettes 10 x 48 cm		2 Nos.
19. Lead screens	10 X 48 cm	2 sets
20. Lead letters	12 mm	2 sets

Description 1.	Specifications 2.	Quantity 3.
21. Lead numbers	12 mm	2 sets
22. Gevaret D-4 films	10 x 48 cm	2 pkts
23. Developer to make 13.5 liter	1 tin	1 tin
24. Fixer to make 13.5 liter		1 No.
25. Tube bending machine (5 to 25 mm)		1 No.
26. Portable needle grinder pneumatic / electrical		1 No.
27. All common tools like straight edge, fitters vice vernier calipers, micrometers, dial gauges, lever type dial gauges, feeler gauges, surface plate, spanners, screw drivers, hammers, mallets etc. tools as required by RE at site to be brought by the Contractor.		

### C. PROTECTIVE EQUIPMENT:

1. Hand gloves -rubber with cotton in lay' Hand gloves-leather with five fingers	(12"-4 pairs & 14"-4 pairs)	8 pairs 8 pairs
2. Hand gloves- leather	Flat	30 pairs
3. Hand gloves for welders		7 pairs
4. Asbestos hand gloves with flannel lining	(12"-2 pairs and 14"-2 pairs)	4 pairs
5. Goggles for gas Welders		8 Nos.
6. Goggles for grinders		12 Nos.
7. Arc welders shield with hand gear & hand shield		4 Nos. each
8. Spare glasses for Arc Welders shield	i) clear ii) dark	32 Nos. 16 Nos.
9. Spare glasses for gas Welder's & goggles	i) clear ii) dark	14 Nos. 16 Nos.

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**D. MISCELLANEOUS:**

1. Gas Hose Oxygen and Acetylene	Bore dia, 10 mm 25, 50 & 75M lengths	2 sets each
2. Wire brushes for welders	150 x 25 mm 3 rows wire bristles 5 rows wire bristles	6 Nos. 6 Nos.
3. Gas cutting nozzles cleaning kit		2 sets

Description 1.	Specifications 2.	Quantity 3.
4. Spare glasses for grinder's goggles/ Protective helmets	Clear	16 Nos. 18 Nos.
4a. Leather apron	24" x 42"	5 Nos.
5. Safety belts		6 Nos.
6. Polythene cloth	1.5M x 20M	1 No.
7. Leg guards (Leather)		6 sets

**E. SPECIAL TOOLS AND TACKLES REQUIRED FOR ERECTION OF INDUSTRIAL TURBINES/ COMPRESSORS:**

1. Set of Torque spanners (M 6 to M 64)
2. Electric Bolt heating equipment
3. Feeler gauges (length 300; 200 mm of different widths)
4. Flexible Torch lights with mirror
5. Inside and outside micrometers (0 to 250 mm, dia in different steps)
6. Lever type and plunger type dial indicators
7. Micron dial indicators
8. Leaf feeler gauges (0.03 and 0.05 mm)
9. Depth gauges up to 400 mm
10. Lead wire measuring gauges
11. WOODWARD governor tool kit
12. BOROSCOPES:
  - a) Flexible type
  - b) Rigid type
13. Shock pulse meter
14. BENTLY NEVADA dynamic data Manager for computerized vibration monitoring and signature analysis.
15. Lube Oil analyzer
16. Polaroid camera
17. Digital / 35 mm camera
18. Stroboscope
19. Magnifying glasses

**F. CONSUMABLES:**

1. Birkosil
2. Hylomer
3. Led plate 200
4. Loctite 221'601,621
5. Molykote 321 R

**NOTE:** - i) All the tools should be procured in sufficient quantities by the Contractor

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ii) The list of tools & tackles mentioned above are indicative only. The contractor has to mobilize the required tools & Plant in sufficient quantity to carry out the erection, testing and commissioning. He may obtain the guidance from the Resident Manager/- Resident Engineer in

### 35. OIL PIPING

- 1) All dimensions /elevations refer to C.L. of pipe lines unless otherwise specified.
- 2)
  - a) Pipe routing shall be done strictly as per drawing. Wherever dimensions are not specified same may be routed as per site convenience.
  - b) Pipe nominal size 2" and below shall be routed as per site convenience unless otherwise specified in the drawing.
- 3)
  - a) Fusion faces shall be as per BHEL Standards mentioned in isometric drawings.
  - b) Weld edges shall be debarred before welding.
- 4) Follow the following WPS Nos. for weld joints mentioned in the isometric drawings.
- 5) 10% of welds selected at random shall be tested with liquid penetrant.
- 6) Drain lines / return headers shall be erected with a slope of 1 Deg. in the direction of flow.
- 7) All hangers are of rigid type unless otherwise specified. Small bore pipes shall be Fixed clips to the nearest structure suitably.
- 8) Orifice shall be erected after oil flushing.
- 9) Pipes shall be thoroughly cleaned during erection and should be acid pickled as per BHEL procedure for acid pickling after the lines are completely erected and hydraulically tested.
- 10) Hydraulic test shall be conducted on complete pipe lines (except drain lines) at 1.5 times max. working pressure before acid pickling.
- 11) After cleaning, all pipes shall be painted as per BHEL standards, unless otherwise specified.

### 36. CLEANING AND PAINTING OF LUBE OIL PIPE LINES (CARBON STEEL AND STAINLESS STEEL):

Scope: This standard covers the pickling and painting requirement of Carbon Steel and Stainless steel Piping.

- 1.0 Mechanical cleaning for Carbon Steel and Stainless Steel Piping.
- 1.1 Mechanical cleaning consists of removing scales, welding spatters, rust, earth residues, previous painting or any other deposits adhering to the metal surface by means of wire brushes, wheels or pneumatic chisel or other similar methods while taking care not to damages the piping metal surface.
- 2.0 **Flushing:** Initially flush the C.S. and S.S pipe lines with water at 70 Deg. C for about one hour.
- 3.0 Degreasing of C.S. and S.S. Pipe lines.
- 3.1 **Purpose:** For removal of any oil, grease etc., which may be adhering to the metal surfaces of line.
- 3.2 **For degreasing:** A solution containing 15% caustic soda and 15% sodium Phosphate in water at 80 Deg. C shall be used. The solution shall be kept agitated during degreasing.
- 4.0 **Flushing:** The C.S. and S.S. Pipe lines shall be flushed with hot water at 80o C for 1 hour.
- 5.0 Pickling of Carbon Steel Pipe Lines.

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- 5.1 Use a mixture of sulphuric Acid and Hydrochloric Acid. The strength of the pickling solution depending on the surface condition of the part to be treated. The concentration may be up to 20% and temperature can be 20 to 65o C. Duration of pickling shall be 24 hours or use 5% sulphuric acid or use 20% Hydrochloric Acid.
- 5.2 **Washing:** The pipelines shall be flushed with water.
- 5.3 Neutralization: In alkaline solution consisting of caustic soda 5% Benzoate 2 to 3% and sodium Nitrate 10%. The PH values of the solution shall be PH 8-10. T. No-time lapse should be allowed between articles 6.2 and 6.3 above. Or 2% phosphoric acid can also be used for Neutralization.
- 5.4 Drying: Immediately after neutralization pipe lines shall be dried with compressed air which is free from oils and humidity.
- 5.5 Protection: If the pipe lines are not put into service within few days of above treatment, they shall be protected by Anti-oxidizers and fill with Nitrogen.
- 6.0 **Painting of CS. Pipe lines.**
- 6.1 Pipe lines shall be cleaned by wire brushing also see Art.2.1 for details.
- 6.2 **Anti-corrosive painting:** Apply 4 coats of anticorrosive paint DURALIT SR 1.423. 2201 of MAX MAYER or its equivalent APCODUR CP 684 yellow with its suitable thinner No.121. The total thickness of dry film shall be around 0.2mm.
- 6.3 **Finish paint:** Apply one coat of DURALIT ISC series 431 (1.431-8176) of MAX MAYER) or its equivalent APCODOUR CF 692 ADUIRALT Y GREY by adding suitable thinner No.181, The thickness of dry film shall be around 0.04mm.
- 7.0 Stainless steel surfaces do not require painting.

### 37. GENERAL INSTRUCTIONS FOR ACID CLEANING (PICKLING) OF PIPE LINES OF OIL SYSTEM:

#### 1 GENERAL:

The purpose of acid cleaning (pickling) is to remove the rust resulted due to long Exposure to the atmospheric conditions and for dislodging g the burs, welding slag and the mil scales adhering to the internal surface of the pipe lines. The oil pipe lines include lubricating oil pipe lines, governing oil pipe lines, seal oil system pipe lines and all the drains.

After completing the fabrication of piping for the oil circuit, the pipes shall invariably be pickled.

#### 2 METHODS OF PICKLING PIPE LINES MATERIAL WISE:

##### 2.1 Material: carbon steels & alloy steels.

Sl. No.	ACTIVITY	COMPOSITION AND OTHER DETAILS	DETAILED PROCEDURE REFERENCE
a)	Hot water flushing	D.M.water	Item under hot water flushing
b)	Degreasing with an Alkaline solution	Alkaline solution consisting of 50 gms. of tri-sodium phosphate, 50 gms. of sodium carbonate, 20 gms. of caustic soda per 1 ltr. of water at 80 deg. C circulation /filling for 2hrs. at 70 to 80 deg. C	Item under circulation process
c)	Hot water flushing after degreasing	Hot water circulation for one hour at 70 to 80 deg. C	Item under hot water flushing.
d)	Acid cleaning with:	<p>Acid solution consisting of HCL at 10% concentration inhibitor of 1% by volume (say roudine 213) and the rest with water at temp. 70 to 80 deg. C</p> <p>Note: Other acid solutions which are less frequently used are:</p> <p>i) Sulphuric acid 10 to 15% concentration; soaking period 1 hour.</p> <p>ii) Phosphoric acid of 30 to 40% concentration; soaking period 10 hours</p> <p>It is not advising to use NITRIC ACID SOLUTIONS for this Process.</p>	Refer item under circulation Method. Other inhibitors like 1% Formaline or 31% pyridine can also be used
e)	Hot water flushing	After acid cleaning hot water flushing at 70 to 80 Deg. C for one hour.	
f)	Neutralisation: After acid cleaning	To neutralize the acid a solution of 5 to 10% of caustic soda of 50 gms of Trisodium Phosphate mixed in one litre of water maintained at 40 to 50 Deg. C can be used. Circulation may be for one hour. Soaking period may be 10 to 20 minutes. However, it is to be continued till the PH value of the solution reaches to the required value of about 8 to 10.	
g)	Hot water flushing:	Hot water circulation at 80 Deg. C for one hour	
h)	Dry with:	Air blowing with compressed Air free from oil, moisture etc.	Ref. item under air blowing
i)	Protecting the interior with:	<p>1) Filling the loops with oil and spraying the oil inside the pipes which are not included in the loops.</p> <p>2) Cleaning the pipe ends with cloth.</p>	
j)	Hot Water flushing	Circulation at 80 Deg. C is recommended	

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## 2.2 Material: Stainless steel and steels with high chromium content

SL. NO.	ACTIVITY	ACTIVITY COMPOSITION AND OTHER DETAILS	FOR DETAILED PROCEDURES REFER ITEMS
a)	Hot water washing	D.M.water	Item under hot water flushing
b)	Steam Blowing		Item Under Steam blowing of oil pipelines
c)	Dry with air blowing	Air blowing with compressed air free from oil, moisture etc.	Ref. item under blowing

### 3.0 PREPARATION AT SITE:

#### 3.1 MECHANICAL CLEANING OF OIL PIPE LINES;

All the pipe sections are thoroughly cleaned with the help of round wire brushed of proper sizes and chains. The tee branches, reducers, bends are cleaned with greater care. Wherever possible, the excess of welding metal protruding over the internal surface of the pipe sections are to be removed by grinding or with the help of hand files. After cleaning is done the pipe sections are blown with compressed air to remove the dirt of dust.

The cleaning is continued till all the rust, loose materials, welding burrs, slogs are dislodged and removed. All the joining flanges of the pipe lines are to be scraped and colour matches with the surface plate.

#### 3.2 HYDRAULIC TESTING OF OIL PIPE LINES:

After the successful mechanical cleaning, the pipe lines are to be hydraulic tested at the recommended pressure and the test results are to be recorded. Maximum possible pipe line sections which form the complete con tour are assembled temporarily on a levelled ground for the purpose of hydraulic testing. The selection of sections has to be done from the point of convenience. Pipe sections which cannot be included in the contours have to be tested individually. This test is inevitably required for all the high pressure pipe line sections included in the seal oil system.

#### 3.3 STEAM BLOWING OF OIL PIPE LINES:

All the pipe sections which cannot be mechanically cleaned are to be steam blown in two stages. The steam required for blowing is obtained from the existing units of a package boiler where no Unit exists. The parameters of the steam used for blowing are 7 to 8 Kg./cm<sup>2</sup>, temperature of 180 To 200 deg. cent. Minimum flow to be maintained during process is 4 to 5 t/hr. Duration of each Blow shall be 15 to 20 minutes. The second blowing is given after cooling the pipe sections to the ambient temperature. The blowing further ensures the removal of all the loose, materials, welding slag adhering to the internal surface of the internal surface of the pipe sections.

#### 3.4 ASSEMBLY OF OIL PIPE LINES FOR ACID CLEANING;

Note: Pipe sections of diameter 80mm below are not to be included in the contour. They are acid cleaned by soaking process. Soaking filling method can be done wherever the circulation process is not possible due to air locks and also depending on the loops prepared.

The pipe sections are assembled in different contours on a levelled ground and supported over wooden sleepers at number of places near the joints. The selection of sections has to be done from the point of convenience. Where parallel flow paths as unavoidable, orifices shall be provided restrict to flow in the path offering the least resistance for the flow. The contours shall have to be provided with drain points for draining the solution and air vent for removal of air.

while charging with the solution. The cleaning of the front pedestal inner oil pipe lines is not done by acid. They are only mechanically cleaned and steam blown. The contours are to be provided with sampling points both a suction and return lines for facilitating the collection samples for analysis.

The contours are also to be provided with valves in suction and return ends for regulating the flow. A drain line to the neutralizing pit with valve is to be provided before the valve on the return line. A bypass line is also provided for the contour with a valve for facilitating the starting of the acid pumps. All the pipe sections joints are to be

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provided with acid resistance rubber gaskets only, wherever temporary pipe lines or blanks are required; they are to be provided by the contractor.

### 3.5 PRESSURE TESTING OF CONTOURS:

Contours assembled are hydraulic tested with one discharge to the dissolving tank to check for the tightness of all the joints.

### 4.0 FLUSHING OF THE CONTOUR WITH HOT WATER:

Hot water flushing of the contours are carried out with filter water prior to acid circulation process in order to remove the dust, dirt or moll scales.. This also helps to check the tightness of all the flanged joints under hot conditions. The filter water is first taken into the dissolving tank and head to a temperature of 60 deg. C by passing steam. The parameter of the steam admitted shall be 8kg.cm2 and temperature of 180 to 200 deg. C. The acid circulation pump is then started on re-circulation and further the temp. of the water in the dissolved tank is raised to 70 deg. C by passing more quantity of steam. The air valve provided in the contour is opened and the suction valve of the contour is opened slowly for charging the contour. When all the air is expelled out of the contour, the water starts coming out in the form of a jet from the air vent. After ensuring the complete removal of the air, the air valve is closed and the discharge valve of the contour to the neutralizing pit is opened slowly and the storage tank maintained at a constant level i.e. 3/4<sup>th</sup> gauge throughout the process. The rate of discharge of water to be maintained at 50 t/hr. This quantity may vary from set to set. The approximate time required for the completion of the process is three hours.

### 5.0 QUANTITY OF ACID SOLUTION AND ACID CLEANING PROCESS:

#### 5.1 SAMPLE CALCULATIONS:

The quantity of acid to be used for cleaning a contour depends upon the volume of contour /piping loop. A sample calculation to arrive at the required quantity of acid for a contour of 6 m3 volume is given below. However, the total quantity of acid required will depend upon the total volume of pipe lines to be cleaned which varies from set to set. .

Volume of contour = 6 m3, the dissolving tank volume is of say =2 m3.

The working volume of the tank is taken as 10 m3 as the level is to be maintained at ½ of the level gauge glass.

Total volume =6+10 = 16m3

If acid concentration is chosen as 15% of phosphoric acid (H3 P04).

For 80% concentration of H3 P 04:

Commercially available quantity of acid required is =2.4/0.8=3 m3. Specific gravity of acid required is 1.75. Weight of H3 P04 required for 6 m3 contour cleaning is = 1.75x3= 5.25 MT.

#### 5.2 PREPARATION OF SOLUTION AND PROCESS OF CIRCULATION METHOD:

Demineralised water is filled in to the dissolving tank up to the lower gauge glass full. One of the acid circulation pumps is started on recirculation through the contour/pipe loop. The temperature of the tank water is raised to 50 deg. Cent. by passing of steam in to the dissolving tank. Just after the temperature of 50 deg. cent. is attained, the addition of the calculated quantity of acid, a sample from suction of the contour is sent to laboratory for checking required concentration . The temperature of 60 to 80 deg. cent. is maintained throughout the process by controlling required steam quantity. The parameter of the steam is 7 to 8 Kg/cm2 and temperature 180 to 200 deg. cent.(care is to be taken to see that the tank level does not increase more than 1 ¾ level gauge glass. The closed circulation of the acid solution is continued for 6 hours after the complete addition of the acid.

During the circulation hourly samples are taken from the suction and return lines and analysed for the following:

- 1) PH
- 2) acidity
- 3) Iron content.

NOTE: The concentration of the acid and type of acid chosen may vary depending upon the material and cleanliness of the pipe lines. Refer item for method of pickling noted.

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After the successful completion of the 6 hours circulation the pumps are stopped. The contour is allowed to soak with the solution for one hour. This is called the "Locking of the process". The circulation is resumed once again for about 15 to 20 minutes and the process is locked for 5 minutes. This operation is repeated for 3 to 4 times to dislodge the extraneous matter that might have been stuck up at the sharp bends of the contour. Even during this locking process, Samples are taken from the suction return lines and analysed as earlier.

Then the complete solution is discharged in to the neutralizing pit first through the pump and then by gravity after stopping the pump. The contour is also drained. While discharging the acid solution, it is neutralized by adding NaOH in to the neutralizing pit.

### **5.3 SOAKING PROCESS/FILLING PROCESS;**

The pipe sections of diameter 80mm and below which are included in the contour are acid cleaned (pickled) by "soaking process". This method comprises of blanking one end of the pipe sections completely and filling up of the acid solution prepared with the required concentration.

After the pipe section is filled with the acid solution, the other end is also blanked loose to allow the gases to escape.

In some cases, all the small bore pipe sections and other small branches are completely immersed in the tank for digressing, pickling and neutralization and it is ensured that all the pipes are filled inside fully with the solution. In both the methods, it is to be left for 24 hours and after which the solution is drained out from the pipe sections. These were finally blown by steam and air.

### **6.0 FLUSHING OF THE CONTOUR WITH D.M.WATER:**

After the system is completely drained the dissolving tank is filled with the D.M.. Water and the water in the tank is put on recirculation through the acid pump. The contour is slowly charged and the water is put on recirculation through the contour and the bypass valve of the contour is closed. The temperature of the D.M. water of the dissolving tank is raised to 70 to 80 deg. Cent. by passing steam of 7 to 8 Kg/cm<sup>2</sup> and temperature of 180 to 200 deg. Cent. The discharging valve of the contour to the neutralizing pit is slowly opened and the hot flushing of the contour is started. The recirculation valve to the tank is closed. The rate of discharge to the neutralizing pit is maintained at 50t/hr. This quantity may vary from set to set. The dissolving tank is mad up continuously with D.M. water and the constant level of 1  $\frac{3}{4}$  gauge glass is maintained. The hourly samples from the discharge line is collected and analysed for the following:

- |       |                 |            |                  |
|-------|-----------------|------------|------------------|
| 1) PH | 2) CONDUCTIVITY | 3) ACIDITY | 4) IRON CONTENT. |
|-------|-----------------|------------|------------------|

The temperature of the water at the dissolving tank is maintained at 70 to 80 deg. Cent. throughout the process. The rinsing of the contour is deemed to be over when the acidity and iron content becomes nearly equal over a set of consecutive readings of zero. The pipe sections which are soaked are also booked in to contours and rinsed with D.M. Water as above or the pipe sections are steam washed till such results as above are obtained. The approximate time required for the above process is 8 hours.

### **7.0 DISASSEMBLY OF CONTOUR AND DRY COMPRESSED AIR BLOWING:**

Soon after completing the D.M.water rinsing the pipe sections of the contour are disassembled and taken over a platform where the arrangement for dry compressed air is made compressed air is made available for blowing. The temperature of the compressed air used shall be 50 deg. Cent. and the pressure 3 50 4Kg/cm<sup>2</sup>. The clean dried surface has a dark steel grey colour, which indicates that the acid cleaning is of required standard.

### **8.0 OIL SPRAYING OF THE PIPE SECTIONS:-**

The dry pipe sections are then sprayed with DTE medium oil for protecting them from further rusting till they are erected back. For this purpose oil is thrown in to the pipe section using a small container and blown with compressed air. The end of the pipe sections is covered with wooden blanks to prevent the entry of the dust. The method of preservation is adopted when the cleaned pipe lines are required to be stored for 1 to 2 months. This is called the "passivation".

### **9.0 SAFETY PRECAUTIONS TO BE TAKEN DURING AND AFTER ACID CLEANING:**

- 1) The acid cleaning area shall be maintained free from foreign materials which may obstruct the movement of the personnel.

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- 2) Ensure that the persons working in the acid cleaning process use the following:
  - a) Rubber gloves
  - b) Goggles
  - c) Aprons
  - d) Gum boots
  - e) Masks
- 3) Ensure the availability of first aid box, eye drops neutralizing bottle and cotton rolls.
- 4) The pipe sections after acid cleaning are to be stored properly so that no moisture or dust enters in to them till erected.
- 5) Smoking is strictly prohibited in the area where acid cleaning is done, no fire should be lit around the area.
- 6) Drilling, cutting, welding of the pipe sections are strictly prohibited after the acid cleaning. All the stubs for instrument tapings are hence to be provided before acid cleaning and properly plugged during and after acid cleaning till erected.
- 7) The damaged bolts and nuts during acid cleaning shall be replaced by new ones.
- 8) Due precautions to be taken while tightening the joints of the loop so that they do not leak.

#### **10.0 MATERIAL REQUIREMENT (VARIES FROM-SET TO SET):**

- |    |                               |   |                 |
|----|-------------------------------|---|-----------------|
| 1) | Quantity of filter water      | : | 1250 MT         |
| 2) | Quantity of D.M. Water        | : | 1900 MT         |
| 3) | Quantity of acid              | : | 16.5 MT         |
| 4) | Quantity of steam for heating | : | 150 MT          |
|    | the solution etc.             |   |                 |
| 5) | Quantity of Na OH             | : | 3 MT            |
| 6) | Capacity of dissolving tank   | : | 20 m3           |
| 7) | Acid pumps                    | : | 100m3/hr        |
|    |                               |   | 10Kg/cm2        |
|    |                               |   | 4Nos.           |
| 8) | Hot air blower                | : | 1No.            |
| 9) | Thermometer (dial type)       | : | 0 to 100 Deg.C. |
|    |                               |   | 1No.            |

### **38. OIL FLUSHING FOR TC SETS**

#### **1. GENERAL**

After completion of fabrication, acid pickling and installation the entire oil system should be thoroughly flushed, in order to eliminate all the contaminants, which might have been introduced into the oil system during the erection operations.

Acid pickling (write up Ref.No.4-17-0552) would have already removed all the Residual impurities from the oil system. However, oil flushing is to be carried out to make sure that no foreign material will be carried by the oil to the bearings and governing elements, which is dangerous to the turbo set.

During oil flushing, high velocity of flow in the oil lines can be achieved by temporarily removing the throttling points in governing line and opening the bearing inlet orifices such that drain oil pipe is 2/3 full. These high velocities will help in detaching loose particles adhering to the pipe walls, so that they will be carried away by the oil flow.

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## 2. FLUSHING OIL:

Oil system can be flushed with the same type of oil that is employed for normal turbine operation.

Oil quantity required for flushing is approximately 60% to 70% of the quantity of oil required for normal operation of the turbine. However it has to be ensured that the oil pump does not starve for oil at its suction, during flushing.

After completion of flushing, the oil has to be centrifuged by centrifuging equipment and then tested. From the test results it can be decided whether the oil, after being used for flushing, is still usable as turbine lubricant.

**NOTE:** Other types of cleaning agents, especially chemical detergents, must never be used for flushing operations.

## 3. PREPARATION FOR START UP:

**OIL TANK:** Before filling with oil, the oil tank and strainer are to be thoroughly cleaned. Only cloth but never cotton waste should be used for cleaning.

The cleaning materials used, should not leave any residue, and then the tank is to be loaded up with oil.

### 3.1 LUBRICATING OIL CIRCUIT:

- a) All the adjustable orifices are to be opened such that drain oil pipes are 2/3 full.
- b) All filter cartridges in lube oil filter are to be removed.
- c) Upper halves of the radial bearings are to be taken out. Journal portion is to be covered with cloth leaving the whole space for oil inlet. The cloth is to be pressed in between the bearing covers such that it will not become loose and pass on along with oil.
- d) Thrust bearing is to be removed.
- e) Proper tightening of all the flanges is to be ensured.
- f) Flushing of delivery pipe lines of the other oil pumps which are not used for flushing operations can be done by connecting their delivery pipe lines to the oil tank before the strainers.
- g) The delivery lines of jacking oil pump need not be flushed. These are to be cleaned after flushing.
- h) Gear boxes are not to be flushed; temporary pipe of 1 1/2" may be connected from inlet to drain through inspection window.

### 3.2 GOVERNING OIL CIRCUITS:

- a) All the orifices in trip oil, secondary oil and primary oil circuits are to be removed.
- b) Damaging devices in secondary oil circuits and primary oil circuits are to be removed.
- c) Control slide is to be taken out from the governing valve servomotors.
- d) Solenoid valve is to be kept in operating position.
- e) Tripping device is to be turned in to operating position locked.
- f) Starting device is to be turned into operating position and locked.
- g) About 20 to 30 mm dia temporary orifice is to be provided in the power oil inlet line to servomotors.
- h) Low lube oil protection is to be ensured for operating position by assembling 13mm thick stopper below the position.
- i) Vacuum protection is to be kept in operating position with the help of lever.
- j) Position is to be removed from emergency stop valve or the

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#### 4. FLUSHING OPERATION:

Oil pump is to be switched ON. In case of centrifugal pump delivery line is to be closed before switching ON the pump and to be gradually opened later. Pump input amperage is to be watched and if it rises too high, pump delivery is to be throttled for reducing it. In case of positive displacement Pumps, all the valves in the delivery are to be kept fully open before switching on the pump. Any leakages found in the oil system are to be curbed.

Flushing is to be started with lube oil header to drain by blocking oil entry to bearings and providing a temporary line between the two headers.

Subsequently the flushing can be extended to individual bearing oil lines, governing system, to all oil pumps, standby coolers, standby filters and overhead oil tanks etc.

The best cleaning effect can be obtained by using alternatively hot and cold oil for flushing. Oil should therefore be heater up to 70C to 80 C. Oil temperature should not go up beyond 85 C because higher temperatures may be harmful for the oil.

After flushing for a period of about four hours, at a temperature of 70 deg. to 80deg. Cent., oil is to be allowed to cool down to about 30 to 35 deg. cent. When the pipes are also cooled to that temperature, oil is to be again heated to 70 to 80 deg. Cent. All the pipes must be hot during oil flushing. If any pipes are found to be cold, the reason why oil is not flowing through those lines is to be investigated and the fault to be rectified. Tapping on the pipes at intervals, further improves the removal of foreign materials from the pipe walls.

#### 5. FLUSHING PERIOD:

Coarse impurities will be retained by the strainer in the oil tank. For filtering out the smaller foreign particles, filter cartridges should be kept in position during the last third of the flushing time. Differential pressure across the filter should be watched and paper filter cartridges are to be replaced whenever the differential pressure rises above 1.5 Kg/mm.

Oil centrifuging equipment (if available) is to be kept in service during oil flushing as an additional means of purification. Other oil filtering facilities can be provided by inserting fine filter meshes (approximately 25 microns) at the flange connections of bearing housings. These meshes will enable to check the impurities still present after flushing.

Flushing operation has to be continued until no substantial amounts of contaminants are found in the filters any more or no substantial rise in differential pressure across filters with in a period of 12 hours.

#### 6. POST FLUSHING OPERATIONS:

- a) Oil tank and strainers are to be cleaned. The oil tank is to be filled up with operating oil to the required level.
- b) Oil filter is to be cleaned. In case of paper cartridges, used cartridges are to be replaced by new cartridges.
- c) If stop valve is included in the flushing, oil portion is to be cleaned and piston is to be assembled back.
- d) Lower half cells of bearing halves are to be cleaned. Thrust bearing pads and top halves of radial bearings are to be assembled in operating position.
- e) Removed orifices and damping devices are to be assembled back in trip, secondary and primary oil lines.
- f) Primary and secondary oil pipes are to be separately cleaned.
- g) Orifice at the power oil inlet to servomotor is to be removed.
- h) Stopper piece in low lube oil protection is to be removed and cleaned.
- i) Overhauling and assembly of control slide in servomotor is to be carried out.
- j) Temporary lines provided for flushing operation are to be removed.

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<b>ANALYSIS OF SIMILAR JOBS EXECUTED /</b> <b>IN PROGRESS</b> <b>ANNEXURE - 1</b>													
Sno	Agency whom awarded	Location of Project	Capacity and Unit Nos.	Scope of work and Tonnage	Date of award	Contract value	% work completed and due date for completion	Date of completion if job is already over	No. of unskilled workers deployed at peak	No. of Engineers and supervisor s deployed at peak	Details of Major T&P like cranes, Tractor trailers, Winches, Welding M/c. supplied		Consumables like by whom
											By Co ntractors	By other agency	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

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**ANNEXURE – 2**  
**MONTH WISE MANPOWER DEPLOYMENT PLAN**

**MONTHS (Indicate No. of persons to be deployed in each month)**

Sno	CATEGORY	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	And so on

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**ANNEXURE - 3****(A) STATUS OF TOOLS & PLANTS**

Sno	NAME OF EQUIPMENT	Quantity owned	Registration No. where ever applicable	Documents enclosed for proof of ownership	Present location	Quantity proposed to be deployed for this job.

**(B) MONTHWISE MANPOWER DEVELOPMENT PLAN**

Sno.	Description of T & P	Months (Indicate No. to be deployed in each month)					
		1st	2nd	3rd	4th	5th	And so on

**SIGNATURE OF BIDDER  
WITH STAM**

Signature and Stamp of the tenderer

**ANNEXURE – 4**  
**ANALYSIS OF UNIT RATE QUOTED**

S. No.	Description	Percentage of the Unit rate quoted	Remarks
1.	Salary & Wages for Staff &- Workers		
2.	Consumables		
	a) Cases		
	b) Welding Electrodes		
	c) P .0 .L.		
	d) Others		
3.	Depreciation & Maintenance for Tools & Plants		
4.	Depreciation & Maintenance for other items		
5.	Establishment & Administration expenses of site		
6.	Overheads		
7.	Profit		

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## ANNEXURE – 5

## NEFT FORM

(Vendors to furnish this mandate on their Letter Head)

Ref No:

Date:

To  
Dy. Manager/Finance-CM  
Bharat Heavy Electricals Limited  
Ramachandrapuram  
Hyderabad 502  
032

Dear Sir,

Sub: Details for National Electronic Fund Transfer

We request and authorize you to effect payment through NEFT to our Bank account, subject to RBI Guidelines, as per the details given below

A. Sup code (As per PO/SCO)	:
B. (Name as per PO/SCO)	:
C. PAN of Beneficiary	:
D. TIN of Beneficiary	:
E. e-mail address of Beneficiary	:
F. City (of Beneficiary)	:
G. Bank Name	:
H. Branch (of Bank)	:
I. A/c Number	:
J. A/c type (Savings or Current)	:
K. MICR Code of the branch (9 digit)	:
L. IFSC for NEFT (11 char)	:
M. IFSC for RTGS (If different from L)	:

Thanking you,

(Signature with Seal)  
Authorized Signatory  
Name  
Designation

Certified that the particulars furnished above are correct as per our records

Date

(Signature of authorized official of bank)  
Bank Stamp

Signature and Stamp of the tenderer

**5.0 CONTRACT WORK DESCRIPTION:****SCHEDULE 'A'**

**Contract period** : 63 days for Erection & commissioning work during Revamping of CO2 Compressor train (21 days per Unit, 3 units total)  
18 months validity on price.

**Contract Work Description** : "Erection and commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra".

Sl No.	Activities	Remarks
1	Name of the work: "Erection & commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra".	

**Note:**

1. Contractor shall arrange required crane services with suitable capacities for placing the Equipment on the foundation, which are being sent to the site. No extra payment is allowed for this.
2. The overhead crane (50 Ton) is available for Assembly & erection of the Turbine/compressors.
3. BHEL Client / Customer will provide power required for erection work.
4. Space for store/ arrangement will be provided by customer.

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To,

Dear Sir,

I / We hereby offer to carry out the work '-----' against Tender Enquiry No.

1. Notice inviting Tender
2. Prequalification requirements
3. Instruction to Tenderer
4. General terms and conditions
5. Eligibility Criteria
6. Earnest money deposit
7. Security Deposit
8. Statutory requirement
9. Manpower
10. Safety
11. Period of contract
12. Failure to comply with contract
13. Payment to Contractor
14. Sub-contracting
15. Laws Governing the contract
16. Legal Jurisdiction
17. Duties and Responsibilities of Contractor
18. Special terms and conditions of Contract
19. Evaluation of Price Bid
20. General terms and condition of the contract
21. Technical terms and condition of the contract for erection work
22. Contract Work description
23. Proforma for Bid Application
24. Pro-forma for Techno-Commercial bid
25. Instruction / information on price bid documents
26. Erection Schedule
27. Declaration by Contractor
28. Proforma for Contract Agreement
29. Third Party Non-disclosure Agreement

(Part – A)

### 30. Proforma Price Bid Format (Part – B)

I/ We further agree to execute all the works referred to in the said documents as per the General terms and conditions.

I am /We are in possession of independent PF/ESI Code.

I/We undertake to obtain the applicable PF/ESI coverage of all our workmen to be deployed for the above work and also agree for recovery of appropriate PF/ESI contribution from wages/bills

Strike out which  
is not applicable

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TECHNO-COMMERCIALBID\_\_\_\_\_2

**6-B PROFORMA FOR TECHNO-COMMERCIAL BID****PART - A****TECHNICAL BID - I**

Tender Enquiry No. :

Date:

**Details of the Contractor:**

a) Name and address of the Firm:

b) Name and address of the proprietor:

c) Is any contract being operated under the control of the tenderer in BHEL . Yes / No

(If yes furnish the details) :

	<u>Location/ Address</u>	<u>Value</u>	<u>Date of Completion</u>
1.			
2.			
3.			
4.			

d) Is any relative of tenderer employed in BHEL Yes / No

(If yes furnish the detail)

Name	Staff no	Location / Area

Signature of the Tenderer

Date:

Signature and Stamp of the tenderer



TECHNO-COMMERCIAL BID\_\_\_\_\_3

**TECHNICAL BID - II**

01	ESI Code No. (enclose copy of ESI code allotment letter of ESI authority)	
02	PAN No.	
03	PF Code No. (enclose copy of PF code allotment letter of EPF authority)	
04	Service Tax Registration No.	
05	Banker's Name & Address	
06	Bank A/C No. & Branch	
07	Bankers Solvency Certificate	YES / NO
08	Have you quoted rates for all the activities, as indicated in the price bid ( Part – B )	YES / NO
09	Financial Turnover for preceding three years duly certified by qualified Chartered Accountant: viz. <b>2012-13, 2013-14 &amp; 2014-15</b>	
10	Any other comments	

Note:

- I. Photocopy in support of above wherever applicable should be attached.
- II. Please note that if answer of SI No.01, 03, 08 or 09 is not available or 'No' then the bid is liable to be rejected.

Signature of the Tenderer  
Date:

Signature and Stamp of the tenderer

## **7.0 INSTRUCTION / INFORMATION ON PRICE BID DOCUMENTS**

### **7.1 SCOPE OF WORK:**

1. It is not the intention in this specification to specify each and every activity in the scope of work. However broadly they are brought out in this section and specification of this Tender Schedule. Bidder may kindly note the same. For the completeness of the job, bidder to note that all activities to complete the “**Erection and commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra**” shall be deemed to have been included. Any minor modifications including strengthening by additional welding etc., if required on the equipment to be erected shall be considered as part of the erection and shall not call for any extra payment. Any rectification work on parting planes, machined surfaces shall also be deemed to have been included in the scope of work.

2. The bidder shall quote “FIRM” Prices only.

**The following terms of payment will be operated**

- a. 80 % payment against running bills.
  - b. 5% on submission of Protocols.
  - c. 10 % upon final Testing.
  - d. Balance 5% on completion of guarantee period of one year from Testing or against bank guarantee.
  - e. Security deposit will be deducted as per rules and paid on completion of guarantee period.
  - f. Service Taxes will be paid extra as per the prevailing government rates on submission of necessary documents.
3. For equipment erection the bidder shall quote on tonnage rate. The payment shall be on actual net weight of equipment erected. The terms of payment shall be strictly governed by clause No. 2 above. Any deviation to the terms of payment will be evaluated in terms of loading on the prices. The tonnage indicated is only approximate and may vary. Bidder shall agree to keep the rates valid for any variation of quantity.
  4. Erection, testing, pre-commissioning and commissioning of the equipment using contractor's own tools and tackles, consumables, including electrodes, skilled and unskilled manpower etc., as per the detailed description and nature of work as enumerated in tender schedule and this specification, includes all handling and transportation of materials from storage yard and site to pre-assembly area and place of erection and other incidental works required prior to and during pre-fabrication, pre-assembly, erection, testing, pre-commissioning and trials of entire system.

### **DETAILS OF THE EQUIPMENTS TO BE ERECTED ARE INDICATED IN THE PRICE SCHEDULE 7-B**

5. During the erection, testing, pre-commissioning and trial works, some repairs, rectification and modifications etc. are likely to occur. Bidder shall note that they are part of scope of job. The bidder while quoting the rates shall take the above in consideration and no extra payment will be entertained on this account.

NOTE: Examples for repairs, rectification, modifications etc.:

- a) Mismatching of exhaust hood flanges,
- b) Machine base plate hole enlarging for adjustments,
- c) Supports welding to equipment and rectification as per site condition,
- d) Additional chipping of foundation,
- e) Changing of parts when they fail during the tests etc.,
- f) Re-reaming of Coupling bolts holes etc.
- g) Any parting plane blue matching etc.

These points are only few examples, similar types of other works are also likely to come which are incidental to the nature of erection work.

Signature and Stamp of the tenderer

6. For any extra equipment & structural the approved unit rates of erection only will be applicable, and this will not be treated as extra works for payment on man hour rates basis.
7. For piping, bidder shall quote a rate per joint / running length separately for:
  - a. Fit up and welding,
  - b. Radiography
  - c. Piping erection

As given in the 7-B (Price Tabulation). Pipe size and no. Of joints (approximate) are given for pipe sizes. Bidder shall agree to keep the rates valid for any quantity variation.

8. For piping erection, the contractor shall quote rate per meter length. The piping erection includes all types of piping hangers, supports, fittings (tapings points for instruments, vents and drains as applicable) and Hydraulic test of piping, painting etc. Size dia 48.3 mm and less pipes are site routed. Apart from this, the bidder is required to include the jobs of degreasing, mechanical cleaning, steam blowing, pickling, oil flushing, etc. including consumables in the Unit rates quoted and no separate payment will be considered for these jobs. All pipe sizes and corresponding lengths are indicated in tabular column of 7-B (Price Tabulation). Bidder should agree to keep the rates valid for any quantity variation.

**NOTE: The rates shall be quoted only in the format enclosed. Deviation in the form of addition / deletion / omission in the format are not acceptable and may result in rejection of bid.**

9. All piping will be supplied to site in commercial lengths. Fabrication and edge preparation of all piping including welding of stubs on piping for instrumentation tap off points, and providing drains, vents and any other connection points shall be included in the contractor's scope.
10. Any changes, modifications, involving rerouting of piping, cutting, repairing and re-welding, the payment shall be on the joints basis only as per the approved rates and not at man-hour rates. No separate payments are envisaged for jobs involving cutting of already completed joints.
11. Bidder has to carry out mechanical cleaning, pickling, acid cleaning, alkali cleaning, etc. as per the guidelines given in the documents enclosed. No separate payments are envisaged for these jobs. The Bidder shall include for these jobs in the unit rates quoted.
12. The Bidder to note that they have to provide trial run assistance as per the site requirement during trial run. No separate payments are envisaged and the unit rates quoted for erection and trial run are deemed to have taken care of this requirement. **The commissioning shall be deemed to have been achieved after commencement of full load trials including noise & vibration trials at site.**
13. **PROTOCOL & DOCUMENTATION:**  
Bidder shall prepare all the necessary documents/ protocol in connection to equipment erection, testing, piping erection, radiography film, joints inspection reports, as built drawings, reports and other relevant document in the format approved by BHEL and/or Client/ Consultant.
14. **PAINTING:**  
The Bidder shall consider total five (5) coats (including the primer) of painting for the items to be erected i.e. equipment, piping and auxiliaries, etc. for the purpose of quotation and the work is subject to inspection / approval by BHEL's client. Pipes are to be grid blasted before painting. Supply and Application of Paints are included in contractor scope. Expenditure towards this job shall be included in the unit rates quoted and no separate payments are envisaged.
15. **POWER POINT:**  
Bidder to kindly note that the construction power On Chargeable basis and water will be provided at single point at site within reasonable distance for the job.  
The successful bidder shall have to at his own cost provide necessary distribution cabling etc. by him. The Bidder has to ensure that the statutory regulations are met with while executing the work.

Signature and Stamp of the tenderer

**16. ACCEPTANCE OF THE TENDER**

Acceptance of the tender will be intimated to the successful bidder through a letter of intent / Fax of intent. The bidder shall then be required to execute an agreement annexed at the end (Annexure III), within seven (7) days from the date of issue of the letter of Intent. In the event of failure on the part of the contractor to sign the agreement within the specified time, the earnest money deposit shall be forfeited and the acceptance of his tender shall be considered as withdrawn.

**17. CONTENTS OF THE CONTRACT DOCUMENTS**

The letter of submission of tender, notice inviting tender, scope of inquiry, Instruction to bidder, general conditions of contract, general and technical specifications, tender proposal forms, tender drawings, contract form between the bidder and BHEL, forms of different deeds (as applicable), amendments/ addenda / corrigenda and interpretations/ clarifications as issued by BHEL subsequent to issues of tender documents (if any), bidder's tender No. .... dated ..... all correspondences, minutes of meetings, agreed variations etc., between the bidder and BHEL till issue of the letter of intent by BHEL, agreed quality assurance programme and time schedule network together with the letter of intent issued by BHEL, all pertaining to this tender, agreed man power deployment together with their technical qualifications etc., shall form the contract.

18. The contract document shall be containing, the scope of inquiry, general and technical specifications and amendments / addenda / corrigenda, interpretation / clarifications issued by BHEL on technical aspects, as well as all correspondences, minutes of meetings etc., between the bidder and BHEL on technical aspects, agreed quality assurance programme, time schedules network, and the rest of documents listed in clause 17 above.

19. The Bidder shall prepare , one (1) original of Contract as described in clauses 16, 17 & 18 above within seven (7) days of signing the contract agreement and shall arrange six (6) true copies of the contract documents free of charge within 4 weeks from the date of signing the contract agreement. After retaining one copy with them for their use, the contractor shall hand over remaining 5 copies to BHEL for their use at site & headquarters including their finance department.

Signature and Stamp of the tenderer

**7-A ERECTION SCHEDULE (Indicative Only)**

Schedule for “Erection and commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra” shall be tentatively as follows:

- |                               |   |                            |
|-------------------------------|---|----------------------------|
| 1. Commissioning of Unit # 11 | : | September 2017 (Tentative) |
| 2. Commissioning of Unit # 21 | : | March 2018 (Tentative)     |
| 3. Commissioning of Unit # 31 | : | October-2018 (Tentative)   |

For the purpose of contract, the period shall be taken as **06 months for each unit for date of mobilization**. Completion of the work shall be as per BHEL Bar Charts revised from time to time. **However the quoted rates should be firm and valid up to 18 months. No escalation shall be permitted.** Bidder may please note this and submit their best quotation. In order to expedite the work, the contractor has to deploy manpower on two-shift basis during erection and during pre-commissioning & commissioning period **manpower should be provided round the clock basis as per site requirement without any extra cost to BHEL.**

Signature and Stamp of the tenderer

PRICE BID OF \_\_\_\_\_ 1

### **7-B PROFORMA FOR PRICE BID**

of "Erection and commissioning work during Revamping of CO2 Compressor train Unit#11, Unit#21 and Unit#31 at RCF, Thal, Maharashtra."

1. Name of the firm :
2. Name of the Proprietor :
3. Address and Contact Numbers:

### **A) DISMANTLING WORKS(Mechanical)**

<b>1.01.00 DISMANTLING OF OLD TURBINE, COMPRESSORS AND PIPINGS</b>				
<b>S.NO.</b>	<b>Description</b>	<b>NO OF ITEMS</b>	<b>Item Wt</b>	<b>Total Wt in KG</b>
1.01.01	Turbine Assy.	1	24000	24000
1.01.02	Governing Piping	1	2000	2000
1.01.03	Structural & Miscellaneous items	1	2000	2000
1.01.04	BCL Compressor Assy.	1	8600	8600
1.01.05	MCL Compressor Assy.	1	20500	20500
1.01.06	Coupling Assy.	1	200	200
1.01.07	Gear Box Assy.	1	2000	2000
1.01.08	Compressors & Turbine Piping	1	600	600
Total Wt.				59900
Rate per kg				
1.01.00 TOTAL =				

### **B) DISMANTLING WORKS (C & I)**

<b>1.02.00 LOCAL / FIELD MOUNTED INSTRUMENTS</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>Qty.</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
1.02.01	PRESSURE GAUGE	NOS	11		
1.02.02	PRESSURE TRANSMITTER	NOS	1		
1.02.03	TEMPERATURE GAUGE	NOS	7		
1.02.04	VIBRATION PROBES	NOS	16		
1.02.05	AXIAL DISPLACEMENT PROBE	NOS	5		
1.02.06	SPEED SENSORS	NOS	5		
1.02.07	RTD	NOS	43		
1.02.08	PROXIMITORS	NOS	26		
1.02.09	DIFF. PRESSURE GAUGE	NOS	1		
1.02.10	OVER SPEED PROBES	NOS	3		
<b>1.02.00 Total=</b>					

Signature and Stamp of the tenderer

### **C) MECHANICAL WORKS**

<b>1.03.00 RE-ASSEMBLY, TESTING &amp; COMMISSIONING of Mech. Items</b>				
<b>S.NO.</b>	<b>Description</b>	<b>NO OF ITEMS</b>	<b>Item Wt</b>	<b>Total Wt in KG</b>
1.03.01	<b>Turbine</b>			
	Casing with Internals	1	18320	18320
	Bearing pedestals and bearings	1	1730	1730
	Turbine Rotor	1	1700	1700
	Stop and Governing Valves	1	2000	2000
	Turbine Auxiliaries	1	345	345
1.03.02	<b>Compressor - 2BCL306A</b>			
	ROTOR	1	473	473
	COUNTER CASING	1	990	990
	1ST SUCTION DIAPHRAGM	1	46	46
	INTERMEDIATE DIAPHRAGM, BETWEEN 1 & 2	1	84	84
	INTERMEDIATE DIAPHRAGM, BETWEEN 2 & 3	1	92	92
	INTERMEDIATE DIAPHRAGM, BETWEEN 3&4	1	90	90
	2ND SUCTION DIAPHRAGM	1	46	46
	INTERMEDIATE DIAPHRAGM, BETWEEN 4&5	1	97	97
	INTERMEDIATE DIAPHRAGM, BETWEEN 5&6	1	143	143
	TOTAL DIAPHRAGM WEIGHT	1	1588	1588
	TOTAL DIAPHRAGM WEIGHT + ROTOR	1	2061	2061
	END COVER SUCTION SIDE	1	1496	1496
	END COVER DISCHARGE SIDE	1	1419	1419
	COUPLING WEIGHT (for 3 couplings)	1	200	200
1.03.03	<b>Compressor - 2MCL606</b>			
	ROTOR	1	1496	1496
	1ST SUCTION DIAPHRAGM	1	814	814
	INTERMEDIATE DIAPHRAGM, BETWEEN 1 & 2	1	1375	1375
	INTERMEDIATE DIAPHRAGM, BETWEEN 2 & 3	1	885.5	885.5
	2ND SUCTION DIAPHRAGM	1	770	770
	INTERMEDIATE DIAPHRAGM, BETWEEN 4&5	1	1100	1100
	INTERMEDIATE DIAPHRAGM, BETWEEN 5&6	1	1375	1375
	INTERFACE DIAPHRAGM BETWEEN 3&6	1	1375	1375
	UPPER HALF CASING	1	3762	3762
	UPPER HALF CASING + UPPER HALF DIAPHRAGM	1	7609	7609
1.03.04	<b>Gear box</b>	1	200	200
1.03.05	<b>Governing Console</b>	1	750	750
1.03.06	<b>Seal Gas Skid</b>	1	1500	1500
1.03.07	<b>Structural &amp; Miscellaneous items</b>	1	100	100
Total Wt.				56031.5
			<b>Rate per kg</b>	
			<b>1.03.00 TOTAL =</b>	

Signature and Stamp of the tenderer

<b>1.04.00 PIPE FIT UP AND WELDING</b>						
<b>S.No.</b>	<b>Size</b>	<b>Material</b>	<b>Weld type</b>	<b>No.of joints</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>CARBON STEEL PIPE</b>						
1.04.01	PIPE CS - 2"	A105	TIG	90		
<b>STAINLESS STEEL PIPE</b>						
1.04.02	PIPE SS 2"	SA 312TP321	TIG	135		
1.04.03	PIPE SS 1.5"	SA 312TP321	TIG	100		
1.04.04	PIPE SS 1"	SA 312TP321	TIG	75		
1.04.05	PIPE SS 3/4"	SA 312TP321	TIG	115		
<b>1.04.00 TOTAL =</b>						

<b>1.05.00 RADIOGRAPHY OF PIPING</b>						
<b>S.No.</b>	<b>Size</b>	<b>Material</b>	<b>Weld type</b>	<b>No.of joints</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>CARBON STEEL PIPE</b>						
1.05.01	PIPE CS - 2"	A105	TIG	9		
<b>STAINLESS STEEL PIPE</b>						
1.05.02	PIPE SS 2"	SA 312TP321	TIG	14		
1.05.03	PIPE SS 1.5"	SA 312TP321	TIG	10		
1.05.04	PIPE SS 1"	SA 312TP321	TIG	8		
1.05.05	PIPE SS 3/4"	SA 312TP321	TIG	12		
<b>1.05.00 TOTAL =</b>						

<b>1.06.00 PIPING ERECTION, MECHANICAL CLEANING, HYDRO TESTING, &amp; SUPPORTS ERECTION</b>						
<b>S.No.</b>	<b>Size</b>	<b>Material</b>	<b>Weld type</b>	<b>Length in meters</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>CARBON STEEL PIPE</b>						
1.06.01	PIPE CS - 2"	A105	TIG	48		
<b>STAINLESS STEEL PIPE</b>						
1.06.02	PIPE SS 2"	SA 312TP321	TIG	114		
1.06.03	PIPE SS 1.5"	SA 312TP321	TIG	66		
1.06.04	PIPE SS 1"	SA 312TP321	TIG	36		
1.06.05	PIPE SS 3/4"	SA 312TP321	TIG	84		
<b>1.06.00 TOTAL=</b>						

Signature and Stamp of the tenderer



## D) CIE SCOPE: ERECTION, CALIBRATION, TESTING, LOOP-CHECKING & COMMISSIONING

<b>1.07.00 LOCAL / FIELD MOUNTED INSTRUMENTS</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>Qty.</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
1.07.01	PRESSURE GAUGE	NOS	11		
1.07.02	PRESSURE TRANSMITTER	NOS	2		
1.07.03	TEMPERATURE GAUGE	NOS	7		
1.07.04	VIBRATION PROBES	NOS	16		
1.07.05	AXIAL DISPLACEMENT PROBE	NOS	5		
1.07.06	SPEED SENSORS	NOS	5		
1.07.07	SOLENOID VALVES	NOS	3		
1.07.08	RTD	NOS	43		
1.07.09	PROXIMITORS	NOS	26		
1.07.10	ASCV (Surge Control Valve)	NOS	1		
1.07.11	DIFF. PRESSURE GAUGE	NOS	1		
1.07.12	PSV (Pressure Safety Valve)	NOS	4		
1.07.13	OVER SPEED PROBES	NOS	3		
<b>1.07.00 Total=</b>					

<b>1.08.00 PANELS &amp; RACKS</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>Qty.</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
1.08.01	WOODWARD 5009FT TMR & WOODWARD PROTECH GII OVER SPEED PROTECTION SYSTEM RACK	NOS	1		
<b>1.08.00 Total =</b>					

<b>1.09.00 JUNCTION BOXES &amp; LCS:</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>Qty.</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
1.09.01	ELECTRICAL JUNCTION BOXES	NOS	8		
<b>1.09.00 Total =</b>					

Signature and Stamp of the tenderer

<b>1.10.00 CABLES AND CABLE TRAYS</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>Qty.</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>1.10.01</b>	Cable Tray (100mm Width)	<b>MTR</b>	<b>75</b>		
<b>1.10.01</b>	Cable Tray (50mm Width)	<b>MTR</b>	<b>75</b>		
<b>1.10.00 TOTAL =</b>					

<b>1.11.00 IMPULSE PIPING &amp; TUBING</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>1.11.01</b>	CS pipe (60.3mm x 3.91 mm)	<b>MTR</b>	<b>10</b>		
<b>1.11.02</b>	SS Tube (12.7mm x 2.1 mm)	<b>MTR</b>	<b>50</b>		
<b>1.11.03</b>	SS Tube (1/4")	<b>MTR</b>	<b>10</b>		
<b>1.11.04</b>	SS pipe (21.3mm x 2.8 mm)	<b>MTR</b>	<b>10</b>		
<b>1.11.00 Total =</b>					

<b>1.12.00 REPAIR ACTIVITIES</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>1.12.01</b>	Repair activity on casing of compressors and Turbine (If any)	Lump sum	1		
<b>1.12.00 Total =</b>					

<b>1.13.00 PACKAGING AND SAFE HAND OVER OF OLD PARTS OF EQUIPMENTS</b>					
<b>SL.NO.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>Rate (In Rs.)</b>	<b>Total Amount</b>
<b>1.13.01</b>	PACKAGING AND SAFE HAND OVER OF OLD PARTS OF EQUIPMENTS	Lump sum	1		0
<b>1.13.00 Total =</b>					<b>0</b>

Signature and Stamp of the tenderer

## SUMMARY SHEET

<b>A) DISMANTLING WORKS (Mechanical)</b>		
<b>1.01.00</b>	<b>DISMANTLING OF OLD TURBINE, COMPRESSORS AND PIPINGS (1.01.01 to 1.01.08)</b>	
<b>B) DISMANTLING WORKS (C &amp; I)</b>		
<b>1.02.00</b>	<b>DISMANTLING OF LOCAL / FIELD MOUNTED INSTRUMENTS (1.02.01 to 1.02.10)</b>	
<b>C) MECHANICAL WORKS</b>		
<b>1.03.00</b>	<b>RE-ASSEMBLY, TESTING COMMISSIONING of Mech. Items (1.03.01 to 1.03.07)</b>	
<b>1.04.00</b>	<b>PIPE FIT UP AND WELDING (1.04.01 to 1.04.05)</b>	
<b>1.05.00</b>	<b>RADIOGRAPHY OF PIPING (1.05.01 to 1.05.05)</b>	
<b>1.06.00</b>	<b>PIPING ERECTION, MECHANICAL CLEANING, HYDRO TESTING, SUPPORTS ERECTION (1.06.01 to 1.06.05)</b>	
<b>D) CIE SCOPE: ERECTION, CALIBRATION, TESTING, LOOP-CHECKING &amp; COMMISSIONING</b>		
<b>1.07.00</b>	<b>LOCAL / FIELD MOUNTED INSTRUMENTS (1.07.01 to 1.07.13)</b>	
<b>1.08.00</b>	<b>PANELS &amp; RACKS (1.08.01)</b>	
<b>1.09.00</b>	<b>ELECTRICAL JUNCTION BOXES (1.09.01)</b>	
<b>1.10.00</b>	<b>CABLES AND CABLE TRAYS (1.10.01 to 1.10.02)</b>	
<b>1.11.00</b>	<b>IMPULSE PIPING &amp; TUBING (1.11.01 to 1.11.04)</b>	
<b>E) REPAIR ACTIVITIES</b>		
<b>1.12.00</b>	<b>Repair activity on casing of compressors and turbine (1.12.01)</b>	
<b>F) PACKAGING AND SAFE HAND OVER OF OLD PARTS OF EQUIPMENTS</b>		
<b>1.13.00</b>	<b>PACKAGING AND SAFE HAND OVER OF OLD PARTS OF EQUIPMENT (1.13.01)</b>	
<b>Total = A+B+C+D+E+F = Rs.</b>		
<b>Amount per unit (A)=</b>		
<b>Grand Total for 3 units (Ax3)=</b>		

**Note:** The above rates are exclusive of govt. service taxes, which are to be paid extra as applicable.

- 1. Contractor shall arrange required crane services with suitable capacities for placing the equipment on the foundation which is being sent in assembled condition. No extra payment is allowed for this.**
- 2. Turbine & compressor internals will be supplied in loose condition to site. Assembly of turbine at site will be in erection contractor's scope. EOT crane of 50 Ton capacity is available at site.**
- 3. Bidders to note that equipment erection includes the transporting the material / equipment from store, placement in proper position on foundation and grouting with Conbextra GP-2 Cement if required.**
- 4. Erection rates of pipes sizes 1½" and below includes fit up, welding, radiography wherever applicable and welding of instrument isolation valves, flanges for them wells, stubs etc. on all pipes and equipment. Alloy steel pipe weld joints rate to be quoted including Stress relieving.**

Signature and Stamp of the tenderer

## 8.0 **DECLARATION BY TENDERER**

I, \_\_\_\_\_, aged \_\_\_\_\_ Yrs., S/o \_\_\_\_\_,  
residing at \_\_\_\_\_

Hereby declare as follows:

- (i) That my nationality is \_\_\_\_\_.
- (ii) That I am a major and eligible to enter into contract / my firm / my company is competent to enter into an agreement.
- (iii) I shall employ only such personnel who have not been found unfit for employment in Organizations such as Central / state / Public undertaking by the Police Authorities.
- (iv) I shall not employ persons against whom Criminal cases are pending or under investigation.
- (v) I shall also not employ persons found guilty of offences involving moral turpitude for executing work in BHEL contracts.
- (vi) That there are no Criminal cases pending or under investigation against me or my firm or company.
- (vii) I have not been found guilty of offences involving moral turpitude nor any of the company directors / partners of my firm have been found guilty of offences involving moral turpitude.
- (viii) Neither myself nor my firm nor my company has been declared insolvent in the past.
- (ix) I have taken due care and efforts to furnish only information which are true in the tender document.
- (x) I shall employ labours who are more than 18 years of age and having sound physical and mental health.
- (xi) I shall keep Photograph / identity proof / residential proof of the laborers to be employed against this tender and arrange for police verification.
- (xii) **I have not been blacklisted by any of the BHEL Units or any other organization where we have worked.**

[Signature with Name & seal of the Tenderer]

Date :

Place :

Signature and Stamp of the tenderer

**Annexure-H**

**BHARAT HEAVY ELECTRICALS LIMITED  
UNIT NAME: BHEL HYDERABAD  
THIRD PARTY NON-DISCLOSURE AGREEMENT**

I, \_\_\_\_\_, on behalf of the  
(Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL on contract is confidential and that the nature of the business of the BHEL is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL. Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, Drawings, processes, formulae, compositions, systems, techniques, inventions, computer data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL all documents and property of BHEL, including but not necessarily limited to: drawings, blueprints, reports, manuals, computer data/configuration, and all other materials and all copies thereof relating in any way to BHEL's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue even after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, and are reasonable given the nature of the business carried on by the BHEL. I agree that this agreement shall be governed by and construed in accordance with the laws of country. I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_ .

NAME SIGNATURE DATE SEAL OF COMPANY

Signature and Stamp of the tenderer

**ANNEXURE-III****Proforma for Contract Agreement**

Agreement No	:	Job Work No.	:
		IR No	:
Date	:	Name of the work	:

This agreement is made on .....(date in words) between M/s Bharat Heavy Electricals Limited, Ramachandrapuram, HYDERABAD-502 032 having its registered office at Siri Fort, NEW DELHI (hereinafter called "the company" of first part) and M/s .....(hereinafter called "the contractor" of the second part).

Whereas through its tender notice No. .... Dt. .... the company had called tenders for ..... (Name of the work), details of which are annexed here to (hereinafter called "the said work") as per terms and conditions stipulated in the above tender notice.

The contractor has quoted his rates vide quotation dated ..... In pursuance of the said contractor's quotation dt....., the company after accepting the quotation has awarded the work of..... as per schedule **enclosed** herewith containing full details of description of work, payment terms and rate per unit of work vide LOI/Work Order.....dated..... subject to the terms and conditions stipulated hereunder in addition to conditions stipulated in the said tender notice

Now it is hereby agreed as follows

1. That the agreement shall come into operation from ..... (date) and will be in force up to..... (date).
2. As per the terms and conditions of the Tender Notice, the contractor has paid Security Deposit worth ₹ ...../- (Rupees .....Only) in the form of: .....
3. **Refund of Security Deposit:** Security Deposit of contractor will be refunded only after the expiry of the contract period and based on the certification of successful completion of the contract and payment of PF, ESI and applicable statutory dues by the concerned Officials / department and submission of an Undertaking from the contractor, that in case of Claims from any of the statutory authorities, the same would be indemnified by the Contractor.
4. The Contractor shall initially pay the wages, and other statutory payments etc., with in the specified time, related to his workmen and then claim bills from BHEL. The contractors would be required to submit their Claims along with the proof of payment of wages, PF, ESI etc., to the respective Departments. The claims will be scrutinized and certified for payment by the respective department and forwarded to Accounts Department along with HR/IR clearance certificate for effecting payment.
5. The Contractor shall provide two pairs of Uniform to each of his workmen along with stitching charges and catering cap as specified by BHEL. The Contractor is required to submit their claims along with proof of expenditure incurred and acknowledgement from his workmen for providing uniform, subject, however, the maximum reimbursement of claim amount will not exceed a total amount of ₹1000/- (including all) for two pairs of Uniform to each workmen. BHEL will not entertain any additional / excess claims than the ceiling limit provided herein and contractor agrees to accept the same.
6. The contractor shall pay bonus to all his workmen as per the applicable provisions of the payment of Bonus Act 1965 and its rules for contract period and also as per the instructions/ Guidelines of BHEL regarding payment of Bonus. In this connection, the Contractor shall submit actual Bonus payable statement for the relevant period before submission of final bill. BHEL shall release actual bonus payable amount after

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verification of necessary documents such as attendance & wage registers.

7. The contractor shall provide Personal Protective Equipment including one pair per year safety shoe of standard specified by BHEL safety department and two pairs of socks to all his workmen during the contract period. The contractor is required to submit their claims with proof of expenditure incurred in providing Personal Protective Equipment to his workmen, subject, however, the maximum reimbursement of claim amount will not exceed a total amount of Rs.800/- for Personal Protective Equipment to each workmen for the whole contract period. BHEL will not entertain any additional / excess claims than the ceiling limit provided herein unless the contractor offers such additional / excess claims in the Price Bid and BHEL accepts to the same.
8. The contractor shall fully comply with the following enactments / guidelines (As Applicable):
  - a) (Contract Labour (R & A) Act, 1970 & applicable Rules thereof
  - b) Minimum Wages Act 1948 (Wage Rates not less than that notified by State Labour Department / Central Labour Department / notified by BHEL, RC Puram (whichever is higher) from time to time)
  - c) Payment of Wages Act, 1936
  - d) ESI Act, 1948
  - e) EPF & Misc. Prov. Act, 1952
  - f) Employees Compensation Act, 1923
  - g) A.P Labour Welfare Fund Act, 1987
  - h) Inter State Migrant Workmen (RE & CS) Act, 1979
  - i) Payment of Bonus Act, 1965
  - j) Payment of Gratuity Act, 1972
  - k) Equal Remuneration Act, 1976
  - l) The Company's instructions as issued from time to time in regard to working hours, wages, leave, holidays etc.
9.
  - a. The contractor shall obtain License from the Competent Authority if he engages 20 (twenty) or more workmen in BHEL RC Puram / at site under Contract Labour (Regulation and Abolition) Act, 1970. The Contractor shall submit a valid Contract Labour License to BHEL, RC Puram, on or before the date of commencement of contract.
  - b. The contractor shall obtain License from the Competent Authority if he engages 5 (five) or more workmen under Inter State Migrant Workmen (RE & CS) Act, 1979 in case the contractor engages workmen recruited from outside State of Telangana / native state in which BHEL RC Puram / site is located. The Contractor shall submit a valid Contract Labour License to BHEL, RC Puram, on or before the date of commencement of contract.
10. The Contractor shall produce the following Registers and forms (as applicable) before commencement of work, for verification by the Contract Executing Officer / Contract. Labour Cell of the company, without **which labour entry permission will not be granted.**
  - a) Form XIII - Register of workmen employed by contractor (Rule 75)
  - b) Form XIV - Employment card issued by contractor (Rule 76)
  - c) Form XVI - Muster Roll (Rule 78(1)(a)(i))
  - d) Form XVII - Register of wages (Rule 78(1)(a)(i))
  - e) Form XVIII - Register of wages-cum Muster Roll (in case of weekly payment)
  - f) Form XIX - Wage Slip (Rule 78)(b)
  - g) Form XX - Register of deduction for damages or loss (Rule 78)(1)(a)(ii)
  - h) Form XXI - Register of files (Rule 78)(1)(a)(ii)
  - i) Form XXII - Register of advances (Rule 78)(1)(a)(ii)
  - j) Form XXIII - Register of overtime (Rule 78)(1)(a)(iii)
  - k) Form XXIV - Return to be sent by the contractor to licensing Officer (Rule 82) (1)

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The contractor shall maintain the above and any other registers and forms applicable under various Acts/Rules neatly, completely and legibly for inspection by various statutory authorities and by the company officials even at short notice. All above registers shall be maintained at the place of work.

In addition to the above the following are required to be taken care by the contractor under Contract Labour (R&A) Act 1970

- a) Copy of licence to be displayed at the work spot as required under Rule 25 (2) 9 (ix)
- b) Rates of wages, hours of work, wage period, date of payment, name and address of inspector, date of payment of unpaid wage in English, Hindi and Telugu are to be displayed as per rule 81 (1) (i)
- c) Notice showing wage period, place and date of disbursement of wages has to be displayed and a copy of the same is required to be sent to Principal Employer under acknowledgement as per rule 71.
- d) An abstract of the Act and Rules in the form approved by the Chief Labour Commissioner (Central), New Delhi to be displayed in English and Hindi and Telugu as per rule 79.
- e) Copies of Notices required to be displayed as per Rule 81(1) (i) and any change occurs the same shall be submitted as per Rule 81 (2).
- f) Notice of commencement of work has to be given as required under Rule 25 (2) (viii) in form VIA.
- g) Register of person employed to be maintained as required under Rule 75.
- h) Employment cards were to be issued as per rule 76 (i)
- i) Register of wages and muster roll to be maintained as per Rule 78(1)(a)(i)
- j) Register of fines, deductions and advances to be maintained as per Rule 78(1)(a)(ii)
- k) Register of overtime to be maintained as per rule 78(1)(a)(iii)
- l) Wage slips have to be issued as per rule 78(1)(b)
- m) Half Yearly return for the half year ending \_\_\_\_\_ to be submitted as per Rule 82(1) to the Licensing Officer
- n) Latrines and Urinals to be provided for the use of the workers as per rule 51 to 56 read with section 18
- o) First aid facilities to be provided for the use of the workers as per rule 58 read with section 19
- p) Creche facilities to be provided for the use of children of women as per Rule 25(2)(vi)

11. The contractor shall observe

- a) Weekly rest day
- b) The Company List of Holidays.

12. Contractor shall obtain complete bio-data of the labour, employment certificate and Antecedent verification (issued by Local Police Dept.) in the prescribed form for each labour and supervisor engaged by him, and shall submit the same to the Human Resource Department/IR section through the contract executing officers before commencement of the work.

13. The entry permits are to be issued to the Contract Labour by Assistant Commandant / Plant (CISF), based on the requisition submitted by Contract Executing Officer and forwarded by Executive in charge of Contract Labour Cell of HR IR section.

14. The contractor shall submit a notice regarding commencement and completion of work in Form-VI A&B [Rule 25(viii) & 81(3)] to Contract Labour Cell of HR IR section through his contract executing officer, for forwarding the same to State / Central Labour Department as applicable.

15. The contractor shall make himself or his representative available at the work spot every day during execution of work, for effective supervision. The Contractor or his supervisor shall submit list of shift wise contract labour engaged by him in duplicate to CISF Personnel at J Gate on daily basis.

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16. The Contractors shall pay to their workmen applicable minimum wages / BHEL Fair Wages whichever is higher.
17. The Contractor shall comply with all the statutory provisions such as Bonus (% as prevailing in BHEL RC Puram/Site), PF (12%), EDLI (0.5%), ESI, Gratuity, Service Tax and other applicable taxes, BHEL Fair Wages prevailing at the time of payment or arrears thereof, declared Holidays, leave, AP Labour Welfare Fund etc. The contractor shall submit the documentary evidence of payment on account of submission of statutory payments made to the concerned agencies every month and same may be submitted for clearance of bill.
18. The contractor shall attend to all inspections notified/conducted by the personnel department, Labour department, P.F. authorities, Factory Inspectors, ESI inspectors or any other such authorities under the Act, failing which appropriate action shall be initiated.
19. Non-compliance of provisions under any Acts/Rule/instructions/guidelines shall make the contractor liable for penal action including termination of contract.
20. The Contractor shall furnish in a separate letter, his place of residence and postal address. The delivery at the above named place or posting in a Post Box regularly maintained by the Postal Department or sending letters registered for acknowledgement of any notice, letter or other communication to the contractor shall be deemed sufficient service thereof upon the contractor. Change in address shall come into force at any time by an instrument executed by the contractor and delivered to the Company official who has signed the contract.
21. The contractor must satisfy himself by personal study and examination of the specifications furnished and understands thoroughly the scope of proposed work in detail and all conditions affecting the work before entering into the contract. There shall not be at any time, dispute/complaint of any nature regarding scope of work and interpretation of specifications or any misunderstanding with regard to nature or omission of the work to be done nor shall any application for compensation in terms of time and money shall be accepted by Company regarding the above.
22. The Contractor shall in his absence keep competent agent constantly on the works and any directions or explanations given by the "Contract Signing Officer" or his representative to such agent shall be held to have been given to the contractor himself.
23. The Contractor on the advice of the Company official shall immediately remove any person/s employed by him, who may in the opinion of the Company official is incompetent or misconducts himself and such persons shall not be again employed on the works without written permission of the Company official.
24. Wherever required, the contractor shall erect and maintain at his own cost temporary weather proof sheds at such places approved by the Company for keeping materials under cover.
25. The contractor shall give all notices required by the Acts, Regulation, By-laws, and pay all fees in connection therewith unless and otherwise arranged and decided in writing with the Company. He shall also ensure that no attachments are made against materials or work forming part of or for the use of the contractor. In all such cases, contractor shall protect and indemnify the Company against any claim or liability arising from or based on the violation of any such laws, ordinances, regulations, orders, decrees or attachment either by himself or by his employees.
26. It shall be contractor's sole responsibility to protect the public and his employees against accident from any cause and provide required safety equipment and shall indemnify the Company against any claims for damages for injury to the person or property resulting from any such accidents and shall, where the provisions of the Employees compensation Act does not apply, take steps to properly insure against any claims thereunder.
27. In the event of any accident in respect of which compensation may become payable under the Employees Compensation Act. VIII of 1923 whether by the contractor or by the Company as principal, it shall be lawful for the Company to retain out of monies due and payable to the contractor such sum or sums of money as may, in the opinion of the Company shall be final in regard to all matter arising in this clause.

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28. No work shall be done on Sundays or on other declared Holidays of the Company without the written permission of the Company officer in charge of the work and HR/IR section of Contract Labour Cell. The contractor shall comply with the provisions of the Factories Act 1948 if the same are applicable.
29. The contractor shall keep his work place clean and safe to avoid injuries to men and damage to finished products / equipment.
30. On the occurrence of an accident, which results in the death of any of the workmen employed by the contractor or which is so serious as to be likely to result in the death of any such workmen, the contractor shall within 24 hours of the happening of such an accident intimate in writing to the Company official in charge of the work. The Contractor will also pay compensation as determined by the Authorities.
31. The contractor shall indemnify the Company against all losses or damages sustained by the Company resulting directly or indirectly from his failure to give intimation in the manner aforesaid including the penalties or dues if any and become payable by the Company, as a consequence of failure, the Company to give notice under the Employees Compensation Act 1923 or otherwise confirm to the provisions of the said Act in regard to such accident.
32. The contractor shall ensure adherence to all statutory requirements applicable to BHEL.
33. The contractor shall ensure abidance by all the labour laws especially including Contract Labour (R&A) Act 1970, Payment of wages Act 1936, Employees Compensation Act 1923, Factories Act, 1948, Minimum Wages Act 1948, Payment of Bonus Act 1965, Payment of Gratuity Act 1972, ESI Act 1948 and Provident Fund Misc. Prov. Act 1952 etc., as amended from time to time.
34. The contractor shall fully indemnify the loss if any caused to BHEL due to any default or non-observance of any of the laws, or any omission or commission or inability on the part of the contractor or his representative.
35. The contractor shall, keep and produce for inspection at all times, forms, registers and other records required to be maintained under various statutes in order to enable scrutiny by the Company whenever required.
36. The contractor shall produce to the Company, the documentary proof of payment of the said statutory dues. Non-observance of the provisions will be construed as default by the contractor in making such payment, and payment of his bill will be deferred despite other legal action.
37. The Income tax as applicable will be deducted from the bill of the contractor.
38. The Contractor shall maintain the daily attendance of his labours in the prescribed Pro- forma for accounting payment of wages, deduction towards ESI & PF Contributions, payment of Bonus, leave etc.
39. The contractor will have to extend paid National Holidays and Festival Holidays to their workmen as per BHEL RC Puram direction or as per the provisions of the relevant Act and the Rules thereof. However, if due to exigencies of work the contractor engages his workmen on National Holidays or Festival Holidays contractor shall pay additional wages as prescribed under the provisions of the Act.
40. In addition to the above holidays mentioned at Clause 39, in the event the Central / State Government declares any other holiday/s and if such Holiday/s is/are applicable to BHEL, RC Puram, Hyderabad also, then the Contractor shall extend paid Holiday/s to his workmen.
41. The contractor shall obtain a separate Provident Fund Code for his establishment and ensure implementation of Provident Fund & Misc. Prov. Act 1952 in the case of all eligible Labours engaged by him in the BHEL RC Puram (employees) and in the process shall conform to all stipulated conditions under the Provident Fund & Misc. Provisions Act 1952 and rules framed thereunder. The PF contribution i.e. 12% shall be paid on total wages paid to the contract labour.
42. Notwithstanding the above clause, in case of any financial loss incurred by company on account of contravention of the Provident Fund regulations or any regulations of rule by the contractor, the contractor

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shall submit an undertaking to indemnify the company to the extent of the loss incurred by the company.

43. **IMPLEMENTATION OF PRICE VARIATION CLAUSE (If Applicable):** Any increase in consolidated Wages of BHEL RC Puram or increase in Variable Dearness Allowance by appropriate government to the eligible workmen of contractors, will be reimbursed by BHEL RC Puram to the contractor to that extent of increase on production of proof of payment to the workmen by the Contractor duly verified by the Contract Executing Officer, HR/IR and Finance. In case of decrease in the Variable Dearness Allowance by the Appropriate Government, the same will be deducted from the running bills of the Contractor to that extent. (Note: Increase is admissible on the variable components such as wages, Dearness Allowance, PF, ESI, and leave wage etc., which will be notified by the HR/IR from time to time).
44. The contractor must engage only those labours who are more than 18 (eighteen) years of age.
45. The contractor shall not resort to subcontracting under any circumstances without written consent from BHEL.
46. The contractor shall provide the required safety equipment to the labours engaged by him.
47. The Contractor shall issue "Employment Card" to all labour and supervisors covered under the labour / works / job work contract as prescribed under the Contract Labour (R&A) Acts/Rules.
48. A copy of the agreement between contractor and his labour shall be submitted to the Contract Labour Cell of HR-IR section as applicable.
49. Whenever the term "CONTRACTOR" is used, it shall be understood to refer to the particular person, firm or corporation with whom an agreement has been made by the concerned Company official for executing the work defined in the concerned agreement and for the purpose of instructions regarding compliance with contract conditions, it shall include the contractor's authorised agents, who are entrusted with the work by contractor.
50. The quantities mentioned in the agreement schedule are worked out from the relevant drawings of the Company and may or may not be the actuals required for execution.
51. The Company does not expressly or by implication agree that the actual amount of the work to be done at BHEL shall correspond there with, but reserves the right to increase or decrease the quantity of operations / unit / number of persons deployed etc., or portion of the work as he deems necessary.
52. All the works shall be carried out in accordance with the directions and to the satisfaction of the Company official in accordance with the drawings, specifications and instructions. Supplementing or explaining the same as may be from time to time shall be done by the Company official.
53. For all modifications, omissions or additions to the specifications, the Company shall issue revised written instructions and no modifications, omission or addition shall be made unless so authorized and directed by the Company in writing.
54. The Company shall have the privilege of ordering modifications, omissions, or additions at any time before completion of the work.
55. All materials, articles and workmanship shall be the best of their respective kinds for the class of work described in the contract specifications and schedule and materials to be obtained by the contractor shall be from sources approved by the Company.
56. Sample of materials shall be furnished by the contractor at his expense to the Company when called for before executions of any work. On approval of the sample of materials by authorized Official of the Company, the Contractor shall take up the work.
57. The contractor shall be solely responsible for executing the agreed work and the employees of BHEL will only oversee the proper execution of work. The contractor or his representatives shall be available in the factory to

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control and supervise his workers and take down instructions from the designated officials of BHEL. The cost of deployment of Supervisor has to be borne by the Contractor.

58. The contractor shall have full control over his workmen w.r.t determining service conditions, discharge, dismissal, or otherwise terminate their services at any time. The contractor shall be solely responsible for any claim arising out of employment or termination of employment of his employees and for statutory payments.
59. The contractor shall employ only such personnel who are medically fit. The company has right to direct the contractor to remove from the premises such of his personnel who may be physically, hygienically, clinically or medically unfit.
60. The contractor shall employ only such personnel who found fit for employment in Organizations such as Central/State/Public Undertakings by the Police authorities. Persons against whom criminal cases are pending or under investigation and persons found guilty of offences involving moral turpitude shall not be engaged for executing work.
61. The Contractor shall comply with all the operational rules and regulations, including safety and security rules framed by the company from time to time wherein the Contractor or his workmen happen to be operating / working. In the event of any of the workmen of the contractor violating any of the said rules and regulations, the Contractor would be required to remove forthwith such workmen from the company's premises.
62. Out of total manpower to be deployed the Contractor shall to the extent possible deploy 15% scheduled castes and 7.5% of scheduled tribe community.
63. All safety equipment such as safety belts, helmets & other equipment (as required for this work) are to be positioned by the contractor & used as per requirement.
64. Any casualty or damage caused to the property or person by any untoward incidents while executing this contract will be at the contractors risk & cost.
65. Violation of applicable safety, health & environment related norms, a penalty of ₹5,000.00(Rupees Five thousand) per occasion shall be imposed.
66. Violation as above resulting in any physical injury a penalty of 0.5% of the contract value shall be imposed (maximum of ₹20,000.00) per injury in addition to ₹5,000.00 as mentioned above.
67. In case of fatal accidents, a penalty of 1% of the contract value (maximum of ₹10,00,000.00 (Rupees Ten lakhs) per fatality in addition to ₹5,000.00 as mentioned above.
68. The Company shall have power to reject at any stage, any work which is considered to be defective in quality of material or workmanship and shall not be debarred from rejecting wrong materials by reasons of having previously passed them in an unworked condition. Any portion of the work or materials rejected or pronounced to be inferior or not in accordance with specifications of the Company shall be taken down and removed from the work site at the contractor's expenses.
69. The decision of the Company shall be final and binding on the contractor on all technical questions which may arise in the contract with respect to material, workmanship, removal of improper work, specifications, notes, procedures etc.
70. The decision of the "Contract Signing Officer" or any officer deputed by him duly authorised on his behalf, in respect of the rate of progress and the quality of work or material shall be final and binding on the Contractor.
71. Contractor shall be deemed to have included in his tender price of all the plant, Machinery and appliances required for the purpose of all operations connected to secure a satisfactory quality of work and rate of progress which in the opinion of the Company will ensure the completion of the work within the time specified.

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72. If at any time, during the progress of work or any part of it such methods or equipment appear to the Company official to be insufficient or inappropriate for ensuring the quality of work required or rate of progress, Company Officials may order the contractor to increase their efficiency or to improve their quality of work and the contractor shall comply with such order/s and on failure of which the Company may take such action as it deems fit to improve the quality of work or the rate of progress required from the contractor and all such actions taken by the Company shall be at the cost and risk of the contractor.
73. It is open to the Company to lend or supply to the contractor any tools, implements, materials and machinery that are needed by the contractor, which in the opinion of the Company is essential to improve the quality or progress of work. The contractor shall pay such deposit or charges that may be fixed or determined by the Company for any such articles or machinery lent or hired to the contractor.
74. Any electric power required for contractor's machinery for the purpose of work shall be supplied by the Company at the written request of the contractor at one point subject to the observance of rules and regulations of Electricity Board/Company and charges there on shall be recovered from the contractor.
75. The contractor shall comply to all applicable rules & regulations and laws of Central/State Govt. or any local authority and that of the Company with whose system the machinery is supposed to be connected.
76. All waste material as it accumulates shall be removed from the site to the point of disposal as indicated from time to time by the Company. If this is not adhered to, the Company shall remove the scrap and recover the cost of these operations from the bills of the contractor.
77. Any sum due from the contractor on account of tools and plants, stores, or any other items provided by the Company shall be deducted from the respective bills / any other payments due to the Contractor. Any loss or damages caused by the workmen of the contractor arising due to any strike/ stoppage of works/dharnas etc., The Contractor shall be responsible for such actions of their workmen engaged and all such losses or damages incurred to the company shall be recovered from the contractor.
78. BHEL reserves the right to terminate the contract by issuing Thirty (30) days' Notice on account of failure of the contractor in discharging their respective contractual obligations mentioned in this contract.
79. BHEL reserves its right to terminate the contract due to any failure on the part of the Contractor in discharging his obligations under the contract or in the event of his becoming insolvent or going into liquidation. The decision of the BHEL about the failure on the part of the Contractor shall be final and binding on the Contractor.
80. In case of any damage to the existing building, structures, materials, tools, furniture and fixtures, machines etc., caused from contractor's end directly or indirectly, the cost of its repairs or replacement will be recovered from the contractor. If there is any work stoppage in any area of the Plant due to the fault of the contractor, the contractor is liable to compensate the same.
81. In the event of any failure on the part of the contractor, BHEL shall have the right without prejudice to any other right or remedies, to get the work done through any other agency and the Contractor shall be liable to compensate BHEL for any losses on this account. The additional cost, loss if any incurred by BHEL will be recovered from the bills, security deposits, other dues directly from the contractor or by initiating appropriate legal action.
82. In case of breach of any of the terms and conditions of the contract, a claim shall be lodged under the bank guarantee with the guarantor or forfeiture of EMD/Security Deposit at the discretion of the competent authority of the Company. On successful completion of the contract to the satisfaction of the Company, the bank guarantee/SD shall be released after due claim period.
83. All disputes arising in connection with the contract shall be settled by mutual consultation. If no agreement is reached the dispute shall be settled in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and the rules made there under. The dispute shall be referred for arbitration to any arbitrator to be appointed by the Head of the Unit. The award of the arbitrator shall be final and binding on both the Parties. The venue of the Arbitration shall be Hyderabad in India. The Award to be given by the Arbitration shall be

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a speaking award. All questions, disputes, differences arising under, out of or in connection with this contract shall be to the exclusive jurisdiction of Sangareddy Courts.

84. In case of any suit or other legal proceeding arising under this contract, the courts at Sangareddy (Medak Dist.) only shall have the jurisdiction.
85. The Company reserves the right to enter into parallel agreement with one or more contractor at their discretion.
86. Disputes, grievances between the contractor and his labour, will have to be settled within two weeks by the Contractor only.
87. The labour employed by the Contractor, if found in abetting any fellow labour or Contractors or any BHEL employee, the same shall be considered as an act of indiscipline. Such labourers shall be removed from the services of the contractor, on the advice of BHEL. Further, the Contractor shall initiate every necessary action in accordance with the relevant Laws, Rules & Regulations and enactments of State and Central Government as applicable from time to time.
88. Wherever BHEL / COMPANY standards are mentioned, copies of which are enclosed shall be strictly followed.
89. Nothing contained in the contract agreement and its conditions shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the contractor personally.
90. The decision of the "Contract Signing Officer" shall be final and binding on the contractor on all technical questions which may arise touching the contract with respect to the quality of material, workmanship, removal of improper work, interpretation of the working drawings, specifications, notes, procedures etc.
91. Over and above the agreed payments payable by the Contractor to the Contract Labours, if any declared by BHEL, shall be borne by BHEL.

In witness thereof the parties mentioned above have signed the agreement on the day and year above written in the presence of:

**Signature of the Contractor**

**Signature of the officer**  
On behalf of the Company

Witness:

1. Signature, Name and Address
2. Signature, Name and Address

Signature and Stamp of the tenderer