BID DOCUMENT

Name of the work:
"AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."

Cover Page	01 Page
Copy of NIT	02 Pages
Instruction to Bidders	03 Pages
General Conditions of Contract	121 Pages
Special Conditions of Contract	07 Pages
Integrity Pact	05 Pages
Safety, Health & Environment (SHE) Rules & Regulations for Contractors	38Pages
Scope of Work, BOQ, T&P, Consumables etc	94 Page
Blank Price Bid	06 Pages

SAFE & CLEAN POWER IS OUR COMMITMENT

ODISHA POWER GENERATION CORPORATION LIMITED

Ib Thermal Power Station, Banaharpali, Jharsuguda – 768234 (ODISHA)

Email: contract@opgc.co.in

Pre Bid Meeting is on Dt. 21/06/2022 during 11:00 hrs to 12:00 hrs at Resource Center, ITPS

ODISHA POWER GENERATION CORPORATION LIMITED
IB THERMAL POWER STATION
At/PO: BANHARPALI, DIST: JHARSUGUDA – 768 234 (ODISHA)

NOTICE INVITING TENDER

OPGC invites sealed bids from bona fide and financially sound Registered Agencies /Firms /Companies for execution of the following Works for its Thermal Power Plant at Banharpali.

Works Tenders: NIT No. ITPS/CC-22/2022-23/09, Date: 15.09.2022 (Telephone: 06645-289-315/221/354) Email:;satya.tarai@opgc.co.in

S/N	Name of the work	Tender cost	EMD (Rs.)	Contract Period	Bid Sale/ Issue date	Date of receipt & submission /Opening of Bid
1.	AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years	Rs.5000/- including GST	22,70,000/-	As per Bid Document	15.09.22 to 29.09.22	Up to 15:00 Hrs on 30.09.22/ 15:30 Hrs onwards on 30.09.22

- **Pre Bid Meeting for Sl No. 01 is on Dt. 22/09/2022 during 11:00 hrs to 12:00 hrsat Resource Center, ITPS**
- **e-Reverse Auction (E-RA) shall be conducted for the work at Sl. No. 1. The Transaction Fees for e-Reverse Auction shall be deposited to the account of MSTC Limited directly.**

The non-refundable **Transaction Fees towards e-Reverse Auction** as mentioned above shall be deposited by all Techno-Commercially qualified bidders directly to the account of MSTC before E-RA launch schedule. The date of conduct of E-RA shall be intimated in later stage to Techno Commercially qualified bidders via e-mail. Before participation in e-Reverse Auction, the bidder has to register in MSTC e-Procurement Portal well in advance and submit the E-RA fee amounting to the value intimated by M/s. MSTC Limited.

Cost of bid document (non-refundable) shall be paid by Demand Draft in favour of OPGC Ltd. drawn on State Bank of India (Code-9510) / Union Bank of India (Code-UBIN0806625) / Central Bank of India (Code-283899) payable at ITPS, Banharpali or ICICI Bank (Code-ICIC0003679) payable at Telenpali. Cost of bid document shall have to be submitted along with the bid and the DD towards the tender cost (separate from EMD) should be prepared on or before the last date of submission/receipt of tender, otherwise the bid shall be liable for rejection. Small scale industries/National Small-Scale Industries Corporation/ MSME firms are exempted from payment of Cost of bid document only if they are entitled for exemption of the offered service. Tenderers seeking exemption shall claim in advance along with the photocopy of Valid Registration Certificates at least two days before the due submission date. However, OPGC reserves the right to accept/ reject the exemption request if the same is found unauthenticated or not relevant to the offered item. In case of any discrepancy found between tender document submitted by the agency and the master copy in our office, the latter should prevail. No claim on this account shall be entertained. Complete and signed sealed bids in hard copy form only shall be received at Contract Cell, ITPS. Bids shall be opened at Contract Cell, ITPS in the presence of the bidders or their authorized representatives, if present at the time of opening. If the last date of issue / receipt / opening happens to be a HOLIDAY, the tender will be issued/ received / opened at the respective time on the next working day. The photocopies of all the supporting documents required for participating in the tender mentioned in NIT/Tender paper shall be submitted along with the bid; otherwise, the bid is liable for rejection. Bids without EMD will be rejected outright.

NB: Bidders having the requisite qualifying requirements as specified in the bid document shall only be considered for tender evaluation.

Bids received after stipulated date & time shall not be entertained. OPGC shall not take any liability on account of any postal/courier delay. OPGC reserves the right to accept / reject any or all tenders, seek additional clarifications, split up the scope among eligible bidders or cancel the tender altogether without assigning any reasons thereof.

Important: The detailed NIT along with Terms and Conditions are available for download at OPGC website at www.opgc.co.in. Addenda/Corrigenda/ Extensions, if any, will be notified on the OPGC website only and will not be published in any other media. Interested companies or entities may visit OPGC website for the tender timeline and other details.

AGM-CONTRACT

SAFE & CLEAN POWER IS OUR COMMITMENT

OPGC encourages all existing or new vendors/suppliers to register with us as empaneled vendors. Please visit our website www.opgc.co.in for details.

ODISHA POWER GENERATION CORPORATION LIMITED
Ib Thermal Power Station, Banaharpali
Name of the work:
"AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."

Bid Document & Instruction to Bidders

Bid Document

The Bid documents consist of the following documents:

1) Copy of NIT
2) Instruction to Bidders
3) General Conditions of contract
4) Special Conditions of Contract
5) Safety, Health & Environment (SHE) Rules & Regulations for Contractors
6) Scope of Work
7) Blank Price bid

The bids complete in all respect must be submitted in two parts namely **Techno-commercial partand Price part**. The envelopes containing the respective parts must be sealed and super scribed with tender enquiry number, Name of the work and the name of the part. Both the envelopes should be kept in a third envelope and sealed and super scribed with tender enquiry number and Name of the work.

NB: The bid documents are not transferable.

Techno-Commercial Bid:

The bidder must submit the following along with the techno-commercial bid:

1) EMD as per NIT in a closed envelope. **The EMD amount will not be disclosed to the bidders during opening of Techno-Commercial Bid.**
2) Photo copies of GST Registration Certificate, Provident Fund Registration Certificate and MSME (Micro/small/medium)/NSIC/SSI status of your firm and ESI Registration Certificate
3) Signed & Stamped Bid Documents (all pages) as a token of acceptance.
4) Filled in and signed formats as specified in Annexure of GCC.
5) Signed & Stamped Rules and Regulations of the e-Reverse Auction.
6) Credentials in support of qualifying requirements.
7) Commercial terms and conditions and deviation statement.
8) Un-priced Bid showing quoted/not quoted.
9) ESI Registration Certificate

Qualifying Requirements:

The bidders must also meet the following Qualifying Requirements with respect to the above.

1. Party must have executed Annual Maintenance Contract for Boiler & Aux. and Coal Mill (Bowl Mill) and Axial Fans for Power Plant station capacity greater than 1000MW(Govt. / Public Sector Utility/Private IPPs/ CPPs) or above and Unit size500 MW or above.

And

2. Party must have executed successfully Minimum Two Annual Maintenance Contracts for Similar work * for Mechanical Equipment's of minimum 500MW Unit in last five years, out of which at least one Contract work must have been executed within last three years.

And

3. Safety Requirement- Bidder Loss Time Hours must have been less than 200 Hrs in last 3 years. (Contractor's Self Certification)

And

4. Must have successfully completed similar work* during last Five years ending the last day of the month previous to the one in which tenders are invited.

a) At least single contract of annual contract value not less than Rs. 2.86 Cr for Similar work.

Or

b) At least of two contracts of annual contract value not less than Rs.1.79 Cr each for Similar work

Or

c) At least of three contracts of annual value not less than Rs.1.4Cr each for similar work.

And

5. Minimum Average Annual Turnover** of the Bidder from Similar work */ Overhaul contract for Mechanical work in Power plant having Unit Size greater than 500 MW shall not be less than Rs 10 (Ten) Cr in last 3(Three) Years.

And

6. The bidder must not have been blacklisted or debarred to participate in tendering of similar jobs earlier by any Govt./Public Sector Utility / IPP/CP

*Similar Work – It implies the Annual Maintenance Contract of following

a) Boiler & Auxiliaries
b) Coal Mills (Bowl Type)
c) Axial Fans

The party must have carried out the Annual Maintenance Contract of all 3 Sections as mentioned above.

Also, the party should be an approved IBR Boiler Repairer with the approval of any state inspecting authority of Boilers at the time of submission of Bid. In case of an award is made in favor of the party, the party shall necessarily obtain an endorsement by Odisha State inspecting authority of Boilers immediately after getting Work Order.

Documents to be submitted in support of QR

1) Relevant PO copy and Client's completion certificate
2) Valid IBR approval letter/certificate with endorsement from any State Inspecting Authority of Boilers
3) Audited balance sheet including Profit & Loss statement for the previous three completed financial years reckoned from the date of application. In case the documents are not ready/available, then certified copy by a registered practicing Chartered accountant may be submitted.
4) PF & GST registration certificate
5) Any other documents in addition to the above which the applicant wants to submit.

Note:

- Tenders submitted without the above techno-commercial requirements shall be liable for rejection.
- The Techno-commercially qualified bidders will participate in the Reverse Auction through MSTC Limited. The price may be finalized based on Reverse Auction or Sealed Price Bid. OPGC reserves the right to go for reverse auction prior to opening of sealed Envelope price bid, submitted by bidder. This will be decided after techno-commercial Evaluation. All Bidders have to give their acceptance for participating in Reverse Auction as per "Rules and Regulations of the e-Reverse Auction" which shall be binding on the bidders.

Non-Acceptance to participate in Reverse Auction may result in non-consideration of their bids, in case OPGC decides to go for reverse auction.

- The bidders who are found qualified in above will be invited for the opening of the price bids.

Price Bid

1) Original price bid duly filled in, signed & stamped on each page shall be submitted. Any breakup (if required) must be submitted separately. The rates offered by the bidder shall be clearly written in English (clearly handwritten or typed) both in words and figures and shall be free from any aberrations, deletions, corrections and overwriting. In case of any illegibility of the offer submitted by bidder the interpretation by OPGC shall be final and binding on the bidder.

2) Insertion, postscript, addition and alteration shall not be accepted after submission of the bid.

3) The quoted price shall be **all-inclusive basis except GST** (Taxes, duties, other government levies except GST etc.) and shall remain firm during entire tenure of the contract and shall not be revised under any circumstances for whatsoever reason except as given in (4) below. GST applicability and rate of GST should be shown separately and shall be paid against documentary evidence.

4)

a. Any increase / decrease in the GST, Cess and other taxes thereon will be reimbursed / adjusted as per actual against documentary evidence.
b. Additional amount due to imposition of new tax by Govt. relevant to this work will be reimbursed by OPGC as per actual against documentary evidence.
c. Any change in Income Tax will be borne by the Contractor.
d. Quoted rate (valid on the date of opening of tender) shall be treated as base price and **all-inclusive basis except GST.**
e. Any additional payment due to change in tax structure will be admissible if the change is effective during the scheduled completion period. No such extra payment shall be made beyond the stipulated completion date if the delay is due to the fault of the contractor. No claim shall be admissible after completion of work.

5) No deviation shall be allowed in the price bid.

6) In the Price Part, the bidder must also submit a CD containing the soft copy of price bid (with detailed item wise quoted prices) in Excel format (non-pdf) along with the signed & stamped hard copy of price bid. The prices quoted in the hard copy of price bid shall be taken as final & binding.

Instruction to the Bidders

a) Small scale industries/National Small Scale Industries Corporation/ MSME firms are exempted from payment of Earnest Money Deposit only if they are entitled for exemption of the offered service. Tenderers seeking exemption shall claim in advance along with the photocopy of Valid Registration Certificates at least two days before the due submission date. However, OPGC reserves the right to accept/ reject the exemption request if the same is found unauthenticated or not relevant to the offered item.

b) Bidders are advised to submit the tender based strictly on the terms and conditions and specifications contained in the tender documents and not stipulate any deviations in normal case.

c) OPGC reserves the right to evaluate the quotation on such deviations having financial implications by adding the cost determined by OPGC.

d) Wherever it is mentioned in the specification that the contractor shall perform certain work or provide certain facilities, it is understood that the contractor shall do so at his cost.

e) Before quoting the rates the Bidder should go through the specifications, scope of work etc. and get himself fully conversant with them. The bid should **include cost of mobilization and cost to adhere to all safety norms** as described in the tender. No relaxation or request for revision of quoted/accepted rates shall be entertained subsequent to the opening of bid on account of mobilization or Safety costs.

f) The details of items in the price schedule shall be read in conjunction with the corresponding technical specifications. Items of work provided in the price schedule but not covered in the technical specifications shall be executed strictly as per instructions of Engineer in charge.
g) The Bidders shall quote rates inclusive of the complete cost towards consumables, tools and tackles, equipments, labour, levies, taxes and duties if any, all safety PPE's as per OPGC norms to all workmen, rectification, maintenance till handing over, supervision overheads, profits and all incidental charges not specifically mentioned but reasonably implied and necessary to complete the work according to contract.
h) Bidder shall also indicate the cost of PPEs (in %) included in the Price Bid.
i) OPGC reserves the rights to split the scope & quantity to more than one agency among the bidders.
j) OPGC reserves the rights to cancel the tender without assigning any reasons thereof.
k) OPGC reserves the rights of accepting the whole or any part of the tender and bidder shall be bound to perform the same at their quoted rates.

Disclaimer:

These documents are published in our website only for the purpose of bidders interested to participate in the Tender. OPGC shall not be held responsible in any manner in the event of any unauthorized usages of these documents other than the intended purpose.

GENERAL CONDITIONS OF CONTRACT

ODISHA POWER GENERATION CORPORATION LIMITED
7TH. FLOOR, ZONE – A, FORTUNETOWERS,

CHANDRASEKHARPUR, BHUBANESWAR – 751 023
(ODISHA)

ODISHA POWER GENERATION CORPORATION LIMITED

7TH. FLOOR, ZONE – A, FORTUNETOWERS,
CHANDRASEKHARPUR, BHUBANESWAR - 751 023

INSTRUCTION TO BIDDERS

VOLUME-I

INDEX

	Page	
	From	**To**
1. COVERING LETTER	10	--
2. NOTICE INVITING TENDER	11	13
3. PROFORMA OF LETTER OF UNDERTAKING	13	14
4. INSTRUCTIONS TO BIDDER	15	20

ODISHA POWER GENERATION CORPORATION LTD
IB THERMAL POWER STATION
BANHARPALI-768234, DIST. JHARSUGUDA

TENDER
FOR

Name of the work: "AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."

1. To be submitted by **15:00 Hours on 30/09/2022**to**Contract Cell, ITPS, Jharsuguda.**

2. Techno-commercial bids to be opened in the presence of Bidders or their duly authorized representatives who may like to be present **at 15:30 Hours onwards on 30/09/2022**in the office of **Contract Cell, ITPS.**

Issued to M/s ……

Signature of officer issuing the documents… **Sd/-**

Designation:**AGM- Contracts, ITPS.**

Date:

ODISHA POWER GENERATION CORPORATION LTD
IB THERMAL POWER STATION, BANHARPALI

NOTICE INVITING TENDER

1. Tenders are invited on behalf of the OPGC Ltd. for the work **"AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."**
2. The Tender & rates shall be in the prescribed form provided by OPGC.
3. The works are required to be completed as per schedule mentioned in Special Conditions of Contract, in accordance with phasing, if any, indicated in the Tender documents.
4. Normally Bidders having corresponding class of license, PF Code, GST Registration Certificate, IT PAN, valid expertise for the work required to be executed and financial capacity will be considered.
5. The person who floats the NIT shall be the Accepting Authority hereinafter referred to as such for the purpose of this Tender.
6. A Bidder shall produce Income Tax PAN, GST Registration Certificate and PF Registration number.
7. Tender documents consisting of plans, drawings, specifications, Schedule(s) of Quantities / Price Schedule of various classes of work to be done, the Conditions of Contract and other necessary documents will be sold on payment of **Rs. 5,000/- (Inclusive of GST)**in shape of Demand Draft in favour of Odisha Power Generation Corporation Ltd. drawn on State Bank of India (**Code-9510**) / Andhra Bank (**Code-0662**) / Central Bank of India (**Code-283899**)/ICICI Bank (**Code-ICIC0003679**) on or after **15/09/2022** up to **29/09/2022.**The cost of tender paper is not refundable.
8. Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their Tenders as to the nature of the ground and sub-soil (so far as is practicable and related to particular work), the form and nature of the site, nature of work, capacity of concerned plant, present condition of the plant, labour force problem relating to present Contractlabour, custom & system of the local folk, means of access to the site, accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their Tender. A Bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed.
9. Submission of a Tender by a Bidder implies that he has read this notice along with the notice inviting tender advertised in the newspaper and all other tender documents and has made himself aware of the scope and specifications of the work to be done and of local conditions and other factors bearing on the execution of the works.
10. A Bidder should quote his rates in figures as well as in words. The amount for each item should be worked out and the requisite totals given. Special care shall be taken to write rates in figures as well as in words, and the amounts in figures only in such a way that interpolation is not possible. The total amount shall be written both in figures and in words. In case of figures, the words 'Rs.' should be written before the figure of rupees and the words 'Paise' after the decimal figures, e.g. Rs.2.15 P. In case of words, the words 'Rupees' should precede and the words 'Paise' should be written at the end. Unless the rate is in whole rupees and followed by the word 'Only' it should invariably be up to two places of decimal.

11. In the case of item rate Tenders, only rates quoted shall be considered. Any Tender containing percentage below / above the schedule of rate quoted is liable to be rejected. In case of lump sum tenders, only quoted amount shall be considered.
12. Any Bidder for the works shall not be witness in the Bid of any other Bidder for the same works. Failure to observe this condition shall render the Tender of the Bidder tendering as well as of those witnessing the Tender liable for rejection.
13. Tender shall be received **up to 15:00 Hours on 30/09/2022**and shall be opened at **15:30 Hours onwardson the same day**in the presence of those Bidders or their duly authorized representatives who may like to be present.
14. The Tender shall be accompanied by Earnest Money worth **Rs. 22,70,000.00**. The Earnest Money offered shall be in shape of Demand Draft / Pay Order in favour of Odisha Power Generation Corporation Ltd drawn on State Bank of India (Code-9510) / Andhra Bank (Code-0662) / Central Bank of India (Code-283899)/ICICI Bank (Code-ICIC0003679)**or Bank guarantee issued by any Nationalized /scheduled Bank in the enclosed proforma.**

15.1 The Tender shall be accompanied with letter of undertaking on non-judicial stamp paper of appropriate value in the prescribed format.

15.2 The Earnest Money shall be made payable without any condition/demure to the Owner on demand. The Earnest Money shall be valid for a period of **three (03) calendar months** from the date of opening of the bid.

15.3 In consideration of the Owner opening and considering the Tender for purpose of award of Contract, the Bidder shall keep his Tender valid for a period of **one hundred eighty (180) days** from the date of opening of the Tender, during which period the Bidder agrees not to vary, alter or revoke his Tender either in whole or in part. If the Bidder however, fails to keep his Tender valid for one hundred eighty (180) days or varies its terms and conditions during the said period then the Owner shall be entitled to forfeit the Earnest Money amount without any notice or proof of damages etc. The Bidder shall submit his Tender as required in the Tender documents along with letter of undertaking in the proforma enclosed herewith.

15.4 The Earnest Money of all unsuccessful Bidders will be returned within thirty (30) days after the award of the Contract.

15.5 Any Tender not accompanied with both Earnest Money and letter of undertaking or any of the two in accordance with aforesaid provisions shall be rejected by the Owner as non-responsive Bid.

15.6 No interest will be payable by the Owner on the said amount covered under Earnest Money / other security deposits.

15. On finalization of Tender, Earnest Money of successful Bidder will be treated as part of the initial security at the option of the said Contractor or shall be returned to the successful bidder at his option.
16. A Bidder shall submit the Tender which satisfies each and every condition laid down in this notice and other tender documents, failing which the Tender will be liable to be rejected.
17. The Odisha Power Generation Corporation Ltd. do not bind themselves to accept the lowest or any Tender or to give any reasons for their decision. The Owner reserves the right to allow the Public Sector Undertakings price preference facilities as admissible under existing Govt. policy. The prospective Bidders may apprise themselves of the relevant Govt. notification in this regard before submission of their bid. The Odisha Power Generation Corporation Ltd. reserves the right of accepting the whole or any part of the Tender or split the total scope of work among eligible Bidders and Bidder (s) shall be bound to perform the same at his/their quoted rates.

18. GST or any other tax on materials in respect of this Contract shall be payable by the Contractor and the Owner will not entertain any claim whatsoever in this respect.
For and on behalf of Odisha Power Generation Corporation Ltd.

Signature…Sd/-

Designation:**AGM-Contracts, ITPS.**

Date:

PROFORMA OF LETTER OF UNDERTAKING TO BE SUBMITTED BY THE BIDDER ALONG WITH HIS TENDER.

(To be executed on non-judicial stamp paper of requisite value)

Ref: Date:

To

Odisha Power Generation Corporation Ltd.,
IB Thermal Power Station,
Banharpali.

(Hereinafter referred to as the Owner)

I/We have read and examined the following documents relating to

(Name of the works)

(a) Notice inviting Tender
(b) Format for Letter of undertaking
(c) General Conditions of Contract including Contractors Labour Regulations, Model Rules for Labour Welfare, Safety Code, schedule A & B Annexure I to XVII.
(d) Special Conditions of Contract including Scope of Work
(e) Price Schedule / Bill of Quantities
(f) Technical Specifications.
(g) Drawings.

I/We hereby tender for execution of the works referred to in the aforesaid documents upon the terms and conditions contained or referred to therein and in accordance in all respects with the specifications, designs, drawings and other relevant details contained in Schedule of Quantities / Price schedule attached with the tender documents and the period (s) of completion as stipulated in Schedule 'A' of General Conditions of Contract.

In consideration of I/We being invited to Tender, I/We agree to keep the Tender open for acceptance for 180 days from the due date of opening of bid thereof and not to make any modifications in its terms and conditions which are not acceptable to the Owner.

A sum of Rs. …… is hereby forwarded in shape of Demand draft drawn on State Bank of India (Code-9510) / Andhra Bank (Code-0662) / Central Bank of India (Code-283899) or Bank guarantee issued by any Nationalized/Scheduled Bank in the enclosed proforma as Earnest Money in the manner prescribed in clause 15 of NIT enclosed herewith. If I/We fail to keep the Tender open as aforesaid or make any modifications in the terms and conditions of the Tender, which are not acceptable to the Owner, I/We agree that the Owner shall, without prejudice to any other remedy, be at liberty to forfeit the said earnest money absolutely. Should this Tender be accepted, I/We hereby agree to abide by and fulfill all the terms, conditions and provisions of the aforesaid documents.

If, after the Tender is accepted, I/We fail to commence the execution of the works as provided in the conditions, I/We agree that the Owner shall without prejudice to any other right or remedy be at liberty to forfeit the said earnest money absolutely.

Signature of Bidder ……

Duly authorized to sign the Tender on behalf
of the (in block capitals)……..

……..
Dated……
Postal Address…….
Telegraphic Address……
Telephone No……..
Fax No…….
E-mail address ……

Witness……..

Date……..

Address……

INSTRUCTION TO BIDDER (S):

1.1 **Site visit & collection of information:**

The Bidders are advised to visit the site, collect information regarding communication, transportation, banking facility, availability of skilled / unskilled labours, their customs, religious or otherwise culture, political environment, climatic conditions, education & medical facilities etc. to their satisfaction and acquaint with the nature & condition of work prior to working out the price of the Tender.

1.2 Bidders are advised to submit Tenders based strictly on terms & conditions and specification contained in the tender documents and not stipulate any deviations. Should it however become unavoidable, deviations should be stipulated in the prescribed proforma only in the format in annexure VII of G.C.C. Owner reserves the right to evaluate the Tenders containing deviations by loading or offloading the cost of such deviations.

1.3 Addenda / Corrigenda issued to this tender must be signed & submitted with tender on due date or on extended date if any. The Bidder should write clearly the revised quantities on the Schedule of original Tender Documents and should price the work based on revised quantities / conditions. All those who were issued tender documents prior to issue of addenda / corrigenda shall be provided with another set of fresh blank price schedule / schedule of items free of cost. The Bidders shall submit their tender in the fresh schedule. But however if the Bidder has already submitted his tender prior to issue of such addenda / corrigenda, they shall resubmit a fresh offer marked on the envelope as "Amended Offer". The original offer submitted by such party shall be destroyed in presence of the Bidder on the date of opening.

1.4 Preparation of Bid:

The Bidder(s) shall submit the bid in two parts, namely-

1) Part-I : Techno commercial Bid
2) Part-II : Price Bid

PART-I : TECHNO-COMMERCIAL BID

A complete set of original Tender documents as specified in clause 3.1 of G.C.C. issued to the Bidder except blank price bid / bill of quantity duly filled in as prescribed in different clauses of the Tender documents with signature & stamp in all pages as token of unconditional acceptance shall constitute Techno-commercial Bid.

The Bidder shall enclose the following documents in this Bid.

a) Crossed Demand Draft for requisite amount only drawn in favour of Odisha Power Generation Corporation Ltd or Bank guarantee issued by any Nationalized Bank/scheduled Bank inthe enclosedproforma in the manner prescribed in clause-15 of NIT enclosed herewith towards the Earnest Money without which the Tender shall be liable for summarily rejection.

b) Details of work of similar nature and magnitude executed by the Bidder during last three years (Works executed in name of Bidder) in Annexure-I of G.C.C.

c) Details of present commitments of the Bidder in Annexure-II of G.C.C.

d) Details of equipments in Annexure-III of G.C.C.

e) Organization chart showing number of qualified Engineers and Supervisory personnel in the roll of the firm in Annexure-IV of G.C.C.

f) Duly filled in information about Bidder as per Annexure-V of G.C.C.

g) List of enclosures as per Annexure-VI of G.C.C.

h) Exception & deviation statement in Annexure-VII of G.C.C.

i) Details of proposed organization in Annexure-VIII of G.C.C.

j) Documents showing annual turnover in Annexure-IX of G.C.C.

k) Photocopy of GST Registration Certificate and Income Tax PAN.

l) Photocopy of P.F. Registration Certificate and GST registration Certificate of appropriate category issued by competent authority.

m) Photocopy copy of the Registration of Firm / Company.

n) Present & permanent Address for correspondence along with Telephone No,/Fax No./E-mail address etc.

o) Any other technical information, Bidder wishes to furnish.

p) Letter of undertaking in judicial stamp paper of worth Rs.5.00 in the format enclosed.

q) Documents in support of authentication of the person who signed the tender. Only proprietor, partner, directors or permanent employee with due power of attorney is recognized for such signature.

Note: If required additional sheet may be used to furnish all above information but in the format provided in General Conditions of Contract.

The techno-commercial bid with all its enclosures as mentioned in clause 1.4 should be put in an envelope, sealed &superscribed as **"**TECHNO-COMMERCIAL BID". This envelope must contain Name of the work, NIT No., Due date of opening and Name & Address of the Bidder on bottom left hand corner of the cover.

PART-II: PRICE BID

Price bid shall include -

a) Original price bid / schedule of quantity duly filled in, signed & stamped on each page as token of unconditional acceptance shall constitute the Price Bid. The Bidder shall take utmost care in filling the tender documents corresponding to instruction to Bidder and relevant information elsewhere in Tender document.

b) Price Bid shall be completed in all respects with all their attachments / enclosures, if any.

c) The price bid shall be prepared in the manner prescribed in various clauses of Tender document and put in a separate sealed envelope super scribed as "PRICE BID". This envelope must contain Name of work, NIT No. at the top and Name & Address of the Bidder on left hand bottom corner of the cover.

1.5 **COMPLETE BID:**

Both the Techno-commercial & Price Bid in separate sealed cover shall be put in a third envelope, sealed &superscribed with Name of the Work, NIT No., Due date of opening. The full name, postal address, telegraphic address and telex/telephone/fax/E-Mail of the Bidder shall be written on the bottom left corner of the envelope.

1.6 **SUBMISSION OF BID:**

Completed Bid shall be submitted to the Owner within due date and during office hours only. The Tenders shall be put into a box, marked as Tender Box or handed over to Contract Cell against receipt of the same.

1.7 **OPENING OF TENDER:**

The techno-commercial bid shall be opened at a predetermined time, venue & date in presence of the Bidder(s) or their authorized representative who may like to be present. Partner, director or permanent employee of the firm duly authorized can only be authorized representative.

Price bid shall be opened at a future date under intimation to all technically qualified Bidders and in presence of them or their authorized representatives who shall participate.

1.8 **CAUTION TO BIDDER:**

The person who shall come to purchase tender documents, submit the Tender or participate in the opening of the Tender must abide by the safety rule of OPGC right from the plant gate. Some of the checkpoints are, the vehicle must have valid insurance & tax paid road permit, valid driving license of the driver / Owner as the case may be. Persons with full shoes shall be allowed to enter the plant & our plant gate shall provide other items such as hard hat, safety glass & visitor pass. Not more than 2(two) persons for one Tender shall be allowed to participate in Tender opening.

1.9 **ALL PAGES TO BE INITIALED:**

All the pages of Tender documents shall be initialed. But first & last pages of all volumes of documents shall be signed with date by the Bidders or their authorized representatives.

1.10 **RATES TO BE IN FIGURES & WORDS:**

The Bidder shall quote both in figures and in words for the rates and amount tendered by him in the Schedule of quantities / Price schedule forming part of the Tender document, in such a way that interpolation is not possible. The amount of each item shall be worked out and entered and requisite total given for all items. The tendered amount for the work shall be entered in the Tender and duly signed by the Bidder.

If any ambiguities are observed in the rates & amount given in words & figures the following procedure shall be followed:

a) When there is difference between the rates in figures and words, rate which corresponds to the amount worked out by the Bidder, shall be taken as correct.

b) When the rate quoted by the Bidder in figures and words tally but the amount is incorrect, the rate quoted by the Bidder shall be taken as correct but not the amount.
c) When it is not possible to ascertain the correct rate by either of above methods, the rate quoted in words shall be taken as correct.

1.10.1 The Bidder shall quote in English language only.

1.11 **CORRECTIONS & ERASES:**

No erases or over writings are permissible. All corrections and alterations in the entries of tender papers shall be signed by the Bidder with date.

1.12 **DETAILS &SIGNATURE OF BIDDER:**

1.12.1 The Tender shall contain the name, residence and place of business of person or persons making the Tender and shall be signed by the Bidder with his usual signature. Partnership firms shall furnish the full names of the partners in the Tender. It should be signed in the partnerships name by all the partners or by duly authorized representative followed by the name and designation of the person signing. Tender by a Corporation shall be signed by an authorized representative and a power of attorney / authorization on its behalf shall accompany the Tender. A copy of constitution of the firm with names of all partners shall be furnished. In case of cooperative society, the authorized representative of the society will sign the Tender. Similar principle shall be followed in case of any Trust and Hindu Undivided Family business.

1.12.2 When the Bidder signs a Tender in a language other than English, the total amount tendered or only rate quoted in maintenance Contract in addition be written in the same language. The signature should be attested, at least by one witness.

1.13 **ABNORMAL RATES:**

The Contractor is expected to quote the rate for each item after careful analysis of cost involved for the satisfactory performance and completion of item work considering all specifications and conditions of Contract. This will avoid loss of profit or gain in case of curtailment or change in specification for any other item. In case the rates quoted by the Bidder's for any item are unusually high or unusually low it will be sufficient cause for the rejection of the Tender unless the Owner is convinced about the reasonableness of the analysis for rate furnished by the Bidder (on demand) after scrutiny.

1.14 **THE SCHEDULE:**

1.14.1 The work shall be executed strictly as per the Time Schedule, indicated in the tender documents.

1.14.2 Monthly / weekly work programme will be drawn up by the Contractor before commencement of work & submitted to Engineer-in-charge for approval. The programme& progress will be reviewed from time to time and if required, the programme may be re-scheduled by Engineer-in-charge. The Contractor shall also be responsible to provide materials within his scope in time to achieve the programme. In all matters concerning the extent of programme set out weekly and monthly, the decision of the Engineer-in-charge will be final and binding on the Contractor.

1.15 **RECORD KEEPING:**

Relevant records are to be maintained by the Contractor in day-to-day / monthly basis & furnished to Engineer-in-charge or his representative for scrutiny, Management Information System and payment etc.

End of Volume-I: Total pages 15

ODISHA POWER GENERATION CORPORATION LIMITED

7TH. FLOOR, ZONE – A, FORTUNETOWERS,
CHANDRASEKHARPUR, BHUBANESWAR - 751 023

GENERAL CONDITIONS OF CONTRACT

VOLUME-II

INDEX

Section	Description	Page From	To
I.	General	22	25
II.	Definition & interpretation	26	30
III.	General information to Bidders	31	36
IV.	General obligations / general conditions	36	56
V.	Scope & Performance of work	56	60
VI.	Certificate and payment	60	66
VII.	Statutory obligation	67	68
VIII.	Labour Laws	69	78
IX.	Safety provisions	79	90
X.	Penalty	91	92
XI.	Arbitration & Jurisdiction of Court	93	94

SECTION-I

1.0 **GENERAL**

Odisha Power Generation Corporation Limited is a Govt. of Odisha undertaking and Ib Thermal Power Station, Banharpali is one of its units. At present AES Corporation, USA has 49% stake in Odisha Power Generation Corporation Limited. The Ib Thermal plant is situated close to Hirakud reservoir and at a distance of 40 Kms from Jharsuguda Railway Junction and 18 Kms from Belpahar Railway Station in the state of Odisha both on S.E. Railways. ITPS is at present operating 2x210 MW coal based power plant. The management is looking forward to engage a bonafide, resourceful, potential and experienced Contractor of good financial capacity for the jobs specified in Special Conditions of Contract in Volume-III.

1.1 One set of Tender document shall be issued to each Bidder. Bidders shall be required to submit the Tender duly signed and stamped in all pages of the document along with their offers. All Tenders shall be prepared and submitted by typing or printing with indelible black ink on white paper in consecutively numbered pages and in solid binding along with duly filled-in formats given in the Annexure. One additional booklet (Volume-IV) containing the bill of quantities / price bid as issued to be submitted by the Bidder in two copies in the price bid part.

1.2 The tender document is not transferable. Transfer of tender documents issued to one Bidder to another is not permissible. Similarly, transfer of Tender submitted by one Bidder to another party is not permissible. The alteration of Tender once submitted shall not be entertained except in case of issue of Addenda / Corrigenda.

1.3 Tender shall be submitted under a covering letter indicating clearly the summary of tender chapters with annexure / schedules of the complete Tender.

1.4 Insertion, postscript, addition and alteration shall not be accepted unless confirmed by the Bidder's signature.

1.5 All the copies of Tender shall be complete in all respects with all their attachments/enclosures.

1.6 The Bidder shall satisfy the Owner that the firm represented possesses the necessary experience and that he has at his disposal suitable modern facilities and specialized employees to ensure that his work is of best quality and workmanship is according to the latest proven technology and engineering practices. The Bidder shall satisfy the Owner that he is financially in a position to fulfill Contractual obligations, offered to be undertaken by him.

1.7 Bidder's complete offer (all the parts) shall be prepared and submitted in double sealed envelope with Name of the work, NIT No. & date and Due date super scribed prominently on the outside of the envelope:

The full name, postal address, telegraphic address and telex/ telephone/ fax / E-mail address of the Bidder shall be written on the bottom left corner of the sealed envelopes.

1.8 **SCOPE OF WORK AND PARTICULARS TO BE FURNISHED IN THE TENDER:**

i) The work shall be carried out on item rate basis / job rate basis for which schedule of quantities / blank price schedule have been issued for different items of work as defined in the scope of work, technical specification in Special Conditions of Contract.

ii) The Tender not covering the total scope of work and services as detailed out in tender documents is liable for rejection.

1.8.1 The Bidder shall carefully check the enclosed Technical Specifications and shall satisfy himself as to the suitability of the work as given in the Technical Specifications and shall take full responsibility for the completion of work as per defined scope.

1.9 **PRICE QUOTATION:**

1.9.1 The Bidder shall quote his price against each item of the schedule as indicated in Schedule of Quantities / Blank price schedule enclosed with technical specification, both in figures and in words clearly.

1.9.2 Rates shall be quoted both in figures & in words in clear legible letters. No overwriting is allowed. All scoring and cancellation should be countersigned by the Bidder. In case of illegibility, the interpretation of Owner shall be final.

1.9.3 Bidder shall quote rates against the items in the schedule of items for the work / price schedule as fully described and contained therein. No modifications to the work content in the items will be allowed.

1.9.4 The offered unit rates shall remain **FIRM** for variation in completed value of the Contract including the cost of additional / altered / new items of work to any extent.

1.9.5 Any request from the Bidder in respect of additions, alterations, modifications, corrections etc. of either terms and conditions or rates of his Tender after opening of Tenders may lead to rejection of his Tender.

1.10 **RECEIPT OF TENDER:**

Tender shall be received at the office of concerned Engineer-in-charge / Contract cell as per advertisement. The Bidder has the option of sending the Tender by Registered Post or submitting the Tender in person, so as to reach the Engineer-in-charge / Contract cell as the case may be on or before the date and time set out for the same in the Invitation to Tender. Tender submitted by FAX/TELEX/TELEGRAM/ E-mail shall not be accepted.

1.11 **TENDER OPENING:**

The Tender will be opened in the manner and at the time, date and place set for opening of Tenders as described in the Notice Inviting Tender/ Special Conditions of Contract.

1.12 **LANGUAGE TO BE USED IN FILLING OF BID DOCUMENTS:**

The Tender shall be submitted in English language only.

1.13 **EARNEST MONEY:**

Bidders shall submit Earnest Money of value as specified in Special Conditions of Contract / NIT and in the manner prescribed in clause-15 of Notice Inviting Tender. Earnest Money shall be returned to the unsuccessful Bidders at the expiry of the validity period unless otherwise extended or on finalization of the Contract. Earnest Money of the successful Bidder shall be returned after he furnishes the initial Security Deposit and Contract is signed. No interest shall be paid on Earnest Money. E.M.D. shall not be accepted in any other form than as mentioned above and the Tender shall be summarily rejected without

E.M.D. The E.M.D. shall be returned in form of A/c payee cheques / D.D. Bank charges shall be to the accounts of Contractor if D.D. is required.

1.13.1 Forfeiture of E.M.D. & rejection of Bid, if-

a) The Tender is revoked during its validity period.
b) The prices are increased unilaterally after the Tender opening and during validity of offer.
c) The Owner accepts the Bidder's bid proposal and the Bidder refuse to enter into Contract after the Contract is awarded to him.
d) The Bidder fails to submit initial Security Deposit within the period specified in Special Conditions of Contract.

1.14 **NO CLAIM OR COMPENSATION FOR SUBMISSION OF TENDER:**

The Bidder whose Tender is not accepted shall not be entitled to claim any costs, charges and expenses incidental to or incurred by him through or in connection with his submission of Tender or its consideration on the Owner, even though Owner may modify / withdraw the Invitation to Tender or does not accept the Tender.

1.15 **INCOME TAX** PAN& **SALES TAX CLEARANCE CERTIFICATE AND** P.F. **CODE:**

Bidder shall furnish the Income Tax PAN and valid Sales Tax clearance certificate issued by the concerned authority & P.F. Code with the Technical Bid of the Tender.

1.16 **NOTICE ON BEHALF OF OWNER:**

All notices of technical / commercial nature shall be issued by the Engineer-in-charge from time to time after LOI is released till closure of Contract.

1.17 **SITE INFORMATION** & **LOCAL CONDITIONS:**

1.17.1 **Site information**

Information regarding the work site, plant capacities, location, approach to site and metrological condition, work culture etc. as prevailing at the site can be obtained by the Bidders by site visit & interaction with Engineer-in-charge or others.

1.17.2 **Local Conditions**

It is suggested that the Bidder must visit the site and shall satisfy and acquaint himself of the site condition and shall appraise himself of the procedure for engagement of labour and shall collect any other information which may be required before submitting the Tender.

1.17.**3 Claims and objections due to ignorance of site conditions will not be considered after submission of Tender.**

The Bidder shall be deemed to have visited and carefully examined the site and surroundings, to have satisfied himself about the nature and details of all existing infrastructures and also as to the nature and conditions of the plant and equipment installed, means of transport and communications, whether by land, water or air and as to possible interruptions thereto and ingress & exit from the site, to have made independent enquiries, examined and satisfied himself as to the sites for disposal of surplus materials and debris, the available accommodation, and all other similar matters which may affect the work.

i) The Bidder shall be deemed to have acquainted himself of Government taxes, laws, statute, regulations, levies and other charges relating to his work at site.

ii) Any neglect or omission or failure on the part of the Bidder in obtaining necessary and reliable information as stated above or on any other matter affecting the Bidder shall not relieve him from any risks or liabilities or the entire responsibility for completion of the work in accordance with the Tender Documents.

1.18 **OTHER CONDITIONS:**

The Bidder is required to carefully examine the General Conditions of Contract, Special Conditions of Contract, the Technical Specification, drawings and other details relating to work and given in the tender documents and fully acquaint himself as to all conditions and matters which may in any way affect the work or the cost thereof. The Bidder shall be deemed to have on his own and independently obtained all information for the purpose of preparing the Tender and his Tender as accepted shall be deemed to have taken into account all contingencies as may arise due to such information or lack of the same.

1.18.1 The Bidder shall be deemed to have exhaustively examined the tender documents including the General Conditions of the Contract, Special Conditions of Contract, Technical Specifications to have obtained all information and clarifications on all matters whatsoever that might affect the carrying out the work and to have satisfied himself as to the adequacy of his Tender. He is deemed to have known the scope, nature and magnitude of the work and the requirements of materials and labour involved etc. and as to all work he has to complete in accordance with the Contract whatever be the defects, omissions or errors that may be found in the Tender Documents.

1.18.2 In case of conflict between the conditions given in the Special Conditions of Contract / Technical Specification and the General Conditions of the Contract, the conditions given in the technical specification shall prevail over the General & Special conditions of the Contract.

1.19 **SAFETY MEASURE:**

The Contractor has to abide by the Owner's safety rules in vogue at the time of Tendering and enforcement of any additional rules from time to time during the Contract period and it's extension if any.

1.20 **STATUTORY PROVISION:**

All statutory provisions like ContractLabour Acts, Employees Provident Fund Acts, Payment of Wage Act, Bonus Act, Minimum Wages Act, Workman Compensation Act, Sales Tax/Income Tax Acts at the time of submission of Contract and any new Acts applicable to such Contract / Contractlabour during the Contract period shall be liability of the Contractor.

1.21 **EXECUTION OF CONTRACTS:**

1.21.1 After LOI / Work Order is accepted by the Contractor, Contract will be executed by and between Owner and the Contractor within 30 days as per prescribed proforma provided by OPGC. The agreement shall be executed on non-judicial stamp paper of appropriate value purchased in the State of Odisha.

End of Section-I

SECTION-II

2.0 **DEFINITIONS AND INTERPRETATIONS**

The following words and expressions (as hereinafter defined) shall have the meanings hereby assigned to them except where the context otherwise requires.

2.1 "Accepting Authority" shall mean the authority mentioned in Schedule 'A'.

2.2 The 'Alteration / Variation of Order' means an order given in writing by the Engineer-in-charge to effect additions to or deletions from or alteration in the Works.

2.3 'Approved' shall mean approved in writing including subsequent written confirmation of previous verbal approval and 'Approval' means approved in writing including as aforesaid.

2.4 'Bidder' means a person or group of persons or a company who offer rates under certain conditions with an intention of performance against any invitation to Tender if accepted by the person inviting Tender.

2.5 The 'Completion Certificate' shall mean the certificate to be issued by the Engineer-in-charge certifying that the work is completed in all respect commensurate to the provisions of Contract& to his satisfaction.

2.6 'Constructional plant' shall mean all equipments, materials, appliances or things of whatsoever nature required for execution, completion or maintenance of the works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.

2.7 The 'Contract' shall mean enforceable agreement between the Owner and the Contractor for execution of the works including therein collectively all documents such as: -

i) General Conditions of Contract
ii) Special Conditions of Contract including Scope of Work, Price Schedule / Bill of Quantities, Technical Specification & Approved Work Schedule.
iii) Agreed Statement of Deviation
iv) Field Quality Assurance Plan
v) Drawings if provided
vi) LOI / Work Order
vii) All relevant correspondence having bearing on Tender between Bidder & Owner before acceptance of Tender.

All the above documents are complementary to each other.

2.8 The 'Contractor' shall mean the successful Bidder whose Tender has been accepted by Owner and LOI accepted by the successful Bidder and includes his/their/its legal representative(s), successor(s) and permitted assignee(s).

'Contractor' is a person/firm/company in relation to any establishment who undertakes to produce a given result for the establishment other than a mere supply of goods or articles of manufacturer to such establishment through Contractlabour or who supply Contract labour for any work of the establishment and includes a subcontractor or agent as the case may be.

2.9 All functions pertaining to the operation of Contract means all acts, such as planning, scheduling, testing, measuring, certification of bill, closing of Contract etc., directing, issue of spares & consumables and controlling the activities of Contractor necessary for execution of the Contract and coordinating between the functioning agency & Owner or his functionary representative.

2.10 'Day' means a day of 24 hours from midnight irrespective of the number of hours worked in that day. However, for the purpose of work involving shift working "Day" means a day of 24 hours from 6 a.m. to 6 a.m. next.

2.11 'Drawings' shall include maps, plans and tracings or prints thereof with any modification approved in writing by the Engineer-in-charge and such other drawings as may from time to time, be furnished or approved in writing by the Engineer-in-charge.

2.12 The 'Engineer-in-charge' or 'Officer-In-charge' shall mean the engineer / person as the case may be nominated by the Owner from time to time and shall include those who are expressly authorized by the Owner to act for and on his behalf for all functions pertaining to operation of the Contract.

2.13 'Excepted Risks' are risks due to riots (otherwise than among Contractors employees) and civil commotion (in so far as both these are uninsurable), war (whether declared or not), invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military or usurped power any acts of government, damage from aircraft, acts of god such as earth quake, lightening and unprecedented floods and other causes over which the Contractor has not control and accepted as such by the accepting authority or causes solely due to use or occupation by the Owner of the part of works in respect of which a certificate of completion has been issued.

2.14 The 'Final Certificate' in relation to the work shall mean the certificate regarding the satisfactory compliance of the various provisions of the Contract to be issued by the Owner or his representative after the period of risk-liability is over. Risk liability period shall be specified in Special Conditions of Contract.

2.15 'Headings' in this Contract document are given solely to facilitate reference and are not part of the Contract documents and are not to be taken into account in the interpretation of the provisions of the Contract.

2.16 'Language for Drawings & Instruction': All the drawings, titles, notes, instructions, dimensions etc. shall be in English language only.

2.17 'Letter of Intent (LOI)' shall mean an intimation by a letter to Bidder that their Tender has been accepted in accordance with the provisions contained in the letter and hence to take preparatory steps and compliance of formalities to commence the work from the date desired by Owner.

2.18 The 'Managing Director' shall mean the Managing Director of Odisha Power Generation Corporation Ltd or his successors in office as designated by the Owner.

2.19 'Market Rate' shall be the rate as decided by Engineer-in-charge on the basis of the cost of materials and labour at the site where the work is to be executed, plus the percentage mentioned in schedule-A to cover all overheads and profit (No percentage shall be added for materials issued by the Owner).

2.20 'Metric System': All technical documents regarding the measurement of works are given in the metric system and all work under the Contract should be carried out according to the metric system only. All documents concerning the work shall also be maintained in the metric system.

2.21 'Notice in writing or written notice' shall mean a notice in writing, typed or printed matters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business address or registered office of the addressee and shall be deemed to have been received in the ordinary course of post, it would have been delivered.

2.22 The 'Owner' shall mean the Odisha Power Generation Corporation Limited (OPGCL), a company incorporated under the Companies Act, 1956 having its registered office at 7th Floor, Module – A, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023 or any other places if modified subsequently and shall include its Managing Director or other Administrative Officers authorised to deal with these presents and are concerned on his behalf and are posted in any of the offices of OPGCL and shall also include Owner's successors and assignees.

2.23 'Paying Officer' shall mean Head of finance / Manager (Finance).

2.24 The 'Period of Defect Liability' in relation to a work means the specified period from the date of issue of completion certificate up to the date of issue of final certificate, which the Contractor stands responsible for rectifying all defects that may develop in the works.

2.25 'Plans' shall mean all maps, drawings, sketches and layout as incorporated in the Contract in order to define broadly the scope and specifications of the work & works and all reproductions thereof.

2.26 'Schedule(s)' referred to in these conditions shall mean the relevant statement of details annexed to the tender papers issued by the Owner and the amendments thereto issued from time to time.

2.27 'Singular & Plural': Unless otherwise stated specifically, the singular shall include the plural and vice-versa wherever the context so requires. The 'Tender' shall mean the offer(s) submitted by the Bidder(s) & subsequent agreed conditions/clarifications for acceptance by the Owner. Words implying persons shall include relevant corporate companies or registered associations or body of individuals or firms of partnership, cooperative society as the case may be.

2.28 Site / Work place' shall mean the lands and other spaces above & below the ground level on which the works are to be carried out, any other lands or places provided by the Owner for the purpose of the Contract.

2.29 'Specification' shall mean all directions, various technical details, standards, quality provisions and requirements attached to the Contract, which pertain to the method and manner of performing the work(s) to the quantities and qualities of the work(s) and the materials to be furnished under the Contract for the work(s) as may be amplified or modified by the Owner or the Engineer-in-charge during the performance of Contract in order to meet the unforeseen conditions in the best interests of the work(s). It shall also include the latest edition including all addenda / corrigenda or relevant BIS Specifications and other relevant codes.

2.30 The 'Sub-contractor' shall mean any person or firm or company (other than the Contractor) to whom whole or any part of the work has been entrusted by the Contractor, with the written consent of the Owner or his representatives and the legal representatives, successors and permitted assignee of such person, firm or company.

2.31 'Temporary Works' shall mean all temporary works of every kind required for execution, completion or maintenance of the Contracted works.

2.32 The "Tender" shall mean the offer submitted by the Bidder and subsequent conditions accepted by the Owner.

2.33 'Urgent Work' shall mean any urgent measures which in the opinion of Engineer-in-charge become necessary during the progress of the work to obviate any risk of accident or failure or disruption of generation which become necessary for security.

2.34 'Value of Contract' shall mean the sum accepted or the sum calculated in accordance with the prices accepted in Tender and/or the Contract rates as payable to the Contractor for the entire execution and full completion of the work.
The 'Contract sum' shall mean:

a) In case of lump sum Contracts, the sum for which the Tender is accepted.
b) In case of percentage rate Contracts, the estimated value of the works as mentioned in the Tender adjusted by the Contractor's percentage.
c) In case of item rate Contract, the value of works arrived at after multiplication of the quantities shown in the schedule of quantities by the item rates quoted by the Bidder for the various items.

2.35 'Week' means a period of seven consecutive days without regard to the number of hours worked in any day in that week.

2.36 'Working day' means any day, which is not declared to be holiday or rest day by the Owner.

2.37 The 'Works' shall mean and include all works to be executed in accordance with the Contract or part thereof as the case may be and shall include all extras, additions, altered or substituted works as required for the purpose of the Contract or as may be required to be executed by the Owner / Engineer-in-charge at an agreed price if not available in scope.

2.38 **NATURE OF CONTRACT:** The Contract may be for -

a) Construction / Fabrication / Erection of plant & equipment.
b) Civil construction.
c) Operation (any system).

d) Maintenance (Civil/Electrical/Mechanical/Miscellaneous works, such as upkeepment of plant, Plantation etc.)
e) Composite / Turnkey package.

2.39 **Earnest Money:**
The Bidder is required to submit 'Earnest Money' with Bids as guarantee (Bid guarantee) to abide by the terms & conditions of Tender document and comply with the work if offered.

2.40 **Schedule of Rate:**
Schedule of Rates means the latest rate published by Works Department / P.H. Department. / Irrigation Department., Govt. of Odisha as the case may be.

2.41 **Schedule of Quantities:**
Schedule of Quantities is details of item wise quantity issued by the Owner in the Price Bid and the rate & amount offered by the Bidder therein and its subsequent agreement by both parties. This is applicable for construction & civil maintenance job only.

2.42 **Price Schedule:**
Price schedule is a document in which description of operation / maintenance, probable frequency during a stipulated period and blank unit rate are provided by the Owner. Bidder shall fill up the blanks and submit it as Price Bid, which is subsequently agreed by both the parties directly or after negotiation.

2.43 "Site In-charge" is an employee of Contractor who is categorically authorized to manage the site for day-to-day activities on his behalf.

2.44 "Labour" means workers employed by a Contractor directly or indirectly through a sub-contractor or by an agent to do any skilled, semi-skilled, unskilled, manual, technical or clerical work relating to the subject of Contract for hire or reward.

2.45 "Minimum wage" means wages as defined under the Minimum Wages Act-1948 and amended from time to time.

2.46 Dispute regarding interpretation and definition:
In case of any dispute regarding interpretation and definition, the decision of OPGC shall be final.

End of Section-II

SECTION-III

3.0 GENERAL INFORMATION TO BIDDER (S):

3.1 **ISSUE OF TENDER PAPER:**

Owner shall issue one set of priced tender documents which consists of:

i) Instructions to Bidder including NIT &Proforma of letter of undertaking
ii) General Conditions of Contract
iii) Special Conditions of Contract including Technical Specification and Scope of Work
iv) Blank Price Bid / Bill of Quantities
v) Drawings

3.2 The Technical Bids shall be opened as per the stipulation in NIT. Information provided and documents submitted by the Bidders in Techno-commercial bid shall be processed, examined, verified and evaluated for ascertaining the suitability of Bidders to qualify for opening of Price bid. The price bids shall be opened with prior intimation to all technically qualified Bidders only and in presence of them or their authorized representatives. Only proprietor, partner, director or permanent employee with necessary power of attorney shall be accepted as authorized representative.

3.3 **WITNESS:**

Witness and sureties should normally be persons of status and property. Their names, occupation and address shall be stated below their signature.

3.4 **VALIDITY:**

Offers submitted by Bidders shall remain valid for a period of 180 days from the scheduled date of opening of the Tender. In case of Bidder revoking or canceling his Tender or varying any term(s) in regards thereof the Earnest Money paid by him shall be forfeited and bid cancelled.

3.5 **ADDENDA/CORRIGENDA:**

3.5.1 Addenda / Corrigenda to the tender document may be issued reasonably prior to the date of submission of the Tenders to clarify documents or to reflect modification in the design or Contract terms. If such issues made, subsequent to sale of Tender paper, time extension shall be given and submission of Bid shall be dealt with in accordance with Clause 1.3 of Instructions to Bidder (s).

3.5.2 The addenda / corrigenda will be issued / mailed to each person or organization to which a set of tender documents has been issued. Each recipient shall acknowledge the receipt of the same and attach one copy of the addenda/corrigenda issued, which shall form part of Tender Documents. In case of paper publication of such addenda/corrigenda, copy of the same may be treated as part of original tender documents.

3.5.3 **REVISED PRICE BID:**

In case of any deviation proposed by any of the Bidders and accepted by the Owner during evaluation of Technical Bid, the same shall be intimated to all technically qualified Bidders with provision of submission of fresh Price Bid taking into consideration the accepted deviation.

3.6 **RIGHT OF OWNER TO ACCEPT OR REJECT TENDER:**

3.6.1 The right to accept the Tender rests with the Owner. The Owner further does not bind himself to accept the lowest Tender and reserves the authority to reject any or all the Tenders received without assigning any reason whatsoever. The whole work may be split up between two or more Contractors or accepted in part (not entirely) if considered expedient. The rates shall be the lowest/negotiated for such eventualities. Tenders in which any of the particulars and prescribed information is missing or incomplete in any respect and/or the prescribed conditions are not fulfilled are liable to be rejected. The decision of the Owner in respect of the above shall be final and binding on the Bidders.

3.6.2 Canvassing in connection with Tenders is strictly prohibited. The submitted Tenders of the Bidders who resort to canvassing are liable for rejection. Tenders containing uncalled remarks or any additional conditions are liable to be rejected.

3.7 **BIDDER'S RESPONSIBILITY:**

The intending Bidders shall be deemed to have visited the site and familiarized themselves thoroughly with the site conditions before submitting the Tender. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the works in strict conformity with the drawings and specifications. The correctness of the details given in the Tender Documents as guideline information to help the bidder but to make up the Tender is not guaranteed.

3.8 **NOTE TO PRICE SCHEDULE / SCHEDULE OF QUANTITY:**

3.8.1 The Bidder shall be deemed to have studied the specifications and details of work to be done within time schedule and to be acquainted himself of the conditions prevailing at site.

3.8.2 Rates must be filled in the original Tender document. Any exceptions taken by the Bidder to the schedule of quantity / price schedule shall be brought out in the terms and conditions of offer.

3.8.3 The schedule of quantity / price schedule should be read in conjunction with all the other sections and documents of the Tender.

3.9 **EQUIPMENTS TO THE CONTRACTOR ON CHARGEABLE BASIS:**

Owner shall not provide any equipment to the Contractor on chargeable basis or otherwise.

3.10 **ISSUE OF PRIME MATERIALS:**

3.10.1 Rate shall be offered including the cost of labour& prime materials like steel, cement etc. in case of construction and civil repair maintenance work.

3.10.2 In case of mechanical & electrical maintenance, Owner shall provide steel materials other than reinforcement steel. Spares, lubricants, special consumables forming part of the job, fasteners, packing including mill internals etc. shall be provided by the Owner and shall not be included in price of Bidder. Other consumable shall be provided by Contractor.

The Contractor shall arrange and stock in full or in part of prime materials as per direction of Engineer-in-charge within 7 days of commencement of work and obtain a certificate from Engineer-in-charge to this effect. The payment against the prime materials shall be made progressively on certification of utilization from Engineer-in-charge.

3.11 **ARRANGEMENT BEYOND CONTRACT:**

It may be sometimes so required to provide materials & services by the Contractor beyond the Scope of Contract. In such situation, the price must be finalized before actual event.

3.12 **FOREIGN EXCHANGE VARIATION:**

In case imported items are involved in the Contract, the price fluctuation corresponds to the fluctuation in the price of foreign exchange. Hence, amount of foreign exchange involved, the exchange rate for the currency on the date of offer and rate of duty should be specifically mentioned by the Contractor.

3.13 **PRICE ESCALATION:**

In case of price escalation provision, base date, indices on the base date and documents / publications shall be referred on the due date and actual date of completion of work without any ambiguity.

3.14 **PURCHASES FROM SUBCONTRACTOR / SUB VENDOR:**

The Owner shall not directly or otherwise be involved with any subcontractor or sub-vendor. No sales tax form 'C' / form IV or Road Permit to any of the Contractor/subcontractor/sub-vendor shall be issued under any circumstances.

3.15 **INCOME TAX / WORKS CONTRACT TAX / SALES TAX / GST / ANY OTHER TAX & DUTIES:**

Income Tax / Works Contract Tax / Sales Tax / GST / any other taxes & duties if applicable at the prevailing rate shall be paid by Contractor and shall be deducted from their Running bills if applicable.

3.16 **EXCISE:**

Certain items of work such as manufacturing of steel vessels and pipes etc attract excise duty. The Contractor shall register himself with excise department shall deal with directly and Owner shall take no liability on account of excise duty to be paid by the Contractor.

3.17 The price to be quoted by the Bidders shall be kept firm up to completion of work. No escalation shall be allowed.

3.18 The person signing the Tender should have requisite authorization of the firm submitting the Tender. This is applicable only to the Joint Stock Company & the authorized person shall be a director / partner / regular employee of the said firm. In case of unregistered firm, the Owner, Managing partners, or authorized partner to this effect shall sign the Tender.

3.19 **OVERRUN CHARGES:**

Delay in completion of work beyond the control of the Contractor such as non-availability of front, drawings, specifications, materials or force majeure etc, Contractor has to increase the additional facility to complete the work in time. No overrun charge shall be considered. But, however the Engineer-in-charge shall examine the period of delay and possibility of adherence to schedule by providing reasonable additional manpower/facility and if satisfied that completion of work shall not be possible by providing reasonable additional manpower, time extension shall be allowed to the Contractor & no penalty shall be levied on this account. No overrun charge shall be paid.

3.20 **FACILITIES TO CONTRACTOR (S):**

3.20.1 **Water Supply**: (a) Water for drinking and sanitation purpose shall be provided to the Contractor for the site work, free of cost. (b) Unfiltered water for construction / maintenance works shall be supplied from the nearest source free of cost. But the Contractor shall arrange to transport water from the nearest source allowed to him for all purpose.

3.20.2 **Power Supply**: Power supply will be provided to the Contractor for the site work and office at a cost to be decided by the Owner. The power will be supplied from the nearest point to the site and Contractor shall arrange to tap the power to his site at his own cost.

3.20.3 **Land for Contractor's Field Office, Godown& Workshop**

a) The Owner at his discretion and convenience may provide the land for construction of Contractor's temporary field office, godowns and site store required for the execution of the Contract near to the site but out of plant gate free of cost. The Contractor shall at his cost construct all these temporary building structures and provide water supply, sanitary & power supply arrangement as approved by the Engineer-in-charge, with due regard to Owner's Safety Rule.

b) On completion of the work undertaken by the Contractor, they shall remove all temporary works erected by them and have the site cleared as directed by Engineer-in-charge. If the Contractor fails to comply with these requirements, the Engineer-in-charge has the right to remove any structure, such surplus, rubbish materials and dispose off the same as deemed fit and get the site cleared and the Contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such surplus materials disposed as aforesaid. The land provided shall be solely on temporary basis, which is terminable at any time without notice or without assigning any reasons. In the event of any such termination or the termination of the Contract / completion thereof, the Contractor shall forthwith vacate the premises. The Owner reserves the right to ask the Contractor for demolition at any time during the currency of the Contract to vacate the land by giving seven days notice on security / safety reasons or Owner's interest.

c) **Medical facility:**

Owner shall extend free medical consultancy / services as available at ITPS hospital to the Contractor personnel during their assignment but no medicine shall be provided.

d) **Accommodation**:

Owner may provide accommodation subject to availability to the company executives on chargeable basis, which has to be determined by the Owner from time to time. In such an event, rent for 6 months shall be retained from 1st Running bill of the Contractor as security & rent from second month shall be recovered from subsequent running bills. The amount hold as security shall be returned to the Contractor on handing over the vacate possession of accommodation with security amount.

3.21 **LIABILITY OF CONTRACTOR IN CASE OF STRIKE OF THEIR LABOURS:**

3.21.1 In case Contractor's labour go on strike with advance notice as per rule, it is responsibility of the Contractor to mobilize such manpower from their other sites or otherwise and continue the work so that execution of Contract is not affected. In such an event, the failure to perform shall lead the Owner to get the work done by any other agency, but at the cost & risk of the Contractor. Further, the Contract shall be terminated with seven (7)

days notice in O&M Contract and the Contractor may be debarred from participating in any future Bid in OPGC Ltd. In case of construction work, non-adherence to schedule shall lead to cancellation of Contract or imposition of penalty at the discretion of the Engineer-in-charge. If the labours go on strike without prior notice, the situation shall be treated as force majeure provided nonperformance is for a reasonable period only. If the situation is beyond reasonable control of the Contractor but has taken appropriate steps as a man of common prudence would have taken in his own case, Owner may consider in case to case basis to either terminate the Contract or otherwise get the work done by other means but at the cost & risk of the Contractor. Only events of such illegal strike, which make the performance impossible at the time of occurrence and for a considerable time period for mobilization, shall be considered as force majeure.

3.21.2 The operation shall continue round the clock for the entire Contract period without interruption unless otherwise notified by Engineer-in-charge. Hence, staff for attending maintenance job shall be kept ready by the Contractor on all Sundays and other National & festival holidays at their own cost. In case of construction work, the work shall be executed as per the direction of Engineer-in-charge.

3.21.3 For satisfactory performance of Contract& to meet the odd hour work and emergency requirement etc and to meet the schedule of construction work, the requisite number of manpower has to be arranged by the Contractor at their own cost.

3.22 **SPARES & CONSUMABLES:**

The items of materials, spares, consumables, tools & plants to be provided by Owner if any either on cost or free of charges shall be specified in Special Conditions Contracts.

3.23 **OTHER CONDITIONS:**

3.23.1 Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, technical specifications, schedule, and drawings and any other documents forming part of this Contract documents.

3.23.2 Where any clause of the Special Conditions of Contract contradicts with any provisions of the General Conditions of Contract, the provisions of Special Conditions of Contract shall be deemed to override the provisions of General Conditions of Contract.

3.23.3 In case of contradiction among Bureau of Indian Standard Specifications, General Conditions of Contract, Special Conditions of Contract, Notice Inviting Tender, Technical Specifications, Drawings, Schedule of quantity & time, the following shall prevail in order of preference.

i) Detailed work order forming part of Contract
ii) Schedule of Quantities
iii) Technical Specifications.
iv) Notice Inviting Tender
v) Special Conditions of Contract
vi) Drawings
vii) General Conditions of Contract
viii) Bureau of Indian Standard

3.24 Wherever it is mentioned in the specification that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost.

3.25 **DURATION OF CONTRACT:**

The period of Contract shall be specified in the Special Conditions of Contract. The Contract period shall reckon from the date of issue of LOI. OPGCL reserves the right to withdraw any item(s) of works from the scope by serving a 7 days notice to the Contractor without giving any reason for the same and take up the job departmentally or otherwise if performance of

Contractor is found to be unsatisfactory. Value for the items of work thus withdrawn shall not be payable by the Owner. The Contractor shall not claim any compensation on this account.

3.25.1 The period of Contract may be extended with mutual consent if the delay is beyond the control of Contractor at the discretion of the Engineer-in-charge.

3.25.2 In case Owner desires to extend the period of any Operation / Maintenance Contract by an additional duration of 2/3 months, the Contractor has to accept the proposal of Owner at original rate and terms & conditions.

3.26 **MATERIALS HANDLING:**

Contractor shall draw all the materials from Warehouse being duly authorized by Engineer-in-charge. Requisite loading, transportation & unloading of all such materials shall be the responsibility of Contractor. Only in case of heavy materials, Owner shall provide means of loading / unloading at the cost to be specified in the Special Conditions of Contract.

End of Section-III

SECTION-IV

4.0 GENERAL OBLIGATIONS / GENERAL CONDITIONS:

4.1 INTERPRETATION OF CONTRACT DOCUMENTS:

4.1.1 Complete documents forming the Contract are to be taken as mutually explanatory. Should there be any discrepancy, inconsistency, error or omission in the Contract or any of them, the matter may be referred to the Engineer-in-charge who shall give his decisions and issue instructions to the Contractor directing in what manner the work is to be carried out. The decision of the Engineer-in-charge shall be final and conclusive and the Contractor shall carry out work in accordance with this decision.

4.1.2 Both details of drawings & specifications constitute integral part of the scope of work.

4.1.3 Notwithstanding any of the items of works mentioned in Technical Specification / Scope of work, the Contractor has to do all such works necessary for completion of the work to meet the end objective with due regard to sound engineering practice as directed by Engineer-in-charge.

4.2 SPECIAL CONDITIONS OF CONTRACT:

4.2.1 Special conditions of Contract shall be read in conjunction with the General Conditions of Contract, Specifications of work, drawing and other documents forming part of this Contract wherever the context so requires.

4.2.2 Notwithstanding the sub-divisions of the documents into the separate sections and volumes each part shall be deemed to be supplementary & complementary to every other part and shall be read with the Contract Agreement so far as it may be practicable. All documents of Contract& Tender have nexus with each other.

4.3 If there are conflicting provisions made in any one of the documents forming part of the Contract, the Owner shall be the deciding authority with regard to the correctness of the document.

4.4 Any error or omission in any part of Contract documents shall not vitiate the Contract or release the Contractor from execution of the whole or any part of the works comprised therein according to drawings & specification or from any of his obligations under the Contract.

4.5 The materials, design and workmanship shall satisfy the relevant Bureau of Indian Standard, the job specifications contained herein and codes referred to. Where the job specifications stipulate the requirement in addition to those contained in the standard codes and specification, these additional requirements shall also be satisfied.

4.6 BIDDER TO OBTAIN HIS OWN INFORMATION ON SITE CONDITION & CONDITION OF WORK:

4.6.1 The Bidder shall be deemed to have examined the tender documents, to have obtained his own information in all matters, whatsoever that might influence carrying out the works at the scheduled rates and satisfied himself to the sufficiency of his Tender. He is deemed to know the scope, nature as to what works he has to complete in accordance with the Contract document whatever be the defect, omission or errors that may be found in the Contract Document. The Contractor shall be deemed to have visited site and surrounding areas, to have satisfied himself to the nature of all existing structures, and also as to the nature and the conditions of available facilities like railways, roadways, bridges, culverts,

means of transport and communications by land, water or air and possible interruptions thereto the access to and from site and to have made enquiries, examined & satisfied himself of the site for obtaining sand, stones, bricks and other materials, the sites for disposal of surplus, materials, the available accommodation like depots, buildings as may be necessary for executing and completing the work to have made local, independent enquiries as to the sub-soil, water, land variations thereof, storms, prevailing winds and climatic conditions and all other similar matters affecting the works. He is deemed to have acquainted himself with his liability for payment of Government taxes, custom duties and other charges. He is deemed to have acquainted himself with the local labour attitude, work culture, customs & systems etc.

4.6.2 Any neglect or failure on the part of the Bidder in obtaining necessary and reliable information or issues stated at 4.6.1 or any other matters affecting the Contract shall not relieve him from any risks or liabilities or the entire responsibility for completion of the works at the scheduled rates and time in strict accordance with the Contract documents.

4.6.3 Any change in technological requirement shall be binding on the Contractor and no extra claim on this account shall be entertained.

4.6.4 No verbal agreement or inference from conversation with any officer or employee of the Owner either before, during or after execution of the Contract agreement shall in any way affect or modify the terms or obligations herein contained.

4.7 **MUTUAL LIABILITIES AMONG CONTRACTS:**

The Contractor who are executing more than one Contract under OPGC, any penalty or recoveries of one Contract shall be made from other Contract& vice versa.

4.8 **CONTRACT REVIEW MEETING:**

Engineer-in-charge shall arrange Contract Review Meeting in regular intervals in case the performance subject to any difficulty and take decision in connexion with amendment of time, quantity, price etc.

4.9 **SECURITY DEPOSIT:**

4.9.1 A sum of 10% of the accepted value of the Tender or actual value of the work to be executed whichever is higher for Contracts not exceeding Rs.1 crore, 7.5% for the value of Contracts above Rs.1 crore up to Rs.5 crore and 5% for the value of Contracts over Rs.5 crore shall have to be deposited by the Contractor as security deposit with the Owner & retained by the Owner until the expiry of defectliability period.

4.9.2 This may be deposited initially at 2.0% of the value of the Contract (referred as initial security deposit) within 10 days of receipt by him of LOI and the balance will be recovered in installments through the deduction @ 10% of the gross value of the each running bill for the Contract up to Rs.1 crore, 7.5% for Contract between Rs.1 crore to Rs.5 crore and 5% for Contract over Rs.5 crore, till total security deposit is collected. No further deduction from the bills will be made on this account subject to clause. 4.9.7 hereafter.

4.9.3 Alternatively the Contractor may at his option have to deposit the full amount as mentioned in clause 4.9.2 above towards security within 10 days of issue of LOI. This amount will have to be suitably enhanced to the tune of corresponding percentage of the executed value if any.

4.9.4 Contractor shall furnish the initial or total security amount by Demand Draft in the manner specified in **Clause- 1.13** up to Contract value of Rs.25.00 lac only. Beyond Contract value of Rs.25.00 lac the initial or total security deposit shall be accepted in form of Bank Guarantee in the prescribed format from any nationalized or scheduled bank. In all the

cases if total security is not deposited either in form of Demand Draft or Bank Guarantee the security as mentioned in Clause 4.9.2 shall be recovered from the running bill of the Contractor. The Bank Guarantee facility shall be extended to only companies of repute at the discretion of OPGC.

4.9.5 The earnest money deposited with the Tender shall be adjusted towards initial security deposit at the option of the Bidder.

4.9.6 If the Contractor/subcontractor or their employees damage, break, deface or destroy the property belonging to the Owner or others during the execution of the Contract, the same shall be made good by the Contractor at his own expense and in default thereof the Engineer-in-charge may cause the same to be made good by other agencies and recover expenses from the Contractor for which the certificate of the Engineer-in-charge shall be final.

4.9.7 All compensation or other sums of money payable by the Contractor to the Owner or recoveries to be made under terms of this Contract may be deducted from their security deposit or from any sums which may be due or may become due to the Contractor by the Owner on any account whatsoever. In the event of his security being reduced by reasons of any such deduction or sale, the Contractor shall within ten days thereafter make good by bank drafts, any sum or sums which may have fallen short of Security deposit amount or any part thereof. No interest shall be payable by the Owner for sum deposited/retained as security deposit.

4.9.8 The security deposit will be refunded after the expiry of the period of defect liability as stipulated in the Contract and on submission of final certificate.

4.9.9 **The variation in security deposit:**

Any agency stands L1 in any Bid while they are executing any other Contract with Owner, the security deposit of such L1 Contract shall be enhanced to 20%. After successful completion of 1st mile stone / initial three months as the case may be, 10% of the security may be refunded to the Contractor.

4.10 **FORFEITURE OF SECURITY DEPOSIT:**

Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the Contract, the Owner shall be entitled to recover such sum by appropriating in part or whole the security deposit of the Contractor and to sell any Government security deposit of the Contractor forming whole or part of such security deposit. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under particular Contract or any other contract with Owner. The Contractor shall pay to the Owner on demand any balance remaining due. In case any dues can not be recovered out of Contract(s), the amount may be recovered as debt liability.

In the event of any breach by the Contractor or any loss or damage caused to the Owner which in the opinion of the Owner has arisen, the decision of the Engineer-in-charge shall be final and binding on the Contractor or in the event of the termination of the Contract for any such breach, the security deposit is liable to be forfeited. The decision of forfeiture by the Owner shall be final and binding on the Contractor.

4.11 **AMENDMENT OF QUANTITY, VALUE & PERIOD OF COMPLETION:**

In case of lump sum Contract, no deviation shall be allowed. But in case of lump sum Contract based on Bill of Quantities and item rate Contract if any deviation in quantity or

omission of items are discovered in course of performance of Contract, the cumulative effect of which varies the Contract sum up to 5%, the error shall be rectified/amended and the value so varying shall be added with or deducted from the Contract sum @ original contract cost as the case may be. Deviation shall be allowed subject to recommendation of Technical Services department, if the varying value shall exceed 5% of Contract value only. In case of annual maintenance Contract in respect of mechanical maintenance, electrical maintenance, plant cleaning or any other operational activities time extension for completion of any item does not arise. But the period of service may be extended beyond Contract period at the discretion of management if situation so demands. In addition to this, the Engineer-in-charge reserves the power -

a) to make alteration in, omission from, additions to or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work;

b) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons. The Contractor shall be bound to carry out the work in accordance with any instructions given by the Engineer-in-charge to the extent the omission does not change the value of Contract by more than 10%. Consequent alterations, omissions, addition or substitution shall form part of the Contract as if originally provided therein and the Contractor may be directed to do in the manner above specified as part of the works. The Contractor shall carry out the work on the same conditions in all respect including rate on which he agreed to do the main work. But if such alteration, omission, addition or substitution radically change the original nature of the Contract shall be ordered by the Engineer-in-charge as a deviation and in the event of deviation being ordered which in the opinion of Contractor changes the original nature of the Contract, fresh rate shall be worked out by Engineer-in-charge with mutual consent.

   Rate for such additional, altered or substituted work shall be determined by the Engineer-in-charge as follows:-

   i) If the rate for additional, altered or substituted items of work is specified in the schedule of quantities / price schedule, the Contractor shall carry out the additional, altered or substituted items at the same rate. In case of composite Tenders where two or more schedules of quantities may form part of the Contract, the applicable rate shall be taken from the schedule of quantity of that particular part in which the deviation is involved, failing that at the lowest applicable rate for the same item of work in the other schedules of quantities.

   ii) If the rate for altered, additional or substituted item of work is not specified in the schedule of quantities / price schedule, the rate for that item shall be derived from the rate for the nearest similar item specified therein. In case of composite Tenders where two or more schedules of quantities form part of the Contract, the rate shall be derived from the nearest similar item in the schedule of quantities of the particular part of works in which the deviation is involved failing that from the lowest of the nearest similar item in other schedule of quantities.

iii) If the rate of any additional, altered or substituted item of work cannot be determined in the manner specified in sub-para (i) & (ii) above, then such item of work shall be carried out at the rate entered in the Schedule of Rates mentioned in schedule A plus/minus the percentage by which the tendered amount of the works actually awarded is higher or lower than the estimated amount of works actually awarded.

iv) If the rate for any altered, additional or substituted item of work cannot be determined in the manner specified in sub paras (i) to (iii) of Clause 4.11, due to non-availability of rate in Schedule A, then the rate for such item of work shall be determined by the Engineer-in-charge on the basis of the purchase price as supported by the vouchers plus mutually agreed labour rate. In case the Engineer-in-charge considers the purchase price unreasonable, the price shall be determined on the basis of market rate(s) prevailing during the fortnight following the date of order.

4.12 **SUSPENSION OF WORKS:**

The Contractor shall, on receipt of the order in writing of the Engineer-in-charge, suspend the progress of the works or any part thereof for such time and in such manner, as the Engineer-in-charge may consider necessary for any of the following reasons:

i) On account of any default on part of the Contractor; or

ii) For proper execution of the works or part thereof for reasons other than the default of the Contractor;

In any of the above cases the Contractor shall properly protect and secure the works to the extent necessary and carry out the instructions given on that behalf by the Engineer-in-charge during such suspension period.

4.12.1 **compensation:**

Compensation for suspension of work under (ii) of Clause 4.12 shall be dealt with on request of Contractor by the Contract Review Meeting depending on the period of suspension & condition of suspension etc.

4.12.2 **time extension for suspension of work:**

Time extension for suspension of work under Clause 4.12 (ii) shall be dealt in accordance with Clause No.4.13

4.13 **TIME EXTENSION FOR DELAY IN COMPLETION OF WORK:**

The time allowed for execution of total works as specified in the Schedule-"A" with due regard of achieving the corresponding milestone mutually agreed upon or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from the 15th day after the date on which the Owner issues written orders to commence the work.

As soon as possible after the Contract is finalized the Engineer-in-charge and the Contractor shall agree upon a Time and Progress Chart/PERT chart / L_2 network before agreement is signed. The chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate & forecast the

dates of commencement and completion of various sections of the work corresponding to various milestones.

The target date of achieving various milestones and activities between two consecutive milestones shall be agreed upon mutually and reviewed in regular intervals by Engineer-in-charge. During review, the date of achievement of milestone may be adjusted if required but not the date of completion of work as per schedule. However, no time extension shall be permitted beyond the time of completion as per Contract.

4.13.1**Time extension on account of quantity amendment /deviation:**

If the work is delayed due to increase in scope / quantity the time for completion of mile stone of the total works shall, in the event of any deviation/amendment resulting in additional quantity over the Contract quantity being ordered, be extended as under.

a) in the proportion which the additional cost of the altered, additional, substituted works bears to the original Contract sum, plus

b) 25% of the time calculated in (a) above or such further additional time as may be considered reasonable by the Engineer-in-charge.

Alternatively, variation in completion time of milestone may be worked out mutually in Contract Review Meeting depending on the prevailing conditions and need of the hour.

4.13.2**Time extension for suspension of work without fault of Contractor:**

In case of suspension of work for no fault of Contractor time extension shall be allowed to the Contractor as deemed proper by Contract Review Meeting on request of the Contractor.

4.13.3**Time Extension for delay on account of: -**

a) force majeure;
b) abnormally bad weather, or
c) delay on the part of other Contractors engaged by Owner in executing work not forming part of this Contract but having bearing on this Contract;
d) non-availability of stores to be provided by the Owner under the Contract;
e) any other related cause beyond the control of Contractor –

-provided the Contractor shall immediately give notice thereof in writing to the Engineer-in-charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-charge to proceed with the works. The case may be examined in the Contract Review Meeting and decision thereon shall be final.

4.13.4 Request for extension of time shall be made by the Contractor in writing within 24 hours of the happening of the event causing delay for consideration of Owner. The Contractor may also indicate the period of extension desired with supporting reasons.

4.13.5 In any such case the authority mentioned in Schedule-A may give a fair and reasonable extension of time for completion of the work on the recommendation of Contract Review Meeting. Such extension shall be communicated to the Contractor by the Engineer-in-charge in writing, within 15 days of the date of receipt of such request by the Engineer-in-charge.

4.14 **MATERIALS:**

a) *The Contractor shall at his own expenses provide all materials required for the works other than those, which are to be supplied by the Owner.*

i. All materials to be provided by the Contractor shall be in conformity with the specifications laid down in the Contract and the Contractor shall if required by the Engineer-in-charge, furnish proof to the satisfaction of the Engineer-in-charge to that effect.

ii. If required the Contractor shall at his own expense and before 15 days of use of the material submit to the Engineer-in-charge the samples of materials proposed to be used in the works. The Engineer-in-charge shall within seven days of receipt of samples or within such further period as he may require and intimate to the Contractor in writing, whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith submit fresh samples to the Engineer-in-charge for his approval complying with the specifications laid down in the Contract.

iii. The Engineer-in-charge shall have full powers for removal of any or all of the materials brought to site by the Contractor which are not in accordance with the Contract specifications or do not conform in character or quality of samples approved by him. In case of default on the part of the Contractor in removing rejected materials, the Engineer-in-charge shall be at liberty to have them removed by other means. The Engineer-in-charge shall have full powers to procure other proper materials to be substituted for rejected materials and in the event of the Contractor's refusal to comply, he may cause the same to be supplied by other means. All costs, which may be incurred for such removal and/or substitution, shall be borne by the Contractor.

iv) The Contractor shall indemnify the Owner, its representatives or employees of the Owner against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or materials or part thereof included in the scope of Contractor. In the event of any claim being made or action being brought against the Owner, its representatives or employees of the Owner in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof, provided that such indemnity is not applicable when such infringement has taken place in complying with the specific directions issued by the Owner; but the Contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursed to the Contractor only if the use was the result of any drawings and/or specifications issued after Contract agreement is signed.

Further, if any such action is instituted by any agency after closure of Contract or any structure or utility is eroded or damaged within 2 to 3 years of performance on account of related work of the Contractor, the Contractor shall be liable for such cost and expenses for which Contractor shall provide corporate warranty for further 2 years beyond defect liability period.

v. Subject as hereinafter provided in Condition 7.1 all charges on account of octroi, entry tax, sales tax, royalty and other duties on materials obtained for the works from any source (excluding materials supplied by the Owner) shall be borne by the Contractor.

vi. The Engineer-in-charge shall be entitled to have tests carried out as specified in the Contract for any materials supplied by the Contactor other than those for which, as

stated above, satisfactory proof has already been furnished, at the cost of the Contractor and the Contractor shall provide at his expense all facilities which the Engineer-in-charge may require for the purpose. If no tests are specified in the Contract, and such tests are required by the Engineer-in-charge, the Contractor shall provide all facilities required for the purpose and the charges for these tests shall be borne by the Contractor only if the tests disclose that the said materials are not in accordance with the provision of the Contract. The cost of materials consumed in tests shall be borne by the Contractor in all cases except when otherwise provided.

vii. In addition the Contractor shall perform / submit at his own cost such tests/samples forming out of the same materials & in same process, such as concrete cube, welded test piece etc. as may be required by the Engineer-in-charge made out of the materials issued by the Owner or Contractor, except for the costs of materials used in such tests/samples.

b) *Material to be provided by the Owner:*

Materials to be provided by the Owner are shown in Schedule 'B' which also stipulates place of issue and rate (s) to be charged, free issue, allowable % of loss in respect thereof.

i. If after issue of LOI the Contractor desires the Owner to provide any other materials, such materials may be provided by the Owner, if available, at rates to be fixed by the Engineer-in-charge. The Owner reserves the right not to issue any such materials. The non-issue of such materials will not entitle the Contractor for any compensation whatsoever either in time or in cost.

ii. (1) The Owner may issue all the materials as per Contract to the Contractor at its warehouse, site stores, or nearest railhead. In case the materials are issued at the nearest railhead the cost of transportation only from such railhead to the site will be borne by the Owner subject to the reasonableness of such transportation cost being certified by the Engineer-in-charge. All other costs such as loading, unloading, transportation to Contractor's go-down, storage etc till the materials are utilized in the works and return of surplus & scrap, if any to the Owner shall be to the account of the Contractor.

(2) For the materials listed in Schedule B, which the Owner has agreed to supply to the Contractor, he shall give a reasonable notice in writing his requirements to the Engineer-in-charge in accordance with the agreed phased programme. Such materials shall be supplied for the purposes of the Contract only and the value of materials so supplied at the rates specified in the aforesaid schedule shall be set off or deducted, as and when materials are consumed in items of work for which payment is being made to the Contractor from any sums there or which may thereafter become due to the Contractor under the Contract. At the time of submission of bills the Contractor shall properly account for the materials issued to him to the satisfaction of the Engineer-in-charge, certify that balance of materials supplied is available at site. The value of the stores/materials as may be supplied by to the Contractor by the Owner shall be debited to the Contractor's account at the rates as shown in Schedule-B and if they are not entered in the Schedule, they shall be debited at cost price which for the purpose of the Contract shall include cost of transportation & all other expenses whatsoever such as normal storage, supervision charges which shall have been incurred in obtaining the same at the Owner's stores.

iii. The Contractor shall bear the cost of loading and transportation to site, unloading, storing under cover as required, assembling and joining the several parts together as necessary and incorporating or fixing materials in the works including all preparatory work of whatever description as may be required.

iv. Surplus of all materials issued to the Contractor by the Owner for use, inclusion or fixing in the works (including preparatory work) shall, on completion or on foreclosures of the works, be returned by the Contractor at his expense, at the place of issue, after making due allowance for actual consumption, reasonable wear and tear and /or waste. The reasonable wastage percentage shall however be mentioned in Schedule-B against each items. If the Contractor is required to deliver such materials at a place other than the place of issue, he shall do so and the transportation charges from the site to such place, less the transportation charges which would have been incurred by the Contractor had such materials been delivered at the place of issue, shall be borne by the Owner.

v. *Return of surplusMaterials / scraps:*
Percentage of wastage acceptable to the Owner in respect of cement, structural steel, reinforcement steel and other such materials is furnished in Schedule-B.

Cut pieces of reinforcement rods of length 3.0 meters and above shall be accepted by the Owner and credited at the issue rates. Other pieces below 3 mtr length shall be returnable as scrap to Owner if issued.

vi. Surplus materials returned by the Contractor shall be credited to him by the Engineer-in-charge at rates not exceeding those at which these were originally issued to him after taking into consideration any deterioration or damage which may have been caused to the said materials whilst in the custody of the Contractor.

vii. If on completion of works the Contractor fails to return surplus materials out of those provided by the Owner, then in addition to any other liability which the Contractor would incur, the Engineer-in-charge may, by a written notice to the Contractor, require him to pay within a fortnight of receipt of the notice, for such unreturned surplus materials at the rates specified in Special Conditions of Contract.

viii. *Empty cement bags:*
The rate of cement is inclusive of cost of bag.

c) *General:*

Materials required for the works, whether brought by the Contractor or provided by the Owner, shall be stored by the Contractor only at places approved by the Engineer-in-charge. Storage and safe custody of materials shall be the responsibility of the Contractor.

i. Owner's officials concerned with the Contract shall be entitled at any time to inspect and examine any materials intended to be used in works either on the site or at factory or workshop or other place(s) where such materials are assembled, fabricated, manufactured or at any place(s) where these are lying or from which these are being obtained and the Contractor shall give such facilities as may be required for such inspection and examination.

ii) All materials brought to the site shall become and remain the absolute property of the Owner and shall not be removed from the site/shifted to any place inside the plant without the prior written permission of the Engineer-in-charge. But whenever the works are finally completed or terminated and advance if any in respect of any such material is fully recovered, the Contractor shall at his own expense forthwith

remove from the site all surplus material originally brought by him and upon such removal, the same shall revest in and become the property of the Contractor.

iii) All plant, tools & other materials brought by the Contractor to the site must be declared at the time of bringing the same to the site & security gate pass obtained before entering the plant as records and reference.

iv) It shall be the duty of the Contractor to inspect the materials issued to him at the time of taking delivery & satisfy himself that they are in good condition after the materials have been delivered by the Owner, it shall be the responsibility of the Contractor to keep them in good condition and if the materials are damaged or lost, at any time, they shall be repaired and/or replaced by him at his own cost according to the direction of the Engineer-in-charge.

v) Account of the materials issued by the Owner shall be maintained by the Contractor indicating the daily receipt, consumption and balance in hand in a manner prescribed by the Engineer-in-charge. All connected papers, requisitions, issues, returns etc. shall be always available for inspection in the Contractor's office at site.

vi) Materials&equipments supplied by the Owner shall not be utilized for any other purpose(s) then issued for.

4.15 **LABOUR:**

4.15.1 The Contractor shall employ labour in sufficient numbers to maintain the required rate of progress / attend the repair-maintenance on it's occurrence and of quality to ensure workmanship of the degree specified in the Contract and to the satisfaction of the Engineer-in-charge. The Contractor shall not employ in connection with the works any person who has not completed his/her eighteen years of age.

4.15.2 The Contractor shall in respect of labour employed by him or his subcontractors comply with or cause to be complied with the Contractors Labour Regulations as per clause 8.5 in regard to all matters provided therein.

4.15.3 At present Employees State Insurance (ESI) Act is not applicable to IB TPS but may be extended at any time. In case of enforcement of the scheme, the Contractor shall be liable to pay his contribution and the employees contribution to the State Insurance Scheme in respect of all labour employed by him for the execution of the Contract, in accordance with the provision of "The Employees State Insurance Act, 1948" as amended from time to time. Incase, the Contractor fails to submit full details of his account of labour employed and the contribution payable, the Engineer-in-charge shall recover from the running bills of Contractor an amount of contribution as assessed by him. The amount so recovered shall be adjusted against the actual contribution payable for Employees State Insurance.

4.15.4 The Engineer-in-charge shall on a report having been made by an Inspecting Officer as defined in the Contractor Labour Regulations have been the power to deduct from the money due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or worker by reason of non-fulfillment of the Conditions of the Contract for the benefit of workers, non-payment of wages or of deductions made from his or their wages which are not justified by the terms of the Contract or non-observance of the said Contractors Labour Regulations.

4.15.5 In the event of the Contractor committing a default or breach any of the provisions of the aforesaid Contractors Labour Regulations as amended from time to time or furnishing any information or submitting or filling any Form/Register/Slip under the provisions of these Regulations which is materially incorrect, then on the report of the Inspecting Officers as defined in the Contractors Labour Regulations the Contractor shall without prejudice to any other liability pay to the Owner a sum not exceeding Rs.500.00 as liquidated damages

for every default, breach or furnishing, making, submitting, filling materially incorrect statement as may be fixed by the Engineer-in-charge and in the event of the Contractor's default continuing in this respect the liquidated damages may be enhanced to Rs.500.00 per day for each day of default subject to a maximum of ten percent of the contract value. The Engineer-in-charge shall deduct such amount from bills or security deposit of the Contractor and credit the same to the Welfare Fund constituted under ContractLabour (R&A) Act 1970. The decision of the Engineer-in-charge in this respect shall be final and binding.

4.15.6 **Model Rules for Labour Welfare**: The Contractor shall at his own expense comply with or cause to be complied with Model Rules for Labour Welfare as mentioned at (Cl. 8.4) or rules framed by Government from time to time for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works. In case the Contractor fails to make arrangements as aforesaid, the Engineer-in-charge shall be entitled to do so and recover the cost thereof from the Contractor.

4.15.7 **Safety code:** The Contractor shall at his own expense arrange for the safety provisions as per Sec-IX or as required by the Engineer-in-charge, in respect of all labour directly or indirectly employed for performance of the works and shall provide all facilities in connection therewith. In case the Contractor fails to make arrangements and provide necessary facilities as aforesaid, the Engineer-in-charge shall be entitled to do so and recover 150% of the cost of materials from the Contractor.

(i) Failure to comply with Model Rules for labour welfare, Safety Code or the provisions relating to report on accidents and to grant of maternity benefits to female workers shall make the Contractor liable to pay to the Owner as liquidated damages an amount not exceeding Rs.500.00 for each default or materially incorrect statement. The decision of the Engineer-in-charge in such matters based on report from the Inspecting Officer as defined in the Contractors Labour Regulations at Clause 8.5 shall be final and binding and deductions for recovery of such liquidated damages may be made from any amount payable to the Contractor.

4.16 The Contractor shall not be permitted to enter in (other than for inspection purpose) or take possession of the site until instructed to do so by the Engineer-in-charge in writing. The portion of the site to be occupied by the Contractor shall be defined and/or marked on the site plan, failing which these shall be indicated by the Engineer-in-charge at site and the Contractor shall on no account be allowed to extend his operations beyond these areas. In respect of any land allotted to the Contractor for purposes of or in connection with the Contract, the Contractor shall be a licensee subject to the following and such other terms and conditions as may be imposed by licenser: -

(i) that he shall pay a nominal license fee of Rs.1 per year or part of a year for use and occupation, in respect of each and every separate areas of land allotted to him.

(ii) that such use or occupation shall not confer any right of tenancy of the land to the Contractor,

(iii) that the Contractor shall be liable to vacate the land on demand by the Engineer-in-charge,

(iv) that the Contractor shall have no right to any construction over this land without the written permission of the Engineer-in-charge. In case he is allowed to construct any structure he shall have to demolish and clear the same before handing over the completed work unless agreed to the contrary.

4.16.1 The Contractor shall provide, if required on the site, all temporary access thereto and shall alter, adapt and maintain the same as required from time to time and shall take up and clear them away as and when no longer required and as and when ordered by the Engineer-in-charge and make good all damages done to the site.

4.17 **SETTING OUT THE WORKS:**

The Engineer-in-charge in case of construction work shall supply dimensioned drawings, levels and other information necessary to enable the Contractor to set out the works and the Contractor shall set out the works and be responsible for the accuracy of the same. He shall rectify at his own cost and to the satisfaction of the Engineer-in-charge any error found at any stage, which may arise through inaccurate setting out unless such error is based on incorrect data furnished in writing by the Engineer-in-charge. The Contractor shall protect and preserve all benchmarks used in setting out the works till end of the Defects Liability Period unless the Engineer-in-charge direct their earlier removal. But in case of maintenance, the Engineer-in-charge shall direct the Contractor to attend certain job provided that all spares & consumables within the scope of Owner are available to the Contractor.

4.18 **SITE DRAINAGE:**

All water, which may accumulate on the site during the progress of the works or in trenches and excavations, from other than the Excepted Risks, shall be removed from the site to the satisfaction of the Engineer-in-charge and at the Contractor's expense.

4.19 **NUISANCE:**

The Contractor shall not at any time do, cause or permit any nuisance on site or do anything which shall cause unnecessary disturbance or inconvenience to Owners, tenants or occupiers of other properties near the site and to the public in general.

4.20 **MATERIALS OBTAINED FROM EXCAVATION/SCRAP/REJECTS:**

Materials of any kind obtained from excavation on the site shall remain the property of the Owner and shall be disposed of as the Engineer-in-charge may direct.

4.21 **TREASURE, TROVE, FOSSILS** etc**:**

All fossils, coins, articles of value or antiquity and structures and other things of geological or archaeological interest discovered on the site shall be the absolute property of the Owner and the Contractor shall take reasonable precautions to prevent his workmen or any other person from removing or damaging any such article or thing shall immediately upon discovery thereof and before removal acquaint the Engineer-in-charge with such discovery and carry out the Engineer-in-charge's directions as to the disposal of the same at the expense of the Owner.

4.22 **PROTECTION OF TREES:**

Trees designated by the Engineer-in-charge shall be protected from damage during the course of the works and earth level within 1 meter of each such tree shall not be charged. Where necessary such trees shall be protected by providing temporary fencing.

4.23 The Contractor shall provide and maintain at his own expense all lights, guards, fencing and watch & ward as and when necessary or required by the Engineer-in-charge for the

protection of the works or for the safety and convenience of those employed on the works or the public.

4.24 **CONTRACTOR'S SUPERVISION:**

The Contractor shall either himself supervise the execution of the works or shall appoint a competent person duly authorizing him to supervise the work on his behalf, if the Contractor has himself not sufficient knowledge and experience to be capable or receiving instructions or cannot give his full attention to the works. Such employee having power of attorney shall be considered to have the same force as the Contractor himself. If the Contractor fails to appoint a suitable person acceptable to the Engineer-in-charge, the Engineer-in-charge shall have full powers to suspend the execution of the works until such date as a suitable person is appointed and the Contractor shall be held responsible for the delay so caused to the works.

4.25 **INSPECTION AND APPROVAL:**

All works embracing more than one process / stage shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice to the Engineer-in-charge or his authorized representative when each stage is ready. In default of due notice the Engineer-in-charge shall be entitled to appraise the quality and extent thereof.

4.25.1 No work shall be covered up or put out of view without the approval of the Engineer-in-charge or his authorized representative and the Contractor shall afford full opportunity for examination and measurement of any work which is about to be covered up or put out of view and for examination of foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer-in-charge or his authorized representative whenever any such work is ready for examination and the Engineer-in-charge or his representative shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examination and measuring such work or of examining such foundations. In the event of the failure of the Contractor to give such notice he shall, if required by the Engineer-in-charge, uncover such work at the Contractor's expense.

4.25.2 The Engineer-in-charge or his representative shall have powers at any time to inspect and examine any part of the works and the Contractor shall give such facilities as may be required for such inspection and examination.

4.26 **DUTIES & POWERS OF ENGR-IN-CHARGE'S REPRESENTATIVE:**

4.26.1 The duties of the representative of the Engineer-in-charge are to watch and supervise the works and to test and examine any materials to be used or workmanship employed in connection with the works. He shall have no authority to order any work involving any extra payment by the Owner or to make any variation in the works.

4.26.2 The Engineer-in-charge may from time to time in writing delegate to his representative any of the powers and authorities vested in the Engineer-in-charge and shall furnish to the Contractor a copy of all such written delegation of powers and authorities. Any written instruction or written approval given by the representative of the Engineer-in-charge to the Contractor within the terms of such delegation shall bind the Contractor and the Owner as though it has been given by the Engineer-in-charge.

4.26.3 Any work or material approved by the representative of Engineer-in-charge shall not be disapproved by Engineer-in-charge and can not order the pulling down, removal or breaking up thereof at Contractor's cost.

4.26.4 If the Contractor shall be dissatisfied with any decision of the representative of the Engineer-in-charge he shall be entitled to refer the matter to the Engineer-in-charge who shall there upon confirm, reverse or vary such decision. No claim of losses alleged to have been caused by any discrepancies out of instructions, doubts or misunderstanding shall in any event be admissible.

4.26.5 **Owner not bound by personal consent of any officer other than Engineer-in-charge.**
The Contractor shall not be entitled to any increase on the scheduled rates or any other rights or claims whatsoever by reason of any consent, explanation, statement or alleged understanding, promise or guarantees given or to have been given to him by any person other than Engineer-in-charge in writing.

4.27 **REMOVAL OF WORKMEN:**
The Contractor shall employ in and about the Execution of the works only such persons as are skilled and experienced in their several trades and the Engineer-in-charge shall be at liberty to object to and require the Contractor to remove from the works any person employed by the Contractor in or about the execution of the works who in the opinion of the Engineer-in-charge misconducts himself or is incompetent or negligent in the proper performance of his duties and such person shall not be again employed in the work without permission of the Engineer-in-charge.

4.28 **UNCOVERING AND MAKING GOOD:**
The Contractor shall uncover any part of the works and/or make openings in or through the same as the Engineer-in-charge may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the Engineer-in-charge. If any such part has been covered up or put out of view after being approved by the Engineer-in-charge and is subsequently found on uncovering to be executed in accordance with the Contract, the expenses of uncovering and/or making opening in or through, reinstating and making good the same shall be borne by the Owner. In any other case all such expenses shall be borne by the Contractor.

4.29 **WORK DURING NIGHT SUNDAYS AND HOLIDAYS:**
Subject to any provisions to the contrary contained in the Contract, none of the permanent works except emergency maintenance work & operation shall be carried out during night or on Sundays or on authorized holidays without the permission in writing of the Engineer-in-charge. But in case of maintenance Contract, the Contractor shall be required to work any time any day as required by Engineer-in-charge.

4.30 **TIME OF PERFORMANCE:**
The work covered by this Contract shall be commenced on due date / within 15 days of issue of Letter of Intent as applicable. The Contractor should bear in mind that time is the essence of the Contract, unless such time be extended at the discretion of the Owner.

4.31 **FORCE MAJEURE:**

4.31.1 Any delays in or failure of performance of either parties thereto shall not constitute default hereunder or give rise to any claims for damages if any, to the extent such delays in or failure of performance caused by occurrences such as acts of God or the public enemy, expropriation or confiscation of facilities by Government Authority, compliance with any order or request of any Government authorities, act of war, rebellion, civil commotion,

sabotage, fire, flood, earthquake, explosion, implosion, riots, public strife provided always that such occurrences result in impossibility of performance of the Contract.

4.31.2 Only events of force majeure, which impede the execution of the Contract at the time of occurrence, shall be taken into cognizance.

4.32 **FAILURE OF CONTRACTOR TO COMPLY WITH THE PROVISIONS OF THE CONTRACT:**

4.32.1 If the Contractor refuses or fails to execute the work or any part thereof with such diligence or fails to perform any of his obligations under the Contract or in any manner commits a breach of any of the provisions of the Contract it shall be open to the Owner at its option by serving 7 days notice to the Contractor to:

a) Determine the Contract: in which event the Contract shall stand terminated and shall cease to be in force and effect on and from the date appointed by the Owner on that behalf, whereupon the Contractor shall stop forthwith any of the Contract work then in progress, except such work as the Owner may in writing require to be done to safeguard any property or work, or installation from damages and the Owner for its part, may take over the work remaining unfinished by the Contractor and complete the same through fresh Contractor or by other means, at the risk and cost of the Contractor, and any of his sureties if any, shall be liable for any excess cost at the rates specified in the schedule of quantities and rates.

b) Without determining the Contract: to take over the work of the Contractor or any part thereof and complete the same through a fresh Contractor or by other means at the risk and cost of the Contractor. The Contractor and any of his sureties are liable for any excess cost over and above the cost at the rates specified in the schedule of quantities/rates, incurred by such works having been taken over and completed by the Owner. Besides the Contractor shall also be liable for any compensation accruing due to any loss incurred by the Owner.

c) In other cases, the decision of the Owner is binding on the Contractor.

4.32.2 In the events of clause 4.32.1 (a)

a) The whole or part of the security deposit furnished by the Contractor is liable to be forfeited without prejudice to the right of the Owner to recover from the Contractor the excess cost referred to in the sub-clause aforesaid, the Owner shall also have the right of taking possession and utilizing in completing the works or any part thereof, such of materials, equipments and T&P available at work site belonging to the Contractor as may be necessary and the Contractor shall not be entitled for any compensation for use or damage to such materials, equipments, tools & plants.

b) The amount that may have become due to the Contractor on account of the work already executed by him shall not be payable to him until after the expiry of six (6) calendar months reckoned from the date of termination of Contract or from taking over of the work or part thereof by the Owner as the case may be, during which period the responsibilities for faulty materials or workmanship in respect of such work shall under the Contract, rest exclusively with the Contractor. This amount shall be subject to deduction of any amounts due from the Contractor to the Owner under the terms of the Contract authorized or required to be reserved of retained by the Owner.

4.32.3 Before termination of the Contract as per clause 4.32.1(a)or(b) if in the judgment of the Owner, the default or defaults committed by the Contractor is/are curable and can be

cured by the Contractor if an opportunity given to him, then the Owner may issue notice in writing calling the Contractor to cure the default within such time specified in the notice.

4.32.4 The Owner shall also have the right to proceed or take action as per 4.32.1(a) (b), in the event that the Contractor becomes bankrupt, insolvent, compounds with his creditors, assigns the Contract in favour of his creditors or any other persons, or being a company or a corporation goes into liquidation provided that in the said events it shall not be necessary for the Owner to give any prior notice to the Contractor.

4.32.5 Termination of the Contract as provided for in sub-clause 4.32.1(a)&(b) shall not prejudice or affect the rights of the Owner, which may have accrued up to the date of such termination.

4.33 **CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN AS PER CLAUSE** 4.32

4.33.1 a)Non-exercise of power conferred on the Owner by Clause 4.32 when due, shall not imply a waiver of any of the conditions and shall be exercisable in the event of any further case of default by the contractor for which he is declared liable to pay compensation. The liability of Contractor for past & future compensation shall remain unaffected. The Owner may take possession of all or any T&P, materials and stores at the work site belonging to Contractor on payment at Contract rate/market rate as the case may be or rate worked out by Engineer-in-charge. Otherwise, Engineer-in-charge may serve notice to remove such T&P, materials and stores from the site within a stipulated time. In the event the Contractor fails to comply, the Engineer-in-charge may remove them at the cost & risk of the Contractor.

b)In other cases, the decision of the Owner is binding on the Contractor.

4.33.2 In the event of Clause 4.32, Clause 4.33 shall be applicable without any prejudice. But in case of such cancellation the Owner shall not hold the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable for any damages for non-completion of Contract.

4.34 **NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK:**

At any time from the commencement of the work if the Owner decides for whatsoever reason, not to carry out the whole work or part thereof as specified in the Tender, then Owner shall give notice in writing of the fact to the Contractor, who shall have no claim to any payment or compensation on whatsoever account (profit or advantage which he might have derived by executing the work in full) neither shall have any claim for compensation by reason of any alterations having been made from the original specification, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated.

4.35 **CHANGE OF CONSTITUTION:**

When the Contractor is a partnership firm the prior approval in writing from the Owner shall be obtained before any changes are made in the constitution of the firm. Where the Contractor is an individual or a Hindu Undivided family business concern, such approval as aforesaid shall, likewise be obtained before such Contractor enters into any partnership firm, where the reconstituted firm would have the right to carry out the work hereby undertaken by the Contractor. In either case if prior approval is not obtained, the Contract shall be deemed to have been allotted in contravention of clause 4.41 hereinafter and the action and consequence shall ensure as provided in that clause.

4.36 **TERMINATION OF CONTRACT FOR DEATH:**

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies or if the Contractor is a partnership concern and one of the partners dies then, unless the Owner is satisfied that the legal representative of the individual or the proprietary concern or the surviving partners of partnership firm are capable of carrying out and completing Contract, the Owner is entitled to cancel the Contract for the incomplete part without being in anyway liable for any compensation payment to the establishment of the deceased Contractor and/or to the surviving partners of the Contractors firm on account of the cancellation of Contract. The decision of the Owner in such assessment shall be final and binding on the parties. In the events of satisfaction of the Engineer-in-charge that subcontractor, if any shall provide competent and efficient supervision over the work entrusted to them, may allow the surviving partner to complete the work contracted in case of partnership firm at the discretion of the Owner. In the event of such cancellation, the Owner shall not hold the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable for damage for not completing the Contract.

4.37 **TERMINATION OF CONTRACT FOR CONTINUOUS UNSATISFACTORY PERFORMANCE:**

The Contract may be terminated at any time by giving 15 days notice in case performance of the Contractor is found to be continuously unsatisfactory. In case of termination of Contract either on expiry of Contract period or during the period of Contract due to continuous poor performance, labour unrest, indiscipline etc., Owner shall have no liability for providing employment/compensation to the labours engaged by Contractor under any circumstance. EMD/Security retained from the Contractor so far and payable if any on any other accounts shall be forfeited. Balance work shall be carried out at the cost & risk of the defaulting Contractor.

4.38 **MEMBERS OF THE OWNER NOT INDIVIDUALLY LIABLE:**

No official or employee of the Owner including Engineer-in-charge shall in any way be personally bound or liable for the acts or obligations of the Owner under the Contract or answerable for any default or omission in the observance or performance of the acts, matter or things which are herein contained.

4.39 **CONTRACTOR'S OFFICE/STORE/WORKSHOP AT SITE:**

The Contractor shall provide and maintain an office outside the plant gate for his Site Incharge, staff and such office shall be opened at all reasonable hours to receive instructions, notices or other communications. The Contractor at all time shall maintain a site instruction book and compliance of these shall be communicated to the Engineer-in-charge from time to time and the whole documents to be preserved and handed over after completion of works.

4.40 **CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT:**

4.40.1 The Contractor on award of the work shall identify, authorize and depute a qualified employee of the Contrator having sufficient experience in carrying out work of similar nature to whom the equipments, materials if any shall be issued and instruction for works given. The Contractor shall also provide to the satisfaction of the Engineer-in-charge sufficient and qualified staff to supervise the execution of the work, competent site-in-charge, foremen and leading hands including those specially qualified by previous

experience to supervise the types of works comprised in the Contract in such manner as will ensure the best quality and expeditious working. At any time in the opinion of the Engineer-in-charge any additional, qualified experienced staff for supervision is considered necessary, they will be provided by the Contractor without additional financial burden to Owner. The Contractor shall ensure to the satisfaction of the Engineer-in-charge competent and efficient supervision over the work entrusted to them including their Sub-Contactors if any (deployed with prior permission of the Owner) and comply all statutory provisions of ContractLabour (R&A) Acts 1970.

4.40.2 If any of the Contractor's site-in-charge, assistants, foremen or any employee in the opinion of Engineer-in-charge be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties or that in the opinion of the Owner's Engineer-in-charge undesirable for administrative or any other ground, the continuance of such person(s) in Contractor establishment, then at the directions of Engineer-in-charge the Contractor shall at once remove such person(s) from the establishment of the Contractor at the Owner's premises without any financial burden to Owner.

4.40.3 The Contractor shall be responsible for the proper behavior of all the staff, foremen, workmen and others, shall exercise proper degree of control over them and in particular without prejudice to the said generality the Contractor shall be bound to prohibit/prevent any of the employees from trespassing or acting in anyway detrimental or prejudicial to the interest of the community or the properties or Owner's land or properties in the neighborhood. In the event of such trespassing, the Contractor shall be responsible for all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in-charge upon any matter arising under this clause shall be final.

4.40.4 All Contractors personnel entering into the Owners premises shall be properly identified by badges of a type acceptable to the Owner which must be worn at all times on Owners premises.

4.40.5 Attention is drawn to the ContractLabour (R&A) Act 1970 whereby no master-servant relationship is created between the Owner and the Contractor's labour and no claim for employment / compensation of any such labour from the Owner shall be tenable or entertained.

4.41 **SUBLETTING OF WORK:**

In normal cases, sub-contracting is not permitted. But however Engineer-in-charge may permit the same in case he is satisfied that subcontracting is required. No power of attorney holder other than a regular employee, partner or director of the firm shall be considered for Site In-charge of Contractor. No Contractor with the power of attorney of some other Contractor shall be entertained to execute any work. The Contractor is advised not to enter into Contract before obtaining the consent of Engiener-in-charge to that effect.

4.41.1 No part of the Contract nor share or interest therein shall in any manner or degree be transferred, assigned or sublet by the Contractor directly or indirectly to any person, firm or corporation whatsoever except as provided for in the succeeding sub-clauses without the prior consent in writing of the Owner.

4.41.2 **Contractors liability not reduced by subcontract:**

Notwithstanding any subcontract with such approval as aforesaid and notwithstanding that the Engineer-in-charge shall have received copies of any subcontracts, the Contractors shall be and shall remain solely responsible for the quality and timely execution of the works

and performance of all the conditions of the Contract in all respects as if such subcontract or subletting had not taken place, and as if such work had been done directly by the Contractor.

4.41.3 **No remedy for action taken under clause 4.41:**
For action taken by the Owner under the clause shall not relieve the Contractor of any of his liabilities under the Contract or give rise to any right or compensation, extension of time or otherwise.

4.42 **POWER OF INTERFERENCE:**

4.42.1 If the Contractor shall not commence the work in the manner described in the Contract documents or if he at any time in the opinion of the Engineer-in-charge-

i) Fails to carry out the works in conformity with the Contract documents or
ii) Fails to carry out the works in accordance with the Contract schedule
iii) Substantially suspend work or the works for a period of seven days without approval of the Engineer-in-charge,
iv) Fails to carry out and execute the works to the satisfaction of the Engineer-in-charge.
v) Fails to supply sufficient or suitable constructional plant, temporary works, labour, materials or other things or Tools & Plants, minimum infrastructure facilities.
vi) Commit, suffer or permit any other breach of any of the provisions of the Contract on his part to be performed or observed or persist in any of the above mentioned breaches of the Contract for seven days, after notice in writing shall have been given to the Contractor by the Engineer-in-charge requiring such breach to be remedied, or
vi) If the Contractor during the continuance of the Contract shall become bankrupt, make any arrangement for composition with his creditors or go into liquidation, the Owner shall have the power to enter into the works and take over the possession of the materials, temporary work, constructional plant, stock and complete the works by other Contractors, firm or corporation as the Owner in his absolute discretion may think proper to employ and to use or authorize the use of any materials, temporary works, constructional plant, and stock as aforesaid, without making payment to the Contractor for the said materials, other than such as may be certified in writing by the Engineer-in-charge to be reasonable & not being liable for any loss or damage thereto. The Owner shall by reason of his taking possession of the work or of the works being completed by other Contractor (due account being taken of any such extra work or works which may be omitted) then the excess amount if any shall be deducted from any money which may be due for work done by the Contractor under the Contract and not paid for. Any further deficiency shall forthwith be made good by sell in such manner and for such price as he may think fit all or any of the constructional plant, materials etc. available at site.

4.43 **CONTRACTOR'S RESPONSIBILITY FOR COMPLIANCE OF STATUTORY NORMS &OTHER RULES APPLICABLE TO SUCH CONTRACT:**

The Contractor shall conform in all respect to the provisions of statutory regulations, ordinances, bylaws of any local or duly constituted authorities or public bodies, which may be applicable from time to time to the works or any temporary works. The Contractor shall keep the Owner indemnified against all penalties and liabilities of every kind, arising out of non-adherence to such statutes, ordinances, laws, rules, regulations etc. All costs &

expenses borne by the Owner in way of penalty, associated litigations etc. on account of Contractor's default shall be recovered from the Contractor from his dues or from the dues of any other contract with Owner or as debt liability.

4.44 **OTHER AGENCIES AT SITE:**

The Contractor shall have to execute the work in such place and condition where other Agencies will also be engaged for other works such as site grading, filling & leveling, electrical & mechanical engineering works, operation & maintenance activities of running plant etc. No claim shall be entertained due to work being executed in the above circumstances. The Contractor shall do their work in a time & manner taking all safety precautions so as to avoid interference with other activities but their activities should not lag behind. Engineer-in-charge's decision in this respect is final.

4.45 **CORRESPONDENCES /NOTICES:**

4.45.1 **Power of Attorney:**

Owner/ Engineer-in-charge shall ordinarily correspond with the Contractor at the address furnished by the Contractor. Any notice to be sent to the Contractor by Owner shall be sent by registered post to the address of the Contractor. The Contractor shall submit due power of attorney in favour of their site-in-charge at site for the purpose of receipt of all letters, notices, drafts, cheques, job instruction and execution of job etc. from Owner and to correspond & transact with Owner on behalf of Contractor & pertaining to this Contract only.

4.45.2 **Address for Correspondence:**

The Contractor shall give full & correct address of his Registered Office with Telephone (s), Fax (s) and E-mail numbers etc. if any to the Owner for correspondence. In case of any change of address during currency of the Contract, the Contractor shall forthwith intimate the same to the Owner failing which such act shall be treated as a fraudulent motive of Contractor.

4.45.3 **Notice to the Contractor:**

Any notice may be served on the Contractor or his site-in-charge at the job site or by registered mail directly to the address furnished by the Contractor or both. Proof of issue of such notice shall be conclusive on the Contractor having been duly informed of the contents therein.

4.45.4 **Notice to the Owner:**

Any notice to be given to the Owner under the terms of Contract shall be served by sending the same by Registered mail to or delivering the same at the respective site office of Ib Thermal Power Station, addressed to the Engineer-in-charge.

4.45.5 **Notices to local bodies:**

i) Contractor shall comply with and give all notices required under any Government authority, instrument, rule or order made under any Act of Parliament, State laws or any regulation or bye-laws of any local authority relating to the works. He shall before making any variation from the Contract drawing necessitated by such compliance give to the Engineer-in-charge a written notice giving reasons for the proposed variation and obtain the Engineer-in-charge's instructions thereon.

ii) The Contractor shall pay and indemnify the Owner against any liability in respect of any fees or charges payable under any Act of Parliament, State laws or any Government instrument, rule or order and any regulations or byelaws of any local authority in respect of the works.

4.45.6 **Instructions & Notices:**

i) Subject as otherwise provided in this Contract, all notices to be given and all other actions to be taken on behalf of the Owner may be given or taken by the Engineer-in-charge / Officer-in-charge or his authorized representative.

ii) All instructions, notices and communications etc., under the Contract shall be given in writing and if sent by registered post to the last known place of abode or business of the Contractor shall be deemed to have been served on the date when in the ordinary course of post these would have been delivered to him.

iii) The Contractor or his site-in-charge shall be in attendance at the site (s) during all working hours and shall superintend the execution of the works with such additional assistance in each trade, as the Engineer-in-charge may consider necessary. In no case site-in-charge shall remain absent from site without prior permission of the Engineer-in-charge. Orders given to the Contractor's site-in-charge shall be considered to have the same force as if they had been given to the Contractor himself.

iv) The Engineer-in-charge shall communicate or confirm the instructions to the Contractor in respect of the execution of work in a field work Site Order Book maintained in the office of the Engineer-in-charge and the Contractor or his authorized representative shall confirm receipt of such instructions by signing the relevant entries in this Book. If required by the Contractor, he shall be furnished a copy of such instruction (s).

4.46 **RIGHTS OF OWNER ON VARIOUS INTERESTS:**

i) The Owner reserves the right to distribute the work between more than one Contractor. The Contractor shall cooperate and afford the other Contractors all reasonable opportunity for access to the works for the carriage and storage of materials and execution of their works.

ii) Wherever the work being done by any department of the Owner or by the Contractor engaged by the Owner as per the condition of work covered by this Contract, the respective rights and various interests involved shall be determined by the Engineer-in-charge to secure the completion of the various portions of the work in general harmony.

4.47 **NEGOTIATION OF RATES:**

In case Owner finds the lowest price to be at higher side in consideration of market price of various inputs including labour component, may call the lowest Bidders for negotiation of price based on analysis of their rate etc.

4.48 **ISSUE OF LOI:**

The Letter of Intent shall be released by the Owner or the Engineer-in-charge with the rates and other terms & conditions finally arrived at negotiation. The Contractor shall commence performance of the Contract on the basis of this LOI/Work order.

4.49 Firm work order shall be released / Contract agreement executed within 30 days of issue of Letter of Intent. Letter of Intent / Work Order shall be accepted by the Contractor by endorsement and return the duplicate copy of work order endorsed as unconditional acceptance of rates & terms and conditions of work order to the Owner and form part of Contract.

End of Section-IV

SECTION-V

5.0 SCOPE &PERFORMANCE OF WORK

5.1 SCOPE OF WORK:

Scope of particular work in detail is available in Special Conditions of Contract for information of Bidders.

5.2 USE OF CONTRACT DOCUMENTS:

The Contractor shall be provided drawings free of charge with tender documents / during the progress of work. He shall keep one copy of Contract documents with drawings on the site in good order and the same shall at all reasonable times be available for inspection and use by the Engineer-in-charge/his representatives / other inspecting officers.

5.2.1 None of these documents shall be used by the Contractor for any purpose other than that of this Contract.

5.2.2 The Contractor shall take necessary steps to ensure that all persons employed on any work in connection with this Contract have noticed that the Indian Official Secret Act 1923 (XIX of 1923) applied to them and shall continue to apply even after the execution of such works under the Contract.

5.3 WORKS TO BE CARRIED OUT:

The works to be carried out under the Contract shall except as otherwise provided in these conditions include all labours, materials, tools, plant, equipment and transport which may be required in preparation of and for full & entire execution for completion of works. The description given in the schedule of quantity shall unless otherwise stated, be held to include waste of materials, carriage and cartage, carrying in, return of empties, hoisting, setting, fitting and fixing in position and all other labour necessary in and for the full and entire execution and completion as aforesaid in accordance with good practice and recognized principles of engineering.

5.4 SCHEDULE OF WORK:

After receipt of LOI the schedule of work shall be drawn by the Contractor taking into account and dovetailing the technicality of work, sequence of work, material availability, materials on transit, materials on order, weather condition, nature & urgency of works, their permutation & combination for an integrated approach for timely completion of the works at ultimate cost. The Engineer-in-charge after scrutinizing the schedule submitted by the Contractor shall approve before actual work commences.

5.5 EXECUTION OF WORKS:

All the works shall be executed in strict conformity with the provisions of the Contract documents, specifications and instructions by the Engineer-in-charge whether mentioned in the Contract or not. The Contractor shall be responsible for ensuring that works are executed in the most substantial and proper workman like manner using the quality materials and labour during the progress of and up to completion of job in strict accordance with the specifications and to the entire satisfaction of the Engineer-in-charge.

5.6 **COORDINATION AND INSPECTION OF WORKS:**

The coordination and inspection of the day-to-day work under the Contract shall be the responsibility of the Engineer-in-charge or his authorized representatives. A field work order book shall be maintained by the Contractor in which written instruction for specific job be entered. These shall be signed by the Contractor or his authorized representative by way of acknowledgment within 12 hours.

5.7 **GENERAL CONDITION OF WORK:**

The working time of the work is 48 hours per week per man in general. In case of overtime work is permitted in case of need, the Owner will not compensate for the same. Shift working at 2 to 3 shifts per day will become necessary and the Contractor shall take this aspect into consideration while formulating his rates for Tender. No extra claim will be entertained by the Owner on this account.

5.8 **REPORTING OF WORK STATUS:**

The Contractor shall submit to the Engineer-in-charge reports at regular intervals regarding the progress of work as desired from time to time.

5.9 **DRAWING / SEQUENCE TO BE PROVIDED BY OWNER :**

In the progress of work, detailed working drawings on the basis of which actual execution of the work has to proceed, shall be furnished in stages. The Contractor shall be deemed to have gone through the drawings issued to him thoroughly and carefully, in conjunction with all other connected drawings and discrepancies if any shall be brought to the notice of the Engineer-in-charge, before actually carrying out the works. Wherever drawing is not possible, sequence of operation or work instructions shall be given by the Engineer-in-charge as in case of maintenance works etc.

5.10 **LIABILITIES FOR DEFECTS, IMPERFECTIONS** etc. **AND RECTIFICATION THEREOF:**

If it shall appear to the Engineer-in-charge that any work has been executed with unsound, imperfect or unskilled workmanship, or with materials of any inferior description, or that any materials or articles provided by the Contractor for the execution of work are unsound or of quality inferior to that Contracted for, or otherwise not in accordance with the Contract, the Contractor shall on demand in writing from the Engineer-in-charge or his authorized representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct that work so specified and provide other proper and suitable materials or articles at his own charge and cost, and in the event of failure to do so within a period to be specified by the Engineer-in-charge in his demand aforesaid the Engineer-in-charge may on expiry of notice period rectify or removes, and re-execute the work or remove and replace with others, the materials or articles complained or as the case may be at the risk and expense in all respects of the Contractor. The decision of Engineer-in-charge as to any question arising under this clause shall be final and conclusive.

5.11 **TWELVE MONTHS PERIOD OF DEFECT LIABILITY FROM THE DATE OF ACTUAL COMPLETION OF WORK RECORDED IN COMPLETION CERTIFICATE:**

From the commencement to completion of the work, the Contractor shall take full responsibility for the care of all works including all temporary works and in case any damage, loss or injury shall happen to the work or to any part thereof or to any temporary

works from any cause whatsoever, shall at his own cost repair and make good the same so that on completion the work shall be in good order and in conformity in every respects with the requirements of the Contract and the Engineer-in-charge's instruction.

The defect liability period shall be 12 months from the date of completion. On completion of such period and on final certification of satisfactory performance report of the Contracted work from Engineer-in-charge, the security deposit shall be released. The period of 12 months shall be counted from the date of completion of last repair of defect in case of any defect appears after completion of work / from the date of completion as mentioned in completion certificate.

5.12 **TRAINING OF APPRENTICES:**

The Contractor shall during the currency of the Contract when called upon by the Engineer-in-charge engage and also ensure engagement by subcontractor and other employed by the Contractor in connection with the works, such number of Apprentices in the categories mentioned in Schedule A and for such periods as may be required by the Engineer-in-charge. The Contractor shall train them as required under the Apprentices Act, 1961 and shall be responsible for all obligations of the employer under the Act, excluding the liability to make payment to Apprentices as required under the Act.

5.13 **Contractor's liability & insurance:**

From commencement to completion of the works, the Contractor shall take full responsibility of the site for taking care and precautions to prevent loss or damage and to minimize loss or damage to the maximum extent possible and shall be liable for any damage or loss that may happen to the works or any part thereof and all Owner's T & P from any cause whatsoever (save and except the Excepted Risks) and shall at his own cost repair and make good the same so that at completion of the works, all Owner's T & P shall be in good order and condition and in conformity in every respect with the requirements of BI standard and to the satisfaction of the Engineer-in-charge and to the satisfaction of Engineer-in-charge where BIS is not available.

5.13.1 In the event of any loss or damage to the works or any part thereof or to any T & P or to any material or articles at the site from any of the Excepted Risks the following provisions shall apply:

a) The Contractor shall, as may be directed in writing by the Engineer-in-charge, remove from the site any debris and so much of the works as shall have been damaged, taking to the Owner's store such T & P, articles and/or materials as may be directed:

b) The Contractor shall, as may be directed in writing by the Engineer-in-charge, proceed with the erection and completion of the works under and in accordance with the provisions and conditions of the Contract.

5.13.2 Compensation on account of loss due to damage for Excepted perils:

The value of re-execution of work, which is lost or damaged in Excepted Risks, shall be ascertained in the same rate under the Contract and added to the contract sum as deviation. Provided the Contractor was alert and has taken sufficient precaution as a man of general prudence should have taken to prevent the loss or damage to minimize the amount of such loss in his own case.

5.13.3 Where Owner's buildings or a part thereof is rented to the Contractor he shall insure the entire building if the building or any part thereof is used by him for the purpose of storing

or using materials of combustible nature, as to which the decision of the Engineer-in-charge shall be final and binding.

5.13.4 The Contractor shall indemnify and keep indemnified the Owner against all losses and claims for injuries or damage to any persons or any property whatsoever which may arise out of or in consequence of the construction and maintenance works and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

5.13.5 Before commencing execution of the work, the Contractor shall, without in any way limiting his obligations and responsibilities under this condition, insure against any damage, loss or injury which may occur to any property. (excluding that of the Owner but including the Owner's building rented by the Contractor wholly or in a part and any part of which is used by him for storing combustible materials), or to any person (including any employee of the Owner) by or arising out of carrying out of the Contract.

5.13.6 The Contractor shall at all times indemnify the Owner against all claims, damages or compensation under the provisions of Payment of Wages Act, 1936. Minimum Wages Act, 1948; Employer's Liability Act, 1938; the Workmen's Compensation Act, 1923; Industrial Disputes Act, 1947 and the Maternity Benefit Act, 1961 or any Modifications thereof or any other law relating thereto and rules made hereunder from time to time or as a consequence of any accident or injury to any workman or other persons in or about the works, whether in the employment of the Contractor or not, save and except where such accident or injury has resulted form any act of the Owner, his agents or servants, and also against all costs, charges and expenses of any suit, action or proceedings arising out of such accident or injury and against all sum or sums which may with the consent of the Contractor be paid to compromise or compound any claim. Without limiting his obligations and liabilities as above provided, the Contractor shall insure against all claims, damages or compensation payable under the Workmen's Compensation Act, 1923 or any modification thereof or any other law relating thereto.

5.13.7 The Contractor shall ensure that similar insurance policies are taken out by his subcontractors (if any) and shall be responsible for any claims or losses to the Owner resulting from their failure to obtain adequate insurance protection in connection thereof. The Contractor shall produce or cause to be produced by his subcontractors (if any) as the case may be, the relevant policy or policies and premium receipts as and when required by the Engineer-in-charge.

5.13.8 If the Contractor and/or his subcontractors (if any) shall fail to effect and keep in force the insurance referred to above or any other insurance which he/they may be required to effect under the terms of the Contract then and in any such case the Owner may, without being bound to, effect and keep in force any such insurance and pay such premium or premiums as may be necessary for the purpose and from time to time deduct the amount so paid by the Owner from any moneys due or which may become due to the Contractor or recover the same as a debt due from the Contractor.

The above conditions are applicable for value of work below one crore rupees. But in case of contract involving considerable risk or damage and of value more than one crore, the Contractor has to obtain blanket insurance policy for all his works, T & P and manpower and assign in favour of the Owner.

5.14 **Retention of cost & expenses**

a) In the event the contractor is involved with violation of any act(s) relating to safety, environment, labour and workmen compensation, taxes & duties etc. and consequent legal

action & penalty during execution of contract the issue is open in relevant Govt. Deptt., estimated value of cost and expenses towards the same shall be retained from the final bill till disposal of the case.

b) If any contractor avoids to attend workmen's compensation commissioner court on summon, he shall not be entertained for award of any future contract in OPGC. The cost & expenses of compensation towards the death or permanent disablement shall be deducted from the corresponding Contract or any other Contract executed by the same Contractor in OPGC or lastly as debt liability.

End of Section-V

SECTION-VI

6.0 CERTIFICATE AND PAYMENT:

6.1 SCHEDULE OF QUANTITY / PRICE SCHEDULE AND PAYMENT:

6.1.1 Contractor's remuneration:

The price to be paid by the Owner to the Contractor for the whole of the work done and for the performance of all the obligations undertaken by the Contractor under the Contract shall be ascertained by the application of the respective rates in schedule of quantity / price schedule (the inclusive nature of which is more particularly defined by way of application but not of limitation of item of activities, materials & expenses specified in clause No.6.1.2) and payment to be made accordingly to the work actually executed and approved by the Engineer-in-charge. The sum so ascertained shall (exception only as and to the extent expressly provided herein) constitute the remuneration of the Contractor under the Contract and no further or other payment whatsoever shall be or become due or payable to the Contractor under the Contract.

6.1.2 Activities & expenses to be included in rates:

The prices/rates agreed both by the Contractor and Owner and subsequently incorporated in the Contract shall remain firm till the issue of Final Certificate and shall not be subject to escalation. The said schedule of quantity / price schedule shall be deemed to include and cover all costs, expenses and liabilities of every description and all risks of every kind to be taken in execution, completion and handing over the work to the Owner by the Contractor. The Contractor shall be deemed to have known the nature, scope, magnitude and the extent of the works and materials required though the Contract Document may not fully and precisely furnish them. He shall make such provision in the rates accepted as he may consider necessary to cover those of such items of work and materials as may be reasonable and necessary to complete the work. The opinion of the Engineer-in-charge as to the items of work which are necessary and reasonable for completion of work shall be final and binding on Contractor although the same may not be shown on or described specifically in Contract document.

6.1.3 Rates to cover taxes and duties:

No exemption or reduction of custom duties, excise duties, sales tax, works Contract tax, entry tax or any port duties, royalty, transport charges, stamp duties of Central or State Government or Local Body or Municipal Taxes or duties, taxes or charges, income tax whatsoever will be granted or obtained and all expenses of which shall be deemed to be included in and covered by the accepted rates. The Contractor shall also obtain and pay for all permits or other privileges necessary to complete the work.

6.1.4 Accepted ratescannot be altered

For work under item rate basis, no alteration will be allowed in the rates by reasons of works or any part of them being modified, altered, extended, diminished or omitted. The accepted rates is of fully inclusive rates which have been agreed by the Contractor and the Owner and cannot be altered under any circumstances. However, if the quantity of such modification, alteration, extension, reduction or omission is substantial and exceeds 5% in the Contract price, the variation in rate may be examined and amended by Engineer-in-charge on recommendation of Contract Review Meeting (refer Clause No.4.11)

6.1.5 **The rates to cover for working in operating plant**: Contractor's rates shall be deemed to include the factors such as work shall be carried out in operating plant and shall take sufficient care in moving the plants, equipments and materials from one place to another, so that they do not cause any damage to any person or to the property of the Owner or to third party including overhead and underground cables/pipe lines. In the event of such

damage including eventual loss of generation and operation of the plant or services in any plant or establishment as estimated by the Owner or ascertained by the third party shall be borne by the Contractor. The aforesaid risk shall be covered by insurance as per Clause 5.13.5 This shall be applicable when Contract value is more than one crore.

6.2 **PROCEDURE FOR MEASUREMENT OF WORK EITHER IN PROGRESS OR FINAL:**

6.2.1 **Methods of measurement:**

The measurement shall be taken in accordance with the procedure set in the specifications. No local or general method of measurement shall be adopted. In case the method of measurement is not specified in the specifications, the procedure of Bureau of Indian Standard shall prevail.

6.2.2 **Measurement of work in progress:**

All measurements shall be in metric system. All the works in progress will be jointly measured by the representatives of Owner and the Contractor progressively in construction & civil maintenance work. In case of mechanical /electrical / C&I maintenance &upkeepment work etc. the item of work performed by the Contractor shall be recorded daily preferably immediately on completion in the manner stipulated in conditions of Contract. Such measurements will be recorded in the prescribed measurement book by the representative of Owner and signed by both parties as token of acceptance by both either on completion of certain item or in an interval of days or hours as the case may be.

6.2.3 **Final measurement:**

On completion of work final measurement shall be taken in the similar fashion as stated earlier and sum total of part measurement shall be compared. Final measurement shall be considered for final payment.

6.2.4 Before taking measurements of any construction work, the Engineer-in-charge or his authorized representative for the purpose shall give a notice with reasonable time to the Contractor. In case of operation or maintenance work the Contractor or his authorized representative shall obtain the signature of Engineer-in-charge or his representative in support of completion of any item of work to the satisfaction of Engineer-in-charge. All these details shall be recorded in measurement book in prescribed format to be provided by Engineer-in-charge / printed standard Measurement Book available in the market.

If the Contractor fails to attend or to send an authorized representative for measurement after such a notice or failure of Engineer-in-charge on Contractor's request in case of maintenance work as the case may be or fails to countersign or to record the objection within a week from the date of measurement, then in any such event, the measurement taken by the Engineer-in-charge / his representative shall be taken to be correct measurement of work.

6.2.5 The Contractor shall, without extra charge, provide assistance in every measurement in respect of labour and other things necessary for measurements.

6.2.6 If the Contractor objects to any of the measurements recorded in the measurement book, the matter shall be referred to the subsequent Contract Review Meeting. The decision taken in the Contract Review Meeting shall be final & binding.

6.2.7 **Billing:**

The Contractor shall submit bill in approved proforma in accordance with the Contract terms and the agreed billing schedules in duplicate to the Engineer-in-charge / Officer-in-charge as the case may be giving abstract and detailed measurement for the various items executed during a pre-determined period / month, as the case may be. In case of maintenance/ upkeepment contract, monthly bill shall be preferred during 1st week of the

succeeding month. In case of construction work the bill shall be furnished after achieving milestone or as provided in the Contract. The Engineer-in-charge shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim as far as admissible, adjusted, if possible, before the expiry of 21 days from the presentation of the bill. This is applicable for running bills only.

6.3 **PAYMENT OF CONTRACTOR'S BILL:**

Payment due to the Contractor shall be made by the Owner, by Crossed Account Payee cheque forwarding the same to registered office or the notified office of the Contractor. The cheque shall also be handed over to the Contractor or their Site-in-charge if authorized for the purpose against due receipt. In no case will Owner be responsible if the cheque is mislaid or misappropriated by unauthorized person / persons. Demand draft may also be issued after deduction of bank commission charges if requested by the Contractor.

All payment shall be made in Indian currency only.

6.3.1 **Payment of running bill:**

Interim bills shall be submitted by the Contractor at intervals mentioned in Schedule A on or before the date fixed by the Engineer-in-charge for the work executed. The Engineer-in-charge / Officer-in-charge shall then arrange to have the bill verified by comparing with the measurement already taken.

6.3.2 On certification of Engineer-in-charge, payment to which the Contractor is considered entitled by way of interim payment shall be made for all the work executed, after deducting there from the amounts already paid, the security deposit and such other amounts as may be deductible or recoverable in terms of the Contract.

6.3.3 Payment of the Contractor's interim bills shall be made by the Owner within 21 days from the date of acceptance of the bill by Engineer-in-charge.

6.3.4 Any interim certificate given relating to work done may be modified or corrected by any subsequent interim certificate or by the final certificate. No certificate of the Engineer-in-charge supporting an interim payment shall itself be conclusive evidence that any work to which it relates is / are in accordance with the Contract.

6.4 **RECEIPT OF PAYMENT:**

Receipt of payment made on account of work when executed by a firm, must be signed by the Contractor in case of proprietary firm and otherwise a person holding due power of attorney in this respect on behalf of the Contractor, except when the Contractors are described in their Tender as a limited company in which case the receipts must be signed in the name of the company by one of its principal officers or by some other persons having authority to give effectual receipt for the company.

6.5 **COMPLETION CERTIFICATE:**

6.5.1 **Eligibility criteria for issue of Completion Certificate: -**

No certificate of completion shall be issued nor shall the work be considered to be completed till the Contractor shall have removed from the premises on which the work has been executed, all such scaffolding, sheds and surplus materials except such as are required for rectification of defects, rubbish and all huts and sanitary arrangements required for his workmen on the site in connection with the execution of the work, as shall have been erected by the Contractor or the workmen and cleaned all dirt from the parts of building (s) in or upon or about which the work has been executed or of which he may have had possession for the purpose of the execution thereof and cleaned floors, gutters and drains, eased doors and sashes, oiled locks and fastenings, labeled keys clearly and handed them over to the Engineer-in-charge and made the whole premises fit for immediate

occupation or use to the satisfaction of the Engineer-in-charge. If the Contractor shall fail to comply with any of the requirements of this conditions as aforesaid on or before the scheduled date of completion of the works, the Engineer-in-charge may at the expense of the Contractor fulfill such requirements and dispose of the scaffoldings, surplus materials and rubbish, etc. as he thinks fit and the Contractor shall have no claim in respect of any such scaffolding or surplus materials except for any sum actually realized by the sale thereof less the cost of fulfilling the requirements and any other amount that may be due from the Contractor. If the expenses of fulfilling such requirements are more than the amount realized on such disposal as aforesaid, the Contractor shall forthwith on demand pay such excess.

6.5.2 **Application for Completion Certificate.**

As soon as the work is completed and the Contractor fulfills his obligations in all respect, he shall be eligible to apply for Completion Certificate. The Owner or his representative shall normally issue to the Contractor the Completion Certificate within 30 days after receiving an application from the Contractor after verifying from the completion documents and satisfying himself that the work has been completed in accordance and as set out in the construction and erection drawings and the Contract Documents. In case of operation or maintenance Contract, satisfactory performance during Contract period shall be basis for issue of Completion Certificate.

6.5.3 **Issue of Completion Certificate:**

On receipt of request from the Contractor Engineer-in-charge shall inspect whole of the work and shall issue a certificate of completion indicating: -

a) Date of completion of work
b) Value of the Contract / value of work executed
c) Quality of performance
d) Level of safety maintained during the work.

6.5.4 If at any time before completion of the entire work, items or groups of items for which separate periods of completion have been specified, have been completed the Engineer-in-charge can take possession of any such parts being hereinafter in this condition referred to as 'the relevant part') notwithstanding anything expressed or implied elsewhere in this Contract:

(a) Within thirty days of the date of completion of such items or groups of items or of possession of the relevant part the Engineer-in-charge shall issue Completion Certificate for the 'relevant part' provided the Contractor fulfils his obligations under clause 6.5.1 for the 'relevant part'.

(b) The Defects Liability Period in respect of such items and the 'relevant part' shall be deemed to have commenced from the certified date of completion of such items or the 'relevant part' as the case may be.

(c) The Contractor may reduce the value insured under Clause 5.13 by the full value of the completed items or 'relevant part' as estimated by the Engineer-in-charge for this purpose. This estimate shall be applicable for this particular purpose only.

(d) In such case Compensation / Liquidated Damage for delay shall be calculated in accordance with Clause 6.9 on total value of the work, less the value of 'relevant part' taking into consideration the due date of completion as per Contract and subsequent time extension, if any.

6.6 **FINAL PAYMENT:**

During progress of work in case of construction work and period fixed for payment in case of provision of services such as operation and maintenance, running bills shall be preferred

by the Contractor as per the terms of Contract and shall be paid on the basis of measurement certification of Engineer-in-charge / Officer-in-charge from time to time or in fixed intervals. But final bill shall be paid on receipt of -

i) Final bill (n'th& final bill must be written over the bill)
ii) Measurement book with all its supporting documents
iii) Completion Certificate of Engineer-in-charge
iv) Store clearance
v) Evidence in support of clearance of labour dues.
vi) Evidence in support of payment of PF dues
vii) No claim certificate by the Contractor
viii) Total amount of dues, less-
    a) Payment already made through running bills
    b) Advances if any
    c) Penalty if any
    d) Liquidated damage
    e) Amounts towards the cost of tools & plants not returned to warehouse
    f) Value of the surplus of material issued not returned to store.
    g) Any estimated amount on account of default of Contractor in statutory or environmental matter or dispute open in Court of Law.
    h) Clearance from Personnel & Administration department relating to rent for accommodation, water & electricity bills etc.

6.7 **TERMS OF PAYMENT:**

(a) The running bill corresponding to the terms of Contract raised by the Contractor shall be paid to him on certification of Engineer-in-charge.

(b)The bill for any permissible period shall be submitted within 7 days of expiry of the said period and payment shall be released within 21 days of submission of the bill provided the same is receipted by Engineer-in-charge.

(c) All statutory deductions levied by the Govt. or other statutory authorities at the rate prevailing at the time of payment of bill shall be deducted from the running bills.

(d) The Engineer-in-charge reserves the right to effect deductions towards penalty & other recoveries if any, under the terms & conditions of Contract.

(e) Final bill shall be settled after submission of the same with all related documents as per Clause 6.6 within the period specified in Clause 6.8

6.8 **TIME LIMIT FOR PAYMENT OF FINAL BILL:**

6.8.1 The final bill shall be submitted by the Contractor within three months of physical completion of the work. No further claims can be made by the Contractor after submission of the final bill and all claims shall be deemed to have either been included in the final bill or waived and extinguished. Payment of those items of the bill in respect of which there is no dispute and of items in dispute for quantities and rates as approved by Engineer-in-charge, shall be made within the period specified herein this clause, the period being reckoned from the date of receipt of the bill by the Engineer-in-charge. If the decision of Engineer-in-charge is not agreed by the Contractor, the dispute either in quantity or rate or both shall be referred to Contract Review Meeting and the decision made thereof shall be final & binding on both parties.

The time limit for release of final payment corresponding to the Contract value are furnished below: -

(a) Contract value not exceeding Rs.5 lakhs	Four months	from the date of acceptance of Final bill by the Engr-in-charge
(b) Contract value exceeding Rs.5 lakhs	Six month	--- do -----

Provided the Contractor has furnished all required documents in accordance to clause 6.6. The period of release of fund shall be counted from the date of compliance of last documents or formalities.

For above purpose, original Contract value or the actual value of the work whichever is higher shall be taken into consideration.

6.9 **LIQUIDATED DAMAGES FOR DELAY:**

If the Contractor fails to maintain the required progress in terms of achieving milestone fixed in the time & progress schedule or to complete the work as the case may be under Contract& clear the site on or before the due date or extended date of completion they shall without prejudice to any other right or remedy shall be liable for liquidated damage as stipulated below or such small amount as may be fixed by the Engineer-in-charge on the Contract value of the work or actual value of the work whichever is higher for every week during which the progress remains below the specified time of completion subject to the total amount of compensation for delay to be paid under this condition shall not exceed the under noted percentage of the Contract value or of the Contract value of the item or group of items of work for which a separate period of completion is given:

This will also be applicable to items or group of items for which separate period of completion has been specified.

Rates & upper limit of Liquidated Damage:

	Completion period	**% of Contract / Work value per week**	**Maximum % of Contract / work value**
a.	Due Completion period (as originally stipulated) not exceeding 6 months	@ 1%	10%
b.	Due Completion period (as originally stipulated) exceeding 6 months but not exceeding 2 years	@ 0.5%	7.5%
c.	Due Completion period (as originally stipulated) exceeding 2 years	@ 0.25%	5%

6.9.1 The amount of liquidated damage (LD) may be adjusted or set-off against any sum payable to the Contractor under this or any other Contract with the Owner. In case at the time of the amount of LD comes to the notice of the Owner the Contractor does not have any amount pending with the Owner, the Contractor shall be served with a notice and in turn the Contractor has to deposit the said amount in shape of D/D with the Owner in the fashion mentioned earlier.

End of Section-VI

SECTION-VII

7.0 STATUTORY OBLIGATION & INSURANCE

7.1 **TAXES:**

7.1.1 The Contractor shall defray all taxes such as toll, local taxes, excise duty, royalty, income tax, sales tax, GST, work contract tax and other payments and compensation, if any in connection with the procurement and handling of materials, fabrication and execution of works or any method or process connected with the works. Sales tax, Entry tax, Excise duty and any other tax on materials required for the work & works shall be payable by the Contractor and the Owner will not entertain any claim whatsoever in this respect. The final rate is inclusive of work contract tax & other taxes applicable including GST to this work or materials thereto.

7.1.2 Notwithstanding anything contained elsewhere in the Contract, the Owner shall deduct at source from the payments due to the Contractor, the taxes as required under Odisha Sales Tax Act or as amended from time to time or under any other statute. It is for the Contractor to deal with the Sales Tax authorities directly in respect of any claim or refund relating to the above deductions and the Owner shall not be liable or responsible for any claims or payments or reimbursements in this regard. Income tax as applicable shall be deducted form all running bills.

7.2 **INSURANCE:**

The Contractor shall obtain insurance coverage to the construction work & related materials against loss under force majeure and assign the policy to the Owner where risk involvement is expected. The Contractor shall also at his own expenses carry and maintain group insurance with accidental benefit from reputed insurance companies to the satisfaction of the Owner as follows: -

7.2.1 **EmployeesState Insurance Act:**

At present this area is not included in the scope of ESI scheme but may be covered at any point of time. In that case the Contractor has to accept full and exclusive liability for compliance with all obligations imposed by the Employees State Insurance Act, 1948, and the Contractor further has to defend, indemnify and hold Owner harmless from any liability or penalty which may be imposed by the Central, State or Local Authority by the reason of any asserted violation by Contractor or subcontractor of the Employees State Insurance Act, 1948 and also from all claims, suits or proceeding that may be brought against the Owner arising under growing out of or by reasons of the work provided for by this Contract whether brought by employees of the Contractor, by third parties or by Central or State Government Authority or any political sub-division thereof. The Contractor agrees to fill in with the Employees State Insurance Corporation, the Declaration Forms and all forms which may be required in respect of the Contractor's or subcontractor's employees, whose aggregate remuneration is Rs.6500.00 per month or less or as amended from time to time and who are employed in the work provided for or those covered by ESI from time to time under the agreement. The Contractor shall deduct and secure the agreement of the subcontractor to deduct the employees' contribution as per the first schedule of the employee's State Insurance Act from wages and affix the employee's contribution cards at wages payments intervals. The Contractor shall remit and secure the agreement of the subcontractor to remit to the State Bank of India, employee's State Insurance Corporation Account, and the employee's contribution as required by the Act. The Contractor agrees to maintain all cards and records as required under the Act in respect of employee's and payments and Contractor shall secure the agreement of the subcontractor to maintain

such records. Any expenses incurred for the contribution, making contributions or maintaining records shall be to the Contractor or subcontractor's account.

The Owner shall retain such sum as may be necessary from the total Contract value until the Contractor shall furnish satisfactory proof that all contributions as required by the employeesState Insurance Act, 1948, have been paid. This will be pending on the contactor when the employee's State Insurance Act is extended to the place of work.

7.2.2 **Workmen Compensation and Employer's Liability Insurance:**

Insurance shall be effected for all the Contractor's employees engaged in the performance of this Contract. If any of the work is sublet, the Contractor shall require the subcontractor to provide workmen's compensation and employee's liability insurance for the latter's employees if such employees are not covered under the Contractor insurance.

7.2.3 **Any other insurance required under Law or by Owner:**

Contractor shall also carry and maintain any and all other insurances, which he may be required under any law from time to time. He shall also carry and maintain any other insurance, which may be required by the Owner.

7.2.4 **Accident or Injury to workmen:**

The Owner shall not be liable for or in respect of any damages or compensation payable by law in respect or in consequence of an accident or injury to any workmen or other persons in the Employment of the Contractor or any subcontractor save and except any accident or injury resulting from any willful act or default of the Owner, his agents or servants and the Contractor shall indemnify and keep indemnified the Owner against all such damages and compensation (save and except as aforesaid) and against all claims, demands, proceedings, costs, charges and expenses, whatsoever in respect or in relation thereto.

7.2.5 **Transit Insurance:**

The Contractor shall obtain adequate Transit insurance coverage at his own cost in respect of all items to be transported by the Contractor to the site of work.

7.3 **EMPLOYEES PROVIDENT FUND:**

The Contractor has to obtain P.F. code numbers from the P.F. Commissioner and photocopy of such coverage certificate shall be submitted to Engineer-in-charge prior to commencement of work. The Contractor has to furnish certified challan copy showing the amount deposited against this particular work if the Contractor executes works at different places in India and deposit the total amount in one challan only. In addition to this, Contractor shall furnish an undertaking with a list of deployed Contractlabour for whom such amount is deposited. Contractor shall comply all P.F. formalities for all the workmen engaged for this work and keep OPGC indemnified.

End of Section-VII

SECTION-VIII

8.0 LABOUR LAWS

8.1 LABOUR LAWS:

Contractor shall comply with all laws, ordinances, regulations and notification / instruction of Govt. concerning the health, wages, welfare, safety and employment and non-employment of his workers and shall exclusively bear the consequences of failure to comply therewith.

The following points are to be observed strictly by the Contractor.

i) No labour below the age of 18 (eighteen) years shall be employed on the work.

ii) The Contractor shall not pay less than the notified wages by the appropriate government towards minimum wages from time to time and must comply with Minimum Wages Act. The payment has to be made to the labours in the presence of authorized representative of the Owner / Engineer-in-charge.

iii) The Contractor shall at his expense comply with all labour laws and keep the Owner indemnified in respect thereof.

iv) TheContractor shall pay equal wages for men & women in accordance with Equal Remuneration Act 1976.

v) The Contractor under the ContractLabour (Regulation and Abolition) Act, shall have a valid Labour license from appropriate licensing authority prior to starting / within 15 days of commencement of the work under the Contract. Validity of the license shall be maintained till expiry of Contract period & its extension, if any.

vi) TheContractor shall employ labour in sufficient numbers to maintain the schedule of work and of quality to ensure workmanship of the degree specified in the Contract and to the satisfaction of the Engineer-in-charge.

vii) The Contractor shall furnish to the Engineer-in-charge at the interval of every 15 days a statement of the workmen employed on the works and also furnish information in Form-VIII, Part I & II under rule 73 of OdishaContractLabour (R&A) Rule, 1975 or rules made there under.

vii) The Contractor shall comply with the provisions of the Factories Act 1948, Payment of Wages Act 1936, Minimum Wages Act 1948, Employees Liability Act 1938, Workmen's Compensation Act 1923, the Maternity Benefit Act 1961, Employees Provident Fund (and Miscellaneous Provision) Act 1952 &ContractLabour (Regulation & Abolition) Act 1970 or any modifications thereof or any other laws relating thereto and rules made there-under from time to time. Owner shall not be held responsible for any injury sustained by Contractor's workmen while on duty.

In the event of any employment injury the Contractor has to pay necessary compensation pertaining to treatment & other associated benefits to the injured employee. In the event of fatal injury, death compensation to the legal heir of said employee shall be paid by the Contractor. In case of failure by the Contractor to pay the compensation as decided by the competent authority under the Workmen's Compensation Act, the Engineer-in-charge shall deduct the necessary amount from any outstanding bill of the Contractor or security and deposit the same with competent authority. In case before decision by the competent authority, if the Contract is being closed, estimated amount towards such compensation shall be retained from Contractor till finalization. For this purpose, the amount if falls short

under the particular Contract shall be realized from any other Contract which the Contractor is executing. The Contractor has to make all statutory records and register required in support of compliance of above provisions. Relevant statutory return shall be submitted with appropriate authority as required under the above Acts & rules with a copy to P&A department of Owner. All the records shall be kept within the work premises and must be made available on demand by Owner/Concerned statutory authority for scrutiny.

ix) The Contractor shall indemnify the Owner against any payments to be made under and for the observance of the provisions of the aforesaid Acts without prejudice to his rights to claim indemnity from his subcontractor, if any.

x) The Contractor has to make payment to their staff and labours by 7th day of succeeding month irrespective of release of Contractor's payment by Owner. In case of any default in the matter of payment to the labour, the following penalty apart from legal liability shall be imposed and recovered from Contractor's running bills.

(a) 0.1% of Contract value will be deducted for each day of delay of wages disbursement after 7th day of last wage period subject to maximum 1% of Contract value.

(b) Repetition of three such cases may attract immediate termination of Contract without any further reference to Contractor as per terms of Contract.

(xi) Owner shall not take responsibility of Contractor's labours either during execution of Contract or on closure of Contract or termination of Contract.

xii) However, in the event of default of any Contractor in payment to their labours for more than one month from the date of payment and if the service is essential for the Owner and the Contract can not immediately be terminated, the Engineer-in-charge shall make the payment to the workmen and recover the same amount from any due of the Contractor. Under such circumstances the Contract shall be liable for immediate termination as deemed fit by the Owner.

(xiii) The Contractor shall ensure that all the employees engaged by the Contractor including his subcontractor, if any, obtain health certificate from any competent medical practitioner under the provisions of Factories Act without any financial implication to Owner.

(xiv) Every worker who has worked under the Contractor shall be allowed leave with wages, national & festival holidays, weekly off and extra wages or overtime as per law. The Contractor should provide employment card, wage slip and should maintain such other records in respect of engagement of workers as required by ContractLabour (R&A) Act 1970 and rules made there under. This provision must be ensured by the Contractor.

8.2 **CONTRACTOR TO INDEMNIFY THE OWNER:**

8.2.1 The Contractor shall indemnify the Owner and every officer and employee of the Owner including the Engineer-in-charge and his staff against all actions, proceedings, claims, demands costs and expenses whatsoever arising out of or in connection with the matters referred to in Clause 8.1 and elsewhere which may be made against the Owner for or in respect of or arising out of any act / omission by the Contractor in the performance of his obligations under the Contract. The Owner shall not be liable for or in respect of any demand or compensation payable by law in respect or in consequence of any accident or injury to any workmen or other person in the employment of the Contractor or his subcontractor and Contractor shall indemnify and keep indemnified the Owner against all

such damage, compensation and against all claims, damages, proceedings, costs, charges and expenses whatsoever thereof or in relation thereto.

8.2.2 **Payment of Claims and Damages:**

Should the Owner have to pay any money in respect of such claims or demands as aforesaid the amount so paid and the cost incurred by the Owner shall be charged to and paid by the Contractor and the Contractor shall not be at liberty to dispute or question the right of the Owner to make such payments notwithstanding the same may have been made without his consent or authority or in law or otherwise to the contrary.

8.2.3 The Contractor shall intimate to the Workman Compensation Commissioner in Form EE-I within prescribed period the employment accident with relevant information with copy to the Owner. The Contractor shall take all legal steps for compliance of the provisions of Workman Compensation Act relating to accident failing which Owner under circumstance shall take up the case for which all costs and expenses shall be recovered from the Contractor and the said Contract shall be liable to be terminated & the Contractor liable to be debarred from future participation in bid. In case the amount can not be recovered from dues / security / dues of other contracts with Owner, the same shall be recovered as debt liability.

8.3 **HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS:**

In respect of all labours directly or indirectly employed in the works for the performance of Contract, the Contractor shall comply with or cause to be complied with all the rules and regulations of the local sanitary and other authorities or as framed by the Owner from time to time for the protection of health and sanitary arrangements for all workers.

*8.4 **MODEL RULES FOR LABOUR WELFARE**

8.4.1 *First Aid:*

a) At every workplace where the number of workmen engaged exceeds 50, there shall be maintained in a readily accessible place first aid box containing the following equipments:

(i) 12 small sterilized dressings
(ii) 6 medium size sterilized dressings
(iii) 6 large size sterilized dressings
(iv) 6 large size sterilized burn dressings
(v) 6 (15 gms.) packet sterilized cotton wool
(vi) 1 (60 ml.) bottle containing a two per cent alcoholic solution of iodine
(vii) 1 (60 ml.) bottle containing sal-volatile having the dose and mode of administration indicated on the label.
(viii) 1 role of adhesive plaster
(ix) A snake-bite lancet
(x) 1 (30 gms) bottle of potassium permanganate crystals
(xi) 1 pair scissors
(xii) 1 copy of the first aid leaflet issued by the Director General, Factory Advice Service and Labour Institute, Government of India
(xiii) A bottle containing 100 tablets (each of 5 grains) of aspirin
(xiv) Ointment for burns
(xv) A bottle of a suitable surgical anti-septic solution.

b) At every workplace where the number of workmen engaged does not exceed 50, there shall be maintained in a readily accessible place first aid box containing the following equipments:

(i) 6 small sterilized dressings
(ii) 3 medium size sterilized dressings
(iii) 3 large size sterilized dressings
(iv) 1 (30 ml.) bottle containing a two percent alcoholic solution of iodine
(v) 3 large sterilized burn dressings
(vi) 1 (30 ml.) bottle containing sal-volatile having the dose and mode of administration indicated on the label.
(vii) 1 snake-bite lancet
(viii) 1 (30 gms.) bottle of potassium permanganate crystals
(ix) 1 pair scissors
(x) 1 copy of the first aid leaflet issued by the Director General Factory Advise Service and Labour Institute, Government of India
(xi) A bottle containing 100 tablets (each of 5 grains) of aspirin
(xii) Ointment for burns
(xiii) A bottle of suitable surgical anti-septic solution.

The appliances shall be kept in good order and they shall be placed under the charge of a responsible person who shall be readily available during working hours. Suitable transport / conveyance facility shall be kept readily available to take injured person(s) who suddenly fall seriously ill and shifting of urgent cases to nearest hospital. If required, initial first aid may be provided in Owner's hospital in emergency, but subsequent treatment is Contractor's responsibility in any other hospital.

8.4.2 *Accommodation for Labour*: The Contractor shall during the progress of the works provide, erect and maintain necessary temporary living accommodation and ancillary facilities for labour at his own expense and up to the standards as approved by the Engineer-in-Charge at a place outside the Owner's premises.

8.4.3 *Drinking Water:* In every workplace, there shall be provided and maintained at suitable locations, easily accessible to labour, a sufficient supply of cold water fit for drinking.

Where drinking water is obtained from public water supply, each work place shall be provided with storage where drinking water shall be stored.

Every water supply storage shall be at a distance of not less than 15 meters from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well, which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door, which shall be dust and waterproof.

A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

Washing and Bathing Places: Adequate washing and bathing places shall be provided separately for men and women. Such places shall be kept in clean and drained condition.
Standard number of Latrines and urinals: There shall be provided within the precincts of every workplace latrines and urinals in an accessible place and in the following scales: -
a)Where females are employed, there shall be at least one latrine / urinal for every 25 females.

b) Where males are employed, there shall be at least one latrine / urinal for every 25 males.
Provided that where the no. of males employed exceeds 100, it shall be sufficient if there is one latrine for every 25 males up to first 100 and one for every 50 thereafter.
In calculating the no. of latrines required, any odd no. of workers less than 25 or 50, as the case may be, shall be reckoned as 25 or 50.

Other specifications shall comply to the Odisha Factories Rules-1950.

Latrines and urinals: Except in workplaces provided with water flushed latrines connected with a water-borne sewage system, all latrines shall be provided with receptacles on dry earth system which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly hygienic condition. Receptacles shall be tarred inside and outside at least once a year.

If women are employed, separate latrine and urinals, partitioned from those for men and labeled with bold letters in both Oriya & Hindi, such as " For Men" or "Women" shall be provided. A poster showing the figure of a man and of a woman shall also be exhibited at the entrance to latrines for each sex. There shall be adequate supply of water close to latrines and urinals.

8.4.4 *Construction of latrines:* Inside walls shall be constructed of masonry or other non-absorbent material and shall be cement-washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for the purpose and kept available for inspection. Latrine shall have at least thatched roof.

8.4.5 *Disposal of Excreta*: Unless otherwise arranged for by the local sanitary authority, arrangement for proper disposal of excreta by incineration at the workplace shall be made by the Contractor. Alternatively excreta may be disposed off by putting a layer of night soils at the bottom of pucca tank prepared for the purpose and covering it with a 15 cm layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn into manure).

The Contractor shall, at his own expense, carry out all instructions issued to him by the Engineer-in-Charge to effect proper disposal of soil and other conservancy work in respect of Contractor's workmen or employees on the site. The Contractor shall be responsible for payment of any charges, which may be levied by municipal authority for execution of such work on his behalf.

8.4.6 *Provision of shelters during rest:* At every workplace there shall be provided free of cost four suitable sheds, two for meals and two others for rest, separately for use of men and women Labour. Height of each shelter shall not be less than 12' from floor-level to lowest part of roofs. Sheds shall be kept clean and the space provided shall be on the basis of at least 12 sq.ft. per head.

8.4.7 *Crèches*: At a place at which 30 or more women workers are ordinarily employed, there shall be provided at least one room for use of children under the age of 6 years belonging to such women. Rooms shall not be constructed to a standard lower than that of waterproof roof, smooth & impervious floor and wall with heat resistant materials / wooden planks. Rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be two Dhais in attendance. Sanitary utensils shall be provided to the satisfaction of local medical, health and municipal authorities. Use of huts shall be restricted to children, their attendants and mothers of children.

Where the number of women workers is more than 30 or more, the Contractor shall provide at least one hut and one Dhai to look after children of women workers.

Size of creche (s) shall vary according to the women workers employed.

Creche (s) shall be properly maintained and necessary equipment like toys etc. provided.

All other provisions shall comply toOdisha Factories Rules-1950.

8.4.8 *Canteen*: A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever 100 or more Contractor Labour are ordinarily employed and work continues for 6 months or more.

8.4.9 Planning, setting and erection of the above mentioned structures shall be approved by the Engineer-in-Charge, and the whole of such temporary accommodation shall at all times during the progress of the works be kept tidy and in a clean and hygienic condition to the satisfaction of the Engineer-in-Charge at the Contractor's expense. The Contractor shall conform generally to sanitary requirements of local medical, health and municipal authorities and at all times adopt such precautions as may be necessary to prevent soil, water & air pollution of the site.

On completion of the works the whole of such temporary structures shall be cleaned away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the whole of site left clean and tidy to the entire satisfaction of the Engineer-in-Charge at the Contractor's expenses.

8.4.10 *Anti-malaria precautions*: The Contractor shall at his own expense conform to all anti-malaria instructions given to him by the Engineer-in-Charge, including filling up any borrow pits which may have been dug by him.

8.4.11 *Enforcement:* The Inspecting Officer mentioned in the Contractors Labour Regulations at Clause 8.5.1(d) or any other officer nominated in his behalf by the Engineer-in-Charge shall report to the Owner all cases of failure on the part of the Contractor or his subcontractors to comply with the provision of these rules either wholly or in part and the Engineer-in-Charge shall impose such fines and other penalties as are prescribed in the conditions.

8.4.12 *Interpretations etc:* On any question as to the application, interpretation of effect of these rules, the decision of the Chief Inspector of Factories & Boiler, Labour Commissioner and Provident Fund Commissioner as the case may be shall be final and binding. Over & above the said provision, any court pronouncement having territorial jurisdiction shall be binding on both parties as the case may be.

8.4.13 *Amendments:* Government may, from time to time add to or amend Labour Laws and rules thereto and issue such directions as it may consider necessary for the proper implementation of these laws & rules or for the purpose of removing any difficulty which may arise in the administration thereof.

8.5 **CONTRACT LABOUR REGULATION**

8.5.1 *Definition:* In these regulations, unless otherwise expressed or indicated, the following words and expression shall have the meaning hereby assigned to them:

(a) "Inspecting Officer" means any officer as mentioned below corresponding to different departments:

Govt.Deptt.	**Designation**
i)	Labour : **Rural Labour Inspector to Labour Commissioner**
ii)	Factory:Inspector of Factories & Boilers to Chief Inspector of Factories & Boilers.
iii)	Provident Fund:Provident Fund Inspector to Provident Fund Commissioner
iv)	Any other person of above departments duly authorized by competent authority.

Owner's Inspecting Officer means officers as mentioned below:

i) Plant Manager
ii) Engineer-in-charge
iii) General Manager (P&A) or his authorized representative
iv) Safety / Fire Officer

8.5.2 *Submission of information before commencement of work:*
Contractor shall, before commencement of the work, furnish in writing to the Engineer-in-charge of the area concerned the following information:
(a) Name and address of subcontractors as and when they are engaged.
(b) Date of Commencement of the work.
(c) Number of workers employed and likely to be employed.
(d) Wages for different categories of workers.

8.5.3(i)*Number of hours of work which shall constitute a normal working day:-*
The number of hours, which shall constitute a normal working day for an adult, shall be eight hours including ½ hr. rest after five hours of work. The working day of an adult worker can be so arranged that inclusive of intervals, if any, for rest it shall not spread over more than ten / twelve hours on any day with prior approval of competent authority. If an adult worker is made to work more than nine hours on any day or for more than forty eight hours in any week he shall, in respect of overtime work, be paid wages at double the ordinary rate of wages.

(ii) *Weekly rest:* Every worker shall be given a weekly day of rest which shall be fixed and notified in advance. A worker shall not be required or allowed to work on the weekly rest day unless he has or will have a substituted rest day, on one of the three days immediately before or after the rest day provided that no worker shall work for more than ten consecutive days without a full rest day.

8.5.4 *Display of notice regarding Wages, Weekly Day of Rest etc.:* The Contractor shall before he commences his work under Contract, display and correctly maintain and continue to

display and correctly maintain in clean and legible condition in conspicuous places at site, notice in English, Oriya & Hindi giving the rate of minimum wages, the hours of work for which such wages are payable, the weekly rest days workers are entitled to and name and address of the Inspecting Officers.

8.5.5 *Fixation of Wage Periods:* The Contractor shall fix wage periods in respect of which wages shall be payable. No wage period shall exceed one month.

8.5.6 *Payment of Wages:*

(i) Wages due to every worker shall be paid to him direct or to his authorized person. All wages shall be paid in current coins or currency or in both.

(ii) Wages of every worker engaged under the Contract shall be paid where the wage period is one week, within THREE days from the end of the Wage period; and in any other case before the expiry of the 7^{th} day or 10^{th} day from the end of the wage period according as the number of workers does not exceed 1,000 or exceeds 1,000.

(iii) When employment of any worker is terminated by or on behalf of the Contractor, the dues of such worker shall be paid with immediate effect.

(iv) Payment of wages shall be made at the work site on a working day except when the work is competed before expiry of the wage period, in which case final payment shall be made at the work site within 48 hours of the last working day and during normal time.

8.5.7 *Register of Workman:* A register of workmen shall be maintained in the Form appended in Annexure-X and the relevant particulars of every workman shall be entered therein immediately on his employment and kept at the work site.

8.5.8 *Employment Card:* The Contractor shall issue an employment card in the Form appended in Annexure-XI to each worker on the day of work or entry into his employment. On termination of employment the Employment Card shall be retained by the Contractor and a service certificate shall be issued in Form X.

8.5.9 *Register of Wages etc:*

(i) A Register of Wages-cum-Muster Roll in the Form appended in Annexure-XII shall be maintained and kept at the work site or as near to it as possible.

(ii) A wage slip in the Form appended in Annexure-XV shall be issued to every worker employed by the Contractor at least a day prior to disbursement of wages.

8.5.10 D*eductions, which may be made from Wages:*

(i) Wages of a worker shall be paid to him without any deductions of any kind except the following:

(a) fines

(b) deductions for absence from duty. The amount of deduction shall be in proportion to the period for which he was absent.

(c) deduction for damage to or loss of goods expressly entrusted to the employed person for custody, or for loss of money which he is required to account for, where such damage or loss is directly attributable to his neglect or default.

(d) Rent of house accommodation / amenities

(e) Deductions for recovery of advances or for adjustment of overpayment of wages. Advance granted shall be entered in a register; and

(f) Any other deduction, which the Owner may from time to time allow.

(ii) No fines shall be imposed on any worker in respect of such acts and omissions on his part as have been approved by the Competent authority as in Clause 8.5.1.

(iii) No fine shall be imposed on a worker and no deductions for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deduction.

(iv) The total amount of fines which may be imposed in any one wage period on a worker shall not exceed an amount equal to 3% of wages in respect of that wage period.

(v) No fine imposed on a worker shall be recovered from him in installments, or after expiry of sixty days from the date on which it was imposed. Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.

(vi) TheContractor shall maintain in English, Hindi & Oriya a list approved by the Labour Commissioner, clearly stating the acts and omissions for which penalty or fine may be imposed on a workman and display it in good condition in a conspicuous place on the work site.

(vii) The Contractor shall maintain a register of fines and the register of deductions for damage or loss in the Forms appended in Annexure-XIII & XIV respectively, which should be kept at the place of work.

8.5.11 *Register of Accidents:* The Contractor shall maintain a register of accidents in Form 26 prescribed under Rule 105 of Odisha Factory Rules, 1950 but the same shall include the following particulars:-

(a) Full particulars of the labours who met with accident
(b) Rate of Wages
(c) Sex
(d) Age
(e) Nature of accident and cause of accident
(f) Time and date of accident
(g) Date and time when admitted in hospital
(h) Date of discharge from the hospital
(i) Period of treatment and result of treatment
(j) Percentage loss of earning capacity and disability as assessed by Medical Officer.
(k) Claim required to be paid under Workmen's Compensation Act.
(l) Date of payment of compensation
(m) Amount paid with details of the person to whom the same was paid
(n) Authority by whom the compensation was assessed
(o) Remarks

8.5.12 *Preservation of Registers:* The Register of workmen and the Register of Wages-cum-Muster Roll required to be maintained under these Regulations shall be preserved for 3 years after the date on which the last entry is made therein Form IX.

8.5.13 *Enforcement:* The Inspecting Officer shall either of his own or on a complaint received by him carry out investigations, and send a report to the Engineer-In-charge specifying the amounts representing worker's dues and amount of penalty to be imposed on the Contractor for breach of these Regulations, that have to be recovered from the Contractor, indicating full details of the recoveries proposed and the reasons therefore. It shall be obligatory on the part of the Engineer-in-charge on receipt of such a report to deduct such amounts from payments due to the Contractor.

8.5.14 *Disposal of amounts recovered from the Contractor:* The Engineer-in-charge shall arrange payment to workers concerned at the earliest from receipt of a report from the Inspecting Officer except in case where the Contractor had made an appeal under Clause 8.5.15. In case where there is an appeal, payment of workers dues would be arranged by the

Engineer-in-charge, wherever such payments arise, within THIRTY days from the date of receipt of the decision of the authority specified in Clause 8.5.1

8.5.15 *Appeal against decision of Inspecting Officer:* Any person aggrieved by a decision of the Inspecting Officer may appeal against such decision before the higher authority concerned within THIRTY days from the date of the decision, forwarding simultaneously a copy of his appeal to the Engineer-in-charge.

Inspection of Books and other Documents: The Contractor shall allow inspection of the Registers and other documents prescribed under these Regulations by Inspecting Officers and the Engineer-in-charge/Owner/Owner's representative at any time on receipt of due notice at a convenient time.

Interpretation, etc.: On any question as to the application, interpretation or effect of these Regulations the decision of the Owner or his representative shall be final & binding.

Amendments: Government may, from time to time, add to or amend Labour laws and issue such directions if considered necessary for the proper implementation of Labour laws or for removing any difficulty, which may arise in the administration thereof.

REGISTERS TO BE MAINTAINED BY THE CONTRACTOR:

Factory Act 1948:

1. Register of Adult workers : Form-12
2. Register of leave with wages : Form-15
3. Register of Accident : Form-26
4. Register of over time : Form-10
5. Register of health : Form-31
6. Register for issue of PPEs
7. Register for compensatory holiday: Form-9
8. Muster Roll with Wages Register

ContractLabour (R&A) Act 1970

9. Muster Roll : Form-XII
10. Employment cards : Form-X
11. Register of Contract Work : (Form VII)Part-II

Payment of Wages Act-1936

12. Register of Fines : Form-XVII
13. Register of Deduction : Form-XIV
14. Register of Advance : Form-XVIII

Minimum wages Act

15. Wage slip : Form-XV

Payment of Bonus Act

16. Consolidated Register

PF Act

17. Contribution Register
18. Inspection Register

Equal Remuneration Act 1976

19. Form ‘D’ Register

Miscellaneous Register

20. Register for issue of PPEs

End of Section-VIII

SECTION-IX

9.0 SAFETY PROVISIONS:

9.1 GENERAL:

It is the objective of OPGC to maintain excellence in safety & loss control performance by Contractors at all locations of ITPS. The Owner will provide the environment, encouragement and support to achieve this objective but is the Contractor's responsibility to establish, maintain, and manage its own safety & loss prevention programme.

Contractor shall adhere to safe work practice and guard against hazardous and unsafe working condition and shall comply with Owner's safety rules as setout herein. Prior to start of work, Contractor will be provided copies of Owners Health & Safety Manual for information and guidance.

The contactor is expected to exert primary control through their line supervision to obtain desired performance. Repeated poor safety performance shall lead to termination of Contract and shall be debarred from future participation in Contract for one year.

9.2 RESPONSIBILITY OF CONTRACTOR IN RESPECT OF SAFETY:

9.2.1 In respect of all labours, directly or indirectly employed in the work for the performance of Contract, the Contractor shall at his own expense comply all the safety provisions as per (i) Bureau of Indian Standards, (ii) The Electricity Act & Rules, (iii) Regulations adopted by Owner and other orders made there under and other acts as applicable.

9.2.2 The Contractor shall observe and abide by all fire/safety regulations of the Owner. Before starting of work, Contractor shall consult Engineer-in-charge and ensure that any loss or damage due to fire to any portion of the work under this Contract due to his fault shall be made good by the Contractor at his cost.

9.2.3 Before entry into the plant premises, all the Contractor labours shall be imparted safety training by Owner's Safety Officer / Fire Officer after which gate pass shall be issued.

9.2.4 The Contractor shall ensure that necessary skill in respect of various jobs is acquired by way of working & certificate to that effect is available, e.g. for riggers, fitter & other such workmen. Operators / drivers of various vehicles must have valid license from competent authority.

9.3 SAFETY RULES OF OWNER:

9.3.1 The Contractor has to strictly abide by the Safety rules & regulations enforced by Owner from time to time. The Contractor shall provide proper Identity Card to their employees, which shall be produced for verification on demand at security gate & in working areas. All the Contractor workers have to be provided with personal protective equipment as per the BISH duly certified by Owner's Safety Officer. The Contractor has to make provision of standard PPEs as laid down in Clause 9.13 and get it approved from Owner's Safety Officer before commencement of the work, failing which the Contractor & their workmen shall not be allowed to enter into the plant / work site.

9.3.2 Any Contractlabour who shall be detected inside the plant without use of any of the PPEs shall not be allowed to continue in duty. On first occasion, he shall be sent back with warning and on second occasion, he shall be sent back & shall be debarred from duty for 3 to 5 days without pay. Repetition of the same shall constrain the management to advise the Contractor to remove such person from his employment under this Contract.

9.3.4 The Contractor workmen are restricted to go to any other department / work place during duty without permission of Engineer-in-charge.

9.3.5 Any Contractor workman detected on duty in drunken condition shall not be allowed to continue at the Owner's site.

9.3.6 Face mask & apron / flash suit of approved standard are to be provided by the Contractor to electrical workmen as and when required.

9.4 **COMPENSATION:**

For any accident of Contractor workmen while on work the Contractor shall pay compensation to their workmen, supervisor as per Factory / Labour Act. Owner shall not be liable for any such compensation.

9.5 **SAFETY IN OPERATION / MAINTENANCE:**

9.5.1 Contractor shall have to undertake any job as & when required at mutually agreed time with the concerned Engineer-in-charge and with proper work permit (PTW) for safety consideration & uninterrupted running of the plant.

9.5.2 No workman can be engaged in over time during night hours & on holidays without specific approval of Engineer-in-charge.

9.6 **FIRST AID AND INDUSTRIAL INJURIES:**

i) Contractor shall maintain first aid facilities for his employees and those of his subcontractors in addition to the facility provided by the Owner.

ii) Contractor shall make outside arrangements for ambulance service for the treatment of industrial injuries. Names of those providing these services shall be furnished to Owner prior to start of work, and their telephone numbers shall be prominently posted in Contractor's field office.

iii) All necessary personal protective equipments as considered adequate by the Engineer-in-charge / Safety Officer shall be kept available for the use of persons employed at the site and maintained in good condition suitable for use. The standard of Personal Protective Equipments (PPE'S) to be provided by the Contractors to their employees shall be as furnished under 'standard' of Personal Protective Equipments as laid down in Clause No.9.13

iv) The Contractor shall report promptly to the Engineer-in-charge/his representative any injury, diseases, dangerous occurrence, near misses and shall cooperate with Engineer-in-charge and the Safety Officer in investigation process to establish basic causes and recommend appropriate improvements in control and remedial measures.

9.7 **NO SMOKING AREA:**

Smoking is strictly prohibited in plant premises in general & in the Battery Area, Hydrogen Area, tank farm, Diesel/petrol filling station & warehouse in particular. Violators of the "No Smoking" rules shall be removed from employment immediately. Smoking is prohibited in public place.

9.8 **NOTICES TO BE DISPLAYED:**

In addition to the duties imposed by statutory obligations, the Contractor shall notify on his work premises the following norms relating to safety, health and environment imposed by the Owner.

- ❖ Owner's Safety and Health Procedures & rules applicable to Contractor workmen in Owner's premises.

9.9 **BARRICADE:**

i) Contractor shall erect and maintain barricades required in connection with his work to guard, protect & prevent accidents by others.:

Areas to be guarded

a) Excavations
b) Hoisting areas
c) Areas considered hazardous by either Contractor or Owner.
d) Owner's existing property subject to damage by Contractor's operation.
e) Railroad / unloading spots.
f) Any other place as directed by Engineer-in-charge / Owner's Safety Officer.

ii) Contractor's employees and those of his subcontractors shall abide by Owner's barricading practice and the provisions thereof.

iii) Barricades and hazardous areas adjacent to but not located in normal routes of travel shall be marked by red flasher lanterns at nights.

9.10 **SCAFFOLDING:**

i) Scaffolding shall be moved, erected and used adjacent to exposed high voltage line only in accordance with the Owner's Safety & Health Procedures and in compliance with the requirements imposed by the Engineer-in-charge. All scaffold structures shall bear the scaffold identification serial number, the safe working load of its platform, the signature of Engineer-in-charge and a clear indication of the safe access period of seven days. Incomplete scaffolds must bear a caution – "Scaffolding Incomplete" (both in Hindi & Oriya).

The Contractor shall maintain a register of all scaffolds erected, dates of erection and reports of inspection and certificate of fitness. No scaffolding new or modified shall be used by any one unless it has been inspected by Owner's Safety Officer / competent person for satisfactory condition before use and thereafter before every subsequent seven days. If scaffolding members are provided by Owner, the Engineer-in-charge must certify the members of the scaffold before use.

In case of any modification or alteration in scaffolding, the Contractor must display on the scaffolds as "DO NOT USE" sign until it has been inspected and accepted as a safe structure by Owner's Safety Officer.

None other than a skilled & experienced workman shall erect, alter, modify the scaffolding under supervision of a competent person.

Any Contractor wishing to make use of an erected scaffold must ensure that permission has been granted by the Engineer-in-charge / competent person for the purpose and that the structure is capable of taking the load required for the related work. The Contractor must also confirm to the management instructions applicable to scaffold work control.

For work at height, but for short duration, where provision of a full scaffold is not reasonably practicable, safety harness must be used as per direction of Engineer-in-charge. Walking over unguarded beam at height is strictly forbidden.

ii) Suitable scaffoldings should be provided for workmen for all works that cannot safely be done from the ground or from solid construction except such short period works as can be done safely from ladders. When a ladder is used a Mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footsteps and handrails shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1 in 4 (1 horizontal and 4 vertical). No metallic ladder shall be allowed for use in work place.

iii) Scaffolding or staging on more than 3.25 meters above the ground or floor shall swing or suspend from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise retarded at least one meter high above the floor or platform of such scaffolding or staging and extending along with the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

iv) Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform or gangway or the stairway is more than 3.25 meters above ground level or floor level, they shall be closely & rigidly constructed, should have adequate width and be suitably fastened as described in (ii) above.

v) Every opening in the floor of a building or in working platform should be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1.0 meter.

vi) Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9.0 meter in length. The length of rung between the side rails of ladder shall in no case be less than 30 cm for ladder up to and including 3.0 meter in length. For longer ladders this length shall be increased at least 15 mm for each additional meter of length. Uniform step spacing shall not exceed 30 cms. Adequate precautions shall be taken to prevent danger from electrical power. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or public. The Contractor shall also provide all necessary fencing and lights to protect the workers and staff from accidents, and shall bear the expenses of defense of every suit, action or other proceedings of law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit or action or proceedings to any such person or which may with the consent of the Contractor to compromise any claim by any such person.

9.11 **EXCAVATION AND TRENCHES:**

All trenches 1.2 meters or more in depth shall at all times be provided with at least one ladder for each 50-meter length or fraction thereof.

Ladder shall be extended from bottom of the trench to at least 1.0 mtr above the surface of the ground. The sides of the trenches, which are 1.5 meters or more in depth, shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides to collapse. The excavated materials shall not be placed within 1.5 meters

of the edge of the trench or half of the trench depth whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.

9.12 **SAFETY MEASURE IN DEMOLITON WORK:**

I) Before any demolition work is commenced and also during the process of the demolition work-

a) All roads and open areas adjacent to the work site shall either be closed or suitably protected.

b) No electric cable or apparatus, which is liable to be a source of danger, shall remain electrically charged.

c) All practical steps shall be taken to prevent danger to persons deployed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

II) All personal protective equipments as considered necessary by the Engineer-in-charge / Safety Officer shall be kept available for the use of the persons employed at the site and maintained in good condition suitable for use. The standard of PPEs to be provided by the Contractors to their employees should correspond to Clause 9.13 hereinafter.

a) Workers employed on mixing asphaltic materials, cement and lime mortars/concrete shall be provided with protective footwear, protective gloves, dust mask and goggles.

b) Those engaged in white washing and mixing or stacking of cement bags or any materials, which are injurious to the eyes shall be provided with protective goggles & dust mask.

c) Those engaged in welding and gas cutting works shall be provided with protective face and eye-shields / welding mask, hand gloves & leather apron etc.

d) Stonebreakers shall be provided with protective goggles, protective clothing, hand gloves & dust mask and seated at sufficiently safe distances.

e) When workers are employed in sewers and manholes which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for one hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or board to prevent accident to the public. In addition, procedure to work in confined space shall be strictly followed.

f) The Contractor shall not employ men below the age of 18 years and women on the work of painting the products containing lead in any form. No female worker shall be allowed to work without tight apron near rotating machines. Wherever men above the age of 18 years are employed on the work of lead painting the following precautions shall be taken -

1. No paint containing lead products shall be used except in the form of paste or readymade paint.
2. Suitable facemasks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint, dry rubbed and scrapped.
3. All the required PPEs shall be provided by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash them on cessation of work.

III) When the work is subject to a risk of drowning all necessary safety equipments sufficient PPEs including lifebuoy & rope shall be kept for use and all necessary steps shall be taken for prompt rescue of any person in danger and adequate provision shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of work.

IV) Use of hoisting machines and tackles including their attachment anchorage and supports shall conform to the following standard or conditions and must comply the provision of Factory Act.

a) These shall be of good mechanical construction, sound materials and adequate strength and free from inherent defect and shall be kept in good working order.

b) Every rope used in hoisting or lowering materials or as means of suspension shall be of durable quality and adequate strength and free from inherent defects.

c) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine including any scaffolding or give signals to the operator.

d) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load & date of testing shall be labeled on the equipment. Every hoisting machine and all gear referred to above shall be marked with the safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to shall be loaded beyond the safe working load except for the purpose of testing.

e) In case of department machines, the safe working load shall be displayed on the equipment by the Engineer-in-charge. As regards Contractor's machines, the Contractor shall obtain necessary test certificate from competent authority and inform the Engineer-in-charge for verification, whenever he brings any machinery to site of work. The safe working load and date of load testing & due date of testing shall be labeled on the equipment in both cases.

f) Length of chain used for lifting shall not be adjusted by putting knot or slashing under any circumstances.

g) The lifting area including winch and other such equipment shall be isolated by suitable barricade to prevent entry of other persons & animals.

V) Motors, gears, transmission lines, electric wiring and other dangerous part of hoisting appliances shall be provided with efficient safeguards. Hoisting appliances shall be provided with such means as to reduce to the minimum the accidental descent of the load. Adequate precaution shall be taken to reduce to the minimum risk of any part or parts of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel such as gloves, sleeves and boots as may be necessary should be provided. The workers shall not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

VI) All scaffolding, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions and no scaffoldings, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

VII) These safety provisions shall be brought to the notice of all concerned by displaying on a notice board at a conspicuous place of worksite. The person responsible for compliance of the safety code shall be named therein by the Contractor.

VIII)To ensure effective enforcement of the rules and regulations relating to safety, the arrangements made by the Contractor shall be open to inspection by the Engineer-in-charge / Safety Officer of Owner or authorized representatives and the Inspecting Officers as defined in the ContractLabour (R & A) Act.

IX) Notwithstanding the above clauses there is nothing to exempt the Contractor from the operations of any other Act or rules in force in the Republic of India. The works throughout including any temporary works, shall be carried out in such a manner as not to interfere in any way whatsoever with the traffic on any roads or footpaths at the site or in vicinity thereto or any existing works whether the property of the Owner or a third party is affected.

X) Every Contractor's employee shall be at all times under the proper supervision when working in Owner's premises or outside working site under Contract. Where a Contractor / subcontractor himself works alone or with 2-3 persons and does not have specifically designated supervisors, the Contractor shall be treated as supervisor and ensure safety of self & his workmen.

XI) The Contractor must ensure that all equipment brought to site are in good condition, maintained in good condition, complies with the requirements of the Factories Act and/or any other specific legislation and is used or erected safely. Minimum stock of PPEs must be maintained by the Contractor in site store to meet all times need at work.

XII) Contractor workers engaged in areas involving coal dust must use dust mask in addition to safety shoes, hardhats & safety glasses.

XIII) Contractor labour while working in heights or on utilities connected to moving equipments etc. must use safety belts / full body harness as per requirement.

XIV) Contractor labours engaged in areas involving high noise such as crusher, grizzle feeder, traveling tripper & paddle feeders, locomotives, ball mill, FD,ID & PA fans, compressors, DG set, turbine hall etc. must use ear plug /ear muff.

XV) The use of compressed air for cleaning of clothing and skin is forbidden.

XVI) No source of ionizing radiation shall be brought to Owner's premises without the prior permission of the Engineer-in-charge.

XVII) Ladders, long objects and cranes must not be used in the vicinity of exposed high voltage power line without permission of the Engineer-in-charge.

XVIII)All site huts, storage facilities, shelters and the like shall be provided with fire extinguishers appropriate to the risk and with adequate means of escape which shall be kept clear at all times.

XIX) Gas fires and radiant heaters are forbidden in site huts.

XX) The Contractor may only use high-pressure water washing, on-line sealing and steam cleaning apparatus with prior permission of the Engineer-in-charge/his representative.

XXI) **Overhead Crane:**

a) No work on overhead crane is permissible when persons are either working or otherwise available under the said work. Roadways must be barricaded when work is carried out on roofs having eaves (overhanging edges of roof) parallel to roadways.

b) All girders, beams & overhead surfaces shall be kept free from nuts, bolts, tools and other materials.

XXII) **Electrical:**

a) Only authorized and qualified personnel shall work on the installations, wiring, trouble shooting or repair of electrical equipment.

b) All electrical work including temporary wiring shall be done in accordance with the current Indian Electricity Regulations and with the permission of concerned departmental electrical engineers/ competent authority.
c) No ladders other than electrically insulated fiber ladder shall be used by workmen of the Contractor.
d) All electrical equipments provided by the Contractor and any temporary supply installations shall comply with the provisions of the relevant Indian Electricity Regulations.
e) Portable tools, headlamps and other portable apparatus should be identified by a serial number, registered and periodically inspected & tested. All such equipments used by the Contractor shall have a current test certificate of electrical safety.
f) For tapping of power for temporary work, socket & adopter shall be used. Inserting wire in plug socket shall be liable for severe penalty.

XXIII) **Crane:**

a) Cranes & other heavy equipment must be guided into and out of the plant by a person (pilot) walking in front of the vehicle at a SAFE distance.
b) No person shall ride on a crane ball, cable or boom etc.
c) Areas within the surrounding radius of the rear of the rotating super structure of the heavy crane shall be barricaded to prevent personnel from being struck or crushed by the crane while in operation at one place.
d) Crane booms must not be operated within 3 meters of live electrical wires.
e) *Light of Crane:* Head light & back light must be used irrespective of movement or working in a static condition.

XXIV) **Vehicles:**

a) Contractors shall not be permitted to use company mobile equipment such as cranes, tractors, and industrial trucks, machinery etc. unless specifically authorized in writing to do so.
b) Automobiles and other vehicles shall be parked only in designated areas.
c) Maximum speed limits shall be as per the road signs inside factory premises.
d) Vehicles traveling on plant roads at night must use headlights at low beam. All loads must be securely fastened.
e) No Contractor labour shall sit on the open truck or tractor/trailer body etc.
f) Nobody should enter or get out of any moving vehicles or equipments.
g) Proper cover shall be provided for vehicles carrying dust-emitting materials.

XXV) **Hot Work Permit:**

a) Contractor shall contact the Engineer-in-charge of the work to obtain a HWP before starting any flame cutting, welding, grinding or other hot work.
b) The Contractor shall provide a fire watch if the hazard dictates the need for one.
c) All compressed gas cylinders must be stored in upright position and properly secured with a valve cap.
d) Ensure availability of approved extinguishers in good working order and properly filled before starting the job.
e) Where cutting, burning or welding is to be done overhead, a person must be stationed below at a safe distance with an approved fire extinguisher. The area under overhead work shall be barricaded.
f) Arc welding done at floor level must be shielded to protect personnel from welding area.

g) Acetylene and oxygen welding / cutting must have approved back flow prevention check valves (i.e. Flash Back Arrestor). Cylinder must be closed / turned off after use.

h) Tarpaulins used shall be fire resistant. The placement & use of tarpaulins shall be under strict supervision & control of company personnel.

i) Fire hydrants and hoses are not to be used without written permission of Engineer-in-charge except to fight fires.

j) No LPG shall be used for any industrial purpose.

XXVI)**Compressed Gas Cylinder:**

Compressed Gas Cylinder must be moved, stored or handled in an upright position. Transporting horizontally or by means of "barrel rolling" tactics is forbidden. No cylinder shall be moved with the protective cap off or regulator attached except when secured in an approved welding buggy. All cylinders whether charged or empty must be secured in an upright and approved manner remote from possible damage.

XXVII) **Confined spaces:**

No person shall enter a confined space (tank, vault, pit, sewer, or enclosed structure with restricted means of space) until such entry permit is issued and signed by the departmental Engineer-in-charge of the confined space work area.

XXVIII) **General Practices:**

Intoxicants:

a) Possession of or drinking of alcoholic beverages is strictly prohibited on company premises. Violators will be immediately removed and permanently prohibited from entering the plant.

b) Possession of drugs for other than medical reasons is forbidden on company premises.

c) Contractor personnel must not enter any building or area not required by their work & wondering about the plant is prohibited.

XXIX)**House Keeping:**

a) Good House-Keeping practices are to be followed and the work places kept clean and orderly. Rejects & scraps shall be deposited in proper waste containers / place as the case may be.

At no time shall any materials or equipment be placed so as to block the aisles & emergency exits from work place.

XXX) **Machinery Guarding:**

Machinery, tools and equipments must not be operated without guards.

XXXII)**Fire Protection:**

a) Fire hydrants, extinguishers, hose racks and other emergency equipment shall not be covered or blocked and fire equipment lines must always be kept clear.

b) All fire incidents must be reported to the Engineer-in-charge / Fire Officer / Safety Officer regardless of duration or extent and meticulously investigated.

XXXIII)**Temporary Building:**

Temporary building and material storage areas shall only be allowed on written approval of the Engineer-in-charge. They shall not be set up under power lines or over pipe ways.

XXXIV)**Clearance Procedure:**

Contractor must utilize the plant safety clearance procedure for performing work on process equipment, machines, and electrical equipment, as close supervisory coordination and control are needed on these jobs.

XXXV)**Plant Utilities:**

Plant air, water, gas, electricity, fuel etc are not to be used by the Contractor unless the source of supply has been designated and authorized by Engineer-in-charge.

9.13 **MINIMUM QUALITY OF PERSONAL PROTECTIVE EQUIPMENT:**

Standard of personal protective equipments to be provided by the Contractors to their employees are indicated here below.

NAME OF THE ITEMS WITH SPECIFICATION

1. Industrial safety helmet conforming IS:2925
2. Safety shoes conforming IS:9473-1993
3. Dust mask conforming IS:9473-1983
4. ~~Safety belt conforming IS:3521-1983~~Full body Harness with fall arrest tested to 22KN and above.
5. Safety glasses for dust protection

Lightweight safety glasses with side shield to protect against wind & ultraviolet ray with adjustable side arms for personalized fit.

6.(i) Ear muff conforming IS:6229

(ii) Ear plug or Ear seal

Unique closed cell polyester from smooth tapered surface similar to ear canal, swells slowly to fit individual Ear canal.

(Any one item out of three types of ear protection device should be issued)

7. Flame-Water-Oil-Acids & alkali resistant work wear (made of 100% cotton fabric)
8. Safety gloves of Kevlar or equivalent (high temp. resistance)
9. Face shield (conforming IS:8521 part I type-I)
10. Electrical hand gloves 440v & 33 KV conforming IS:4770
11. Hand gloves for chemical laboratory made from pure latex Acid and Alkali proof
12. Hand gloves for concentrated chemicals made from superior PVC inside cotton reinforce for better grip
13. Split chrome leather hand gloves for handling rough object.
14. Canvas hand gloves for handling smooth object & doing light work with it.
15. Flip up goggles with stationary frame fitted with ophthalmic grade zero power toughened lens and fitting frame. Blue lens for furnace. Green shade No.4 for gas cutting, dark green No.11 for glasses for ARC welding whenever is required.
16. Panoramic type safety goggles for acid & alkali whenever is required. Contractor shall ensure proper use of personal protective equipment by their workmen and supervisor on duty.

Before issue of the above PPEs depending on the need of the area of work the sample of the same must be provided to Owner's Safety Officer for inspection & approval.

The Contractor shall be issued entry pass for their employees after due verification of the quality of the standard PPE's and imparting necessary training well in advance (i.e. before 7 days of commencement of work) by Engineer-in-charge / Safety Officer.

a) None of the Contractor's employees shall be allowed inside the plant premises without valid gate pass, safety shoes, helmet (hard hat) & safety glasses.

b) Contractor shall ensure that all his employees use proper PPE's inside the plant premises as per the work & site requirement.

c) During the course of execution of the work the Contractor must ensure use of appropriate tested tools by their workmen. Safe working practice must strictly be followed, e.g. use of proper plug & socket for electrical connections, right size & standard spanner, right capacity and tested lifting & pulling equipment etc.

d) The Contractor must ensure tidiness of the work place during & after completion of the work.

e) In case of any doubt relating to safety guidelines, the Contractor should seek advice of he Engineer-in-charge / Safety Officer immediately for clarification.

ANY DEFICNENCY IN SAFETY ASPECTS SHALL BE VIEWED SERIOUSLY BY THE OWNER. THE CONTRACTOR WILL BE PENALISED UP TO THE EXTENT OF Rs.10,000/- (RUPEES TEN THOUSAND ONLY) PER EACH LAPSE AS DETERMINED BY THE ENGINEER-IN-CHARGE. OWNER RESERVES THE RIGHT TO TERMINATE THE CONTRACT AND DEBAR THE CONTRACTOR TO PARTICIPATE ANY FUTURE BIDDING IN CASE OF CONTINUED FLOUTING OF THE SAFETY NORMS PRESCRIBED BY THE OWNER.

9.14 **CARE IN HANDLING INFLAMMABLE GAS:**

The Contractor shall ensure all precautionary measures and exercise utmost care in handling the inflammable gas cylinder / inflammable liquids / paints etc as required under the law and/or as advised by the Owner's Fire Officer.

9.15 **TEMPORARY COMBUSTIBLE STRUCTURE:**

Temporary combustible structures shall not be built near or around work site.

9.16 **PRECAUTION AGAINST FIRE:**

The Contractor shall ensure availability of appropriate fire Extinguishers / Fire Bunkers and drums / fire buckets at work site as recommended by Engineer-in-charge.

9.17 **EXPLOSIVE:**

Explosive shall not be stored or used in the works or at site by the Contractor without the permission of the Engineer-in-charge in writing. The storage & use are also restricted to the extent & in the manner to which such permission is given. When explosives are required for the works they shall be stored in a special magazine to be provided at the cost of the Contractor in accordance with the Explosive Rules. The Contractor shall obtain necessary license for the storage and use of explosives and all operations in which or for which explosives are employed shall be at sole risk and responsibility of the Contractor and the Contractor shall indemnify the Owner against any loss or damage resulting directly or indirectly there from.

9.18 **CONTRACTOR'S LIABILITY:**

9.18.1 *Safety code:* The Contractor shall at his own expense arrange for the safety provisions as required by the Engineer-in-charge in respect of all labour directly employed for performance of the works and shall provide all facilities in connection herewith. In case the Contractor fails to make arrangements and provides necessary facilities as aforesaid, the Engineer-in-charge shall be entitled to do so and recover double the cost thereof from the Contractor.

9.18.2 Failure to comply with safety code or the provision relating to and report on accidents and to grant of maternity benefits to female workers or submission of materially incorrect statment shall make the Contractor liable to pay Liquidated damages an amount not exceeding Rs.500/- for each default. The decision of the Engineer-in-charge in such matters based on the reports from the Inspecting Officer or from representatives of Engineer-in-charge shall be final and binding and deductions for recovery of such liquidated damages may be made from any amount payable to the Contractor.

9.19 **PRESERVATION OF PEACE:**

The Contractor shall take requisite precautions and use his best endeavor to prevent any riotous or unlawful behavior by or amongst his workmen and other employed on the works and for the preservation of peace and protection of the inhabitants and security of property in the neighborhood of the work. In the event of the Owner requiring the maintenance of a special police force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the Contractor and if paid by the Owner shall be recoverable from the Contractor.

9.20 **OUTBREAK OF INFECTIOUS DISEASES:**

The Contractor shall remove from his camp such labour and their families who refuse protective inoculation and vaccination when required to do so by the Engineer-in-charge. Should Cholera, Plague or other infectious diseases break out, the Contractor shall burn the huts, bedding, clothes and other belongings of or used by the infected parties and promptly erect new huts on healthy site as required by the Engineer-in-charge failing which within the time specified in the Engineer's requisition, the said work may be done by the Owner and the cost thereof recovered from the Contractor.

9.21 **USE OF INTOXICANTS:**

The sale of dent spirits or other intoxicating beverages upon the work in any of the buildings, encampments or tenements owned, occupied by or within the control of the Contractor or any of his employee is forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

In addition to the above, the Contractor shall abide by all provisions of Owner's Safety Code framed from time to time.

End of Section-IX

SECTION-X

10.0 **PENALTY:**

10.1 **FOR NON-COMMENCEMENT OF WORK ON DUE DATE:**

The execution of work shall commence from 15th day after the date on which the Owner issues written orders to commence the work. If the Contractor commits default in commencing the execution of work as aforesaid, Owner shall without prejudice to any other right or remedy be at liberty to forfeit the earnest money absolutely. In addition, Owner reserves the right to terminate the Contract without any further reference to the Contractor.

10.2 **FOR NON-PERFORMANCE:**

In case the performance is discontinued by the Contractor without any cause attributable to Owner, the Contract can be terminated with three days notice at the discretion of Engineer-in-charge and the security & all other dues of the Contractor shall be forfeited. This shall be in addition to other penalties.

10.3 **FOR UNSATISFACTORY PERFORMANCE:**

If the performance does not commensurate either to the standard of work as per BI Standard/standard specified by the Owner or the progress is not as per time schedule, the Contract shall be terminated with 30 days notice and security & other dues of the Contractor shall be forfeited.

10.4 **FOR NON-PERFORMANCE DUE TO LABOUR STRIKE:**

In case of labour strike, the Contractor shall continue the work or keep the work continued by alternate arrangement failing which Owner reserves all rights to get the work done otherwise at the risk and cost of the contractor. Also Owner reserves the right to terminate the Contract and impose penalty as in Clause 10.2

10.5 **FOR NON-PAYMENT OF WAGES WITHIN SPECIFIED PERIOD:**

For non-payment of wages to his labours within the specified period penalty shall be imposed on the Contractor as per clause No.8.1 (x)

10.6 **FOR NON-COMPLIANCE OF OTHER STATUTORY OBLIGATIONS:**

In case of non-compliance of statutory provision within stipulated period, the Contract is liable for termination at the discretion of Engineer-in-charge.

10.7 **FOR NON-ADHERENCE TO SAFETY NORMS:**

Penalty shall be imposed on the Contractor as per Clause No.9.13 for non-adherence to safety norms.

10.8 If generation loss contributes to the fault of Contractor, penalty to the tune of loss on account of disruption of generation or dues of Contractor including security, whichever is less shall be imposed. The Contractor shall also be debarred from participation in any future bidding for at least 3 years thereafter.

If Contractor disputes to the decision of Engineer-in-charge regarding his fault, the case shall be referred to Contract Review Committee. In such case the Contractor or his authorized representative shall be a member of the CRC for investigation and report. This joint report shall be final and binding on both parties.

10.9 Jobs asked by Engineer-in-charge subject to availability of related materials shall be attended with immediate effect. However, if the Contractor fails to do the work within reasonable hours or maximum within 48 hours as the case may be, the job may be done by engaging other agency at the cost & risk of the Contractor. In such an event, Owner may terminate the Contract& debar the party from future work for two years.

10.10 **PENALTY FOR NON-RETURN OF EXCESS MATERIALS ISSUED BY THE OWNER.**

The Contractor shall return all surplus materials, scraps, tools & plant if issued for the work to the warehouse in proper manner and obtain receipt to this effect before issue of

Completion Certificate by the Engineer-in-charge. If the same is not complied, the Contractor shall be liable for cost of the same and 20% additional charge over & above the value as per warehouse records and shall be recovered from Contractor's bills.

10.11 **PENALTY FOR KEEPING IDLE MACHINERIES, EQUIPMENTS, T & P etc. HIRED BY OWNER:**
In case of machinery, tools & plant and equipments arranged on hire by the Owner and provided to the Contractor for work, idle charges beyond reasonable period for such work shall be the liability of the Contractor.

10.12 **LIQUIDATED DAMAGE (LD):**
L.D. shall be imposed on Contractor as per clause No.6.9 for delay in completion of work.

10.13 In case of failure on part of Contractor to provide consumables or any other material under their scope & the work is affected on account of this shortfall, Owner reserves the right to arrange the same at the cost & risk of the Contractor. The amount so incurred by Owner with 25% additional charges shall be recovered from the Contractor.

10.14 For failure on part of the Contractor to meet the liability under W.C. Act, P.F. Act etc., penalty as per Clause 8.1 (viii) & 8.2.3 shall be imposed.

Notwithstanding any clause elsewhere in General Conditions of Contract, all the penalty on Contractor shall be deducted from Contractor's: -

1. Running Bill
2. Security deposit
3. Any other dues of Contractor

Or

In case the amount exceeds the dues of the Contractor in concerned Contract, the same shall be recovered from dues of other contract with Owner;

Or

If recovery shall not be possible from any of the aforesaid manner, the same shall be recovered as debt liability.

End of Section-X

SECTION-XI

11.0 **Arbitration:**

All disputes or difference in respect of which the decision is not final and conclusive shall, on the initiative of either party, be referred to the adjudication of a sole arbitrator, within thirty days of receipt of notice from the contractor of his intention to refer the disputes to arbitration or by Engineer-in-Charge, the MD or MD-in-charge of OPGC shall finalize a panel of three arbitrators and intimate the same to the contractor. The contractor shall within fifteen days of the receipt of this list select and confirm his acceptance to the appointment one from the panel as arbitrator. If the contractor fails to communicate his selection of the name within the stipulated period, the MD or MD-in-charge of OPGC shall without delay select one from the panel and appoint him as the sole arbitrator. If the MD or MD-in-charge of OPGC fails to send such a panel within thirty days, as stipulated, the contractor shall send a similar panel to the MD or MD-in-charge of OPGC within fifteen days. The MD or MD-in-charge of OPGC shall then select one from the panel and appoint him as the sole arbitrator within fifteen days. If the MD or MD-in-charge of OPGC fails to do so, the contractor shall communicate to the MD or MD-in-charge of OPGC the name of one from the panel who shall then be the sole arbitrator. The appointment of sole arbitrator so made shall be final and conclusive.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reasons whatsoever, sole Arbitrators shall be appointed as aforesaid by the MD or MD-in-charge, OPGC. The work under the contractor, shall, however continue during the arbitration proceedings.

The Arbitrator shall be deemed to have entered on the reference, the date he issues notices to both the parties fixing the date of the first hearing.

The Arbitrator may, from time to time, with the consent of the parties, enlarge time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference and shall give a reasoned and speaking award/awards.

The venue of arbitration shall at Bhubaneswar only and jurisdiction for any proceedings arising out of or concerning or connected with such arbitration shall be of appropriate court at Bhubaneswar under the jurisdiction of Odisha High Court.

The fees, if any, of the arbitrator shall, if required t be paid before the award is made and published, be paid at half by each of the parties. The costs of the reference and the award including the fees, if any, of the arbitrator shall be in the discretion of the arbitrator who may direct to and by whom and in what manner. Such costs or any part thereof shall be paid and may fix and settle the amount of costs to be so paid.
The award of the arbitrator shall be final and binding on both the parties.

Subject to aforesaid, the provisions of the Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rules made there under, and for the time being in force, shall apply to the arbitration proceeding under this clause.

Neither party is entitled to bring a claim to arbitration if the request for appointment of arbitrator has not been made within thirty days after expiration of warranty / guaranty period.

11.1 **JURISDICTION / GOVERNING LAWS:**

a) Jurisdiction

For all disputes, appropriate court at Bhubaneswar under the jurisdiction of Odisha High Court alone shall have exclusive jurisdiction in all matters arising under this contract.

b) Governing Laws

The Contract shall be governed by and constructed according to the laws in force in INDIA.

End of Section-XI

End of GCC Volume-II

SCHEDULE 'A'

REFERENCE TO GENERAL CONDITIONS OF CONTRACT

2.1	Accepting Authority	Authority who floats NIT
2.19	Market Rate- percentage addition to Cover overheads and profit	10 per cent
1.14	Earnest money	**1% of the total quoted price**
4.9	Security Deposit shall be calculated as under:	
	(i) Contract value up to Rs.1 crore	10%
	(ii) Contract Value more than Rs.1 crore but not exceeding Rs.5 crore	7.5% of contract value
	(iii) Contract value more than Rs. 5 crore	5% of contract value
	Schedule of Rates applicable	OPWD
3.25	Time allowed for execution of works or time schedule.	**as in tender document**
	Authority competent to decide if "any other cause" of delay is beyond Contractor's control	OPGC
8.1(vii)	Duration of return of number and description by trades of workmen employed on works to be submitted to Engineer-in-Charge.	Fortnightly
	Authority competent to reduce compensation amount.	OPGC
5.11	Defects Liability Periods	as in tender document
5.12	Training of apprentices	Maximum number to be engaged as per the Apprentice Act.1961.
	Category (a) (b) (c) etc.	
6.3.1	Interim bills/running bill	Monthly in case of maint. Contract& after achieving Milestone as agreed in Schedule of work in const-Ruction contract.
11.1	Authority for appointing arbitrator	OPGC

SCHEDULE 'B'

MATERIAL FOR ISSUE TO THE CONTRACTOR

Sl.No.	Particulars	Rate at which material will be issued		Qnty.	Place of issue	Max. allowable %
		Unit	Rs.			of wastage
1	2	3	4	5	6	7
1	Cement if issued	MT			ITPS warehouse or nearest Railhead	3%
2	Reinforcement Steel					
	a) Mild steel 6 mm & above dia	MT			ITPS warehouse or nearest Railhead	5%
	(b) Tor steel rod of all dia	MT			ITPS warehouse or nearest Railhead	5%
3	Structural Steel (plates and rolled Sections only)	MT			ITPS warehouse or nearest Railhead	5%
4	All spares		NA		-do-	NA
5	Lubricant		NA		-do-	NA
6	Fuel Oil		NA		-do-	NA
7	Conveyor belt		NA		-do-	NA
8	Railway sleepers		NA		-do-	NA
9	Mill liner		NA		-do-	NA
10	Ball for Ball mills		NA		-do-	NA
11	Rails		NA		-do-	NA
12	Point & crossing		NA		-do-	NA
13	Fish plate		NA		-do-	NA
14	Module		NA		-do-	NA
15	Cards		NA		-do-	NA
16	Monitor		NA		-do-	NA
17	Recorder		NA		-do-	NA
18	Indicator		NA		-do-	NA
19	Gauges, pressure temp		NA		-do-	NA
20	Switches		NA		-do-	NA

Signature of Issuing Officer……..
Date……..

Signature of Contractor……..
Date…….

ANNEXURE-I

NAME OF THE BIDDER:
NAME OF THE WORK:

DETAILS OF WORKS AND SERVICES OF SIMILAR NATURE DONE BY THE PARTY DURING THE LAST THREE YEARS

Sl. No.	Name of Claimant	Description of work	Value of work	Period		The work is done directly or through sub contractor	Remarks
				From	To		

Note: Photocopy of Performance Certificate / Completion Certificate of Owner in Support of the work mentioned above is required to be enclosed.

SIGNATURE OF THE BIDDER

ANNEXURE-II

NAME OF THE BIDDER:

NAME OF THE WORK:

CONCURRENT COMMITMENTS

Sl. No.	Full postal address of client & name of Officer-in-charge	Description of the work done	Value of contract	Date of commencement of work	Scheduled/Revised completion period	% age completion as on date	Expected date of completion	Remarks

SIGNATURE OF THE BIDDER:

ANNEXURE-III

NAME OF THE BIDDER:

NAME OF WORK:

DETAILS OF EQUIPMENTS, TOOLS & TACKLES

Bidder shall submit herein details of equipments, tools, tackles etc required to perform the work (a) already owned by Bidder and available for use in this contract (b) anticipated to be hired by contractor or (c) anticipated to be purchased by contractor. In case of (b) and (c) commitment of hirer or supplier shall be stated.

Category	Category-wise Sl.No.	Ownership status (a), (b), (c)	Description, make model & capacity	Quantity	Capacity	Year of manufacture	Location of availability	Remarks

Photocopy of correspondence between contractor & hirer and between contractor & supplier shall be furnished.

SIGNATURE OF BIDDER

ANNEXURE-IV

NAME OF THE BIDDER:
NAME OF WORK:

ORGANISATION CHART SHOWING NO. OF QUALIFIED ENGINEERS & SUPERVISORY PERSONNEL ETC. IN THE EMPLOYMENT OF CONTRACTOR & TO BE EMPLOYED.

Sl.No.	Class of manpower/ engineer/supervisor	Details of Personnel to be deployed on this work		No.
		Available with contractor	To be employed	

Note: Names and short resume of their qualification & experience may also be given for key personnel.

The tentative chart of your site organization as above furnished by you shall be subject to variation to suit the construction / maintenance / operation programme requirement and as directed by Owner / Engineer-in-charge.

SIGNATURE OF BIDDER

ANNEXURE-V

NAME OF THE BIDDER:

NAME OF THE WORK:

INFORMATION ABOUT BIDDER

1. In case of proprietary firm:

1.1 Name of the business:
1.2 Whether his business is registered with appropriate authority. If yes, name of authority.
1.3 Date of commencement of business:
1.4 Whether he pays Income Tax over Rs.10,000/- per year

2. In case of partnership:

2.1 Name of the partnership with qualification:
2.2 Whether the partnership is registered with appropriate authority:
2.3 Date of establishment of firm:
2.4 How many of the partners of the firm pay Income Tax over Rs.10,000/- a year and if less, what is the amount paid by them. If all of them do not pay Income Tax, who of them is paying Income Tax.
2.5 Permanent Account No. under IT Act:

3. In case of Limited liability Company or Company Limited by Guarantee:
3.1 Amount of paid up capital:
3.2 Name of the Directors:
3.3 Date of incorporation with Registrar of Company.
3.4 Copies of balance sheet of the Company of the last two years:

Copies of audited profit & loss Account and the balance sheet shall be enclosed in case of individuals, partnership as well as limited companies for the last three years.

Signature of the Bidder

ANNEXURE-VI

NAME OF THE BIDDER:

NAME OF THE WORK:

LIST OF ENCLOSURES

THE BIDDER IS REQUIRED TO ENCLOSE THE FOLLOWING DOCUMENTS AS PART OF HIS BID.

1. Photocopy of Power of attorney of the signatory of the tender
2. Income Tax / Sales Tax Clearance Certificate
3. Documents showing annual turnover for similar works or otherwise for the past two years such as annual report, profit and loss account etc.
4. Certificate by Nationalized / Schedule Bank/ Chartered Accountant Firm showing financial capacity.
5. Provident Fund No.
6. Bid Guarantee / E.M.D.
7. Letter of undertaking
8. Permanent Account Number of Income Tax

SIGNATURE OF BIDDER

ANNEXURE-VII

NAME OF THE BIDDER:

NAME OF THE WORK:

EXCEPTIONS AND DEVIATIONS

Bidder may stipulate here exceptions and deviations to the tender conditions, if considered unavoidable.

Sl.No.	**Page No. of tender document**	**Clause/Sub Clause of tender document**	**Subject**	**Deviation**

SIGNATURE OF BIDDER

ANNEXURE-VIII

NAME OF BIDDER:

NAME OF WORK:

DETAILS OF PROPOSED ORGANISATION

The bidder shall submit herein details of Head Office and site organization proposal to be developed for execution of the work. Bidder shall also furnish the bio-data of the site-in-charge and key personnel to be deployed in the format provided in Annexure-IV.

Bidder agrees to augment the list in Annexure-IV with additional number/categories if required and if directed by Engineer-in-charge for smooth execution of work taken by the Contractor.

SIGNATURE OF BIDDER

LETTER OF AUTHORIZATION

(To be submitted on a non-judicial stamp paper of Rs.10 (Rupees ten) only)

Mr. / Mrs. _____ residing in _____ and presently holding the position _____ of the _____ _____ firm / Group / Individual, is duly authorized by the Firm / Group / Individual to sign and furnish all such information as desired by the OPGCL in this document in respect of the work _____ _____

Signature:
Date:
(Secretary / General partner / Individual / Contractor / Applicant)
SEAL

WITNESS:
1.
2.

SUPPORTING / ATTACHED DOCUMENT LIST

Annexure No.	Supporting document/ Additional Sheet	Document No.
I		
II		
III		
IV		
V		
VI		
VII		
VIII		
IX		
X		
XI		
XII		
XIII		
XIV		
XV		
XVI		
XVII		
XVIII		

ANNEXURE-XI

NAME OF THE BIDDER:

NAME OF THE WORK:

ANNUAL TURNOVER STATEMENT

The bidder shall indicate herein his annual turnover during preceding 3 years based on the audited balance sheet / profit & loss account statement.

FINANCIAL YEAR	ANNUAL TURNOVER (Rs.)	NET WORTH (Rs.)
Previous to previous year		
Previous year		
Present year		

NOTE: 1. Copies of audited balance sheets with profit and loss account of 3 years shall be submitted along with the Technical bid in support of above entries.

2. Bidder shall work out Net worth on the following basis:

Net worth: Reserve + Capital – Accumulated loss.

SIGNATURE OF BIDDER

ANNEXURE-XII

REGISTER OF WORKMEN

(i) Name and address of Contractor ……..

(ii) Name and address of establishment in/under which contract is carried on……

(iii) Nature and location of work…….

(iv) Name & address of Principal Employer ……..

Sl. No	Name & surname of	Age & Sex	Father's/ Husband's	Nature of employments /Designation	Permanent home address of workman (Village, & Tehsil / Taluk &	Local address	Date of commencement of	Date of termination of employment	Signature or thumb impression of	Reason for termination	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

ANNEXURE-XIII

EMPLOLYMENT CARD

(a) Name and address of Contractor_____

(b) Name and address of establishment in/ under which contract is carried on:_____

(c) Nature and location of work:

(d) Name and address of Principal Employer:

Name of the workman	Sl. No. in the register of workman employed	Nature of employment / designation	Wage rate (with particulars of unit, in case of piece work)	Wages period	Periods of employment	Remarks	Signature of contractor
1	2	3	4	5	6	7	8

ANNEXURE-XIV

REGISTER OF WAGES-CUM-MUSTER ROLL

(i) Name and address of the contractor……..

(ii) Name and address of establishment in/under which contract is carried on…….

(iii) Nature and location of work……..

(iv) Name and address of Principal employer……

(v) Wage period…… from…….to……..

Sl.No.	Serial number in Register of workmen employed by	Name of employees	Designation / Nature of work	Daily attendance / No. of units worked	Total attendance / units of work done	Daily rate of wages / piece rate	Basic wages	D.A.	Overtime	Other cash payments (nature of payment to be indicated)	Total deduction	Net amount paid	Time & date of payment	Place of payment	Signature or thumb impression of workmen	Initials of contractor or his authorized representative	Initials of authorized or Principal employer	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

REGISTER OF FINES

(b) Name and address of Contractor_____

(b) Name and address of establishment in/ under which contract is carried on:_____

(c) Nature and location of work:

(d) Name and address of Principal Employer:

Sl.No.	Name workman / woman	Father's / husband's name	Designation	Act / omission for which fine imposed	Date of offence	Whether employer showed cause against fine	Name of person in whose presence emplyee's explanation was heard (incase of contractor)	Rate of wages	Date of wages	Amount of fine imposed	Date on which fine realised	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13

ANNEXURE-XVI

REGISTER OF DEDUCTIONS FOR DAMAGES OR LOSS

(c) Name and address of Contractor_____

(b) Name and address of establishment in/ under which contract is carried on:_____

(c) Nature and location of work:

(d) Name and address of Principal Employer:

Sl. No.	Name of workman	Father's/ husband's name	Designation	Particulars of damage / loss	Date of damage	Whether worker showed cause against deduction	Name of person in whose presence employee's	Amount of deduction imposed	Number of instrument	Date of recovery		Remarks
										1st installment	Last installment	
1	2	3	4	5	6	7	8	9	10	11	12	13

ANNEXURE-XVII

WAGES SLIP

Name & address of Contractor:

Name & address of establishment in/under
Which Contract is carried on:

Nature and location of work:

Name and address of Principal Employer:

Name and father's / husband's name of the workman:

For the week/fortnight/month ending:

Sex and identification token/ticket No.:

No. of days	Rate of daily wages/ piece rate	No. of units worked in case of piece rate	Dates on which overtime worked	Overtime hours and amount of overtime wages	Gross wages payable	Deductions, if any	Actual wages paid	Signature of the contractor or his representative
1	2	3	4	5	6	7	8	9

PROFORMA BANK GUARANTEE IN LIEU OF DD FOR EARNEST MONEY
(on Non Judicial stamp paper of Appropriate value)

(Applicable to Bid value more than Rs.25 lakh only)

Ref: Date:
Bank Guarantee No.

To
Odisha Power Generation Corporation Ltd.,
Ib Thermal Power Station,
At/Po- Banharpali,
Dist-Jharsuguda-768234.

Dear Sir,

In consideration of Odisha Power Generation Corporation having its Registered office at 7th. Floor, Module – A, Fortune Towers, Chandrasekharpur, Bhubaneswar-751 023 (hereinafter called the "Owner" which expression shall unless repugnant to the subject or context include its successors and assigns) having issued Tender Specification Against NIT No_____dt._____ to M/s_____having its Registered / Head office at_____
(hereinafter called the Bidder) who wishes to participate in the said tender for and you, as a special favour, have agreed to accept an irrevocable and unconditional Bank Bid Guarantee for an amount of Rs._____ valid up to _____ On behalf of the Bidder, as a condition for participation in the said tender.

We, the _____ Bank incorporated under _____ law and having one of our branches at _____ and having our Registered office/Head office at _____ do here by unconditionally and irrevocably guarantee and under take to pay to the " Owner" immediately on demand without any demur reservation, protest, contest and recourse to the extent of the said sum of Rs._____ (Rupees _____ only). Any such claim/demand made by the said "Owner" on us shall be conclusive and binding on us irrespective of any dispute or differences raised by the Bidder.

This guarantee shall be irrevocable and shall remain valid upto _____. If any further extension of this guarantee is required, the same shall be extended to such required period on receiving instructions from M/s _____ on whose behalf this guarantee is issued.

We, the said Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the owner in writing and agree that any change in the constitution of the said tenderer or the said Bank shall not discharge our liability. In witness where of the Bank, through its authorised officer, has set its hand and stamp on this _____ day of _____20_____

Witness:

(Signature) (Signature)

_____ _____

Name

Name

_____

(Designation with Bank stamp)

Official Address

Attorney as per Power of Attorney

No._____

Date_____

FORM OF BANK GUARANTEE IN LIEU OF SECURITY DEPOSIT

(On Non-Judicial Stamp Paper)

(Applicable to Bid of value more than Rs.25 lakh)

To
Odisha Power Generation Corporation Ltd.,
Ib Thermal Power Station,
At/Po-Banharpali,
Dist-Jharsuguda-768 234.

In consideration of the Odisha Power Generation Corporation Ltd. (Ib Thermal Power Station) having registered office at 7th Floor, Module – A, Fortune Towers, Chandrasekharpur, Bhubaneswar-751 023 (hereinafter called the "Owner / OPGC" which expression shall unless repugnant to the subject or context include its administrators successors and assigns) having agreed to the price, terms and conditions of Tender and Letter of Intent bearing no._____ dated _____ issued which has been unequivocally accepted by the Contractor M/s _____ for the work of _____ (hereinafter called the said contract) to accept a performance Guarantee as herein provided for Rs. _____(Rupees _____ only) from a Nationalized bank in lieu of the security deposit to be made by the contractor or in lieu of the deduction to be made from the contractor's bills, for the due fulfillment of the terms and conditions contained in the said contract by the said contractor, We the _____ Bank (hereinafter referred to as "the said Bank" and having our registered office at _____ do hereby undertake and agree to indemnify and keep indemnified OPGC from time to time to the extent of Rs._____ (Rupees _____ only) against any loss or damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by OPGC by reason of any breach or breaches by the said Contractor of any of the terms and conditions contained in the said contract and to unconditionally pay the amount claimed by OPGC on demand and without demur to the extent aforesaid.

2. We_____ Bank, further agree that OPGC shall be the sole judge of and as to whether the said Contractor has committed any breach or breaches of any of the terms and conditions of the said Contract and the extent of loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by OPGC on account thereof and the decision of OPGC that the said contractor has Committed such breach or breaches and as to the amount or amount of loss, damage, costs charges and expenses caused to or suffered by or that may be caused to or suffered by OPGC from time to time shall be final and binding on us.

3. We the said Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and till all the dues of OPGC under the said Contract or by virtue of any of the terms and conditions governing the said Contract have been fully and properly carried out by the said contractor and accordingly discharges this Guarantee, subject, however, that OPGC shall have no claim under the Guarantee after 90 (Ninety) days from the date of expiry of the Defects Liability period as provided in the said Contract i.e. (Date) or from the date of cancellation of the said contract, as the case may be, unless a notice of the claim under this Guarantee has been served on the Bank before the expiry of the said period in which case the same shall be enforceable against the Bank notwithstanding the fact, that the same is enforced after the expiry of the said period.

4. OPGC shall have the full liberty without affecting in any way the liability of the Bank under this Guarantee or indemnity, from time to time to vary any of the terms and conditions of the said Contract

or to extend time of performance by the said Contractor or to postpone for any time and from time to time any of the powers exercisable by it against the said Contractor and either to enforce or forbear from enforcing any of the terms and conditions governing the said Contract and either securities available to OPGC and the said Bank shall not be released from its liability under these presents by any exercise by OPGC or of the liberty with reference to the matters aforesaid or by reason of time being given to the said Contractor or any other forbearance, act or omission on the part of OPGC or any indulgence by OPGC to the said Contractor or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so releasing the Bank from its such liability

5. It shall not be necessary for OPGC to proceed against the Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding any security, which OPGC may have retained or obtained from the Contractor shall at the time when proceedings are taken against the Bank hereunder be outstanding or unrealized.

6. We, the said Bank, lastly undertake not to revoke this Guarantee during its currency except with the prior consent of OPGC in writing and agree that any change in the Constitution of the said Contractor or the said Bank shall not discharge our liability hereunder. If any further extension of this Guarantee is required the same shall be extended to such required periods on receiving instructions from M/s_____ on whose behalf this guarantee is issued.

In presence of
WITNESS
1.
2.

For and on behalf of (Bank)
Signature_____
Name & Designation_____
Authorisation No._____
Date and Place _____
Bank's Seal_____

NOTES:

FOR PROPRIETARY CONCERNS:

Shri_____ S/o_____ resident of _____ carrying on business under the name and style of _____ at _____ (hereinafter called " the said Contractor" which expression shall unless the context requires otherwise include his heirs, executors, administrators and legal representatives).

FOR PARTNERSHIP CONCERNS

M/s _____ a partnership firm with its office _____ (hereinafter called " the said Contractor" which expression shall unless the context requires otherwise include their heirs, executors, administrators and legal representatives); the names of their partners being (I) Shri _____ S/o _____ (II) Shri _____ S/o _____ etc.

FOR COMPANIES

M/s _____ a company registered under the Companies Act, 1956 and having its registered office in the state of _____ (hereinafter called "the said Contractor" which expression shall unless the context requires otherwise include its administrators, successors and assigns).

PERFORMANCE BANK GUARANTEE FOR LUMPSUM ADVANCE
(On Non-Judicial Stamp Paper of Appropriate Value)

To
Odisha Power Generation Corporation Ltd.,
Ib Thermal Power Station,
At/Po-Banharpali,
Dist-Jharsuguda-768 234.

In consideration of the Odisha Power Generation Corporation Ltd. (Ib Thermal Power Station) having registered office at 7th. Floor, Module – A, Fortune Towers, Chandrasekharpur, Bhubaneswar-751 023 (hereinafter called the "Owner" which expression shall unless repugnant to the subject or context include its successors and assigns) having agreed under the terms and conditions of the Letter of Intent bearing no._____ dated _____ issued by the Owner which has been unequivocally accepted by _____ in connection with the work of _____ Specification No…… (Hereinafter called the said contract) to make at the request of the Contractor a lump sum advance of Rs._____(Rupees_____ only) for utilizing it for the purpose of the Contract on his furnishing a guarantee acceptable to the Owner . We, _____ Bank incorporated under _____ and having one of our branches at _____ (hereinafter referred to as "the said Bank" do hereby guarantee the due recovery by the Owner of the said advance with interest thereon as provided according to the terms and conditions of the Contract. If the said Contract fails to utilise the said advance for the purpose of the contract and / or the said advance together with interest thereon as aforesaid is not fully recovered by the Owner, we, _____ Bank here-by unconditionally and irrevocably undertake to pay to the owner on demand and without demur to the extent of the said sum of Rs. _____ /- (Rupees_____) only any claim made by the Owner on us for the loss or damage caused to or suffered by the owner by reason of the owner not being able to recover in full the said sum of Rs._____/- (Rupees_____ _) only with interest as aforesaid.

2. We, _____ Bank further agree that the Owner shall be the sole judge of and as to whether the said Contractor has not utilized the said advance or any part thereof for the purpose of the Contract and the extent of loss or damage caused to or suffered by the Owner on account of the said contractor as to the amount or amounts of loss or damage caused to or suffered by the Owner shall be final and binding on us.

3. We, the said Bank, further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and till the said advance with interest has been fully recovered and its claim satisfied or discharged and till Owner certifies that the said advance with interest has been fully recovered from the said Contractor, and accordingly shall have no claim under this Guarantee after 30 (thirty) days from the date of satisfactory completion of the said contract (as per the mutually agreed work schedule) i.e. up to and inclusive of (date) unless a notice of the claim under this Guarantee has been served on the bank before the expiry of the said period i.e._____ (date) in which case the same shall be enforceable against the Bank notwithstanding the fact that the same is enforced after the expiry of the said period.

4. The owner shall have the full liberty without effecting in any way the liability of the Bank under this Guarantee of Indemnity, from time to time vary any of the terms and conditions of the said

Contractor the advance or to extend time of performance by the said 'Contractor or to postpone for any time and from time to time any of the powers exercised by it against the said contractor and either to enforce or forbear from enforcing any of the terms and conditions governing the said Contract or the advance available to the owner and the said Bank shall not be released from its liability under these presents by any exercise by the Owner of the liberty with reference to the matters aforesaid or by reasons of time being given to the said contractor or any other forbearance act or omission on the part of the owner or any indulgence by the owner to the said Contractor on any other matter or thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of so releasing the Bank from its such liability.

5. It shall not be necessary for the Owner to proceed against the Contractor before proceeding against the Bank and the Guarantee here in contained shall be enforceable against the Bank not with standing any security, which the Owner may have retained or obtained from the contractor shall at the time when proceedings are taken the Bank hereunder be outstanding or unrealized.

6. We, the said Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the Owner in writing and agree that any change in the Constitution of the said contractor or the said Bank shall not discharge our liability hereunder.

If any further extension of this Guarantee is required the same shall be extended to such required periods on receiving instructions from M/s _____ on whose behalf this Guarantee is issued.

Notwithstanding anything contained herein before our liability under this Guarantee is restricted to Rs. _____/- (Rupees _____ only) together with interest. Our undertaking shall commence from the date of execution and shall remain in force up to _____ Dated this _____ day of _____

In presence of — For and on behalf of (the Bank)

WITNESS — Signature_____

1. — Name _____

2. — Designation_____

Authorisation No_____

Seal of the Bank _____

The above guarantee is accepted by the Owner

For and On behalf of the
Ib Thermal Power Station

NOTES

For Proprietary Concerns

Shri_____Son of _____
Resident of _____ carrying on business under the name and style of_____at _____ (hereinafter called "the said Contractor" which

expression shall unless the context requires otherwise include his heirs, executors, administrators and legal representatives) .

For Partnership Concerns

M/s _____ a partnership firm with its office _____ (hereinafter called " the said Contractor" which expression shall unless the context requires otherwise include their heirs, executors, administrators and legal representatives) the name of their partners being (I) Shri _____
S/o_____(ii)Shri _____
S/o _____ etc.

For Companies

M/s _____ a company under the Companies Act 1956 and having its registered office _____ in the State of _____
(hereinafter called "the said Contractor" which expression shall unless the context requires otherwise include its administrators, successors and assigns).

****

ODISHA POWER GENERATION CORPORATION LIMITED
Ib Thermal Power Station, Banaharpali
Name of the work:
"AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."

SPECIAL CONDITIONS OF CONTRACT

A) Contract period & Quantities*:*

1. The contract shall be for a period of 36 (Thirty-Six) months from the date of LOI.

   Contractor mobilization will be at discretion of OPGC. Contractor shall mobilize within 15 days from the date of NTP (Notice to Proceed), intimated by OPGC.

2. Contractor's performance shall be evaluated at the end of every year. Contract shall be extended for another year only if performance of the contractor shall be found satisfactory.
3. OPGC reserves the right to extend the Contract Period up to 3 months on the same rates and terms and conditions without any price escalation and entering into any new contract.
4. The said contract period can be extended if mutually agreed upon by both the parties up to one year and in such a case a revised Work Order shall be issued at the same rates and terms & condition or at negotiated rates acceptable by both parties i.e., the Company & the contractor.
5. In case it is observed during the tenure of the contract that vendor is not capable or in a position to complete the job within the agreed schedule, OPGC reserves the right to offload the same and get it done through other agencies at the risk and cost of the vendor.
6. OPGC reserves the right to short close the Contract with one month notice period.
7. Quantities mentioned in the BOQ against each item are indicative only. During actual execution, the quantities of the items may vary in the plus or minus side depending upon exigencies of work. The contractor shall not have any extra claims over the agreed rates on account of increase or decrease in quantities during the contract period. Also, execution of all items and their respective quantities are not binding on OPGC.

B) Defect Liability Period*:*

The defect liability period shall be three months from the date of completion of the work. Any defect within the defect liability period, arising out due to poor workmanship, shall be attended/rectified free of cost without any financial implication to OPGC. Defect liability for PM jobs shall be up to the next PM.

C) Minimum Guaranteed Payment:

The minimum monthly guaranteed basic payment shall be 7.00 % of the Annual PO value of the billing year. The monthly billing value shall be as per below mentioned clauses.

Case 1: If monthly billing amount is less than 7.0% of the annual PO value

Monthly payment= 7.0% of annual PO value – deductions (Penalty& Statutory charges)

Case 2: If monthly billing amount is more than 7.0% of the annual PO value

Monthly payment = Actual monthly billing values – deductions (Penalty & Statutory charges)

D) Penalty/Recovery Clauses:

1. **Penalty for Deployment of Less Manpower for Boiler & Auxiliaries**: 2% penalty shall be deducted for every 1% drop in deployment below 95% in Critical Category and 1.5% penalty on every 1% drop in deployment below 90% in non-critical category. Penalty shall be calculated on monthly basic billing amount. Please refer "DEPLOYMENT OF MINIMUM MANPOWER AT SITE" for critical and non-critical category man power.

2. **Penalty for deployment of Less Manpower for Workshop**: 0.03% penalty shall be deducted for absenteeism of each man-day in critical category. 0.015 % penalty shall be deducted for absenteeism of each man-day in non-critical category. Penalty shall be calculated on PO Unit rate (Monthly value) of "Assistance in O&M of workshop machines (Job no 100)". Please refer "DEPLOYMENT OF MINIMUM MANPOWER AT SITE" for critical and non-critical category manpower.
3. **Penalty for LTI**: 1% Penalty shall be imposed for every LTI in a month. (Penalty shall be calculated on monthly basic billing amount)
4. **Penalty for Preventive Maintenance (PM) Non-Compliance**: 100% PM compliance is desirable. Below 95% PM, 1% Penalty shall be imposed. (Penalty shall be calculated on monthly basic billing amount)
5. **Penalty for Shortfall in T&Ps**: Rs. 10000/- Penalty shall be imposed for each occurrence of shortfall in T&Ps.
6. If any particular job is not carried out expeditiously as per the demand of the situation and instruction of EIC, penalty of Rs. 10000/- shall be deducted from the contractor's bill for each occurrence.
7. Proper housekeeping of the area after completion of work is also the responsibility of the contractor. If proper housekeeping is not maintained inside the plant a penalty of Rs 2000/- will be deducted from the contractor's bill for each occurrence.
8. **Penalty for Safety Violations**:
   a) Not wearing safety helmets/welding goggles/shields/apron/safety goggles/hand gloves
   First Offense-Rs.500/-
   Second Offense - Rs.5000/- with removal of the worker from site for 1 week.
   b) Not wearing full body harness/fall arrestor while working at heights of above 2 mtr., not wearing electrical safety PPEs and not using electrical safe tools
   First Offense-Rs.1000/-
   Second Offense-Rs.5000/- with suspension of the worker for 1 week from site.
   c) Any other unsafe work practices or condition which is considered having potential for fatality or injury to personnel. (Horse play, Violation of operation manual)
   First Offense: Warning note & fine of Rs.5000/-
   Second Offense: Action on the concerned workmen/ supervisors for removal from the site and fine of Rs.10000/-
   d) Lifting tools and tackles under use without third party inspection & test report
   First Offense: Warning note with removal of the tools from the site & fine of Rs.10,000/-

Second Offense: Warning letter with the note of recommendation for removal of the supervisor from site with penalty of Rs.20,000/-

e) Violation related to Oxy cutting sets-Without Flash back arrester/Damaged hose/regulator/Wrong handling of cylinders/Expire cylinder/faulty welding machines/failure of ELCB etc.
First Offense: Warning note and fine of Rs.1000/-
Second Offense: Warning note & fine of Rs.5000/- and removal/seize of the set

f) Consuming alcohol at the site/coming duty in toxic condition- Immediate removal of worker from the site and penalty of Rs.5000/-

Note: 1) There will be no capping on penalty for Penalty clause no. 1 & 2
2) Penalty against clause no. 3 to 8 shall be capped to 10% of Annual Contract Value.

E) Terms of Payment:

1. Contractor may raise RA bills once in a month i.e.,Maximum by 7th day of the following month against work executed in a month through work measurement record duly certified by the EIC, along with certified wage sheet of the month, PF & ESI statement of the previous month after depositing in the individual accounts. The payment shall be made within 30 days of submitting certified bill with EIC, with all relevant supporting documents, after adjustment of the security deposit amount.
2. The contractor shall comply with all the statutory requirements covered under Minimum Wages Act, PF, Safety, Insurance, ESI etc. He should have a valid labour license.
3. The contractor shall comply with all rules and regulations of local authorities during the performance of the contract. He shall comply with minimum wages act and the payment of wages act and the rules made under in respect of any employee or workmen employed by him and he has to keep all the necessary records with him as required under different labour laws and if required, he has to produce the same to OPGC.
4. The contractor shall have the group insurance for the working manpower at site looking the scope of work and as per the statutory rules for the complete period of contract.

F) Security Deposit / PBG:

7% shall be retained as security deposit from each RA bills and the same shall be released only after the expiry of the defect liability period and submission of final work completion certificate duly certified by OPGC EIC. All penalties, statutory payment etc. shall be recovered from the security amount, if required.

OR

PBG equivalent to 7% of annual contract value shall be furnished within a week from the date of LOI/Service order and the same shall be released only after the expiry of the defect liability period and submission of final work completion certificate duly certified by OPGC EIC.

G) Assignment and Subletting of the Contract*:*

The contractor shall not assign or sub-let any part of the contract to any other party or agency without the written consent of OPGC.

H) Familiarization:

1. Bidder shall visit the site and make himself familiar with the equipment/system related to Boiler & Auxiliaries, amount of work involved, etc. under the scope of subject contract. If the contractor needs any technical details or additional information regarding equipment or work procedure in relation to the proposed work, he should do so before submitting the bid to OPGC.
2. It is imperative on each bidder to fully acquaint himself of all local conditions & factors, which may have effect on the execution of the work covered under the specifications. OPGC shall not entertain any request for clarifications from the bidder regarding such local conditions post-bid.
3. OPGC shall entertain no claim, whatsoever, nor any change in the time schedule of the contract there of which arise on account of clear information or its effect on the cost of works to the bidder.

I) Type of work:

1. The plant area consists of 2 x 660 MW coal fired Power plant. The area of work shall be Mechanical Work pertaining to Boiler & Aux., Coal Mills, Axial Fans and Fuel Oil System. Detail scope of work is mentioned in "Scope of Work"
2. Contractor shall be responsible for all jobs related to Boiler & Aux as mentioned in BOQ and to be executed as directed by engineer in charge. All manpower and tools required for the execution of the jobs are to be arranged by the contractor and is a part of the contract. In addition to these the contractor has also to arrange additional manpower for carrying out any other and emergency jobs.
3. Contractor may also be required to carry out works on Sundays and holidays, at odd hours, even in shift hours i.e. morning/ evening and night. The maintenance works do not have any limitation of day and time and requirement may arise any time depending upon emergency of work to be attended. This will be at discretion of OPGC.
4. All the waste material generated has to be handled /disposed as per the instruction of the engineer-in-charge.
5. The contractor and his employees shall co-operate with all other agencies working at site.
6. All damaged and replaced materials or scrap generated during execution of work shall be shifted to OPGC Scrap yard as directed by Engineer-In-Charge.

J) Manpower:

1. The contractor shall deploy adequate manpower of required qualification and experience as mentioned in "**CATEGORY WISE MANPOWER QUALIFICATION REQUIREMENT (Boiler & Aux)"**. The manpower to be deployed by the contractor at site shall be interviewed by the owner prior to deployment & is subjected to owner's approval. In case owner is not satisfied by the performance/Conduct of any of the person, the same shall be immediately replaced by competent person.
2. Contractor shall deploy manpower as mentioned in "**DEPLOYMENT OF MINIMUM MANPOWER AT SITE"**. Allocation of gangs in day and night shifts shall be as per instruction of OPGC EIC.
3. One supervisor with a gang consisting of 1 no. Skilled Fitter, 1 no. Rigger and 1 no. Helper shall be dedicated for shift duty for continuous (24 hrs.) shift assistance.

4. Only experienced, qualified and medically fit persons shall be deployed for specified jobs including working at height/ confined spaces.
5. The contractor shall maintain required manpower all the time so that plant operation is not affected due to lack of manpower. Adequate no. of manpower shall be maintained to cover leave, holidays and weekly off.
6. Lodging, boarding, transportation and local conveyance of their workmen shall be arranged by the contractor at their own cost.
7. In case of additional manpower requirement in shutdown or in emergency, contractor shall deploy the required manpower within 12 hrs.

Note: -

1. If any person not found suitable for the work and /or under stood to be unwanted in the opinion of OPGCL's Engineer, must be removed from the work immediately and shall not be engaged for the work in future.

K) Testing of IBR and 6G Welders:

1. The contractor shall get his IBR welders tested by OPGC EIC or his representative immediately after award of the contract.
2. The arrangement for the test shall be made by the contractor including Visual, Radiography and bend test. OPGC shall provide tubes and electrodes for the same free of cost.
3. **IBR welders must have valid "Qualified Boiler Welder's Certificate (Form XIII)" duly endorsed for validity in the state of Odisha.**

L) Tools & Plants and Consumable Items:

1. The contractor shall maintain the tools & plants at any time as per "**LIST OF MINIMUM T&P'S TO BE MAINTAINED BY CONTRACTOR"**. The mentioned minimum quantity of Tools & Plant has to be maintained by the Contractor at site throughout the Contract period and has to be replenished by the Contractor as and when the quantity is consumed. The Tools & Plants as specified are not exhaustive and the Contractor has to deploy additional Tools & Plants as per site requirement to complete the scope of work in all respects, without any financial implication to the Owner.
2. The contractor shall ensure that the tools and tackles used for execution of the job are tested and certified by competent Authority before deployment at the site and re-certified as per the statutory requirements. The relevant test certificates shall be submitted before start of the work.
3. The contractor shall maintain the consumables at any time as per "**LIST OF MINIMUM CONSUMABLES TO BE MAINTAINED BY CONTRACTOR"**. The mentioned minimum quantity of consumables has to be maintained by the Contractor at site throughout the Contract period and has to be replenished by the Contractor as and when the quantity is consumed. The consumables as specified are not exhaustive and the Contractor has to deploy additional consumables as per site requirement to complete the scope of work in all respects, without any financial implication to the Owner.

M) Safety:

1. The Contractor shall ensure that Permit-to-work is available for the work and the necessary isolations have been done before proceeding for the work.

2. The contractor is fully responsible for the safety of his workmen especially during working at height & confined space and shall provide necessary safety appliances to them and also shall comply with all safety rules and regulations.
3. The contractor shall ensure use of properly protected good quality electric cables for the purpose of lighting, welding and other requirements so as to avoid current leaking, shorting or other unsafe working conditions. He should strictly use 24V transformer as power source for lighting and similar purposes inside confined spaces. Supply Board shall have MCB & ELCB for protection against electrical shock and equipment damage. All lighting supply shall be taken with plug & top. In case of any failures or additional requirements the contractor has to mobilize the same immediately.
4. Sky climber work shall be carried out only by the persons capable of doing the same and shall be assembled as per the specified norms.
5. The contractor has to take special precaution to ensure that the personnel under his control do not carry any combustible materials such as matchbox, cigarettes, etc. Smoking is strictly prohibited inside plant premises.
6. While submitting the Quotation, the agency should see that the cost of PPEs is included in the quotation. Once the quotation is submitted, there shall be no consideration for the cost of PPEs during the entire tenure of contract. The agencies shall abide by the Safety, Health & Environment Guide Lines for contractors of OPGC. The people on job should have all personnel protective equipments like Safety shoes, helmets, Full body harness with double lanyard, hand-gloves, safety goggles, welding aprons, respiratory masks, dust masks etc as required for the job. These are necessarily to be arranged by the agency. Also, the agency shall ensure that all safety appliances are certified by the EHS Head or his representative before putting them into use.
7. The contractor shall ensure that the tools and tackles used for lifting/pulling are tested and certified by competent person before deployment on job.

N) GENERAL:

1. The contractor or his authorized representative shall report to EIC in the morning and shall give work progress and completion report on daily basis. The site in charge and supervisors should have mobile phone for better communication and to facilitate the day-to-day work.
2. Any fault in the equipment, which is attributable to the poor workmanship of the contractor, has to be borne by the contractor free of cost & no extra payment will be made for the work.
3. The contractor and his employees should maintain the House Keeping of the equipment and their surroundings and no material, waste items, lubricants etc. can be left at site.
4. A weekly level meeting will be held with EIC for reviewing progress for the previous week and scheduling programmed for the next week.
5. OPGC will provide electricity, compressed air, water, etc. free of cost and at specific locations to facilitate maintenance.
6. Contractor shall be responsible for safe custody of all materials, consumables, spares, tools & tackles, special tools etc. issued to him by OPGC including his own supply items as per contract. The contractor, however, shall provide boxes, lockers, locks etc. to his staff for staff custody of the items.
7. The contractor shall make his own arrangements for transportation of materials and Manpower from store, sub-store or any stock yard.
8. Collecting material from stores, transporting to work site shall be responsibility of the contractor.
9. The owner shall provide him space for storage of materials tools in plant. The contractor however shall provide box lockers to his staff for safe custody of items.

10. Necessary entry gate pass for plant Premises will be required for the contractor employees as per rules pertaining at the time of contract. Contractor shall sufficiently in advance, complete the necessary formalities required to get the gate pass.
11. The contractor or his authorized representative shall report to EIC on daily basis for progress report.
12. Any other miscellaneous work not mentioned but required for completion of job is included in the scope of work and contractors will not be paid any extra amount for the same.
13. Annual Price escalation of 5% shall be allowed against inflation over the preceding year rate over the basic price, except that the rates shall remain firm during the contract period. The first price escalation shall come into effect after 12 months from the LOI / PO date.
14. The increase in statutory minimum wages by the Govt. Bodies, which cannot be compensated by the 5% price escalation of the contract, shall be covered by the purchaser against verifiable suitable documentary evidence, once in a year at the year end.

O) Labour and other Statutory Regulations:

a) You shall submit a copy of valid Labour License (if applicable) from competent authority to the Engineer-in-charge before commencement of work.
b) You shall submit a copy of Provident Fund and Employee State Insurance Registration Certificate number to the Engineer-in-charge before commencement of work.
c) You shall abide by all norms of Contract Labour (R&A) Act - 1970 and provisions of other applicable labour laws and rules made there under from time to time.
d) You shall comply with all provisions of Factories Act - 1948 and rules made there under from time to time.
e) Before commencement of work, you shall submit a copy of 'Group Insurance Policy'/'Employee State Insurance' (as applicable) covering employment accidental/ in respect of your workmen to meet your liabilities against benefit in respect of your personnel against Employees Compensation Act (Workmen Compensation Act-1923) /Employees State Insurance Act, 1948 and furnish a copy of the same to the EIC. The work shall commence only after submission of the Group Insurance Policy/ Employee State Insurance (as applicable) to the EIC

P) Employees Provident Fund (EPF)and Employee State Insurance (ESI):

Provident Fund (PF) and Employee State Insurance (ESI) dues of all your workmen shall be deposited against the PF and ESI number allotted to you by competent authority. You shall declare that Provident Fund and ESI amount for the people engaged by you has been deposited as per rule.

Integrity Pact

Between

Odisha Power Generation Corporation Ltd. (OPGC), a company registered under the Companies Act 1956 and having its registered office at Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar- 751023, Odisha (India) hereinafter referred to as "Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

And

_____, description of the party along with address), hereinafter referred to as "Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

(The Principal and the Bidder/ Contractor together are collectively referred to as the "Parties" and individually as a "Party" in this Pact).

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for… ……("Contract") The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal enter into an Integrity Pact (**"Pact"**) with the Bidder(s)/ Contractor(s) for the tender process and execution of the Contract and will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the Contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee/Director/management representative of the Principal, personally or through family members or through third party, will in connection with the tender process for, or the execution of a Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s)/ Contractor(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information (other than the clarifications sought for by the Bidder(s)/Contractors with respect to the

bidder specific information required to be provided only to the concerned Bidder(s)/Contractor(s),) and will not provide to any Bidder(s)/Contractor(s) confidential / additional information through which the Bidder(s) /Contractor(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the tender process or execution of the Contract all known prejudiced persons including those employees/ Directors/management representatives of the Principal who have family relationships with the employees or Directors of the Bidder(s)/Contractor(s).

1.2 If the Principal obtains information on the conduct of any of its employees/ Directors/ management representative which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Chief Vigilance Officer for further enquiry and initiation of disciplinary actions against the person(s) concerned.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit itself to take all measures necessary to prevent corruption. The Bidder(s) / Contractor(s) commits itself to observe the following principles during its participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees/ Directors/ management representative involved in the tender process or the execution of the Contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the Contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act and any other such similar applicable Acts; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.1.5 The Bidder(s) / Contractor(s) will not, directly or through any other person or firm, approach any Government officials, ministers, political persons public servants, or any external agencies in an effort to influence the bidding decision making process or to attain any undue favours to the Bidder(s) / Contractors(s).

2.1.6 The Bidder(s)/Contractor(s) shall exclude, from the tender process or execution of the Contract all known prejudiced persons including those employees / Directors /management representatives of the Bidder(s) / Contractor(s) who have family relationships with the employees or Directors of the Principal.

2.1.7 The Bidder(s)/Contractor(s) shall disclose the circumstances, arrangements, undertakings or relationships that constitute, or may reasonably be considered to constitute, an actual or potential conflict of interest with its obligations specified in the tender process or under any contract which may be negotiated or executed with the Principal. Bidder(s)/Contractor(s) and their employees, agents, advisors and any other

person associated with the Bidder(s)/Contractor(s) must not place themselves in a position which may, or does, give rise to conflict of interest (or a potential conflict of interest) between the interests of the Principal or any other interests during the tender process or through operation of the Contract.

2.1.8 The Bidder(s)/Contractor(s) will not indulge in any corrupt, fraudulent, coercive undesirable or restrictive practice in the tender process or the execution of the Contract.

2.2 The Bidder(s)/ Contractor(s) or its sub-contractors or its agents will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process, termination of the Contract and exclusion from future contracts

If the Bidder(s)/ Contractor(s), during the tender process or before award of the Contract or during the execution of the Contract has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put its reliability or credibility in question, the Principal may disqualify the Bidders(s)/ Contractor(s) from the tender process or decide not to award the Contract or terminate the awarded Contract or blacklist the Bidder(s)/Contractor(s). **l** and seek damages as specified in Section 4.

Section 4 – Compensation for Violations

4.1 If the Principal has disqualified the Bidder(s)/ Contractor(s) from the tender process prior to the award of the Contract according to Section 3 or 5, the Principal is entitled to demand and recover the damages by encashment of the Earnest Money Deposit/ Bid Security deposited by the Bidder(s)/ Contractor(s) while making submission in the tender process.

4.2 If the Principal has terminated the Contract according to Section 3 or 5, or if the Principal is entitled to terminate the Contract according to section 3 or 5, the Principal is entitled to demand and recover from the Contractor liquidated damages equivalent to **__%** of the Contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher, in addition to the Liquidated Damages already agreed to by the Bidder(s)/ Contractor(s) in the Contract.

Section 5 – Previous Transgression

5.1 The Bidder(s)/ Contractor(s) declares that no previous transgressions occurred in the last three (3) years with any other organization in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify its exclusion from the tender process or the execution of the Contract.

5.2 If the Bidder/ Contractor has made incorrect statement/disclosure on this subject or hides such information, the Principal is entitled to disqualify the Bidder/Contractor from the tender process or the execution of the Contract, if already awarded, may terminate the Contract and claim compensation as mentioned in section 4.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

6.1 The Bidder(s)/ Contractor(s) undertake(s) to demand from his sub-contractors a commitment consistent with this Integrity Pact. This commitment shall be taken only from those sub-contractors whose contract value is more than 20% of Bidder's/ Contractor's contract value with the Principal.

6.2 The Principal will enter into individual Integrity Pacts with identical conditions as this one with all Bidders and Contractors for the tender process.

6.3 Only those Bidder(s)/ Contractor(s) who have entered or expressed intention of entering into Integrity Pact with the Principal shall be eligible to participate in the tender process or execution of the Contract.

6.4 The Principal will disqualify the Bidder(s)/ Contractor(s) from the tender process who do not execute the Integrity Pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors/ Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office of the State in which the Principal has its Registered Office.

Section 8 –Independent External Monitor(s)

8.1 The Principal will appoint one or more competent and credible Independent External Monitor(s) ("**Monitor**") for monitoring the implementation of this Pact. The task of the Monitor will be to review independently and objectively, whether and to what extent the Parties comply with the obligations of the Integrity Pact.

8.2 The Monitor shall not be subject to instructions by the representatives of the Parties and shall perform his functions neutrally and independently. The Monitor shall report to the OPGC Board.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all the document related to the tender process or the execution of the Contract of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) shall grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to the document in its possession related to the tender process or execution of the Contract. The same is applicable to Sub-contractor(s) of the Bidder(s)/ Contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Subcontractor(s) with strict confidentiality.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the Parties related to the tender process or the execution of the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Bidder/ Contractor. The Parties shall offer to the Monitor the option to participate in such meetings.

8.5 As soon as the Monitor notices, or believes to have noticed, a violation of the Integrity Pact, he will so inform the Managing Director of the Principal and request him to take corrective action, or heal the situation, or to take other relevant action. The Monitor may in this regard submit non-binding recommendations. Beyond these actions, the Monitor shall have no right to demand from the Parties that they act in a specific manner, refrain from action or tolerate action.

8.6 If the Monitor reports to the Managing Director of the Principal, a substantiated suspicion of an offence under relevant IPC / PC Act, the Managing Director of the Principal shall within reasonable time, taken visible action to proceed against such offence.

8.7 The number of Independent External Monitor(s) shall be decided by OPGC.

8.8 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact shall become effective from the date when both the Parties have executed it or the Parties have shown their intent to enter into the Pact, whichever is earlier. This Pact will expire for the Contractor after it meets all the obligations of the Contract and for all other Bidders 6 months after the Contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this Pact as specified as above, unless it is discharged/ determined by the Principal

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. Bhubaneswar.

10.2 Changes and supplements to the Pact as well as notices of termination of the Pact to be sent to any Party shall be made in writing by mutual agreement between the Parties.

10.3 If the Bidder/ Contractor is a partnership or a consortium, this Pact shall be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those Bidder(s)/ Contractor(s) who have expressed their intention through submission in the tender process or have entered into this Pact with the Principal will be eligible to participate in the bidding.

For & On behalf of the Principal
(Office Seal)

For & On behalf of the Bidder/ Contractor
(Office Seal)

Place: _____

Date: _____

Witness: _____

(Name & Address): _____

Witness: _____

(Name & Address): _____

EVALUATION OF BIDS

1.0 Opening of Bids

The Techno-Commercial bid shall be opened at a predetermined time, venue & date in presence of the Bidder(s) or their authorized representative(s) who may like to be present. Partner, Director or permanent employee of the firm duly authorized only can be the authorized representative. Price bid shall be opened at a future date under intimation to all technically qualified Bidders and in presence of them or their authorized representatives who shall participate.

2.0 Preliminary Examination of Proposals

OPGC will examine the Proposals to determine whether they are complete, whether required EMD have been furnished, whether the documents have been properly signed, and whether the Proposals are generally in order. If a Proposal is not substantially responsive, it shall be liable for rejection by OPGC. OPGC's determination of Proposal's responsiveness will be based on the contents of the Proposal itself and any written clarifications, if sought for by OPGC and submitted by the Bidder.

3.0 Evaluation & Comparison of Bids

3.1 Basis for Technical Evaluation

OPGC will carry out a detailed evaluation of the bids previously determined to be substantially responsive, in order to ascertain whether the technical aspects are in accordance with the requirements set forth in the Bid Document. OPGC will examine and compare the technical aspects of the bids on the basis of the information supplied by the bidders.

The evaluation committee, appointed by OPGC as a whole, evaluates the proposals on the basis of their responsiveness to the Mandatory Requirement criteria as stipulated in section "Instructions to the Bidder" of this Bid Document. Proposal shall be rejected at this stage if it does not respond to mandatory requirements criteria. Only those bidders, who meet all the mandatory requirements, shall be considered for e-Reverse Auction and/or price bid opening.

3.2 Basis for Price Evaluation:

The Techno-commercially qualified bidders will participate in the Reverse Auction through MSTC Limited. The price may be finalized based on Reverse Auction or Sealed Price Bid. OPGC reserves the right to go for reverse auction after opening of sealed Envelope price bid, submitted by bidder. This will be decided after techno-Commercial Evaluation. All Bidders have to give their acceptance for participating in Reverse Auction as per "Rules and Regulations of the e-Reverse Auction" which shall be binding on the bidders. Non Acceptance to participate in Reverse Auction may result in non-consideration of their bids, in case OPGC decides to go for reverse auction.

OPGC will examine the Price Proposals to determine whether any arithmetical errors have been made, whether the documents have been signed, and whether the Proposals are generally in order. Arithmetical errors will be rectified on the following basis.

a) If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, the unit or subtotal price shall prevail, and the total price shall be corrected.
b) If there is a discrepancy between words and figures, the amount in words will prevail. If a Bidder does not accept the correction of errors, its Proposal will be rejected and its bid security may be forfeited.

3.3 The evaluation shall be based on the evaluated cost of completing the contract in compliance with all commercial, contractual and technical obligations under this Bid including taxes, duties & levies etc. The rates of taxes, duties and levies as applicable on seven (7) days prior to the date of Techno-commercial bid opening shall be considered for the purpose of evaluation.

4.0 Price Loading:

All the bidders should quote as per tender terms and conditions without any deviation. OPGC reserves the right to reject the bid in case of any deviation taken by the bidder or ask to withdraw such deviation or appropriately load the component on the quoted price.

5.0 Award Criteria

OPGC will award the contract to the successful bidder whose bid has been determined to be substantially responsive and to be economically advantageous, which will be established by Lowest Price basis (L1) amongst the qualified bidders in Techno-Commercial evaluation as per **Clause No. 16** of **"Rules and Regulations of the e-Reverse Auction".**

6.0 Negotiation & Award

The selected bidder will be notified in writing by OPGC inviting him for further negotiations. Negotiations will be held only at ITPS, Banaharpali. On finalization of negotiation, to the mutual satisfaction of both the parties, OPGC shall award the Work order to the selected bidder.

THE VENDOR SHALL SIGN ON EACH PAGE OF THE SPECIAL CONDITIONS AND RETURN THE DOCUMENT ALONG WITH THE OFFER AS A TOKEN OF ACCEPTANCE TO ALL TERMS AND CONDITIONS WRITTEN HEREIN.

Rules and Regulations of the e-Reverse Auction

Buyer's Name/Owner	Ib Thermal Power Station (A Unit of Odisha Power Generation Corporation Limited)
Auction To Be Conducted By	MSTC Limited
Name of the work	AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS
Date & Time Of Auction	Auction Date: [To be intimated later] Online e-Reverse Auction Time : [To be intimated later] URL: www.mstcecommerce.com/eprochome/opgc
Special Instructions	Bidding in the last minutes and seconds should be avoided in the bidders own interest. Neither the Service Provider nor OPGC will be responsible for any lapses /failure on the part of the vendor, in such cases.
Auto Extension of Closing Time	5 minutes NB: If any bidder quotes 5 minutes before closing time, the closing time will be extended automatically for another 05 minutes and so on till 05 minutes idle time between the bids.
Decremental Value	Minimum decrement will be intimated before E-RA
Start Price	The start bid price as decided by OPGC tender committee shall be displayed at MSTC Limited auction platform during start of the e-RA.

1. Bidding would be conducted through two (02) stage process comprising of technical bid in which the bidder would be required to provide the details regarding compliance with the elegibility conditions, and financial bid comprising of the Initial Price Offer (IPO) and the Final Price Offer (FPO) through E-RA.
2. The IPO is to be submitted along with the tender document separately in a sealed envelope and super scribed with "PRICE BID" along with the tender enquiry number& Name of the work. Both the techno-commercial & price bid envelopes should be kept in a third envelope sealed and super scribed with tender enquiry number and Name of the work.
3. The financial bid process will comprise of two rounds. In the first round, the IPO of the techno-commercially qualified bidders will be opened & ranked on the basis of ascending order for determination of qualified bidders. Best five (L-1 to L-5) bidders would be qualified bidders for E-RA and such qualified bidders shall be eligible to participate in the E-RA and submit their FPO with respect to the bid.
4. In case of tie for L5 bid, all the bidders offering L5 will be allowed for e-RA.
5. Bidders must be a registered user to bid for Buyer ("OPGC") in MSTC portal www.mstcecommerce.com/eprochome/opgc. Bidders need to have their Login ID and Password prior to e-Reverse Auction.
6. Bidders have to participate as per the e-Reverse Auction time and date communicated to them & based upon e-Reverse Auction invitation for particular Auction.
7. Quotation once submitted through e-Reverse Auction cannot be withdrawn /deleted. Otherwise, the EMD submitted by the bidder shall stand forfeited.

8. Buyer reserves the right to ban the bidder from participating in e-Reverse Auction without any explanation/reason at any stage of e-Reverse Auction.
9. Buyer reserves the rights to extend / cancel the e-Reverse Auction.
10. E-Reverse Auction shall be conducted in Indian Rupees only.
11. All prices submitted by Bidder in e-Reverse Auction shall be as per Tender's Terms & Conditions.
12. Validity of bids: As mentioned in Tender Document.
13. Written Confirmation shall be taken in advance regarding participation in the e-Reverse Auction to buyer along with the Authorized person name and details.
14. Buyer reserves the right to award the Purchase Order / Service Order as per buyer's discretion irrespective of Live Auction Rank.
15. Buyer reserves the right to repeat the e-Reverse Auction of same package.
16. **After completion of e-Reverse Auction, the lowest evaluated bid of all the bids submitted in manual and e-Reverse Auction process shall be considered for award of the Purchase order / Work order.**
17. The bidders shall quote from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.
18. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, OPGC at its own discretion shall debar the bidder from the e-Reverse Auction/Tender and future participation also.
19. OPGC reserves the right to cancel the e-Reverse Auction process/ tender at any time, before ordering, without assigning any reason and may go for manual opening of price bids as per standard practice.
20. OPGC shall not be liable for any interruption or delay in accessing the MSTC portal irrespective of any cause. In such cases, the decision of OPGC shall be binding on the bidders.
21. Other terms and conditions shall be as per NIT, bidder's techno-commercial Bid and other latest correspondences/ final confirmations, (if any) against the NIT.
22. If any item is not quoted by a bidder, the maximum price quoted by the other participated bidders for that item shall be considered for arriving evaluated price of that bidder.
23. The total L1 Price obtained through e-Reverse Auction shall be proportionately distributed among each line item in line with the price quoted and evaluated in the hard copy price bid.
24. The price quoted in e-Reverse Auction is the total price for all the items and quantity as per Price Schedule of NIT irrespective of any omission by the bidder in the hard copy price bid.
25. In case, the L1 Bidder in e-Reverse Auction and manual Tender happens to be the same bidder, then minimum price among both shall be considered as L1. If the bidder disagrees to accept the said condition, then his EMD shall be forfeited. Apart from this the bidder will be debarred from participating in future e-Reverse Auction/Tender of OPGC.
26. Each Bidder shall get the final loading factor (%age of the quoted price) from OPGC before e-Reverse Auction for the deviations, if any, taken by them in the techno-commercial bid.
27. The Price quoted in the e-Reverse Auction shall be inclusive of all applicable taxes, duties and levies, deviations considering the loading factor (got from OPGC/Tender Condition as mentioned in above clause) on his quoted price. However, the GST shall be paid extra as applicable and not included in the loading factor as well as total price.

UNDERTAKING

I hereby undertake that I agree to the **"Rules and Regulations of the e-Reverse Auction"** mentioned herein.

Signature:

Name:

Date:

Company Name: **Seal:**

ODISHA POWER GENERATION CORPORATION LIMITED(OPGC)

IB THERMAL POWER STATION,

BANAHARPALI, JHARSUGUDA

ODISHA

EM-4/61 (Part-B)

SAFETY, HEALTH & ENVIRONMENT (SHE)

RULES & REGULATIONS FOR CONTRACTORS
Revision- 01, Dtd 26.08.2019

CONTENTS

Sl. No.	Subject	Page No.
1.	Introduction	4
2.	Scope	4
3.	Objective	4
4.	Environment, Health & Safety Policy of OPGC	4
5.	Responsibilities	4
6.	Definition and Interpretations	5
7.	Program Requirements & Important General Safety Instructions	6
8.	Essential Duties	8
9.	OPGC Safety Cardinal Rules / Zero Tolerance Issues	8
10	Hygiene, General Practices / Utilities for Rest & Food Intake	9
11.	Site Entry Procedure	9
12.	Project safety plan & Daily job safety plan	10
13.	Health & Fitness	10
14.	Work Permit	10
15.	Housekeeping & clean site	11
16	Site Office & Stores	11

17.	**Safety equipment, PPEs**	**11**
18.	**Training**	**16**
19.	**Competency of Contract Employees**	**16**
20.	**Restricted Areas**	**17**
21.	**Alcohol & Drugs**	**17**
22.	**Driving & Parking**	**17**
23.	**Safety Meetings**	**18**
24.	**Safety Inspection/ Audit**	**18**
25.	**Reporting and Investigation**	**18**
26.	**Injury Management**	**18**
27.	**Job Safety Analysis (JSA) & Job Safety Briefing (JSB)**	**19**
28.	**Emergency procedures**	**19**
29.	**Safety Supervisor**	**20**
30.	**Communications**	**21**
31.	**Equipment Certification**	**21**
32.	**Restricted Articles**	**21**
33.	**Prohibited Materials**	**21**
34.	**Hazardous Substances**	**21**
35.	**Smoking**	**22**
36.	**Sub-Contractor**	**22**
37.	**Lifting Machinery and equipment**	**22**
38.	**Hand tools**	**26**
39.	**Portable Electrical Appliances**	**27**
40.	**Temporary Wiring**	**28**
41.	**Fall Protection**	**29**
42.	**Scaffolding**	**31**
43.	**Access to Transformers / MCCs / Switchyard & Other Restricted Areas.**	**34**
44.	**Fire Protection.**	**35**
45.	**Hot Work**	**35**
46.	**Confined space**	**36**
47.	**High pressure water/ service air cleaners**	**37**
48.	**Scrap / Waste Disposal**	**37**

49.	**Gas cylinders**	**37**
50.	**Radiography & radioactive substances**	**39**
51.	**Excavation**	**40**
52.	**Surplus Materials**	**41**
53.	**Suspension of work and limitation of liability**	**41**
54.	**Temporary Building**	**41**
55.	**Unsafe and / or Inappropriate Behavior, Disciplinary Action**	**41**
56.	**General Guidelines Environmental Protection**	**43**
57.	**Appendices 1, OPGC EHS Policy**	**47**
58.	**Appendices 2, OPGC High Risk Activities**	**48**
59.	**Appendices3- Undertaking against Contractor Safety rules & regulations**	**49**
60.	**Appendices4-Contractor's Violation Record & OPGC EHS Policy**	**49**

1. INTRODUCTION

The purpose of this standard is to specify the requirements for managing safety when contracting work. This safety standard is based on the best practices for managing contractor safety in the utility industry. CONTRACTOR shall perform all work required by his Contract in a safe, healthy and environment friendly manner. During work, the CONTRACTOR is directly responsible for; shall comply with; and enforce all laws, rules; regulations of OPGC are relevant to the work being performed. CONTRACTOR will manage all subcontractors on site and will be accountable for subcontractor performance with respect to Environment, Health & Safety and (EHS).

Prior to the start of any work, the Contractor shall survey and plan the work. The contractor shall review Contractor's SHE Program and submit their safetyplan to the OPGC's concerned Project Manager.

2. SCOPE

This program lays down the SHE related requirements and guidelines and provides advice based on local experience and legal requirements for safe working practices for all activities of the project involved with high risks. This SHE management program also applies to all personnel involved in Company projects. All parties are required to comply with this safety program as well as all National, State and Local regulatory guidelines.

3. OBJECTIVE

This procedure has been developed to assist both OPGC and Contractor Managements to control these hazards and ensure that high standards of safety have been maintained at OPGC's work site. The

procedure shall be provided at a minimum to all high contractors with other bid documents. Contractors participating in the bidding shall go through the procedure carefully & submit an undertaking in the format given as in **Appendix-2.**

4. ENVIRONMENT, HEALTH & SAFETY POLICY OF OPGC:

Contractor (s) shall strictly follow OPGC EHS Policy guidelines. The spirit of the EHS Policy shall be reflected during contract execution by implementing the minimum EHS expectation of OPGC as declared in the Policy objective. Refer OPGC EHS Policy as enclosed as enclosure.

5. RESPONSIBILITIES

OPGC Project Manager - OPGC personnel directly responsible for the project work execution and implementation of applicable EHS rules and regulations on the project involved.

OPGC Site Safety Manager - Person designated to coordinate and support Project Managersto enforce safety policies of OPGC on the project.

Contractor's Site Manager - Person designated as the senior site manager by the Contractor chosen for the project.

Contractor's Safety Manager/Officer/Supervisor - person designated to carry out, monitor, and enforce agreed safety rules and regulations. policies of the Contractor on the project, in compliance with the project agreements OPGC policies.

Supervisor - Lead field labor supervisor or foreman for the Contractor/Subcontractors.

Personnel – Individuals performing the labor tasks for the Contractor/Subcontractors.

6. DEFINITIONS AND INTERPRETATIONS

In the Contract, the following words and phrases have the meaning hereby assigned to them, except where the context otherwise requires.

Contractor – A person or company contracting with OPGC to provide services.

Sub-Contractor - A person or company employed by the prime or general contractor who is contracting with OPGC to provide r services.

Contractor Pre-qualification – This process is an assessment of contractors wishing to work OPGC. The process is independent of individual contracts and is carried out to ensure that only contractors with acceptable past safety performance and appropriate safety programs are awarded work.

Contract Administrator – An OPGC person assigned responsibility for administering contracts, including preparation of the contract tender or request for proposal (RFP) documents, arranging pre-bid meetings, coordinating the bid/ proposal evaluation process and recommending the awarding of the contract.

Project Manager – An OPGC person who is given the overall responsibility and authority for the successful completion of a project. His/ her responsibilities include the assignment of the contract

monitor, conducting the pre-construction site meeting, resolving contractor safety performance issues, final inspection of the work, conducting the closing meeting with the contractor and completing the contractor evaluation.

Contract Monitor (Engineer In Charge/EIC) – An OPGC person who reports to the Project Manager and is responsible for monitoring the contractor's safety performance and providing feedback to the Project Manager. The Contract Monitor will compare the contractor's work and work methods with the standards and expectations defined in the contract.

OPGC Contact Person- The EIC of the Contract is termed as the OPGC contact person for that contract only.

Contractor Safety Orientation – A meeting at the start of each contract involving all contractor employees to discuss AES safety standards and the specific safety requirements for the contracted work.

High-Risk Work – Refer OPGC's list of high-risk activities (Appendices-1). Work that exposes people to hazards that, should an incident occur, may result in a lost time injury (LTI), fatality or permanent disability.

Low-Risk Work – Work that exposes contractor's employees to hazards that, should an incident occur, may result in a minor injury but not a lost time injury; examples include but are not limited to, training, consulting, office equipment maintenance, office cleaning.

Hazard Assessment – An assessment of the contracted work to identify and document the hazards inherent to the work site and facility. The hazard assessment is provided to the bidders as part of the bid/ request for proposal documents.

Daily Job Safety Plan – A process that individual employees and working crews must follow to assess and document the critical safety issues pertaining to the day's work. That can be JSA/Method Statement/SOP/SMP

Shall/Will:The word 'shall' be understood as mandatory

Should: The word 'should' be understood as strongly recommended

May: The word 'may' be understood as indicating a possible course of action

Restricted Areas: A Restricted area is defined as that area over which OPGC exercise control of all movements and operations and where entry is granted only with permission from OPGC.

Hazardous Areas: An area in which there exists or may exist flammable or other hazardous atmosphere.

7. PROGRAM REQUIREMENT & IMPORTANT GENERAL SAFETY INSTRUCTIONS:

The goal of this program is to complete the project with zero incidents. This goal can only be achieved when everyone commits to error-free performance. The commitment to achieve this goal will result in increased productivity and the prevention of job-related losses.

Active participation and personal cooperation of all supervision and employees, and a positive coordination of their efforts carrying out the following:

- Stop Work Authority program. It is both the right and responsibility of all EMPLOYEES, be they OWNER, CONTRATOR or SUB-CONTRACTOR to stop any work activity that currently has or has the potential to develop into an unsafe situation. Work must stop immediately after an unsafe situation is identified, regardless of the job's priority or importance. Work shall resume only when the unsafe situation has been remediated. Never hesitate to stop work – it doesn't matter if it's later determined that invoking the work stoppage was an error. A person will not suffer retribution or negative consequences of any sort for stopping work for safety reasons. Establish and maintain a system for early detection and correction of unsafe practices and conditions.

- Contractors on OPGC site must obey OPGC safety rules, signs and instructions.
- All contract employees have a responsibility for their own safety and the safety of others.
- The Contractor shall not charge or back charge OPGC for any delays, work stoppage, or scheduling issues resulting from enforcement of the OPGC Safety Rules.
- Contractors are responsible for establishing control measures to protect employees under their control from exposure to hazards.
- Contractor shall furnish, erect, and maintain warning notices, signs, signals, lights, protective guards, enclosures, platforms, barricades and other devices as necessary to adequately protect all personnel on site; including but not limited to employees, subcontractors, other contractors, OPGC people and the public.
- If the scope of work requires the removal of existing guardrails, handrails, floor grating or other physical barrier, contractor shall have written permission from OPGC Project Manager/EIC. Barriers that have been removed to facilitate work must be properly replaced as soon as the work is completed. Unguarded openings must be attended always.
- If covers are required to protect floor openings, excavations, trenches, pits, then the contractor must ensure the cover can support, without failure, at least twice the weight of any employee, equipment and/or material that may be imposed on the cover at one time.
- Chemicals must be handled in authorized manner. Handling of chemical must be carried in accordance with Material Safety Data Sheet (MSDS) regulation and EIC /Officer In charge/supervisor's guideline.

- Establish and implement safety education programs designed to stimulate and maintain the interest and active participation of all personnel involved with the project. Such programs should include:
  - Safety meetings and safety communications;
  - Use of incident trends and causal analysis to preclude reoccurrence of similar incidents;
  - Use of proper work procedures, personal protective equipment, and mechanical guards;

- Safety instruction to individual employees and group safety training programs; and managing records, incidents, claims, losses, and development of incidence/loss experience summaries.

ESSENTIAL DUTIES:

(i) Use effective verbal and written communication skills.

(ii) Listen to directions and suggestions from Project Manager/EIC/Supervisor/EHS officers regarding safe and proper work practices.

(iii) Work up to a 12-hour shift. Never work beyond 12 hours unless otherwise OPGC Project Manager/EIC allows to do so.

(iv) Climb and maintain balance on steel framework, stairs, ladders and scaffolds.

(v) Identify workplace safety hazards and take all necessary corrective action to eliminate or minimize them.

(vi) Understand and respond appropriately to all safety hazards and warning devices (i.e. back-up alarms, smell of smoke, different colored warning tags, warning sirens).

(vii) Understand and implement lockout/tag out procedures in a safe manner.

(viii) Participate in the jobsite Safety meetings as required.

8. OPGC SAFETY CARDINAL RULES/ZERO TOLERANCE ISSUES:

"Cardinal Safety Rules" are OPGC rules that, if violated, have a high probability of resulting in a serious adverse outcome. Contractors must ensure that employees working under their control do not violate these Cardinal Safety Rules. Failure to comply with Cardinal Safety Rules will result in immediate corrective action for the employee and, if OPGC determines it appropriate, the Contractor, up to and including termination from the current job and removal from consideration for future OPGC contracts. The OPGC Cardinal Safety Rules are:

(i) Personal Protective Equipment (PPEs) as applicable to a given task must be used at all times.

(ii) All high or medium risk jobs must be performed with valid Job Safety Analysis (JSA) followed by pre-job briefing.

(iii) No entry to ITPS plant premise or no permission to do any work at ITPS under the influence of alcohol or drugs.

(iv) Do not walk or work under a suspended load & use only tested & certified lifting tools & tackles on the job.

(v) Do not handle and operate equipments unless authorized & licensed to do so.

(vi) Do not tamper or remove guards, hand rails and other safety systems unless authorized to do so.

(vii) Ensure energy isolations, lock-out-tag-out (LOTO) and strictly follow work permit instructions.

(viii) Never work of & above 06 feet (1.8 meters) without fall protection.

(ix) All injuries & near misses must be reported.

(x) Illegal handling or disposal of hazardous materials not allowed.

(Note: - Deviation/lapses from the above cardinal rules but not limited to these are treated as major safety violation.)

9. HYGIENIE, GENERAL PRACTICES / UTILITIES FOR REST & FOOD INTAKE:

The Contractor shall ensure that its personnel shall maintain the highest standards of hygiene in connection with the performances of any contract for works or services it may have with OPGC.

The only safe source of drinking water is a drinking fountain/taps. Other sources shall not be used.

- Do not use air, gas, water, electricity, fuel or other site facilities/utilities unless the source of supply has been designated & authorized by OPGC.
- Contractor personnel must not enter any building or area not required by their work. Wandering about the plant is prohibited.
- Contractor personnel are permitted for taking food in designated places either in OPGC Canteen or in any other designated site.
- Contractors shall take rest in designated rest sites. Taking rest in work places is prohibited.
- Taking rest & food in unauthorized sites will be treated safety rule violation;

11. SITE ENTRY PROCEDURE

The Contractor must comply at all times with the requirements of OPGCSite Security rules. The contractor for all personnel requiring admission to the Site, a Security gate pass request must be processed in advance.

11. 1.“Gate Entry Pass” will be issued by the OPGC site administration and contractor person/people need to proceed to the OPGC contact person directly to follow the safety induction procedures. Gate Pass will be issued after site safety induction/training and fulfillment of other statutory requirements and duly certified by EIC on the gate pass entry request application. After imparting safety trainings, the gate passes will be stamped/ marked as ‘Safety training imparted”. No contractor and their employees shall be allowed to enter inside the Plant for carrying out jobs unless the safety training has been given to them and duly stamped as above

OPGC may issue to the Gate Entry Passes” for the admission of contractors and “Visitor Gate Passes” to the normal visitors.

These passes are to be returned on the demand of OPGC and in any case at the completion of the contract.

All Contractors’staff must enter and leave the site via the Security Gate.

All Contractors’ staff will have to produce their gate entry pass if asked by Security when entering AND leaving site. .

If any of the Contractor’s or Sub-contractor’s staff is found unjustifiably outside the working areas, then they will be removed from Site.

Ensure your name is recorded on the appropriate Contractors daily attendance page.

11.2. The contractor shall furnish to EIC the list of materials such as lifting tools and tackles, power tools, T &Ps (testing status to be maintained), gas cylinders, and any hazardous chemicals along with MSDS to be mobilized before commencement of work. All these materials shall be checked at Plant gate by Security, EIC & EHS for no objection. Contractor at no situation shall enter untested or substandard or unapproved tools, equipment or vehicles. Tested and approved tools, equipment & vehicles only can be entered into Plant Premises. Unauthorized entry of hazardous substance is strictly prohibited from Plant gate. Contractor materials shall be entered inside Plant with valid Security Certification on recommendation of EIC. Violation of the OPGC site entry rule shall be treated major safety violation. Strong disciplinary step will be booked against the violation.

12. PROJECT SAFETY PLAN & DAILY JOB SAFETY PLAN:

After knowing the detail hazard information of high-risk jobs, contractor shall provide a comprehensive project safety plan fulfilling minimum Safety expectation of OPGC. This is applicable for construction of new projects or prolonged outages (> 20 days) or complex works.

Daily Job Safety plan shall be prepared by the Contractor in advance before commencement of a particular day’s job in consultation to concerned OPGC EIC. Work Permits, Resource Planning & JSA all together can be considered as daily job safety plan.

The project safety plan & its suitability/ appropriateness for the Contract job shall be verified & approved by the Project Manager. This is one of the important Contractor’s job planning activity.

13. HEALTH & FITNESS

The Contractor shall ensure that all its employees engaged in the work are medically fit and healthy. Any medical disabilities including such disabilities which Contractor may consider will not adversely influence the employee's ability to perform his role in the work should be reported to OPGC prior to the start of the Work. Contractor shall provide health certificates in compliance with Odisha Factory rule for their personnel at the time of applying gate entry pass. No contractor personnel will be issued gate entry pass without the submission of health & fitness certificate in the prescribed form. Contractors will closely monitor the requirement of health checkup at a maximum interval of one year or less for their employees in line with Odisha Factory Rules and based on their employees prevailing health condition.

14. WORK PERMIT

Work Permits will be issued in accordance to OPGC PTW procedures before performing any activity/function such as entry inside confined space, inside tank/vessel, excavation, work involving radiation sources etc, work at height, working with machineries & equipment's. Specific permit for hot work e.g. cutting, welding, grinding, chipping or sand blasting shall also be issued. During such activities the contractor shall ensure that a fire watch is deployed, and the person must clearly understand his duty & responsibility. Project manager/ EIC or his authorized representative supervising the job shall be responsible for obtaining & clearing the permit with the knowledge and consent of the contractor or his representative. It shall be the responsibility of the contractor to see that none of his employees start the job until, an appropriate permit has been issued with proper isolations followed by Pre-job briefing and job safety awareness by the EIC and the contractor or his safety coordinator.

15. HOUSE KEEPING & CLEAN SITE

The Contractor shall ensure that the site of the works is kept free of surplus, waste or redundant materials or items and shall maintain a clean and tidy site throughout the duration of the work. Access ways and emergency exits shall be kept clear from obstruction at all times. Combustible scrap and debris shall be removed at regular intervals during the course of project. All solvents shall be kept in approved, properly labeled containers. Contractors' bill payment will be held up unless otherwise housekeeping of their job site is maintained.

16. SITE OFFICE AND STORES

The Contractor will be allowed a working area on the site which shall be maintained by the Contractor for his site offices etc and on completion of the contract shall reinstate this area at his own expense, to the satisfaction of OPGC. The Contractor will also be given access to any reasonable area around the site.

17. SAFETY EQUIPMENT

The Contractor shall, at its own expense, provide adequate safety equipment of an approved type and amount as is required for the execution of the contract works. The Contractor shall maintain this equipment in a professional manner as dictated by legal and industry standards. In addition, the Contractor shall keep up-to-date records of all said equipment.

17.1. PROTECTIVE PERSONNEL CLOTHING AND EQUIPMENT

The Contractor shall, at its own expense, supply its personnel employed at the site of the works with adequate protective personal clothing and other protective equipment which shall be maintained in good condition or replaced, and shall be worn on all relevant occasions as specified by OPGC and good practice. It is the responsibility of the contractor to provide adequate instruction/training for the correct usage and maintenance of these equipment & PPEs, inspection & suitable storage of their Personal Protective Equipment. The Contractor is also responsible for ensuring that the PPE is used and maintained in accordance with the manufacturer's specifications.

In the event that the Contractor fails to supply or provide adequate safety equipment or PPE, OPGC reserves the right to issue such safety equipment/PPE to the workforce provided by the Contractor and back charge the same from the Contractor with one and half times of the cost of item as administration fee and penalty for every item issued.

PPEs shall meet the following minimum standard and shall be maintained in good condition to give desired level of protection to wearer. Contractor has to assess the quantity of PPE required considering the job hazard and nature of job.

SPECIFICATION & SELECTION OF PPES:

A. SAFETY HELMET/HARD HAT-

IS/ CE/ ANSI certified

Material- HDPE and ABS Plastic

Colour- **DARK YELLOW** with name of contractor mentioned in front portion.

All safety helmets shall have textile chin strap, padded head band & of Plastic or Cotton cradle.

Make & Brand- Karam/ MSA/Venus/Udyogi/ or any other equivalent brand approved by OPGC EHS

B. SAFETY GLASS/ SAFETY GOGGLES - IS/CE/ANSI certified

Polycarbonate, UV protected, Anti scratch, Anti fog

Colour- Colourless for all time and strictly in low light areas and night time. Grey may be used in day time within areas with adequate visibility.

Make & Brand- 3M/ Uvex/ UdyogiUD 61/ Karam-ES005/Venus- G-203-CHC or any other equivalent brand approved by OPGC EHS

Prescription glasses users shall use cover the glass.

C. SAFETY SHOE:

IS/ CE/ ANSI certified

Leather with Steel Toe

Anti-Static, Anti Skit, Anti Shock, Oil & Acid resistant with shock absorber

Make & Brand- Bata / Liberty/ Jaypee 1217/ SG Security- Concord or Black night/ Udyogi-Tango, Mallcom- Tiger/ ACME Fabrick- Atom/ or any reputed brand approved by OPGC EHS

D. DUST MASK-

IS/ CE/ ANSI certified

Venus V4 20 SLV- FFP2/ 3M with Fine particle filtration efficiency greater than 94%.

E. EAR PLUG/EAR SEAL/EAR MUFF-

IS/CE/ ANSI certified

3M/ Venus/ Karam/ Equivalent

F. HAND GLOVES -

IS/ / ANSI certified

Material (Heavy Duty)- Finger Chome leather, 05 fingers provision

Material (Light Duty)- PVC dotted type of reputed brand

Make- Kaybee/ Udyogi/ Karam/ any reputed brand

Besides the above, for electrical, chemical handling or for any other special type activity, appropriate rating IS/CE/ANSI certified hand gloves shall be used.

G. WELDING FACE SHIELD ATTACHABLE TO HELMET -

IS/ CE/ ANSI certified /UV & IR protected, Superior quality

Make- Karam -ES 71, Unicare, Udyogi/ any other reputed brand

***H.* FALL ARREST SYSTEMS (SAFETY HARNESS, ANCHORS, FALL ARRESTORS, LIFELINES ETC)**

Shall be IS/EN/ ANSI Certified with CE marking. Make- Karam/ Udyogi/MSA or any reputed brand finally approved by OPGC Safety Officer.

Life lines shall be EN 795, Class B of KaramPolyster webbing type or Polypropylene 16mm dia synthetic rope or 8mm standard wire rope 5000lbs (22KN) rating.

Refer section-41 (Fall Protection) for details.

Rest of the PPEs as appropriate to a particular hazard or as mentioned in MSDS (Material Safety Data Sheet) shall be provided to the persons engaged for the job by the Contractor in accordance with relevant BIS/ANSI/EN standards.

17.2.PPE ZONES & PPE EXCUSE ZONES

Sl No	PPE type	Area of Use	Excuse areas/locations

1	Helmet	Compulsory from Plant Gate. Two-wheeler riders & pillion riders must use crash helmet while driving	Offices, Office Corridors, Control rooms, Canteen, hospital & Service Building front while people are with no work or with office work activities with no risk to head from external source.
		Compulsory while working in other facilities outside plant viz, Ubuda Coal loading point, Ash Pond, Ash brick plant, Sewage Treatment Plant and Colony premise.	
2	Safety Shoe	Compulsory from Plant Gate	Places other than the areas specified.
		Compulsory while working in other	
		Facilities outside plant viz, Ubuda Coal loading point, Ash Pond, Ash brick plant, Sewage Treatment Plant and Colony premise.	
3	Safety glass	Compulsory in all work areas	Main road from Plant Gate to CHP Track hopper, Other roads except the roads inside Boiler area, Offices, Office Corridors, Control rooms, Canteen, Hospital while people are with no work or with office work activities with no risk to eye from external source.
		Compulsory while working in other facilities outside plant viz, Ubuda Coal loading point, Ash Pond, Ash brick plant, Sewage Treatment Plant and Colony premise.	
4	Ear Plug/Seal/ Ear Muff	In all high noise areas greater than noise level 85 dBA	Places other than high noise areas
5	Hand Gloves	Compulsory during all field works, material handling, working where risk of injury to hand prevails	Office activities
6	Dust mask	In all dust generating areas (ESP hopper cleaning,	Excuse for non-dust

		Dry Ash handling, Cleaning, Sweeping, Soil excavation, Asbestos/Asbestos containing material handling, Coal Handling Plant, Painting work, visible fugitive emission in Boiler and other areas etc)	generating Areas
7	Welding face shield	During welding operation only	Non-Specified activities
8	Cutting glass	During cutting operation only	
9	Chemical respirators	During fuming Chemical handling or hazardous gas handling. Atmosphere with Chemical fumes, hazardous gas fumes. During welding operation.	
10	Chemical Suit/Apron	During hazardous Chemical/ substance handling, Lead acid Battery maintenance	
11	PVC/Rubber hand gloves	During hazardous chemical/substance/waste handling & Lead Acid battery maintenance.	
12	Chemical Goggle/ Face shield	During hazardous chemical/substance/waste handling & Lead Acid battery maintenance.	
13	Encapsulated suit for Chlorine	In Chlorine atmosphere greater than 50 PPM	
14	Self-Contained breathing apparatus	Toxic gas atmosphere (Chlorine, Ammonia, Carbon monoxide, Acid fumes) where chemical respirator is not recommended, Confined Space with hazardous fume or gases	
15	Arc flash Suit with boot and hood of suitable rating	During Electric Panel Breaker & MCC modules Operation	
16	Electrical hand gloves of suitable rating	Working with live electrical power sources	
17	High temperature hand gloves & jacket	Working with Steam lines	

18	Hard toe rubber gumboot	Working in Mud, Sludge, Water, dense wild grass areas, other place taking Safety Officer's approval	
19	Lead laminated coverall	Working with radiographic substances	
20	Reflected jacket	As advised by OPGC Project Manager/EHS	
21	Cotton Boiler Suit	Working inside Boiler / and as advised by OPGC Project Manager/EHS	
22	Full body harness	Working above 5.9 ft without fall protection	
23	Welding jacket/suit & hand gloves	Standard flame-resistant welding jacket/suit & heat resistant leather hand gloves	

***17.3.CONTROL ON PPE*:** The samples of PPE to be used by contractor at site shall be submitted to OPGC S a fe t y Officer i n a d v a n c e for approval. On approval, the Safety officer will retain the sample. The approved quality PPE (Make/Brand and colour) shall be used by contractor at worksite throughout the job. Any unauthorized change of model/ brand/ colour of PPE from the sample shall be considered as Safety violation and may lead to disciplinary action. On completion of work, the sample shall be returned to the contractor. The specification given above for different types of general PPEs is minimum quality standard. Contractors are free to provide better quality PPEs but such PPEs quality shall be approved from OPGC Safety Officer prior to use inside OPGC premises.

18. TRAINING

18.1. SAFETY ORIENTATION

The Contractor shall ensure that all its personnel have been given the necessary safety and job related training required by OPGC regulations and good practice prior to starting work.

Contractors will be responsible for providing their employees and any subcontract employee with all safety information provided to it by OPGC including, but not limited to:

Project-specific occupational health and safety expectations;

Exposure to atmospheric health, serious physical or chemical hazards; and Precautionary measures and procedures for performing the work.

18.2. PRE- JOB BRIEFINGS

Contractors shall conduct pre-job briefings and toolbox talk/ safety talks with employees under their control prior to work each day. Additional job briefings shall be held if significant changes occur during the course of the work that might affect the safety of the employees.

19. COMPETENCY OF CONTRACT EMPLOYEES.

Contractor shall assign competent employees as per the requirement of the job. Supervisors should be so qualified that he can clearly communicate with his team members. Besides, Supervisors shall be able to communicate in English. All high skilled & semiskilled employees must have job specific competence. OPGC will evaluate/verify competence and will reject employees who are not found with inadequate competency.

20. RESTRICTED AREAS

All Contractors must receive authorization from the OPGC Contact Person before performing work in areas posted "DANGEROUS" or "HAZARDOUS" or "RESTRICTED" or some other warning signs. Contractors shall install warning tape for areas that require additional warning because of the work being performed there.

21. ALCOHOL AND DRUGS

The Contractor shall ensure that its personnel do not at any time, during the performance of the work, partake of or be under the influence of any alcohol, drug or other intoxicating substance, while on duty, other than for bonafide medical reasons certified by qualified medical practitioner. Person found with violation of this rule will be immediately removed out of OPGC site and appropriate disciplinary action will be imposed to the contractor.

22. DRIVING & PARKING

All heavy vehicles and other related machinery required in connection with the work shall be fit for purpose, prior to and during the period of the work.

The Contractor shall ensure that only permitted personnel (by way of valid OPGC Driving License) are able to operate vehicles as per the classification of vehicle.

Contractor shall strictly comply with Speed limit of 20Kmph in all areas inside the plant for passenger vehicles. Heavy vehicles speed shall not exceed 10kmh at any point of time.

Parking of Vehicle is allowed only in the designated areas. Deliveries of materials, tools and/or equipment shall be coordinated with OPGC contact person and Security. After the delivery is made to the job site, the delivery vehicle must be parked in the designated parking area or must exit the job site.

Operators of mobile equipment must wear hard hats and safety glasses unless the equipment has a fully-enclosed cab. Seat belts must be worn when operating equipment. No Contractor shall permit earthmoving or compacting equipment that has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or unless a contractor-designated employee signals that it is safe to do so.

The Contractor undertakes to ensure that all drivers comply with the following basic rules:

- Always wear a seat belt;

- Always observe traffic rules, especially speed limits;
- Never drive after consuming alcohol/drugs;
- Never drive when very tired;
- Never overload the vehicle;
- Drive carefully;
- Be sure that before starting the vehicle the area near and under the vehicle/trailer is free from persons asleep.
- Vehicles are PUC certified with validity of expiry.
- Heavy vehicles are provided with fire extinguishers

CRASH HELMET USE – Riding two wheelers without the use of crash helmet from plant gate is prohibited. Contractor shall ensure, the crash helmet is all times being used by his people riding two-wheeler.

23. SAFETY MEETINGS

The Contractor shall be responsible for maintaining and enhancing the safety awareness of its personnel including arranging its own safety meetings and participating as appropriate in safety meetings held by OPGC.

24. SAFETY INSPECTION / AUDIT

The Contractor shall inspect the work site, equipment and tools on regular basis for compliance with these rules and regulations, and shall be obliged to take the necessary measures to correct unsafe conditions and unsafe practices.

The Contractor shall allow OPGC representative access at any time to plant, equipment, personnel and records when requested, to enable OPGC to inspect aspects of Contractor's operations relevant to safety and working environment.

25. REPORTING AND INVESTIGATION

The Contractor shall report all near misses, incidents or accidents to OPGC contact person or central control room immediately.

The Contractor shall allow OPGC representative access at any time to plant, equipment, personnel and records when requested, to carry out formal investigations to find out the root causes and there by identify the required corrective actions to avoid the reoccurrences.

Upon completion of the Work under contract and/or on a monthly basis, whichever is more frequent, the Contractor shall prepare a summary report of its safety performance together with accident statistics and submit to OPGC.

26. INJURY MANAGEMENT

Basic Life support facility (first aid) is available in OPGC. Contractor supervisors should be trained with first aid.

In case of an injury to some contract worker, please inform immediately available OPGC personnel or first aid center or central control room using **(phone 248/222/06645222222).**

Only trained and certified people shall provide first aid to the injured.
In case of doubt, injured personal shall not be moved or transport improper vehicles because it may complicate the injury more and some cases may lead to death.
Only Designated vehicles (Ambulance) shall be used for transportation of patients.

27. JOB SAFETY ANALYSIS (JSA) & JOB SAFETY BRIEFING (JSB)

- The Contractor shall adopt the OPGC JSA & JSB practice/advice.
- The Contractor shall ensure that its supervisors and are fully conversant with OPGC JSA & JSB Process/ System.
- Under no circumstances must work be started until the appropriate JSA has been prepared and complete the Pre-job briefing.
- Competent person from the contractor and in-charge of the work from OPGC shall conduct the Pre-job briefing to all members.
- Competent person from the contractor and in-charge of the work from OPGC shall make available a copy of the safety document at site.
- Sample Job Safety analysis in prescribed format is furnished in appendix below.

28. EMERGENCY PROCEDURES

The Contractor shall follow the OPGC Emergency Response Plan (ERP) during the period of the work and shall ensure that its staff are fully familiar with the actions to be taken in case of an emergency.

28.1. EMERGENCY PLANNING:

Contractors must inform his people on the actions to be taken in the event of fire, explosion, personnel injuries or other emergencies. The contractor shall also keep abreast & acquaint of his persons regarding "Emergency Response Plan" of ITPS, assembly points, DO's & DON'Ts during emergencies at regular intervals in monthly EHS meeting.

28.2. EVACUATION PROCEDURE:

Identify the escape routes available to you before you commence work. Know the assembly points and directions to reach there in case of emergency.

When the emergency siren sounds, immediately leave the area by your nearest evacuation route to Emergency Assembly Point. If you are using power equipments or vehicles you must switch it off and make it safe before evacuating.

DO NOT RUN AND DO NOT STOP TO COLLECT YOUR BELONGINGS.

Report to the emergency assembly Points as per the instructions given on loud speakers/ public address system.

Obey instructions given by the OPGC contact person staff and assembly point coordinator.

Remain at the assembly point until instructed otherwise. Do not re-enter evacuated areas until the **'all clear'** announcement is made by the Main Control Room.

Emergency Siren test is carried out every Saturday at 11:00 hours for two minutes and require no action.

28.3. REPORTING EMERGENCY:

If you discover a fire, or any other serious incident/emergency phone **222/233/244** using the site telephones, this will connect you to the **Plant Main Control Room. Other**

Emergency Contacts are-	**Intercom**	**P&T**
Fire Station	777	06645222257
Ambulance	277/248	06645222216
Hospital	666	06645222243

Give your name, location, and the details of the emergency. Follow any instructions given.
Only take emergency action if competent to do so, e.g. resuscitation, first aid, firefighting etc.
If safe to do so remain in the vicinity to give relevant information to the assistance when it arrives.
Never endanger **your** safety.

29. SAFETY SUPERVISOR

If the numbers of contract workers are more than or equal to 50 (fifty), the Contractor shall be required to provide full time safety supervisor who will be responsible for ensuring the work is performed in accordance with the applicable safety requirements. For every 50(fifty) employees thereafter there shall be one Safety Supervisor/Officer. The On-Site Contractor Safety supervisor/officer(s) must have appropriate knowledge and skills, to ensure job site safety. For contractor worker less than 50(fifty) in job, the work supervisor can be utilized for safety supervision but in case the Project Manager find ineffective supervision, the contractor may be asked to provide independent safety supervisor.

Contractor Safety Supervisors should be qualified & experienced enough to deliver their assigned jobs effectively as per expectation of OPGC Project Manager/EIC & EHS. Before their work assignment, Contractor has to provide the list of their safety professional along with Safety In charge stating name, qualification, and experience & contactnumber to the Project Manager & EHS. The supervisors' competency will be evaluated by OPGC EHS prior to issue of gate pass. Only OPGC EHS competence

certified Safety supervisors will be permitted for Safety Supervision at Contractor work sites. Competency certification may vary depending on the nature & risk level involved with the contracted job. Contractors are not permitted to execute job without deployment of Safety Supervisor(s) as specified under this condition. Contractor Safety Supervisors performance will be monitored by OPGC EIC & EHS and the instruction & advice of OPGC shall be implemented promptly. OPGC will impose appropriate penalty if the Contractor fails to implement OPGC's safety expectation satisfactorily.

30. COMMUNICATIONS

30.1. COMMUNICATIONS WITH OPGC

The Project Manager or his authorized persons (EIC) and OPGC EHS shall be the point of communication for all EHS issues arising under this contract.

30.2. COORDINATION WITH OTHER OFFICIALS

Contractor is fully responsible for coordinating with the proper authorities for moving heavy equipment, location of underground utilities, erecting barricades, traffic control, and other safety measures, unless otherwise specified.

30.3. COMMUNICATIONS WITH MEDIA RESTRICTED

In the event of an accident or other condition on site, contractor shall not communicate with the media or any other entity without the expressed consent of OPGC.

31.EQUIPMENT CERTIFICATION

The Contractor shall, at its own expense, ensure that all Portable electrical appliances, lifting equipment or other equipment required inspection or calibration has been inspected/ certified by an authorized and a liable inspection/certification authority/company prior to its use in the works.

32. RESTRICTED ARTICLES

The Contractor shall be required to ensure that written approval signed by OPGC contact person has been obtained prior to taking dangerous items such as drugs, knives, radioactive, corrosive, poisonous or toxic materials onto OPGC premises.

33. PROHIBITED MATERIALS

Contractor is strictly prohibited from using any of the following types of materials in performance of the work:

- Asbestos, Asbestos Containing Material (ACM).
- Mercury containing material.
- Surface coating systems that contain lead, cadmium, chromium, barium or mercury.

34. HAZARDOUS SUBSTANCES

- Before delivery of any hazardous materials to OPGC site, Contractor shall provide Material Safety Data Sheets for all anticipated hazardous materials.

- All containers containing hazardous materials must be clearly labeled indicating their contents and appropriate hazard warning information.
- Hazardous materials must be stored in a secure location agreed with the **OPGC Contact person**.
- Don't dispose hazardous substances into drainage system and please inform any spill on the floor or on any personnel.

  All operatives must understand the hazards of the materials they have to handle before use, some can be dangerous when used carelessly or when safeguards are overlooked. If in doubt, consult your own supervisor or OPGC Contact person for the relevant Hazard Data Sheet for specific health & safety information.
- Hazardous waste must not be dumped in general waste bins and the hazardous waste bins are provided around the plant premises.

35. SMOKING

Plant premises are no smoking zone. Smoking is prohibited inside plant premises. Persons observed smoking inside Plant will be removed from job with immediate effect. Smoking is permitted inside declared/authorized smoking zone(s).

36. SUB CONTRACTOR

The Contractor should ensure that sub-contractors shall be responsible for safety requirements as specified by OPGC. The Contractor shall regularly check subContractor's compliance with safety requirements

37. LIFTING MACHINERY AND EQUIPMENT

37.1. LIFTING TACKLE (ALSO KNOWN AS LIFTING/ LOOSE GEAR)

Any item used to connect a load to the lifting appliance, but which is not in itself, capable to lift, lower, transport or suspend the load, such as; Chain, wire rope and webbing slings, Rings, links, hooks, shackles, eye bolts, swivels, blocks, snatch blocks, Beam clamps and plate clamps, Lifting beams, frames, baskets, Waste bins, tool boxes, cargo nets, containers, pallets, etc.

37.2. STANDARD REQUIREMENTS

- All lifting tackle shall be tested and certified by approved competent person.
- The Contractor shall make available, as necessary, any certificates and inspection records.
- Lifting tackle shall not be issued or used without a current test certificate.
- All lifting tackles shall be visually inspected before use to identify any damage. Damaged or defective equipment shall be immediately removed from service.

- Only equipment, which has been properly tested and is clearly marked/labeled/coded, may be used. The SWL (Safe Working Load) or WLL (Working Load Limit) must be clearly marked on all equipment and must be adhered to.
- Makeshift lifting devices formed from bolts, rods or reinforcing steel shall not be used.
- Slings shall not be shortened with knots, bolts or other makeshift devices.
- Synthetic web slings shall be marked or coded to show the manufacturer, the rated capacities for each type of hitch and the type of material.

  Synthetic web slings shall be immediately removed from service if any of the following conditions are present:

  - Acid or caustic burns
  - Melting or charring of any part of the sling surface
  - Snags, punctures, tears or cuts
  - Broken or worn stitches
  - Distortion of fittings
- No heavy loads or excessive strain may be placed on ropes.
- Rope should not be driven over, ground into cinders or mud, wrapped around sharp or abrasive objects or burned by "snubbing off" too fast.
- Wire ropes or wire slings, shall not be used for raising, lowering or as means of suspension if any fraying, kinking or broken wires are apparent.

37.3. LIFTING EQUIPMENT OR APPLIANCES

Is a generic term - "Lifting equipment "shall mean any machine, driven by manual or mechanical power which is able to raise, lower, suspend or transport loads and includes the supporting structure and all Plant, Equipment appliance, structures. This may include but not limited to Continuous mechanical handling devices (i.e. conveyors). Cranes (mobile, tower, pedestal, etc.), Wall/pillar cranes, derricks, Runway beams, pad eyes, gin pole and gin wheels Winches, hoist (air and electric), crabs, teller hoists, Powered working platforms, Elevators and Lifts, overhead cranes.

37.4. STANDARD REQUIREMENTS

- At no circumstances, rear seated hydra crane shall be used for any sorts of OPGC activity irrespective of site locations (inside or out side plant premises)
- Lifting machinery and equipment shall be retested by an approved competent person after any major alteration or repairs thereto.

- Lifting machinery and equipment shall not be issued or used without a current test certificate.
- EOT crane operation shall be carried out by personal with valid rigger certificate with familiarization to operate the EOT cranes.
- All lifting operations are to be suitably planned and carried out with trained and qualified personnel. It shall be the duty of the Contractor to ensure that allemployees under its control know and are able to apply hoist signals and their uses.
- One qualified person shall direct the rigging operation. This person shall give signals for the group. No crane operation will take place without an appointed and identifiable "SIGNAL MAN".
- All lifting equipment shall be visually inspected before use to identify any damage. Damaged or defective equipment shall be immediately removed from service.

  Only equipment, which has been properly tested and is clearly marked, may be used. The SWL (Safe Working Load) or WLL (Working Load Limit) must be clearly marked on all equipment and must be adhered to.
- All lifting operation should be carried out in the barricaded area; no one should be allowed to walk underneath of suspended load.
- It is the Contractors responsibility to satisfy the OPGC Contact Person that all lifting equipment and machinery conforms to the relevant statutory provisions.
- All lifting machinery and equipment and all parts and working gear thereof, both fixed and mobile shall be of good construction, sound material and free from patent defect and shall be maintained and operated to comply with OPGC standards.
- Every dangerous moving part of lifting machinery should be guarded.
- The hoisting mechanism of a crane shall not be used for any purpose other than lifting a load vertically.
- Cranes shall not be used to transport loads, unless specifically designed for this purpose. The hook of a crane shall be secured to prevent it swinging when the crane is in "Transit".
- Mobile Jib Cranes, side booms and "A" frames shall not work in the vicinity of overhead Power lines unless a safe working distance of total Length of the Jib + 10 feet is maintained.
- Cranes with more than one ton lifting capacity shall be fitted with a safe working load indicator, and a crane capacity chart displayed inside the operator's cabin.
- Contractor shall not operate the cranes of OPGC without permission from OPGC Contact person.

- Critical lift plans must be developed by a qualified person, and then submitted to the OPGC Contact person for review and approval.
- Contractor shall designate a person to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- Cranes with fixed or derricking jibs should be fitted with effective automatic safe load indicators which should be provided with appropriate visual and audible signals, properly maintained and tested by a competent person after the erection or installation of the crane.
- Vehicular equipment, if provided with outriggers, shall be operated with the outriggers extended and firmly set as necessary for the stability of the specific configuration of the equipment. Before lowering outriggers, the contractor must verify the surface is firm and will support the weight of the equipment and operation to be performed. The Contractor shall place outrigger pads if conditions require.

  While extending, lowering outriggers and retracting the outriggers, the operator shall visually inspect the area to verify it is clear of all personnel and obstacles.
- Instructions issued by the manufacturer, specifying weather and wind speed conditions which would be likely to affect the safety of the operation, lifting appliance should either not be used or used subject to limitations, should be followed.

37.5. MULTIPLE LIFTS

The simultaneous use of more than one lifting appliance to raise, suspend, support or lower a single load should be avoided. Where the simultaneous use of more than one lifting appliance is unavoidable; contractor shall perform the lifting only with OPGC approved Risk assessment, Method statement and Rigging plan.

37.6. PERSONNEL BASKETS AND MAN HOIST

- Personnel baskets should be of good design construction, sound material, and adequate strength, free from obvious defect and certified and clearly marked with the maximum number of persons permitted.
- Where a man hoist is operated by means of a winch, or where person is carried in a cage, skip or similar plant or equipment designed to lift persons, the winch should be so constructed that the brake is automatically applied at all times except when the controls are in the operating position.
- No winch should be fitted with a pawl and ratchet gear on which the pawl has to be disengaged before the platform or cage can be lowered.

37.7. INDUSTRIAL FORK LIFT

- Industrial fork lift trucks shall not be used to lift a load greater than the maximum safe working load permitted for the truck.
- Passengers are forbidden to ride on vehicles, mobile plant or forklift trucks not specifically designed or fitted out for passengers use.
- The Forklift operator shall have a valid operating certificate from a recognized authority and a valid OPGC driving license.

37.8. CONTAINERS

- Every container for raising, suspending, supporting or lowering articles, tools, equipment, and other materials should be of good construction, sound material, and adequate strength, free from obvious defect and suitable for the purpose for which it is required.
- Provided with adequate and suitable arrangements for securing the container to the lifting appliance or to lifting gear, as appropriate;
- Marked with its tare weight and the weight of the load which it may carry with safety;
- So constructed as to prevent the accidental displacement of its load.

  Loose materials or articles that could be displaced should be secured or covered to prevent such displacement.

38. HAND TOOLS

- Tools shall not be placed on any type of energized equipment or where a tool might fall and become a hazard.
- Unacceptable placement includes on ladders, stairs, railings, mobile equipment, lying on the floor, on the scaffold, in walkways or cluttering work benches.
- Tools shall not be placed next to open trenches, manholes or vault openings.
- Tools, materials and parts used in elevated work locations shall be tied in place or kept in containers secured so that nothing can accidentally fall.
- Select the right tools for the job.
- Train your workers to select the right tools for each job and ensure that the tools are available.
- Inspect the tool and ensure that it is in good condition and keep it in good condition.
- Unsafe tools include wrenches with cracked or worn jaws; screwdrivers with broken tips, or split or broken handles; hammers with chipped, mushroomed or loose heads and broken or split handles;

mushroomed heads on chisels; dull saws; and extension cords or electrical tools with broken plugs, improper or removed grounding systems, or split insulation.

- Use all tools correctly.
- Keep tools in a safe place.
- Carry the tools to and from the work site in a tool box, cabinet, or other appropriate tool holder or pouch.
- Store the tools in the proper storage area.
- Tools should not be carried up or down ladders by hand. Appropriate pouches shall be used. Where pouches are not available, tools shall be lifted and lowered by hand lines.
- Tools should not be thrown from one level to another, nor should they be thrown from one location to another on the same level.
- Spark proof tools should be inspected regularly to ensure that there are no steel splinters.

39. PORTABLE ELECTRICAL APPLIANCES.

- All appliances should be tested and identified; records of test/re-test dates should be available.
- Equipments which do not have the test detail label will not permitted inside OPGC Premises.

  Any equipment which is in poor condition will not be permitted inside the OPGC premises.
- Where any portable hand tool requires a supply above 110Volts A.C obtain permission from your OPGC Contact Person. If permission is granted, a residual current device (RCD) mustbe connected in the circuit.
- Joining of cable is allowed only with industrial male and female sockets of IP67 rating. No twisting or taping of conductors is allowed.
- Bare cable/ conductors shall not be inserted to sockets.
- Contractors must ensure that electric equipment connected by cord and plug in good condition.
- Each employee must be properly trained before using tools or equipment requiring special instruction or training (e.g., power tools, vacuum equipment, etc.).
- Extension cords used with portable electric tools shall be of the 3-wire type unless the tool or appliance is double-insulated or operated from an isolated power service. The ground wire must either be permanently connected to the tool frame for grounding means.
- Extension cords lay across walkways or driveways must be covered by protection or warning devices to prevent pedestrian or vehicle hazards.

- Ground Fault Circuit Interrupters (GFCIs) are to be used whenever a portable electric tool is used.
- Electrically-powered tools may not be used on energized conductors.
- Compressed air hose connections shall be secured with a safety clip or retainer before use.
- If a machine guard is removed in order to work on equipment, it shall be replaced before the equipment is placed back in service. Lockout/Tagout procedures shall be followed.
- Power tools should be used, in accordance with the manufacturer's instructions.
- Where sparking or heat generated by the use of pneumatic tools, an approved coolant shall be used.
- Only patent pneumatic hose, couplings and fittings of the correct rating shall be used when using pneumatic tools.

40. TEMPORARY WIRING

These provisions apply to temporary electrical power and lighting wiring methods. Temporary wiring shall be removed immediately upon completion of construction or the purpose for which the wiring was installed.

40.1. TEMPORARY POWER PROGRAM PROCEDURES

i. Only authorized and qualified people for electrical work shall work on the installation, wiring, troubleshooting or repair of electrical equipment.

ii. All persons dealing with & handling electrical equipment shall be trained to apply the correct treatment for electric shock.

iii. All portable tools, hand lamps & other apparatus must be connected to the system by means of appropriate rating plugs & sockets type.

iv. All joints must be both electrically & mechanically sound. No twisting of conductors or tapping is permitted.

v. Supplies to welding equipment must be specially arranged & the connections must be sufficient in size for the duty to be performed & properly protected against mechanical damage & electrical hazards.

vi. All lamps for general illumination shall be protected from incidental contact or breakage. Metal-case sockets shall be grounded. Damaged cages/lamps shall be corrected upon notice.

vii. Temporary lights shall not be suspended by their electric cords unless cords and lights are designed for this mean of suspension.

viii. Portable electric lighting used in wet and/or other conductive locations, for example drums, tanks, and vessels shall be operated at 24 volts or less. However, 120 volt lights may be used on approval if protected by a GFCI.

ix. Flexible cords and cables shall be protected from damage. Sharp corners and projections shall be avoided. Flexible cords and cables may pass through doorways or other pinch points, if protection is provided to avoid damage.

x. Extension cord sets used with portable electric tool and appliances shall be of three-wire type and shall be designed for hard or extra-hard usage. Flexible cords used with temporary and portable lights shall be designed for hard or extra hard usage.

xi. Electrical equipment shall not be opened, adjusted, repaired, or otherwise handled until it is de-energized and locked-out according to the lock-out policy.

xii. De-energized equipment shall be tested before anyone works on it.

xiii. All metal panels, boxes, covers, conduit, etc., that are part of electrical system shall be grounded.

xiv. All splices and repairs shall be made inside an approved box or approved splice kit. Tape alone is not acceptable.

xv. Metal ladders shall not be used for electrical work.

xvi. All electrical equipment that is exposed to flammable gases or vapors, combustible dust, or ignitable fibres must meet hazardous location requirements in order to prevent explosions.

xvii. Extension boards must have GFCI/RCCB protection with main power on/off switches. GFCI/RCCB should not be used as power on/off switching. xviii. Circuit breakers that protect hand tool receptacles shall have a maximum rating of 20 amps. Waterproof connectors shall be used as necessary.

xix. All holes in panel boxes and gaps where circuit breakers are missing shall be securely plugged with a fireproof material.

xx. Circuit breakers shall be matched as closely as possible to the electrical needs they supply.

41. FALL PROTECTION

All persons, on any project that requires them to wear a personal fall arrest or restraint system, will follow these guidelines. A full body harness will be used whenever there is the potential for a fall from a height of 6 feet or more.

41.1. PERSONAL FALL ARREST SYSTEMS (PFAS) & FULL BODY HARNESS:

A personal fall-arrest system is generally required whenever an individual is at risk of falling 1.8 meter or 5.9 ft or more ft from an elevated position. A properly designed system should include three components:

A. An **anchor points** capable of supporting a minimum of 5,000 lbs (22.2 kN) per attached worker; will serve as a secure connection point for lifelines, lanyards or deceleration devices.
B. A **full-body harness** designed to distribute fall-arrest forces over thighs, pelvis, waist, chest and shoulders; if a fall occurs, D-ring located in centre of the back will hold worker in an upright position until rescued.
C. A **connecting device** such as a lanyard, deceleration apparatus, lifeline or a combination of these items with locking snap hooks. Must have a minimum breaking strength of 5,000 Lbs.

WARNING:

The maximum arresting force an individual is permitted to sustain while wearing a harness is limited to 1,800 lbs (8kN). To stay below this impact force, workers should keep the free fall distance as short as possible (max. 1.8 meter) and consider the use of deceleration devices or shock absorbing lanyards. During fall, the worker shall not come in contact any lower level and bring the worker to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07 m).

Each worker shall be attached to a separate lifeline and lifelines shall be protected against being cut or abraded.

FULL BODY HARNESS APPLICATION GUIDELINE-

Deceleration apparatuses (shock absorbers) attached double lanyard type harnesses shall be used only at height with fall distance of 6 meter or more.

For fall distance of less than 6 meter or more than 06-meter, self-retractable type full body harness shall be used.

Full body harness after one free fall shall not be used again, it shall be condemned.

Harness shall be checked/ inspected for wear/tear or any damage or expiry before use.

41.2. ANCHORAGE CONNECTORS AND POINTS

An anchorage connector or point must be capable of supporting 5000lbs. per attached worker. This can be accomplished in a number of ways and must be engineered to ensure the point has that capability.

Only anchorages designed by a fall protection equipment manufacturer must approved by OPGC. Anchorage Points in concrete or attached to wooden structures must be approved by both the Contractor's Qualified Person & EIC.

The anchorage point must be installed at dorsal D-ring (shoulder) height or higher. An anchorage point at feet level is unacceptable for fall arrest application and will not be allowed.

41.3. AUTHORIZED FALL PROTECTION SYSTEMS/EQUIPMENT

Only fall protection equipment approved by the OPGC will be used on OPGC projects.

STORAGE

The equipment should be stored and hung up freely by the back D-ring in a cool, dry place until needed. If materials appear to be faded or it tags and labels are illegible, consult the equipment manufacturer to determine if replacement is necessary.

41.4. TIPS FOR FALL PROTECTION

- Make sure the harness fits snugly. Tighten all straps.
- Use an anchorage point above your head. Do not tie-off at your feet unless there is no other place to tie-off.
- Use two lanyards for 100% tie-off. One lanyard must be attached at all times and when moving from position to position.
- Never hook two lanyards together to get extra reach.
- Except with specific lanyards, hooks may not be tied back into the lanyard itself.
- Use cheaters only when your lanyard will not reach a tie-off point. Cheaters will not be used while tied off to the inside of a man basket.
- Shock absorbing lanyards may not be used in conjunction with retractable lanyards.
- Never tie a knot in your lanyard to reduce its length

41.5. ACCESS

Stairways and stair towers with complete hand and guardrails do not require fall protection.

Fall protection is not required while using a ladder as a means of access as long as the climbing distance is less than 10 feet. Once a worker has climbed 10 feet a ladderclimbing device is required or an enclosed cage must be present.

If the worker stops at any point to conduct work from a ladder, and the worker’s feet are more than 6 feet above the adjacent surface, fall protective equipment is required. A three-point contact must be maintained with a ladder regardless of the height a worker is above an adjacent surface.

42. SCAFFOLDING

All scaffolds and staging shall comply with OSHA standards. Prior to using any scaffolding, it shall be approved by OPGC. A "GREEN SCAF-TAG" indicating OPGC acceptance will be attached to the

scaffolding, the scaffolding is not to be used until the approval is given. The scaffolding shall meet the following minimum requirements:

- Timber uprights and ledger shall not be used.
- Metal parts used for scaffolds shall be in good condition and free from corrosion.
- All poles, planks and general materials, used for scaffoldings, shall be kept in good condition and be inspected by a competent person appointed by the Contractor on each occasion before being used for erection.
- No materials, other than those specifically designed for the purpose, shall be used for scaffolding.
- A scaffold shall be erected only by men trained and certified in the job, working under the immediate supervision of a competent foreman, who knows the purpose of the scaffold and how it should be constructed to carry the loads which will be placed upon it.
- Scaffolds shall be securely supported or suspended and where necessary braced to ensure stability. Unless constructed as an independent scaffold, it shall be rigidly connected to the building or structure.
- In the case of partially erected or dismantled scaffolds still capable of being used, access thereto should be effectively blocked, and prominent warning notices shall be posted with a "RED SCAF-TAG".
- All platforms, scaffolds and other workplaces, from which persons may fall more than 1.8m (6 ft) shall have edge protection which consist of an upper rail not less than one meter (3 ft 3 inches) in height above the walkway and have at least one intermediate rail.
- Toe boards shall be fitted to all scaffolding.

When permanent hand rails have to be removed from elevated platforms, rope or wire hand rails shall be fitted in their place.

- Any load-bearing scaffolding should be constructed to a design previously submitted to and approved by an OPGC contact person**.**
- Parts of staging, tools and other articles and materials shall be properly lowered and shall not be thrown down from a height. They shall be raised by rope or other suitable means and not carried on the person.
- The Contractor's Representative shall ensure that no loose articles and materials are left lying about in any place from which they may fall on persons working, or passing beneath.

- While erecting the scaffolding a RED SCAFF-TAG need to be hung until erection is finished

42.1. REQUIREMENTS FOR BOARDS AND PLANKS

- Boards of 51 mm (2 inch) minimum thickness shall be used. These shall be at least 210 mm (8 inches) wide.
- The spacing of board supports shall depend on the thickness of the boards used and the load to be carried. There shall be at least three supports. Support for 51 mm (2 inch) boards shall not be more than 2.5 m (8 feet 6 inches) apart. All boards shall be supported at the ends.
- Boards shall be end-butted and close boarded throughout. Overhanging of boards of any thickness shall not exceed four (4) times their thickness and not less than 50 mm.

42.2. WORKING PLATFORM

- All working platforms should be close boarded, and all boards should be lashed or secured.
- Widths of platforms vary according to scaffolds purpose.
- As a general rule, if the platforms are to be used only as a footing, they shall be at least 610 mm (24 inches) wide. If small quantities of materials have to be put on them, the platform width shall be increased to 813 mm (32 inches) wide.

42.3. MOBILE TOWER

- The height of a mobile tower should never exceed three times the length of the shortest side.
- There should be only one working platform on a mobile tower.
- Mobile scaffolds should only be used on ground which is firm and level.
- Moving the tower should only be done by pushing or pulling the base.
- The working platform must be clear of men and materials when the tower is being moved.
- Wheels should be turned outwards and brake must be on and locked before use.
- It is advised to tie the tower to the structure whenever possible**.**
- Never ride on a scaffold that is being moved.

42.4. INDEPENDENT TOWERS

- The tubular scaffold used most often is the independent tower. The independent tower apart from necessary ties stands completely free from buildings or structures and is used mainly for access pipe bridges or high maintenance jobs where only a small working area is required.
- The foundation must be capable of carrying the weight of the tower, equipment and men.
- Base plates must be placed under all standards and if there is any danger of lateral movement they must be securely fixed, substitutes must not be used.

- Special precautions must be taken to provide stability on soft soil, or surfaces likely to be damaged.
- Standards must be vertical and joints must be staggered. The distance between standards must be no more than 2.5 m (8 feet 6 inches).
- Ledgers must be horizontal and fixed to the standards with load bearing clips.
- Generally, ledgers will be vertically spaced at about 2 m centers for easy erection; also providing ample headroom if an intermediate working platform is required.
- Diagonal bracings must be fitted on all lifts on all sides and a cross bracing should be fitted at the base and at other levels where necessary to keep the tower rigid, but at least every alternative lift.
- If the height of the tower is more than 3 1/2 times the length of the shortest side it must be adequately tied.
- It is good practice to tie scaffolds to the adjacent structure whenever possible irrespective of height.

42.5. LADDERS

- All ladders used in the plant except in scaffoldings shall be made of Glass Reinforced Plastic (GRP) / FRP. No metallic / wood ladders are allowed in OPGC premises.
- Shall be factory made and shall be of sound construction.
- No ladders with treads nailed to the stringers or which are in any other way faulty or unsound shall be used.
- Unless OPGC has granted prior written consent, no ladder shall exceed 3.7 m (12 ft) in height.
- Ladders shall not be painted. Clear varnish or polyurethane is acceptable.
- All ladders shall only be used for the purpose for which they were designed.
- The Contractor shall ensure all ladders under their control are inspected for safe, clean and proper working parts before they are used.
- Defective ladders shall not be used, but instead shall be tagged and made inaccessible for use.
- Ladders should be placed upon a level, firm, solid and safe base and leaned against or hung from a solid, safe structure.
- When it is necessary to place a ladder on a non-level, smooth or slick surface, the base of the ladder shall be tied, blocked in place or held by another worker.

- The base of a straight or extension ladder shall be placed back from the wall at a distance equal to one-fourth of the ladder's working length.
- The top of an extension ladder shall be tied off when possible.
- No one shall go up or down a ladder without the free use of both hands.
- If material must be lifted, a hand line must be used.
- Employees shall face a ladder while ascending or descending.
- A ladder used to transfer to a landing must have side rails that extend at least 3 feet above the landing.
- Contractors shall ensure employees under their control are properly trained in ladder safety.
- Where ever the chance hitting ladder with moving traffic or some other equipments exists, adequate protections to be provided with warnings

43. ACCESS TO TRANSFORMERS/SWITCH GEAR ROOMS/SWITCHYARD AND OTHER RESTRICTED AREAS

Contractor will remain outside of all fenced electrical transformer, switchgear rooms, switchyard or any other high voltage areas and restricted areas unless authorized by the OPGC Contract person to enter. If it becomes necessary to enter these areas, the Contractor must notify the OPGC Contract person so that arrangements can be made to secure a safe work area.

44. FIRE PROTECTION:

Fire hydrants, extinguishers, hose racks, and other emergency equipment shall not be covered or blocked, and fire equipment lanes must always be kept clear.
All fires must be investigated and reported to OPGC regardless of duration or extent.
All contractor persons should know the method of raising alarm & operation of first aid firefighting appliances. Nobody should misuse the fire appliances, extinguishers etc.

45. HOT WORK

Any activity which involves naked flames or can produce heat energy or spark shall be considered as Hot Work. e.g. Welding, Burning, Grinding, Cutting.

- The Contractor must coordinate hot work activities with the OPGC Contact person.
- All welding, burning, or other hot work will be carefully planned and safely executed by completion of a Hot Work Permit from OPGC.
- Welding machines and its accessories must be approved type & safe to use. Power supply cable should be of proper rating, joint free, copper and cut resistance type.
- When 'Hot Work' is in progress precautions must be taken as per the Hot Work Permit issued by OPGC to minimize the risk to other persons, particularly from fire.

- Appropriate fire extinguishers shall be made available for the duration of the specific activities as mentioned in the Hot Work permit.
- ***The Contractor shall provide fire watches during hot work activity & shall ensure firewatchers are trained on the use of fire extinguishers and other appropriate fire fighting gear. Fire watchers during fire watching cannot be assigned with other task.***
- The Contractor shall ensure that firewatchers are equipped with appropriate equipment and dedicated only to the duties of the fire watch.
- The Contractor shall ensure that adequate guards and barriers (fire blanket, fire proof sheets) are used to ensure sparks and hot slag are confined to the immediate area and do not contact flammable or combustible materials.
- All open areas and floor grating/ wall openings shall be protected so that sparks or slag cannot reach flammable or combustible materials at any lower level.
- Hot work areas must be barricaded to prevent people from coming into contact with sparks and slag from hot work activities.
- The Contractor must store flammable and combustible chemicals where they are not subject to hot work or other sources of ignition.
- Use appropriate PPE for the job.

46. CONFINED SPACES:

A *Confined Space* is any space of an enclosed nature which is not designed for continuous human occupancy and presents a risk of death or serious injury from hazardous substance or dangerous conditions.

- The Contractor must coordinate Confined Space Entry work activities with the OPGC Contract person.

  Confined Space Entry Permit shall be obtained to enter any Confined Space for any kind of work inside.
- Contractor shall perform no duties that might interfere and disturb the accepted safe working conditions in a confined space.
- Contractor shall maintain all safety barriers around the *Entry Point*.
- Appropriate PPE as per the Confined Space Entry Permit shall be used.
- Appropriate dust mask shall be worn by the *Entrant* if significant quantities of dust are present within the *Confined Space*.

- Head and eye protection shall be worn at all times by the *Entrant* unless specified otherwise by the *Control Room Engineer*.
- A body harness may be required by the *Entrant* if work is to be performed above ground level. An air purifying respirator and cartridge or Self Contained breathing Apparatus (SCBA) shall be used by the *Entrant* if *Entry* into a *Confined Space* containing a *Hazardous Atmosphere* is required and it is not physically possible to entirely remove the *Hazardous Atmosphere*.
- Contractor shall use the safety equipment as per the Confined Space Entry Permit.
- Fire extinguishers suitable for the type of fires those are appropriate to the hazards that may be present in the *Permit Required Confined Space*.
- ***Contractor shall deploy trained Confined Space Watcher/Hole Watcher to take control over the Confined Space entry & exit points during the period of work. Confined space opening either will be closed or entry prohibited through warning tape or barrier while no work is taking place inside the confined space. Contractor will not assign task other than Confined space watching to the watchers as long as they are performing the watching.***
- Contractor shall comply strictly with the following **Electrical safety precautions**
- Electrical equipment supplied from the mains should only be used where there are no practicable alternatives. Battery powered electrical equipment or pneumatic powered equipment shall be used whenever possible.
- If there are no practicable alternatives to using electrical equipment supplied from the mains, then they should be 24V. If this is not possible then they should be 110V supplied through a centre tapped transformer with the centre tap earthed.
- Electrical equipment supplied from the mains should contain Ground Fault Circuit Interrupters / Residual Current Devices.
- Electrical equipment supplied from the mains shall have a valid test certificate.

47. HIGH PRESSURE WATER/ SERVICE AIR CLEANERS

Improper use of water jets/ Service Air can cause serious injury. The contractor may only use high pressure washing apparatus with the permission of the OPGC Contact Person.

The contractor must satisfy the OPGC Contact Person as to the training of the operators, the arrangements for the place of work and a safe system of work.

48. SCRAP/WASTE DISPOSAL:

Waste Bins are provided on site for General Housekeeping materials, metal scrap, Hazardous and Oily wastes and Chemical Wastes. Special or Hazardous Materials must not be dumped in general housekeeping bins and metal scrap bins. Please consult with OPGC Contact person for more details.

49. GAS CYLINDERS

The following regulations apply to all industrial transportable gas cylinders including containers for dissolved acetylene.

49.1. CYLINDER IDENTIFICATION

Gas cylinders shall be colour coded in accordance with relevant BIS code or applicable Gas Cylinder rule.

Full and empty cylinders must be clearly distinguished and stored apart.

49.2. STORAGE OF CYLINDERS

- No flammable materials shall be stored on the site with them, or in the immediate vicinity. Cylinders must be kept at a safe distance from any heat source.
- Cylinders shall be stored in such a manner that they can be readily removed in the event of fire.
- They shall be adequately secured to prevent falling over.
- Cylinders shall be stored vertically and secured.

49.3. HANDLING AND MOVEMENT OF CYLINDERS

- Cylinders shall not be subjected to rough usage, or excessive shock, or used as rollers, or supports.
- Cylinders shall not be dropped from a height.
- A proper carriage, or platform and not a sling, shall be used for moving cylinders, whether empty or full.
- When cylinders are being transported, they shall be loaded and firmly wedged to prevent violent contact when the vehicle moves.
- On no account shall cylinder trolleys be towed by motor transport. The transportation of any gas filled cylinder shall always be in a proper rack, regularly maintained and properly inspected at least biannually.

  The Contractor shall ensure that cylinders with faulty valve joints, immovable valve spindles, or valve leakage are immediately removed from the site.
- Only standard valve keys shall be used.
- Only standard automatic pressure regulators and pressure gauges shall be fitted to cylinders.
- Regulators and gauges shall be checked to ensure they are functioning properly and damaged gauges or regulators shall be removed from service.

- RED hose shall only be used for Acetylene and BLACK hose shall be used for Oxygen and Nitrogen.
- Hoses shall be pressure tested and examined to ensure that they are free from cuts, cracks, burns and excessive wear.
- Only secured hose connectors shall be used.
- It is strictly prohibited to bind hose connections with wire.
- All Oxy-acetylene sets which are portable shall be wheeled on a trolley.
- When not in use, blow-pipes and hoses shall not be left in confined spaces or enclosed areas.
- Where this cannot be done, the Oxygen and Acetylene connections shall be disconnected at the cylinders situated outside. Merely closing the valve is not a disconnection.
- Empty cylinders and cylinders no longer required shall be removed from the Site as soon as practicable, caps shall be in place.
- Flashback arrestors (ESAB or any other ISI approved type) shall be fitted at the outlet of the regulator and at inlet of the cutting torch.
- When not in use, all cylinders shall have protecting caps screwed on.
- Cylinder valves shall be closed immediately when gas is not required, or when the cylinder is empty and the hose depressurized.

50. RADIOGRAPHY AND RADIO ACTIVE SUBSTANCES

- Radiography shall be done only after achieving a valid safety document. Proper barricading of the area and paging on the loud speakers should be done
- All operations involving the use of radioactive substances shall be supervised by the Contractor to ensure that protective measures are properly maintained and to check the extent of the protection afforded in practice.
- The Contractor is required to provide OPGC with a list of radioactive sources held by the Contractor and all employees who use or store these radio-active sources on OPGC's property.
- The Contractor shall be responsible for the supply, operation and regular testing of all necessary monitoring equipment and to ensure that all protection barriers

  are placed and altered as a result of survey radiation level readings in accordance with internationally acceptable levels.

- All radioactive substances not in use shall be kept securely in a dedicated storage place. The storage place should be clearly marked with the warning sign and the wording: “DANGER - RADIOACTIVE MATERIAL” in clear and indelible print. Its access hatch or door should be provided with a lock, the keys of which should be kept by the authorized radiographer.
- Only authorized personnel should handle radioactive sources.
- Before any radiography work is started, the Contractor shall be required to establish procedures dealing with accident/incidents and foreseeing an emergency.
- The procedure shall clearly define responsibilities and actions/measures to be implemented.
- The emergency procedures shall be submitted to OPGC Contact person for review and approval.
- The Contractor shall also ensure that all personnel involved have been carefully instructed**.**

50.1. During transport, radioactive substances should be kept in sealed sources for radiography with the exposure container should be kept inside a lead-lined box which has the radiation warning sign on the outside.

50.2. ***HANDLING PROCEDURE AND PERSONAL PROTECTION***

- Keep maximum distance from the source.
- Provide maximum shielding
- Keep exposure time down.
- A radiography permit shall be obtained on each occasion radiological work is carried out.
- A barrier shall be erected around each area where the source is exposed so that the level of radiation at the barrier does not exceed 0.75 Micro Seiverts per hour in air.
- Suitable warning notices for display at barriers shall have the wording *"RADIATION - DO NOT ENTER"*. The notices shall also include the radiation symbol.
- All persons using radioactive substances shall be trained and certified in the use of such substances.
- The perimeter of the area shall be patrolled during the period of source exposure.
- An exposed source must be immediately returned to its safe container on the request of the operating personnel, or in the event of a fire or other emergency occurring

Any worker liable to be exposed to ionizing radiation shall wear on the appropriate part of his body a film badge to measure the amount of radiation accumulated.

51. EXCAVATION

- The Contractor shall ensure that no Excavation work shall be carried out without the issue of an appropriate Safety Document.
- Any buried cables or pipelines unexpectedly encountered during excavation work shall be reported immediately to the OPGC Central Control Room and the work shall cease.
- Where, because of the nature, shape and slope of the excavation, material is liable to fall more than 1.3 meters (4 ft.) onto a person working, the sides of the excavation must be adequately shored.
- Shoring shall be rigid and without holes or opening and be properly braced with support structure.
- The shoring of every excavation where men are to work shall be examined each day by the Contractor's Representative.
- Excavated earth shall not be stored close to the trench edges and a minimum distance of at least one and a half times the depth of the trench shall be observed.
- No load, plant or equipment should be placed or moved near the edge of any excavation where it is likely to cause the collapse of the side of the excavation.
- Excavations in which persons are working and into which a person is liable to fall shall be suitably or protected by a barrier.
- If the excavation is to remain open after dark, warning lights shall be placed around the excavation to warn others of its presence.
- Temporary crossings over the trench shall be at least 609 mm (2 feet) wide and sufficiently strong with a railing on one side.
- The Contractor shall be responsible for the provision of all barricades, roping off and the provision of flashing lights as is required for the safety of persons and vehicles.

52. SURPLUS MATERIALS

Unless otherwise directed through written instructions issued by OPGC, Contractor shall promptly remove all excess surplus material from the jobsite. Final payment for performance of the work shall not be due and payable until such materials are removed from the jobsite. If surplus materials are not removed from the job site within fifteen (15) days of completion of the Work, OPGC may dispose of the materials and offset the cost associated with disposal against the unpaid balance of the Contract Price.

53. SUSPENSION OF WORK AND LIMITATION OF LIABILITY

OPGC reserves the right through the project contact to suspend all or any portion of the work being performed in violation of these provisions. OPGC shall not be liable in contract, tort (including without limitation negligence and strict liability) warranty or under any other legal theory for damages, costs or expenses related to any suspension or stoppage of work, loss of business, or other special, incidental, consequential or punitive damages in connection with any failure on the Contractor's part to establish, enforce, or adequately monitor its Health and Safety Program.

54. TEMPORARY BUILDING:

Temporary buildings and material storage areas shall only be allowed upon written approval of the concerned Project Manager/EIC. They shall not be set up under power lines or pipe ways.

55. UNSAFE AND/OR INAPPROPRIATE BEHAVIOR, DICIPLINARY ACTION

Any Contractor employee who appears unable to perform his job in a safe manner or exhibits any type of behavior inappropriate for the work place will be reported to the Contractor's on-site supervisor for evaluation and possible removal from the site. OPGC will not tolerate at any time any conduct that threatens, intimidates or coerces an OPGC person, another Contractor or any member of the public.

55.1. DISCIPLINARY ACTION AND PENALTY AGAINST SAFETY RULES VIOLATION

- Unsatisfactory safety performance will go against the contractor in future bids.
- OPGC reserves the right to even terminate unsafe Contractor from Contract with notice.
- In addition to the above disciplinary action, additional penalty for Safety Violation shall be applicable.
- The penalty system is divided into two categories, Minor and Major. OPGC EHS shall decide about the minor or major safety penalty based on type of violations & risk involved with the violations

55.2. EXAMPLES OF SAFETY VIOLATIONS

- Not wearing / improper wearing of personal protective equipment (PPE) as per OPGC PPE rule. Example- Safety Shoe, Helmet, Safety glass, Earplug, Hand gloves and other PPEs.
- Using grinder without wheel guard
- Taking electrical connection without using ELCB.
- Using damaged welding cable, faulty joints in cable
- Non-use of flash back arrester in oxy acetylene cutting set
- Non-availability of standby person (hole watch) on man hole during entry into
- Confined space

Not responding to emergency sirens as per emergency handling procedure.

- Working overhead on road/ pathway without barricading
- Dumping excavated earth on edge of excavation
- Non-reporting of Near Miss, accident, fire and/or explosion and property damage incident.
- Improper housekeeping. Leaving work area with debris/ waste/ scrap material haphazardly
- Unauthorized disposal of hazardous substance (waste Oil, Grease, Chemical, Toxic Substance)
- Leaving excavated soil on road
- Spillage of waste on roads & work places
- Smoking inside plant premises.
- Unauthorized carrying of weapon inside Plant Premises. □Working without valid work permit.
- Not complying with written instruction on the work permit
- Working without Job Safety Analysis(JSA) for high & medium risk jobs
- Working without Job Safety briefing for high & medium risk jobs □Not providing fire extinguisher for hot work and fire watch.
- Use of none testing/ certified lifting machine, tools and tackles
- Use of substandard scaffold (such as substandard platform in terms of access, guard rail, toe guard & gaps on platform surface, non-use of soleplate/base plate, sagging scaffold etc.)
- Use of above 24V light fittings in confined space without approval
- Working above 5.9 ft height without fall protection
- Working without rigging & slinging safety measure □ Persons working under suspended load in barricaded area □ Abuse of safety equipment/ facility/ emergency equipment.
- Blocking access of emergency equipment or exits.
- Mishandling of gas cylinders
- Handling & disposal of hazardous substances in unauthorized manner.
- Violating OPGC any of the environmental guideline attached in separate sheet.

The following penalties shall be imposed on the contractor with the charge of safety violation by OPGC and shall be deducted from the Contractor's running/ final bill. Penalty can be imposed by E-I-C/Dept Heads &Tls/ Safety Officer/ EHS Manager/Safety Rovers or any officer authorized by the OPGC management.

- For first instance of Safety rule violation, counseling and verbal warning with punching of yellow spot on I Card
- On observation of second instance of Safety rule violation, counseling and strong verbal warning with punching of blue spot on I Card
- On observation of 3rd Safety rule violation, punching of red spot on I Card with duty suspension or permanent removal from site
- For major Safety Violation for one instance also, there may be direct punching of red spot in I card with permanent removal/ termination of the Contractor employee(s) responsible for that violation.
- Inadequate Safety Supervision leading to repeated minor or medium risk type safety violation- Fine/Penalty of Rs.2000/- (Rs. two thousand only) and I card punching of responsible contractor Supervisor.
- Inadequate Safety Supervision leading to repeated major risk type safety violation- Fine/Penalty of Rs.2000/- (Rs. two thousand only) and I card punching of Contractor Supervisors with suspension or even termination of responsible contractor supervisor.

56. GENERAL GUIDELINES FOR ENVIRONMENTAL PROTECTION

The Contractor shall pay due regard to the environment by acting to preserve air, water, human life, animal and plant life from adverse effects resulting from its work or operation and to minimize any nuisance which may arise from such work or operations.

1. Uncontrolled releases of OPGC regulated materials, hazardous wastes, special wastes, and PCB or PCB contaminated materials from OPGC locations into the environment are prohibited.
2. All spills of OPGC regulated material, hazardous waste, special waste and PCB or PCB contaminated material must be cleaned up and waste residues generated disposed of properly. Planning must begin immediately and clean up must be initiated within 72 hours of discovery of the spill.
3. Use of PCB (Poly Chlorinated Biphenyl) containing products/ materials is prohibited.
4. Used oil & lubricants generated during work shall be collected in containers provided with lid and shall be placed at designated transit storage shed. This shall be subsequently sent to warehouse for storage in the designated shed in front of Store Shed No. 3 and final disposal to authorized recyclers / re-processors. Waste oil/lubricant spilled on the floor shall be contained and collected by the use of spill protection kit.
5. Used lead acid batteries shall be sent to Warehouse for storage at designated shed and final disposal to authorized recyclers / re-processors. Spilled lead acid shall be contained and collected by the use

of spill protection kit. New lead acid batteries shall be procured against return of damaged used batteries to Supplier.

6. E- Wastes and used Ni-Cd batteries, fluorescent lamps, mercury vapour lamps are also treated as hazardous materials. These are to be collected and stored in identified places on impervious floor and under shed to avoid contamination. These shall be disposed in authorized manner.
7. Oil contaminated scraps, cotton wastes and other oil contaminated wastes shall be collected in specified collecting bins (designated as oil contaminated waste collecting bin) that are to be kept near work area and shall be sent to Warehouse for storage in specified collecting bin and final disposal to authorized recyclers/reprocessors, if possible. Otherwise the wastes shall be disposed off by warehouse in lined impervious covered pits.
8. Onsite work areas shall not be stored with improper and/or excessive amounts of scraps and debris.
9. Lead waste & other Non-ferrous metal wastes like, zinc, brass, copper, nickel and electronic wastes etc shall not be thrown around. It shall be collected in collecting bins and sent regularly to warehouse for storage in designated bins/shed and final disposal to authorized recyclers/re-processors.
10. Spent Resins shall be collected in barrels, provided with lids and shall be disposed as per authorized disposal means.
11. Acid/alkali / any other hazardous chemical contaminated scraps/wastes shall be collected in designated collecting bins to be placed near the work area and shall be returned to Warehouse for storage in designated collecting bin and final disposal to authorized recyclers/re-processors or else, these scraps can be disposed of by Ware House in lined impervious covered pits. Similarly, acid/alkali/ any other hazardous chemical contaminated barrels/jars shall be returned to Warehouse for disposing it back either to the supplier (as per the condition of Purchase Order) or to the authorized recyclers.
12. Materials that yield Hazardous Substances shall be identified prior to their initial purchase.
13. Ample spill response materials shall be available to deal with any potential hazardous and special waste releases.
14. All containers used and stored on the site must have proper labels.
15. Debris and solid wastes generated during any activity shall be collected & disposed regularly at the designated place and the combustible materials shall be controlled fired under direct supervision of OPGC Fire or Safety Officer. It shall not be dumped /thrown here and there.
16. Tree trimming and pruning wastes shall be kept sufficiently away from plant. Steps shall be taken to dispose these to outside agencies to avoid unwanted fire.
17. Carry bags made of virgin or recycled plastic, which are less than 20 microns thick, are not allowed to be used in ITPS.
18. Energy efficient products (eco marked products) will be preferred for use insideITPS.

19. Goods packing material shall be bio degradable and environmental friendly material.
20. All chemicals shall be procured with its material safety data sheet (MSDS). The MSDS shall remain with the chemical for its entire period of stock inside OPGC.
21. Hazardous chemicals or substances in bulk transport will come with MSDS, TREM Card, hazard labeling of the lorry and containers. The transporters staffs/ staff shall be properly trained on emergency handling of the chemical.
22. Emergency preparedness shall be in place to handle chemical emergency or any other hazardous material emergency so as to prevent risk to environment.
23. Vehicular emission and noise shall be minimized in work zones by restricting use of defective vehicles, machineries and Tools & Plants.
24. Vehicles shall be certified with valid pollution under control certificate.
25. Source air emissions shall be controlled so as to meet regulatory norms. In case of incidental higher emission level, immediate control measure shall be taken on priority. Continuous emission monitoring for Stack SPM, NOx, SO2 shall be made available all time except the period of planned maintenance. Alternative offline monitoring shall be in practice during the period of on line equipment maintenance.
26. Fugitive emission shall be controlled in work places (CHP, AHP, ESP, Ash Pond & Dry ash storage silo areas). These places shall be tested for dust concentration periodically to ensure taking step to reduce dust emission level to acceptable state. People working in these areas shall use dust mask to prevent inhaling dust.
27. Sufficient water spraying shall be ensured in haul roads and working areas to reduce fugitive emission during earth work by mechanical means.
28. While painting any structural materials on ground, the structural materials shall be kept on any impervious barrier so as to avoid land contamination by paints.
29. Use of Ozone Depleting Substance (ODS) like CCL4, CFC-11, CFC-12, Halon and other ODS based substances shall be phased out in phased manner. Venting of ODS gas to atmosphere is forbidden. During phasing out process of these substances, these ODS shall not be released to atmosphere. These gases shall be handled as per local regulation guideline. CFC containing equipment like refrigerators and hydrogen driers shall be replaced with non CFC refrigerant containing equipment.
30. SF6 consumption shall be managed in such way that there will be no waste or/ and release to atmosphere. The user shall maintain a consumption record covering the equipment name in which the gas is used, quantity and date of use.
31. Asbestos ropes and packing shall not be used in any work. No new asbestos sheets shall be used in any work. Before cutting/handling old asbestos sheets, the sheets shall be made wet and handled by using nose mask and hand gloves. Waste asbestos pieces shall be disposed in lined impervious covered pits.

32. During construction and maintenance works, melting of Bitumen should be done by using fuel oil / fire wood. In no case burning of rubber tyres will be allowed.
33. Smoking is prohibited inside plant.
34. Optimum utilization of water, energy and raw materials shall be ensured by minimizing the loss in any activity.
35. Spitting on walls is prohibited.
36. Preference shall be given for using eco-friendly materials/packing and technology, wherever it is techno-economically viable.
37. Special care shall be given for good housekeeping.
38. Non-biodegradable solid wastes like plastic pouches/packing materials shall be disposed in lined impervious covered pits.
39. Empty paint drums, brushes shall not be thrown around. It shall be the responsibility of the contractor to dispose it outside ITPS as per the provision of Hazardous Wastes (Management & handling) rule.
40. Waste water generated inside plant and sewage effluent shall be reused
41. Ground water and surface water adjacent to ash disposal area and coal pile area shall be tested periodically so as to ensure no adverse impact on environment.
42. Spillage and disposal of any liquid or solid waste into storm water drains is prohibited.
43. Spillage of Chemical or OPGC regulated material shall be reported to Manager (Environment) within 01 hour of the incident occurs.
44. For safe Handling and Transportation of Hydrogen, Chlorine, Petroleum Products and other Chemicals please MSIHC rule.
45. Any noisy operation more than 85dBA shall be carried with the use of appropriate noise abatement barrier. Wherever barrier cannot be provided, the person nearby must have ear protection.
46. Environmental monitoring equipment that has been originally designed and installed must be satisfactorily maintained and continually operated (with the exception of standard downtime for planned or unplanned maintenance).
47. Any abnormal environmental incident observed/ noticed shall be communicated to EHS

APPENDICE-1

APPENDICES- 2

OPGC High Risk Activities

	Activity
1	Activities on or near equipment with the potential to cause Arc Flash
2	Activities in a road way with potential to be struck by vehicles (Does not include driving or travelling on a public road way.)
3	Activities with drowning potential
4	Activity involving work at height above 1.8 meters (6 feet) and any pole climbing
5	Handling of hazardous substance which can cause acute injury, exposure to ionization sources or potential to cause explosion
6	Activities with potential for live voltage exposure ≥50 Volt
7	Activities on or around pressurized safety valves or other energized energy relief devices where there is the possibility of exposure to the stored energy if released
8	Hoisting and Rigging
9	Hot Work outside of its designated locations
10	Activities involving Confined Space entry or potential for entrapment/engulfment such as work inside a trench, tunnel, etc.
11	Tree trimming and related activities with the potential to cause injury by tree trimming equipment and / or hit by falling tree or limb
12	Activities involving operation of or working in the vicinity of operating plant equipment
13	Activities in potential explosive areas due to accumulation of combustible dust or vapor
14	Activities on or near rotating, rolling or moving equipment or its parts having the potential to cause cut, entrapment, crushing or caught by injuries
15	Activities with the potential to cause a hit by falling objects

APPENDICES- 3

UNDERTAKING

FOR OPGC HSE RULES AND REGULATIONS FOR CONTRACTORS

I hereby undertake that:

(1) I have received a copy of, and read, these regulations;

(2) I agree to execute the work under all provisions contained herein;

(3) I understand & will make my entire project team understands the applicable rules & regulations;

Signature: _____
Name : _____
Date: _____
Contract Company: _____

APPENDICES- 4

EHS Violation Record for Contractor **Date:**

Ib Thermal Power Station, Banaharpali

Name of Violator: _____

Location of Violation: _____

Type of Violation: _____

Contractor's Name_____ Signature----------

Observer's Signature Name_____ Signature_____

Scope of Work
Name of the work:
"AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."

1. PM OF WALL BLOWER (MONTHLY CHECKS)

1. Ensure PTW.
2. Remove the dust & clean the wall blower completely free from ash accumulation, old grease. (Air & manually by waste cotton)
3. Inspect for puppet valve steam leakages from flanges, glands, passing of puppet valves, relief valves, swivel tubes and attend if any.
4. Check the oil level in rotary & rack gear box. Top-up / replace if required. Attend oil leakages if any.
5. Check all the linkages, moving parts to be free from any abnormalities. Attend defect if any.
6. Carryout the manual operation of wall blower for checking the freeness of blower.
7. Take the successful trial run and rectify defects if any.
8. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
9. Any material required to be issued/returned from the main stores is under this scope.

PM OF LRSBS (BIMONTHLY CHECKS)

1. Ensure PTW.
2. Check for steam leakage in the travelling carriage gland packing& puppet valve. In case of excessive leakage, complete gland packing to be replaced.
3. Check for passing of puppet vale.
4. Check the presence of "stop pin" on the cam bracket.
5. Check the angle tracks and chain.
6. Complete cleaning of equipment to be ensured. All ash deposition should be cleaned.
7. Check the oil level in gear box. Top – up if necessary. Report if any oil leakages.
8. Take the successful trial run and rectify defects if any.
9. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
10. Any material required to be issued/returned from the main stores is under this scope.

2. SERVICING OF WALL BLOWERS/ LRSB

1. Ensure PTW.
2. Lower the soot blower without disturbing the alignment. Disconnect the poppet valve from flange and dummy the steam line if unit under operation.
3. Dismantle the traverse gearbox, rotary gearbox, rack & pinion, swivel tube etc. Check the straightness of swivel tube.
4. Clean all the parts, replace the damaged/worn out parts as per the instruction of EIC. Parts include all the linkages, cams, stem, feed tube, swivel tube, rack, pinion, flange, stuffing box, chain, sprockets, rollers, pins.
5. Check all the gasket mating surfaces, repair if required. Replace the old gaskets/old oil seals.

6. Puppet valve servicing, lapping & blue matching to be done. Same to be assembled after clearance from EIC.
7. All moving cams, links should be lubricated with rust preventive lubricants.
8. Assemble the soot blower.
9. Lubricate and adjust the chain(if available)
10. Replace the stuffing box packing.
11. Check the coupling between the motor and the gearbox, replace if required.
12. Fill the gearboxes with fresh oil.
13. Mount the soot blower in position and align the swivel tube w.r.t water wall tubes.
14. Adjust the rotary and traverse cams.
15. Check freeness of soot blower during forward and retract motion.
16. Re-fix the external dust guard.
17. Pressure setting of the wall blower after wall blower in service.
18. Take the successful trial run and rectify defects if any.
19. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
20. Any material required to be issued/returned from the main stores is under this scope.

Note –

1. **All the above activities are inclusive of both Wall blower and LRSB type. However, actual maintenance is subjected to the activities applicable for each type.**
2. **One wall blower/LRSB servicing will be considered as 1 BOQ.**
3. **Gear oil, gland packing rings, gaskets and spares shall be provided by ITPS free of cost.**

SERVICING OF SOOT BLOWER GEARBOX

1. Ensure PTW.
2. Remove the gearbox from Soot blower assembly. Ensure necessary blanking of soot blower connections as per EIC when unit under operation.
3. Dismantle the gearbox.
4. Clean all the parts of the gearbox.
5. Replace oil seal, gasket bearing or spares if required as per EIC.
6. Assemble the gearbox and check the movement of the soot blower for freeness.
7. Take the successful trial run and rectify defects if any.
8. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
9. Any material required to be issued/returned from the main stores is under this scope.

Note –

1. **If any in-situ repairing of parts required, to be performed by contractor. While workshop assistance can be availed for the same.**
2. **Wall Blower/LRSB Gearbox Servicing/Replacement- 1 wall blower gear box servicing will be considered as 0.3 BOQ, 1 LRSB gearbox will be calculated as 0.5 BOQ.**

3. DEFECTS ATTENDING IN SOOT BLOWERS

A. Servicing of Poppet Valve/Air scavenging valve

Note –

1. **Lapping compound and gland packing will be provided by OPGC free of cost.**
2. **If any in-situ repairing of parts required, to be performed by contractor. While workshop assistance can be availed for the same.**

B. **Attending of Steam Gasket leakage/Gland leakages**

C. **Joint inspection of Wall Blowers & Freeness of Wall blowers**

1. Checking of advance and retract of wall blower by manual operation. Retracting of wall blower if stuck up in advance condition.
2. Air blowing & lubrication of rack, pinion, roller

D. **Replacement of the soot blower sleeve or cam roller assembly.**

1. Break the refractory around the wall blower sleeve.
2. Remove the sleeve by cutting / gouging.
3. Clean the soot blower opening.
4. Align & weld the SS sleeve with the soot blower mounting block.
5. Check the co-axiality of the sleeve w.r.t soot blower swivel tube.
6. Cast the refractory around the sleeve.

E. PRESSURE SETTING OF SOOT BLOWER POPPET VALVE

1. Ensure PTW.
2. Group should carry pressure gauge, tools & tackles for dummy plug removal & then again re-fitting.
3. Ensure no leakage after pressure setting, attend defects if any.
4. Record and maintain all the set pressures in each soot blowers.

0.2BOQ shall be paid for per LRSB/Wall Blower

I. REPLACEMENT OF LANCE TUBE/FEED TUBE

1. Ensure PTW.
2. The scope includes shifting of lance tube from Main store to the site and from site to the required elevation at Boiler where replacement is planned. Lifting of lance/feed tube is to be done by winch machine.
3. Length of the lance/feed tube will be 10.6mtr approx.
4. All the arrangements should be done for the replacement and re-fitting of the lance/feed tube from LRSB/Wall blower equipment after clearance from EIC upon ensuring PTW.
5. If after inspection found, same lance/feed tube can be installed with in-situ repair works. Same has to be carried out and re – installed.
6. All the sealing elements and any parts if required as per EIC has to be replaced.
7. The damaged/replaced Lance tube/feed tube has to be taken down from the boiler by winch and shifted to the scrap yard/workshop as directed by EIC.
8. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

Note: a) Execution of any one job as mentioned above (A/B/C/D) shall be considered as one BOQ.

b) Replacement of LRSB Lance Tube/Feed Tube shall be treated as 5 BOQ.

4. SOOT BLOWER ASSISTANCE FOR OPERATION/ MANUAL RETRACTING OF STUCKUP LRSB

a. Soot Blower Assistance for Operation

1. Ensure PTW.
2. Deployment of Rigger/Fitter/Helper for assistance in operation of LRSB/Wall blowers.
3. Scope of work includes presence of manpower with Operation during Soot blowing.

4. Check oil level, oil top – up, chain tightness before soot blowing.
5. Manually retract the soot blower by handle when inoperable by motor.
6. Necessary tools & tackles should be present with the group to avoid any delay in retracting the soot blower.
7. Tightening of gland/flange bolts if required in case of any leakages.
8. Rate payable will be for assistance per shift of 8 hours.

b. <u>Manual Retracting of stuck up LRSB</u>

1. Contractor has to remove /retract the stucked up LRSB lance assy., with/without chain block.
2. If required to cut the lance tube for removal as per EIC instructions, same has to be done.
3. All tools & tackles mobilizations to be done as per requirements for removal/retracting with minimum amount of time.

Note:If LRSB lance tube has to be removed manually by using chain block, 4 BOQ will be paid for 1 occurrence.

General housekeeping and scrap cleaning at job site has to be ensured by the contractor after the job completion

5. <u>PM OF OIL GUN</u>

1. Ensure PTW.
2. Check the isolation of oil & steam.
3. Removal of oil gun's removable part from position.
4. Check & cleaning the spray plate & back plate.
5. Check the direction of back plate & spray plate.
6. Clean the oil gun by the steam.
7. Lap the spray plate if required and fix the cap nut & spray plate after proper cleaning by diesel & needle shaped wire and also check the hole dimension with GO NO GO gauge.
8. Check the condition of flexible hoses. **If found damaged, replacement to be done. While payment for replacement will be done as per separate price schedule.**
9. Re-fixing of oil guns with new gasket/nipple if required.
10. Attending of oil & steam leakages, such as oil gun hose leak, oil gun chokings, flange leaks etc.
11. Cleaning of each burner corner station.
12. Assistance during trial taking of oil gun. Attend defects if any**. If valve passing/solenoid valve passing observed, separate payment as per schedule will be done.**
13. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
14. Any material required to be issued/returned from the main stores is under this scope.

6. <u>OIL GUN CLEANING</u>

1. Ensure PTW.
2. Check the isolation of oil & steam.
3. Removal of oil guns removable part from position.
4. Check & cleaning the spray plate & back plate.
5. Check the direction of back plate & spray plate.
6. Clean the oil gun by the steam.
7. Re-fixing of oil guns with new gasket/nipple if required.
8. Assistance during trial taking of oil gun. Attend defects if any.
9. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

10. Any material required to be issued/returned from the main stores is under this scope.

Note – This oil gun cleaning excludes the oil gun cleaning during regular PM activity.

7. LDO/HFO STRAINER CLEANING/REPLACEMENT

The scope of work includes HFO strainer at Boiler floor, FOPH area strainers.

1. Ensure PTW.
2. Ensure closing of upstream & downstream valves of strainer.
3. Venting of strainers/filters to be done.
4. Opening of top cover & removal of basket strainers/filters element.
5. Cleaning of filter/strainer element with diesel and then air.
6. Check the strainer mesh condition. Replace if required as per instructions of EIC.
7. Clean the filter housing.
8. Check the gasket seating surface and replace the old gasket. Cut the gasket to required size if readymade not available. Box up the strainer/filter with correct tightening of the cover bolts.
9. Open the upstream & downstream valves and check any leakages.
10. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
11. Any material required to be issued/returned from the main stores is under this scope.

8. REPLACEMENT OF OIL/AIR/STEAM FLEXIBLE HOSES

1. Ensure PTW.
2. Shifting of all tools & tackles required for the replacement of damaged hose i.e., welding & cutting accessories, chain block if needed, gas cylinders etc.
3. Remove the damaged hose assembly from the oil gun/scanner/gun cooling.
4. Cut the damaged hose & new hose to be fitted (welding/threaded joint).
5. Assemble the set.
6. Clean the compartment and place the new scanner/oil gun hose assembly with all the mountings fitted properly.
7. New hose fitting may involve GTAW welding. Certified 6G welder should perform this job.
8. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
9. Any material required to be issued/returned from the main stores is under this scope.

Note: 0.5 BOQ shall be considered for replacement of 1 no. hose pipe in lube & control oil system

9. ATTENDING BOILER TUBE LEAKAGE

1. Ensure PTW.
2. Shifting of all T&P's, cutting & welding accessories etc. to the work site as per requirement.
3. Opening of manholes, peepholes& assistance in detection of tube leakage, manholes/peepholes can be opened and closed any number of times for inspection, attending defects before synchronization. Gaskets/sealing rope of manholes has to be replaced as per instruction of EIC.
4. Installed the exhaust fan at the penthouse in sufficient quantity to reduce the working temperature after clearance from the EIC.
5. Internal water washing of boiler to remove the ash/slags deposited over the tubes/coils/panels/gooseneck area in both 1^{st}& 2^{nd} pass wherever required for inspection & carrying out of repair work.

6. Chipping of refractory and or cutting & welding of Fins/Buckstay/Insulation Pin if required for attending BTL. Pouring of new refractory in chipped area and other locations such as manhole doors, scaffolding doors etc. as per EIC. **(Refractory pouring will be paid in separately)**
7. Shifting of boiler tubes, bends, electrodes, fillers, etc. required for attending the BTL.
8. Assistance in boiler tube leakage area inspection, thickness survey/hardness testing/radiography, Boroscopy, PWHT etc. Separate payment will be done for the Radiography& PWHT as per its schedule. Assistance includes shifting & providing necessary resources for carrying out the NDE services. WhileDPT/MPI/hardness measurement are included under this scope. No separate payment for the same. Thickness survey charges shall be paid separately.
9. Coil spacing in second pass, FSH, FRH, PSH, clamp, deflector plate cutting, etc. to be done and same to be normalized after attending the tube joints including coil alignment, flexible clamp welding, binder clamp fixing, any other normalization jobs in the BTL location and adjacent secondary damage areas.
10. Fabrication of tube bends as per required angle & radius if required. Tube bending machine to be provided from OPGC. **Bending charges shall be paid separately.**
11. Shifting of scaffolding from site stores or any other location as decided by EIC for scaffolding erection and again returning back to the same location as per EIC.
12. Lighting inside boiler will be done as per instructions of Engineer in Charge for carrying out the Boiler tube leakage repair & inspection works.
13. For access and attending the Boiler tube leakage work, erection and removal of scaffolding will be done by the agency as per instructions and discussion with Engineer in charge. No separate payment for Scaffolding erected both inside and outside the boiler, confined to the failure area & secondary damage area. (Exceptions – Sky climber installation payment will be done separately as per its schedule). Scaffolding should be executed as per the scope of work of "Scaffolding Supply, Fabrication and Erection"
14. Mobilization may also include areas other than the Boiler damage area, example – penthouse area where inspection cutting work may be required for eliminating the root cause of the BTL. No extra payment will be done to that respect.
15. Scope also includes assistance in hydro test, vacuum test done after attending BTL, also includes safety valve gagging and de – gagging, boiler internal inspection for checking leakages during hydro test, vacuum test attending of defects if found during such.
16. Re-welding of attachments, casting of refractory, reinstallation of baffles, shields, seal plates, pressure parts clamps, and skin plates etc. as per requirement. Re alignment of coils, tubes if necessary of the failure areas to be done.
17. Same mobilizations will be done by agency for attending any further leakages found in hydraulic test immediately, without any extra charges.
18. Shifting of failed & un-used ·boiler tubes, T&P's, cutting & welding accessories, scaffolding materials etc. back to site stores/or any other location as per instruction of EIC.
19. Complete housekeeping should be done at site within 24 hours after synchronization.
20. Agency shall provide manpower till 1st synchronization of unit.
21. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
22. Any material required to be issued/returned from the main stores is under this scope.

Note –

1. **Mobilization for Boiler tube failure i.e. shifting and other arrangement should be done within 24 hours upon information from EIC. While for all other activities included in the scope, agency has to ensure presence of manpower during all the time round the clock until 1st synchronization of the unit.**

2. **Upon completion of mobilization with all the activities, 1 BOQ will be paid. If only shifting will be done while Boiler inside work is not executed, then 0.5 BOQ will be paid whose sole discretion is of EIC.**
3. **0.10 BOQ will be paid for non-BTL hydro test inspection.**
4. **Special care has to be taken at all times that no loose material has been kept on the Boiler grating. All has to be kept on proper trays provided by the agency.**
5. **24 V supply hand lamp is only allowed inside the Boiler. If additional lighting is required flood light may be used as per instructions of EIC.**
6. **All argon cylinders must be pre-tested by the IBR certified welders before start of work to avoid any purity problems of argon gas.**
7. **T&P's used should be of highest quality as mentioned in the Tools & tackles list for avoiding any delay in the work. Non-compliance of the same may be heavily fined.**
8. **All manpower executing the work should be furnished with all the PPEs. Extra PPE should be kept at the site at all times until normalization of Boiler.**
9. **Any attachment welding/ clamp welding with pressure parts required for normalization of BTL should only be performed by certified IBR class welder only.**

BOILER INTERNAL INSPECTION & RECTIFICATION DURING SHUTDOWN

1. Ensure PTW.
2. Scope includes opening of manhole doors, arranging of sufficient lighting inside boiler 1st& 2nd pass during shutdown.
3. Inspection of pressure parts of various zones as prescribed by EIC.
4. Minor corrective actions if any instructed by EIC such as coil clamping, clamp welding,shielding etc. Housekeeping inside boiler zones. Same has to be performed by certified IBR class welders as per EIC instructions.
5. Arranging welding accessories, power supply for carrying out the work.
6. Coil spacing if required for inspection.
7. Group must contain at least 1 IBR class welder, 2 riggers, 2 fitters for any pressure parts works. If any additional joints welding, refractory, scaffolding, sky climber work comes separate price schedule will be applicable for that.
8. 1 BOQ will be paid on a lump sum basis for boiler inspection for a period of 48 hours.
9. Accordingly, payment will be done on prorate basis for any less or more duration.
10. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
11. Any material required to be issued/returned from the main stores is under this scope.

Note: Non BTL Boiler internal inspection & rectification shall be treated as 0.5 BOQ

CHECKING DURING HYDRO TEST

1. Ensure PTW.
2. Scope includes checking of boiler during hydro test, vacuum test of Re-heater area, safety valve gagging and then removal of gags.
3. Attending of any defects arising in valves, assistance for valve operation to Operation dept. during hydro test.
4. Contractor should be responsible for the timely & successful completion of hydro test/vacuum test.
5. Checking of boiler during hydro can be done at different pressures as per instructions of EIC. Provide manpower for checking of the inside of the boiler 1st and 2nd pass.

6. If any joint failure/ or any pressure parts defect found same has to be attended by the contractor and give clearance for the hydro test again in due time. While separate payment will be done as per the HP joint schedule.
   No extra charges will be paid for any subsequent hydro test done after attending defects.

10. APPLICATION OF REFRACTORY

1. Ensure PTW.
2. Refractory used will be of various categories as per the location. Plastic, castable, pourable, chemical bonded.
3. Agency has to shift the material from plant stores /site stores to the location of job.
4. Arrange access, approach and local lighting.
5. Proper preservation technique as per instruction of EIC has to be followed for refractory storing at site until its use.
6. Agency has to arrange the return of material that is unused.
7. Safety PPEs including rubber gloves, gum boots, nose mask, goggles has to be arranged by agency for its manpower.
8. Preparation and application of refractory has to be done as per instructions of EIC including providing basic equipment needed for refractory such as spade, bucket, tray, etc.
9. Work area included is complete boiler – water wall, furnace hopper, rear arch, goose neck, second pass.
10. Agency also has to perform anchor welding on the boiler fins required for refractory. Same has to be performed only by IBR class welder.Fix retaining meshes, rods, stiffeners etc. as per advice to be obtained from EIC, over the surface I area to be covered by refractory
11. Ensure all crevices, gaps; constricted spaces etc. are thoroughly filled up with the new refractory. Ram if needed.
12. Cure/heat the refractory as per specified procedures to be obtained from EIC. Protect the refractory during curing time.
13. Any surface preparation/chipping of old/damaged refractory has to be performed.
14. If any cracks observed on the surface of the refractory, it will be rectified at contractor's cost.
15. Proper housekeeping of the area after the job completion within 24 hours.
16. Ensure that while removing, the removed pieces do not fall on lower elevations.
17. Ensure that the removed pieces are carefully stuffed in to disposal bags and shifted to identified location asper EIC.
18. Any material required to be issued/returned from the main stores is under this scope.

11. SKY CLIMBER INSTALLATION & REMOVAL

1. Ensure PTW.
2. Open the boiler first pass manhole door.
3. Shifting of grating and sky climber component like plate forms, hand rails, fasteners, motor and wire ropes, from their store to the place of assembly.
4. Lay the bottom gratings above the S-panel.
5. Assemble sky climber in the first pass inside the furnace as per the instruction of EIC.
6. After assembly of sky climber, joint inspection will carry out by Safety/Mech. Maint. /EMD /Contractor. A joint protocol will be prepared.
7. Follow safety procedures while assembling and operating the sky climber.
8. Use sky climber for different maintenance work like tube repair, first pass cleaning conducting tube thickness survey, burner tilt inspection & servicing etc.
9. Extension or shortening of decks are required as per instruction of EIC.
10. Shifting of sky climber may be done from and to any side of furnace.
11. Deploy skilled operator for operating sky climber.
12. Dismantle the sky climber after completion of work.

13. Shift the dismantled sky climber materials and grating to store.
14. Connection and testing of sky climber for operation.

Note -

1. **One BOQ will be paid after assembly and dismantling of one set consisting of 2 hoists including shifting of the set inside furnace as per requirement.**
2. **Sky climber being a critical item for the healthiness of the boiler as well as consisting of safety aspects, shifting as well as handling of sky climber materials – rope, hoist, safety lock etc., has to be done by only experienced and skilled manpower. Any damages owing to negligence of Contractor will be deducted 1 BOQ amount for a single damage.**

12. SKY CLIMBER OPERATION

1. Ensure PTW.
2. Operation of sky climber at the installed location round the clock shifts.
3. Only skilled and trained manpower will be deployed for sky climber operation.
4. Operator must be competent enough to attend any defects/troubleshooting during operation of sky climber.
5. One electrician to be deployed round the clock for sky climber operation for attending any electrical defects.
6. One BOQ will be paid for sky climber operation for a shift of 8 hours. Minimum manpower to be deployed - 1 skilled operator, 1 rigger, 2 helpers. Continuous supervision required both for equipment and personal safety.

13. WATER WASHING AT BUTTERFLY AREA/REAR ARCH/GOOSENECK/SECOND PASS

1. Ensure PTW.
2. Scaffolding to be erected and proper lighting shall be arranged for washing.
3. Shift the hydrant hose pipe and check the connections for any leakage. Rectify if any defects.
4. Ensure proper pressure before start of work.
5. Use all necessary PPEs during water washing.
6. Hole watcher should be present at the door all times during washing.
7. Water washing to be done in gooseneck area / rear arch/ butterfly panel/ 2^{nd} Pass as per instruction of EIC.

14. ATTENDING HP WELDING JOINTS

1. Ensure PTW.
2. Cutting of tubes by power grinder machine/ hack-saw /track saw machine or any other methodsasInstructed by the EIC. .
3. Edge preparation of tubes by grinding for welding.
4. Fittingofnewtubeinsertsafterproperedgepreparationand maintaining suitable gap to ensure quality weld Joint.
5. Filing/ grinding ofnewtube inserts at inner diameter at both ends in case of rifled tubes or wherever required.
6. Pre-heating of tubes in the case of alloy steel tubes and as per requirement in other cases.
7. Root joint welding-by TIG welding process. Filler rod will be provided by OPGC free of cost. Welding to be done by IBR certified and OPGC tested welders.
8. Subsequent welding by arc welding or TIG welding with appropriate welding electrode/filler wire so as to pass through radiographic test and IBR requirements. Welding electrode should be

baked as required beforewelding. Welding electrodes required for the joint will be supplied by OPGC free of cost. Welding to be done by IBR certified and OPGC tested welders.

9. Controlled cooling of joints by wrapping of asbestos cloth, if required.
10. Dressing of the joints for radiography.
11. Repairing of joints by grind & fill-up / cut & weld, if found during radiography without any extra cost.
12. Scope includes shifting of tools, tubes, welding & cutting accessories, lighting, and power supply connection if required separately.
13. Final decision on welding/cutting/edge preparation procedure shall as per EIC and binding on contractor.
14. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
15. Any material required to be issued/returned from the main stores is under this scope.

Mode of payment:

1. Payment for joints (cutting, edge preparation, spool insert preparation, fit-up& welding) will be done per joint basis. Tube size varies from 30mm to 76mm.
2. <u>In case of repair of old joints</u>
    a. In case of partial repair/grind & fill-up of defective weld joint, 50% payment will be done as per joint schedule.
    b. In case of major repair requiring cutting & welding of joint, full payment shall be made.
3. <u>In case of bigger size tubes/pipes:</u>
    a. In case of OD of the tube/pipe is more than 76mm, the rates will be calculated as per the following formula:
    Rate for the pipe joint = {(OD in mm)/ (76)} X Rate per joint as per weld joint schedule.
4. <u>In case of socket joints:</u>
    a. 40mm to 65mm OD of pipe - socket joint, 50% payment shall be done of the BOQ rate of the joint.
    b. Less than 40mm socket joint, 40% payment shall be done of the BOQ rate of the joint.

<u>Penalty Clause:</u>

a. In case of any defect inthe weld joint noticed; repair/replacementshall be done free of cost.
b. No payment shall be made for the joint which do not pass theradiography test. A penalty of 2 times the rate per joint shall be imposed for each weld joint which fails in re-radiography test.

15. <u>BOILER TUBE BEND FABRICATION</u>

1. In case of non-availability of bends, the same shall have to be fabricated as per procedure prescribed by Engr in charge either by hot or cold bending
2. Shifting of material from site.
3. Edge preparation of tubes.
4. Cutting of bends after fabrication to required length.
5. Tubes will be supplied by OPGC free of cost.
6. All bends will be visually examined by Engr in charge.

Note: Payment shall be made for only for that bendswhichare of acceptable quality.

16. PWHT OF WELDING JOINTS

1. Arrangement of stress relieving kit and its shifting to location. Mounting of kits over the place where stress relieving is to be done. All stress relieving materials including asbestos cloth/wool etc. shall be brought by agency.
2. Electrical resistance/ Induction heating shall be done for stress relieving. Adequate nos. of thermocouples shall be mounted for proper measurement of temperature and rate of heating and cooling shall be as per instruction of Engr in charge.
3. Stress relieving cycles are to be properly recorded and submitted to the Engr. In charge.
4. Stress relieving shall be carried out strictly as per specified code / cycle given by EIC.
5. Payment shall be made only on acceptance of stress relieving chart by EIC.
6. No extra payment will be given for pre-heating of tubes, pipes & headers during welding.

   Note: Payment will be done on per day basis consisting of 24 hours for 1 BOQ calculation. Time for calculating the start of period will be from 8 hours prior to start of wrapping of coils on tube/pipes. 8 hours is for preparedness of PWHT kit.

17. RADIOGRAPHY OF WELDING JOINTS

1. Ensure PTW.
2. Radiographic inspection of Boiler tube & header joints as per instruction from EIC.
3. Boiler tube OD varies 20 mm to 90 mm approx.
4. Pipe OD varies from 100 NB to 400 NB approx.
5. The scope of this procedure covers the Receipt, Storage, Transportation and Operation of Radiography source- IR 192 at OPGC Site between PIT rooms to required work location inside the plant premises.
6. Safety measures should be taken care for movement & and use of radiography source as per standards of BARC and OPGC safety checklist.
7. Site in charge should have minimum 7 to 10 years of experience in the relevant field / Boiler Pressure Parts with NDT Level – II Certificate from BARC.
8. Radiography technicians should have minimum 5 to 8 years of experience with in the relevant field / Boiler Pressure Parts, NDT-Level-II.
9. Source Identification & Authorization letter from BARC – Mumbai or any other approved source along with authorization list of technicians for use of source is in vendor's scope.
10. RSO –Radiology Safety Officer shall present at site for review of site works as and when required
11. Contractor shall submit the SOP for carrying out the radiography & source movement from Pit Room to work place/Job location.
12. The procedure is prepared to define the requirements of Storage and Handling of Radiography cameras and sources in safe, legal and efficient manner, inside the plant premises as per OPGC safety procedure. It is to be submitted by contractor for approval, before start of work at site.
13. Radiographic source to be maintained by contractor as per SOP and shall be responsible for any deviation.

14. Contractor should ensure availability of one source with capacity of 10 to 20 curie at all the time. Please note that source of capacity below 10 curie will not be accepted. During over hauls, second source to be mobilized by contractor. Due intimation will be given before eight days for providing second source for extra works.
15. Documents to be supplied prior to sending Equipment to site:
    a. Type approval document – IR 192.
    b. Source and letter of Authorization from BARC – Mumbai
    c. Pit approval document.
    d. RSO – license.
    e. BARC Level-II.
    f. Source removal procedure.
    g. Back loading of source.
16. Equipment Details:

a) Radiography camera specification and radioactive source details.
b) Radiography for Tubes by IR-192 is to be to be taken at specified joints / Tubes.
c) Single shot elliptical.
d) Two source (8 curie & 20 curie each).
e) Job Size of tube below 2.5" & for pipes size: 4" to 12" (approx.)
f) Radiography for Pipes by IR-192, Film sizes like:
   a) 4" X 3" b) 4" X 12
g) RT-Films shall require AG- D5 for tubes & D7 for pipes
h) Survey Meter, Densitometer, Dosimeter shall be required.

17. After completion of work, four copies of RT-report in prescribed format duly signed by qualified technician as per NDT along with RT films shall be submitted to this office.
18. Contractor shall develop the RT film at our site and shall indicate the shortcomings by proper marking on the joint, if any, so as to repair the joints accordingly.
19. Time being essence of this contract, all the work shall be positively completed within stipulated time limit period.
20. Payment rate: Payment will be done on per day basis consisting of 24 hours for 1 BOQ calculation. Time for calculating the start of period will be from 4 hours prior to start of radiography at site. 4 hours is for mobilization and area preparedness (barricading).
21. However, any delay in activity due to manpower/RT equipment will be penalized of double rate of the delay duration.

18. HANGER INSPECTION / RECTIFICATION

1. Ensure PTW.
2. Making arrangements for adjustments of hanger including the rigging accessories, scaffolding, welding accessories, etc. Scaffolding will be paid separately.
3. Cleaning of all the components of hangers & its supports by compressed air/ wire brush/diesel/cotton waste.
4. Rectification of the defect as per EIC instructions including replacement/repair of tie rods, support pads/ sliding pads, hanger locking, welding, etc.
5. Adjustment of hangers to the required position as per the requirements.
6. Checking of hanger indicators and rectification of defect if any.
7. Any welding cracks to be attended. DPT if required. While DPT will be paid separately.
8. Any oil leakages to be attended.
9. Normalization of the system after clearance from EIC.
10. Any material required for the activity to be issued from stores/yard as per the EIC instructions.
11. Any parts if required to be fabricated from Work shop, has to be done by contractor.

12. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

Note: 1 BOQ will be considered for 1 no. hanger inspection/rectification. 0.5 BOQ shall be considered if minor defects like pin, circlip etc. replacement done. 0.25 BOQ shall be paid for 1 no. Cold/Hot reading.

19. <u>BOILER LICENSE RENEWAL/EXTENSION</u>

Contractor has to fulfill the coordination requirements of Boiler Directorate for the purpose of Boiler License renewal / extension with (in case of Boiler Tube Leakage) or without shutdown. The work involves

1. Visiting Boiler Directorate at Jharsuguda to tie up etc. for Boiler inspection
2. Visiting Boiler Directorate at Jharsuguda for submission of Repair Proposal
3. Visiting Boiler Directorate at Bhubaneswar for approval of repair order
4. Visiting Boiler Directorate at Jharsuguda for submission of supporting documents required for Boiler License renewal

However, deposition of IBR Fees shall be in scope of OPGC.

20. <u>BOILER SAFETY VALVE & ERV SERVICING</u>

<u>In case of spring-loaded Boiler safety valve</u>

1. Ensure PTW.
2. Complete dismantling of the valve and cleaning of all parts
3. Repair / replacement of damaged components including assisting Bharat Heavy Electrical Ltd. Service personnel or any other agencies ·service personnel in case of seat cutting operation if required.
4. It has to depute skilled safety valve technician along with the supporting group.
5. Making new / replaced spares fit to ·use by repair if required.
6. Lapping of seat and disc.
7. Final blue matching to be confirmed from EIC for clearance of box up.
8. Lapping of stem with disc and other critical components.
9. Noting the initial measurements of various critical dimensions of safety valve as prescribed by EIC and preservation of the same during final assembly.
10. Final tightening inspection, simmering& passing inspection while valve in service within one month of light up and taking the corrective actions if required in online or next opportunity shutdown.
11. Assistance in safety valve Steam testing/Trevi testing.
12. Installation of test plugs for hydraulic test and assembly of valve.
13. Gagging of safety valves at the time of internal and external hydraulic tests as per requirement
14. Installation of disc inplace of test plug after the hydraulic tests.
15. All mobilizations with respect to the above activities included in this scope only.
16. If any repair works (possible at in-situ) are required to any parts, same has to be done at site workshop by the contractor.
17. If only hydro test plug installations and removal work is carried out then only 0.5 BOQ will be paid.
18. Lapping block/lapping plate/lapping paste, any spares will be provided by OPGC.

19. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
20. Any material required to be issued/returned from the main stores is under this scope.

In case of ERV

1. Ensure PTW.
2. Complete dismantling of pilot valve of ERV.
3. Clean all components of pilot valve of ERV.
4. Lapping of seat and disc of pilot valve of ERV.
5. Replace damaged parts as directed by EIC.
6. If any repair works (possible at in-situ) are required to any parts, same has to be done at site workshop by the contractor.
7. Replace old gaskets/gland packing with new one.
8. Show all components of pilot valves to EIC and box up pilot valve after getting permission from EIC.
9. Attending defects such-as flange leak of main body of ERV etc.
10. Check and attend leakage if any during service condition.
11. Correction of drain pipelines as per requirement.

SOOT BLOWER/AUX BOILER SAFETY VALVE SERVICING

1. Ensure PTW.
2. Complete dismantling of the valve and cleaning of all parts
3. Repair / replacement of damaged components including assisting Bharat Heavy Electrical Ltd. Service personnel or any other agencies ·service personnel in case of seat cutting operation if required.
4. It has to depute skilled safety valve technician along with the supporting group.
5. Making new / replaced spares fit to use by repair if required.
6. Lapping of seat and disc.
7. Final blue matching to be confirmed from EIC for clearance of box up.
8. Lapping of stem with disc and other critical components.
9. Replacement of bonnet basket. Inspection & cleaning of gasket seating surface.
10. Noting the initial measurements of various critical dimensions of safety valve as prescribed by EIC and preservation of the same during final assembly.
11. Final tightening inspection, simmering inspection while valve in service and taking the corrective actions if required.
12. Assistance in safety valve Steam testing/Trevi testing.
13. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
14. Any material required to be issued/returned from the main stores is under this scope.

Note -

1. Payment for overhauling of main ERV and main boiler safety valve: 100 %of BOO rate.
2. Payment for overhauling of soot blower safety valve & Aux Boiler safety valve: 50 % of BOQ rate
3. Payment for servicing of pilot valve only: 25% of BOQ rate.
4. Note: Payments for attending flange leak of main body by replacing gasket/seal ring as mentioned in point 6 will be made 20% of the BOQ rate.

21. VALVE SERVICING OF VARIOUS SIZES

1. Ensure PTW.
2. Decouple the valve from pneumatic/motorized/hydraulic actuator taking the necessary coupling readings as directed by EIC.
3. Dismantle the valve.
4. Cleaning and inspection of all the components – drive mechanism i.e drive & yoke bush, stem, disc, wedge gate, bonnet, yoke, back seat, valve locking mechanism, wherever applicable.
5. If any repair works (possible at in-situ) are required to any parts, same has to be done at site workshop by the contractor.
6. Replace/Service individual part as directed by EIC.
7. Lapping of man and back seat. Contractor has to ensure confirmation of EIC for assembly of valve.
8. Replace the old gasket/gland packing whichever applicable.
9. Assemble the valve as directed by EIC.All fasteners to be coated with high temperature grease.
10. Mount the actuator wherever applicable, assistance for calibration and limit setting with Electrical/C&I as per instructions of EIC.
11. Hot tightening of gland & bonnet fasteners of valve after charging of the line.
12. Checking for passing of valves after charging of line and attending any defects online/offline during subsequent opportunity.
13. Arranging of bonnet heating (induction/resistance/gas heating) if necessary for removal of valves. Cutting and welding of welded bonnet valves is also to be carried out for dismantling wherever required.
14. Any rigging works if required for handling/removal and assembly of valve is also to be carried out.
15. Gland packing/gaskets/high temperature grease, any new spares will be provided by OPGC. Induction heating m/c will be provided by OPGC.
16. However, Contractor has to mobilize all the materials required for carrying out the service from stores/yard/site store, etc.
17. Valve servicing may include both in-situ servicing and servicing of Boiler area valves at maintenance yard.
18. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
19. In case of valve replacement, scope will be as follows:
    i) Cutting of damaged/passing valves
    ii) Edge preparation of Pipe
    iii) Welding as per approved procedure

Note:

1. 1 no. valve replacement shall be treated as 1 no. valve servicing
2. For replacement of HP valve, joints will be paid as per the item rate of boiler PP joint.
3. In case of replacement of gland packing only (without servicing of valve)-10% of BOQ will be paid.
4. For gland bolt tightening/ assistance in valve limit setting, 5% of BOQ will be paid.
5. In case of replacement of bearing of yoke & gland packing 25% of BOQ will be paid.
6. For servicing of LP valves of same size 50% the item will be paid.
7. Scaffolding if required for the above-mentioned job, shall be paid separately
8. 1 no. valve actuator(motorized/pneumatic/hydraulic) servicing shall be treated as 1 no. valve servicing
9. For valve actuator coupling/decoupling only, 10% of BOQ shall be considered for payment.

22. FLANGE GASKET REPLACEMENT

1. Ensure PTW.
2. Making minor access if required.
3. Loosen the flange bolts.
4. Remove the damaged gasket from the leaky flange.
5. Repair of flange face(welding/filling/polishing/grinding) if required to ensure smoothness at the gasket seating area.
6. Cutting of gasket from gasket sheet if required.
7. Replacement of new gasket with even bolt tightening as per EIC instructions(Torque tightening wherever applicable).
8. Retightening of flange bolts in case of leakage after charging/hydro test.
9. Arrangement of any rigging activity if required and normalization.
10. Any material required for the activity to be issued from stores./yard as per the EIC instructions.
11. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
12. For Flanges of size up-to 50 NB- 0.5 BOQ payment will be made
    For Flanges of sizes more than 50 NB up-to 100 NB- 1 BOQ payments will be made.
    For Flanges of sizes more than 100 NB up-to 200 NB -.2 BOQ payments will be made.
    For Flanges of size more than 200 NB- 3 BOQ payments will be made.

    Note – If flange face repairing required by welding/grinding/polishing, then 2 times BOQ of the gasket replacement will be awarded for each size.

23. IN-SITU REPAIR/HARDFACING OF BURNER / AIR NOZZLE TIPS

1. Ensure PTW.
2. Shift the coal nozzles to the designated places as per EIC instructions.
3. For lifting up & down in boiler, winch machine may be provided from OPGC.
4. Inspect the coal nozzle for wear/damages. If required carry out thickness survey as per EIC instructions. Separate payment will be done for the thickness survey.
5. Surface preparation of the coal nozzles by buffing/grinding/edge preparation.
6. Cut the area where thickness has reduced considerable and weld new plate.
7. Arrangement of all the facilities required for repair/hard facing – lighting, welding accessories connection, power supply, any rigging apparatus for handling the coal nozzle.
8. Locking arrangement should be done in the nozzle to avoid any distortion while welding.
9. Hard face the worn out area/new area after putting the buffer layer. Welding should be done as per FQA procedures.
10. Payment should be done per coal nozzle repaired/hard facing done.
11. Hard facing electrodes and any special electrodes will be supplied from OPGC.
12. Any material required for the activity to be issued from stores/yard as per the EIC instructions.
13. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

24. IN-SITU REPAIR / HARD FACING OF BUNRER NOZZLE COMPARTMENT

1. Ensure PTW.
2. Shift the burner tips to the designated places as per EIC instructions.
3. For lifting up & down in boiler, winch machine may be provided from OPGC.

4. Mark all the damaged and worn-out areas.
5. Lock properly so that distortion of the nozzle tip is avoided.
6. Cut the worn-out portion of the tips as per EIC instructions.
7. Surface preparation of the burner tips by buffing/grinding/edge preparation.
8. Weld new plate. Burner tips will be SS grade material. Welding should be done as per FQA procedures.
9. Hard face the worn-out area/new area after putting the buffer layer.
10. Arrangement of all the facilities required for repair/hard facing – lighting, welding accessories connection, power supply, any rigging apparatus for handling the coal nozzle.
11. Payment should be done per burner tip repaired/hard facing done.
12. Hard facing electrodes and any special electrodes will be supplied from OPGC.
13. Any material required for the activity to be issued from stores/yard as per the EIC instructions.
14. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

25. <u>BURNER TILT DEFECTS ATTENDING</u>

1. Ensure PTW.
2. Required T&P shall be arranged well before start of work for avoiding any delay as per EIC instructions.
3. The scope of work includes servicing of burner tilt linkage mechanism including burner connecting link/link rods & shafts/bearings/bushings.
4. Decouple the power cylinder from burner tilt mechanism.
5. Open manhole door/panel door for internal inspection.
6. Clean the linkages/lubricate the linkages.
7. Repair/replace the supporting members and any worn parts.
8. If any job involves machining at work shop, perform the same.
9. Physically check the jamming cause and rectify.
10. Operate the burner manually to both the limits at various positions with the help of chain block.
11. Ensure smooth operation of burner mechanism.
12. Record the burner tilt reading at various elevations.
13. Box up the manhole door/panel door with new gaskets/ropes.
14. Couple the burner tilt power cylinder.
15. Provide assistance to the operation for burner tilt trial operation and attend the defects if any found.
16. Any material required for the activity to be issued from stores/yard as per the EIC instructions.
17. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

Note: a) Repair of one burner (Coal/Air/Oil) compartment shall be treated as 1 BOQ.
b) Coupling and decoupling of Burner Tilt Power Cylinder shall be treated as 1 BOQ

26. <u>REPLACEMENT OF BURNER TILT SHEAR PIN</u>

<u>Scope of work for shear pin replacement in one location</u>

1. Ensure PTW.
2. Required T&P shall be arranged well before start of work for avoiding any delay as per EIC instructions.
3. Clean the component of burner tilt.
4. Remove the damaged shear pin with the help of chain pulley block.

5. Place the new shear pin with coating of anti-seize compound, such as molykote, etc.
6. Check the free operation of the burner tilt after removal of chain pulley block.
7. Provide assistance to the operation for burner tilt trial operation and attend the defects if any found.

Scope of work for locking of burner tilt in one location

1. Ensure PTW.
2. Required T&P shall be arranged well before start of work for avoiding any delay as per EIC instructions.
3. Clean the component of burner tilt.
4. Remove the damaged shear pin with the help of chain pulley block.
5. Lock the burner tilt by locking pin in 0 degree. Ensure correctness of the locking.
   General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
   Any material required to be issued/returned from the main stores is under this scope.

Note –1 BOQ shall be paid for replacement of each shear pin / locking of burner links at one shear pin point.

27. SADC FREENESS- SERVICING /MECHANICAL JAM CLEARING

1. Ensure PTW.
2. Ensure isolation of air supply to SADC power cylinder.
3. Decouple the power cylinder from damper mechanism.
4. Physically check the cause for jamming / defects and attend the same.
5. Couple the cylinder with damper mechanism.
6. Provide assistance to the operation for SADC trial operation and attend the defects if any found.
7. Any rigging arrangements and minor access/scaffolding required for the activity is included in the scope.
8. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

Note: 1 SADC damper servicing shall be considered as 1 BOQ

28. PM JOB OF HFO/LDO/DRAIN OIL PUMP/ETP SYSTEM PUMPS (3 MONTHLY)

1. Ensure PTW with isolations
2. Check for mechanical seal leakages and replace the seal if leakages found
3. Check for leakages in flanges and attend the same
4. Check the freeness of the pump and rectify if any problem
5. Open the rear cover of pump and check the condition of screws and bearings
6. Lubricate the bearings with suitable oil/grease as per OEM recommendation
7. Check the coupling condition and replace if any damage of internals
8. Do the servicing of relief valve if required
9. Attend all leakages in the pump
10. Clean the suction strainers and filters associated with the pump
11. Check the tightness of motor and pump base bolts
12. Do the alignment if replacement in case of any mechanical seals/coupling or any other internals

13. Box up the equipment
14. Return PTW

PM OFAUX BOILER BFP/BOOSTER PUMP/CTP (3 MONTHLY)

1. Ensure PTW
2. Check for any water leakages in the pump and attend the same
3. Check for lubricant condition and replace the same if required
4. Check for coupling condition and repair/replace if needed
5. Check the mechanical seal/gland packing condition and replace if having leakage
6. Check for tightness of the base bolts properly
7. Check the NRV condition and clean and install properly
8. Check the cooling water piping and clean thoroughly
9. Clean the strainers installed and fix back in position
10. Do the alignment if any internals replaced
11. Box-up all the equipment properly
12. Return PTW

PM OF HP-LP DOSING SYSTEM

1. Ensure PTW
2. Carry out external cleaning of equipment.
3. Check the condition of view glass, clean it
4. Check the condition of oil & level of gear box, replace/top up if required
5. Check the tightness of foundation bolt if loose then tighten/replace if required.
6. Check the condition of base frame, take necessary corrective measures if required.
7. Check the condition of coupling
8. Check for any leakages in associated pipe line or flanges, if required replace the gaskets
9. Check for any oil leakages from gear box
10. Carry out housekeeping after completion of work

PM OF FLASH TANK DRAIN TANK CONDENSATE PUMP (BI – MONTHLY)

1. Ensure PTW
2. Check for any water leakages in the pump and attend the same
3. Check for lubricant condition and replace the same if required
4. Check for coupling condition and repair/replace if needed
5. Check the mechanical seal/gland packing/oil seal condition and replace if having leakage
6. Check for tightness of the base bolts properly
7. Check the NRV condition and clean and install properly
8. Check the cooling water piping and clean thoroughly
9. Clean the strainers installed and fix back in position
10. Do the alignment if any internals replaced or if vibration found high
11. Box-up all the equipment properly
12. Return PTW

29. HFO/LDO/DRAIN OIL PUMP/ETP SYSTEM PUMPS/AUX BOILER- BFP/HP LP DOSING PUMP OH/SERVICING

1. Ensure PTW with required isolations

2. Decouple the pump and remove the pump
3. Replace the new spare pump if available or overhaul the same pump and then replacement
4. After replacement do the alignment within allowable limit
5. Box up and trail run of the pump after work completion
6. Open the replaced pump for overhauling
7. Remove all the internals from the pump in sequence
8. Clean all the internals like screws, cartridge, bearings and bushes, seals and O-rings properly
9. Inspect the mechanicals seal condition and replace if found damaged or wear out
10. Inspect the screw and cartridge condition for wear out and check clearance between screw and cartridge. If clearance found high replace the screw set along with cartridge
11. Replace all the bearings, O rings and oil seals
12. Lubricate the bearings with suitable oil/grease as per OEM recommendation
13. Open relief valve and clean all the internals
14. Replace the damaged internals if any
15. Box up the relief valve assembly and kept the spring load at minimum and adjust the same during trail run after pump installation
16. Box up the equipment
17. Return PTW

30. DECOUPLING/COUPLING/ALIGNMENT OF HFO/LDO/DRAIN OIL PUMP/ETP SYSTEM PUMPS/AUX BOILER-BFP/HP LP DOSING PUMP

1. Ensure PTW with required isolations
2. Decouple the pump
3. Assist in motor no load trial run
4. Inspect the pump for freeness, levelling etc.
5. Preparation of alignment fixture, cutting of shims etc.
6. Carry out alignment of pump and motor
7. Show initial and final alignment readings to EIC
8. Couple the pump and motor after EIC clearance
9. Assist during trial run of pump and attend the defect, if any
10. Do the housekeeping

31. REPLACEMENT OF OVER RUNNING CLUTCH

1. Ensure PTW
2. Decouple and then remove the drive motor
3. Remove the coupling from the input shaft
4. Remove the clutch hosing assembly from the gearbox
5. Decouple the clutch from bevel gear shaft
6. Remove the clutch from the shaft using suitable puller
7. Replace the clutch
8. Assemble back the clutch to bevel shaft
9. Assemble the clutch housing to gearbox
10. Set the bearings and oil seals properly
11. Assemble the coupling to the clutch shaft
12. Reposition the drive motor and do the alignment
13. Coupling with motor and then box-up

14. Take trail and then return the permit if everything is normal
15. Repair the clutch later

32. REPLACEMENT & SERVICING OF FLUID COUPLING

1. Ensure PTW
2. Decouple the fluid coupling from the gearbox and take outside
3. Replace new coupling and couple properly
4. Check the condition of fusible plug and replace if required
5. Fill the new coupling with required amount of oil and then plug the filling hole properly
6. Fix the alignment fixture and do the alignment and record the reading
7. Get the approval from EIC regarding Alignment reading and then remove alignment fixture
8. Box-up the coupling guard and surrender for operation
9. Dismantle the fluid coupling
10. Observe the bearings and replace if damaged
11. Observe for any shaft undercuts at oil seal area and if found get the work done in workshop(the scope not includes machining works but includes manpower assistance for coupling transportation within site workshop)
12. Replace the Oil seals and O-rings
13. Clean the impellers and runners properly
14. Assemble the coupling properly
15. Fill the coupling with oil and store properly
16. Return PTW

SERVICING OF FLUID COUPLING

1. The scope covers only servicing of fluid coupling
2. Dismantle the fluid coupling
3. Observe the bearings and replace if damaged
4. Observe for any shaft undercuts at oil seal area and if found get the work done in workshop(the scope not includes machining works but includes manpower assistance for coupling transportation within site workshop)
5. Replace the Oil seals and O-rings
6. Clean the impellers and runners properly
7. Inspect the internals for any damage
8. Replace the damaged internals
9. The scope covers also issue of spares from stores
10. Assemble the coupling properly
11. Fill the coupling with oil and store properly

Note – a) One BOQ refers to cost of both replacement & servicing. If either of replacement or servicing done then only 50% of BOQ cost will only be paid.

b) 0.1 BOQ shall be considered for Fluid coupling fusible plug replacement and oil filling.

33. SERVICING OF AIR MOTOR

1. Ensure PTW
2. Remove the air motor vane assembly and clean the vanes properly
3. Check whether the air ports clear or not and clean properly

4. Check whether any gaskets damaged and replace if found any damage
5. Open the gearbox and check for any internals damage
6. Replace if any internal part found damage or assemble the old one
7. Clean the internals properly
8. Replace the bearings and oil seals if required
9. Assemble back the gearbox and fill the oil
1. Assemble the vane assembly back into air motor casing correctly. (If any vanes damaged or air motor needs replacement then it also included in the scope)
2. Connect the air piping to air motor and then take trail for air motor operation
3. Return PTW after work

SERVICING OF AIR MOTOR GEAR BOX

1. Remove the air motor vane assembly and clean the vanes properly
2. Dismantling of the gearbox
3. Inspection of gearbox internals for any damage and replace the same if needed
4. Replacement of bearings, oil seals and O-rings
5. Issuing of the spares from stores
6. Box-up of Gearbox after replacing the damaged internal parts
7. Oil fill-up and preserving the gearbox

REPLACEMENT OF AIR MOTOR

1. Ensure PTW
2. Decouple the air motor with gearbox
3. Remove the air motor assembly from the gearbox
4. Repair/replace the air motor
5. Assembly back to gearbox
6. Take trail and return PTW

Notes:

I. One BOQ includes either of servicing of Air motor or Air motor gearbox. If both have done then 2 BOQ amount will be paid

II. If only replacement of air motor to be done, 50 % of BOQ shall be paid.

34. ALIGNMENT OF MAIN MOTOR/AIR MOTOR

1. Ensure PTW
2. Arrange 24 V lights for sufficient illumination
3. Install then alignment clamp and then dial gauges
4. Take the readings and note down
5. Adjust the shims to get desired reading
6. Check and adjust the coupling gap if needed
7. Take the reading after shims adjustment
8. Full tight the base bolts and then take final reading and if found within design value remove the alignment fixture
9. Tight the coupling bolts properly
10. Fill the oil in fluid coupling if required
11. Box-up the coupling guard
12. Remove all the T&P from the work area
13. Return PTW

35. RADIAL SEAL REPLACEMENT/SETTING

Note -Thisscope covers radial seal repair/replacement (partial or full length) of one module and also includes seal gap setting.

1. Ensure PTW
2. Open the manhole doors
3. Arrange 24 V lights for sufficient illumination
4. Inspect the radial seals for any damages
5. Replace the damaged seals including the seal tabs.
6. Install the straight edge if needed
7. Adjust the seal gap wrt sector plate as per design value
8. Rotate the APH and set the radial gap setting for all the seals
9. Remove all the T&P and scrap and foreign material from the APH
10. Box-up the, manholes and ensure all the manholes to be seal proof
11. Return PTW

Note: (A) For Radial Seal – 0.5 BOQ refers to cost of replacement of one radial seal assembly of around 6.617 meter.
(B)For Axial Seal – 0.3 BOQ refers to cost of replacement of one axial seal assembly of 01 Diaphragm Plate.
(C) For Bypass seal – 0.1 BOQ refers to cost of replacement of each Bypass seal plate.

36. SECTOR PLATE LEVELLING & CHECKING

1. Ensure PTW
2. Open the manholes of APH
3. Arrange 24 v Lamps for sufficient illumination
4. Select any one of radial seal and check the sector plate to seal radial seal gap w.r.t. any that seal
5. Note the readings of all the 3-sector plate at both ends of sector plates at Inboard, middle and out board also
6. If the readings is found different for the 3 sector plates then adjust the sector plate to same value
7. Clean the LCS system of sector plate adjustment mechanism
8. Using suitable tool Adjust the both track rods of the sector plate to match the suitable clearance w.r.t. radial seal
9. Do the greasing of the gearbox if required
10. Adjust all the 3 sector plates to required clearances
11. Box-up the gearbox mechanism
12. Adjust the tracking rod indicator and set to correct value
13. Remove all the T&P and other foreign materials inside APH
14. Box-up all the manholes' doors
15. Return PTW

Note – (A)0.4 BOQ refers to complete 1 no of APH i.e 3 sector plates.
(B) 0.6 BOQ refers to Rotor Leveling of 01 APH.

37. AIR SEAL ASSY. LEAKAGE ATTENDING

1. Ensure PTW
2. Clean the air seal assembly area
3. Ensure seal air piping is through
4. Open the seal assembly covers
5. Replace the gland ropes and gaskets
6. Find any welding leakages and attend the same
7. Close the seal assembly covers properly and tightening
8. Apply refractory at missing areas nearby seal assembly area
9. Return PTW

38. RACK PINION ARRANGEMENT INSPECTION

1. Ensure PTW
2. Open the Pin rack access door at gearbox bottom
3. Check visually for any wear out at Pin rack pins and pinion gear
4. Check and note the pin rack gap and adjust the gap if required
5. Close the access door and apply proper gasket and sealant
6. Return PTW

39. SCANNER AIR / GATE DAMPER SEALING AIR FAN INSPECTION & PM

1. Ensure PTW
2. Clean the fan casing with air & then with cotton waste
3. Check for looseness of bolts if any
4. Check for any air leakages
5. Note down all the defects
6. Check the freeness of dampers
7. Inspect the impeller only if permit is with electrical isolation
8. Box up and Return PTW.

SCANNER FAN SUCTION/DISCHARGE FLAP VALVE SERVICING

1. Ensure PTW
2. Clean the fan casing with air & then with cotton waste
3. Check for jamming of flaps
4. Open the flap cover and check for any internal problems and clear the same
5. Check the gasket of flap is proper or not and replace if found damage
6. Clean and apply the lubricant to flap bearings
7. Box--up the covers
8. Return PTW

Note: 1 BOQ shall be considered for Fan Suction & Discharge valve servicing. 0.2 BOQ shall be considered for decoupling/coupling of valves.

SERVICING OF SEALING & COOLING AIR FANS OF ID FAN

1. Ensure PTW with all required isolations & precautions
2. Open the fan suction duct and inspect the impeller for any damage or looseness

3. Check the discharge flap for freeness and attend if any problem
4. Check the damper bearings.
5. Check the damper bearings and replace if required
6. Clean the ash inside the fan casing and on the impeller
7. Assemble back all the internals and then casing
8. If required assistance for motor replacement and then box up.
9. Return PTW

Note – a) Rectification work against high vibration in sealing & cooling fans shall be considered as 2 BOQ

40. <u>FAN INSPECTION:INTERNAL INSPECTION OF FD/ID/PA FANS</u>

1. Ensure PTW with all required isolations & precautions
2. Open manhole Doors
3. Place 24 V DC light inside ensure sufficient illumination.
4. Clean the suction duct & discharge duct including HAD chamber free from ash, dust & also all foreign materials
5. Inspect for any leakages on main bearing housing and servomotor side as well
6. Attend all the leakages founded in inspection
7. Remove the ash in servomotor hood
8. Inspect the coupling bolts at Fan & Motor side and tight if found loose
9. Inspect the Link rod bearings for freeness and greasing
10. Inspect and replace the Oil seals of Link rod bearings if required
11. Inspect the coupling of pneumatic cylinder and rectification
12. Limit setting in coordination with C&I and Operation team
13. Inspect servomotor coupling elements and replace if found damage
14. Blade pitch trial and limit setting and adjustments if any
15. Inspection of suction and discharge ducts before box-up
16. All casing manholes box-up properly for leak proof sealing
17. Removal of scrap from workplace
18. Return PTW

<u>INTERNAL INSPECTION OF APH</u>

1. Ensure PTW with all required isolations & precautions
2. Open manhole Doors
3. Place 24 V DC light inside ensure sufficient illumination.
4. Removal of foreign material /pipe bracing etc. from inside of APH
5. Visual inspection of baskets
6. Measuring seal clearances for future reference. Job planning
7. All casing manholes box-up properly for leak proof sealing
8. Removal of scrap from workplace
9. Return PTW

Note: In case of lifting of top casing for internal inspection of ID/PA/FD Fans, 3 BOQ shall be paid.

41. OVERHAULING OF MBA(MAIN BEARING ASSEMBLY)/IMPELLER - FD/PA/ID FAN

Detail scope of Work for this BOQ is as given below:

A) REPLACEMENT/SERVICING OF MAIN BEARING ASSEMBLY

1. Ensure PTW with all required isolations & precautions
2. Open manhole Doors
3. Decouple Fan from Motor
4. Remove the fabric bellows at suction & discharge side of casing
5. Remove all lube oil / Air Line connection
6. Remove the insulation sheets for casing bolts removal
7. Remove the casing bolts and store properly
8. Arrange the sling ropes for casing lifting
9. Using EOT lift the casing and place it on the 6 stands provided
10. Remove blades from Impeller and clean all blades for DPT.
11. Use OPGC approved DPT Kit. DPT kit shall in the scope of the contractor.
12. Decouple the main shaft from intermediate shaft after opening bullet cover. Remove Impeller with MBA from its position and shift it to Maintenance Bay/Workshop as per EIC instruction.
13. Remove damaged bearings, HAD etc. and all seals/components as per requirement
14. Servicing of main bearing assembly/ Impeller/HAD etc. as per drawing and record all critical dimensions for record.
15. After servicing of MBA, do the assembly of MBA with Impeller and fix HAD on it.
16. Refix all clean blades on impeller hub with proper blade gap as per drawing.
17. Ensure torque tightness of bearing housing all bolts, Blade fixing screws, discharge side bolts etc. as per drawing.
18. Do alignment of Motor with Fan shaft and record for future
19. Connect all lube/HAD oil line and link rod and after connection of C&I connections, take trial of LOP and check/attend oil leakages/other defects.
20. Fix Intermediate shaft and position bullet cover & casing top cover. Tighten all bolts.
21. Fixing the casing joint fabric bellows and clamp tightening.
22. Thoroughly clean suction and discharge side fan with compressed air. Check the tightness of bullet cover bolts. Fan internal should be free from any unwanted material.
23. Close all manhole doors.
24. Take Fan trial run and attend defects, if any.
25. Remove the scrap at work area and do proper house keeping
26. Return PTW

Note – a) 1 BOQ shall be considered for ID Fan
b) 0.7 BOQ shall be considered for PA Fan
c) 0.6 BOQ shall be considered for FD Fan

B)ALIGNMENT OF FAN WITH MOTOR FOR FD/PA/ID FAN

1. Ensure PTW with all required isolations & precautions
2. Remove the coupling guard and fix the dial gauge
3. Lift the casing for fitting Dial gauge at Fan side
4. Adjust the Intermediate shaft cover for fitting dial gauge clamps
5. Take the clearances between bearing housing to its pedestal and check if it is in required range or not and adjust if required

6. Take the readings and note down the values
7. Check & Adjust the Magnetic center distance as per OEM value wherever applicable
8. Take the alignment readings and adjust the values to Required values with the shims
9. Full tightening of Base bolts after final adjustment and take reading once more
10. After final reading is attained within design value inspect along with Engineer In charge and take approval for box-up
11. Remove dial gauge and clamps and then tight the coupling bolts fully to required torque value
12. Position back the intermediate shaft cover to its position
13. Remove all the foreign material and box-up the casing, manholes and coupling guards and others
14. Return PTW

Note: a) 0.1 BOQ shall be considered for alignment of FD/PA/ID Fans
b) 0.05 BOQ shall be considered for only decoupling and recoupling.

C)<u>REPLACEMENT/SERVICING OF HAD/SERVOMOTOR FOR FD/PA/ID FAN</u>

1. Ensure PTW with all required isolations & precautions
2. Open the manhole door at diffuser side and enter into the servomotor chamber (In case of ID Fan it is suggested to lift casing for better & safe work on Servomotor)
3. Remove the oil piping, couplings, impeller covers and takeout the servomotor
4. Replace the new/repaired servomotor
5. Assemble the Impeller Cover and bolt the HAD to the end cover. Assemble the Lube oil piping
6. Start LOP to check blade pitch operation
7. If blade pitch found operating normal and no oil leaks found then proceed for further step. Otherwise replace the HAD
8. If HAD found healthy then go for HAD alignment wrt main rotor
9. Assemble the couplings of had back to position
10. Limit setting in coordination with C&I and Operation team
11. All Manholes Box-up.
12. Return PTW

<u>SERVICING OF HAD</u>

13. Open the HAD feedback rod, cylinder end cover
14. Remove the piston locknut and take piston outside
15. Take the cylinder body out from the piston shaft
16. Dismantle servo head assembly in sequence without damaging any part and store properly
17. Observe if any of the O-rings found damage
18. Remove and replace all the bearings of Piston shaft as well as Feedback rod
19. Replace all the oil seals and O-rings of Servo head assembly and also Cylinder
20. Replace if any of the items found damage
21. Assemble back the items in reverse order

Note: a) 0.1 BOQ shall be considered for replacement of HAD
b) 0.1 BOQ shall be considered for servicing of HAD

D)<u>INSPECTION& CLEANING OF SILENCER, SUCTION & DIFFUSER DUCTS OF ID/PA/FD FAN</u>

1. Ensure PTW with all required isolations & precautions
2. Open manhole Doors
3. Place exhaust fans on the inspection door if required.

4. Place 24 V DC light inside ensure sufficient illumination.
5. Clean the suction duct & discharge duct free from ash, dust & also all foreign materials.
6. Erect the proper scaffolding for silencer inspection & get it approved
7. Inspect the silencer support clit plates welding proper or not and do DPT if necessary and repair if any defect found
8. Inspect the Guide vanes and casing support brackets properly and do required hard facing if necessary for both suction & discharge ducts
9. Inspect the bracings and their supports properly in suction & discharge ducts and repair if any
10. Remove the scaffolding from suction duct after approval from Engineer In-charge
11. Once again check the suction & discharge ducts for any foreign materials etc. and remove the same
12. Close the Manhole doors by applying proper gasket and sealant and make it leak proof (The defect liability period will be 1 year and incase any leakage happens from manhole within next 1 year the same has to be attended by the vendor at free of cost)

Note: a) 0.05 BOQ shall be considered for inspection and cleaning of Silencer from inside.
b) 0.01 BOQ shall be considered for external cleaning of Silencer

E)ATTENDING LUBE OIL SYSTEM DEFECTS OF APH/ID/PA/FD FAN

1. Ensure PTW with all required isolations & precautions
2. Identify external oil leakage from pipe line, hoses, pump mechanical seal etc.
3. Attend the defect.
4. Do the housekeeping
5. Return the permit

Note: a) 0.02 BOQ shall be considered for attending oil leakage from mechanical seal of LOP.
b)0.01 BOQ shall be considered for any other defects.

42. PM OF SEAL AIR FAN

1. Ensure PTW
2. Inspect the seal air fan for any casing air leakages and other flange leakages and record the same for attending during opportunities
3. Inspect for oil leakages in fan bearing housing area and note down the same if any
4. Inspect for oil level in the bearing housing
5. Inspect for any abnormal sound from the fan and Bearing housing
6. Inspect the fan bearing housing by touching with hand and observe for any high temperature
7. Inspect the damper and actuators properly intact or not
8. Record all the observations and list out the defects for attending in opportunities
9. Return PTW

AUX BOILER FD FAN PM (4 MONTHLY)

1. Ensure PTW
2. Check for any air leakages and attend the same
3. Check for any gland rope/gasket leakages and attend the same properly
4. Check for any duct/casing leakages and do attend/welding the same properly
5. Inspect and servicing of suction and discharge damper expansions bellows
6. Inspect and servicing of suction and discharge side expansions bellows

7. Checking the lubricant condition and replace/refill to normal level
8. Check for coupling condition and rectification
9. Do the alignment if the vibrations found high
10. Properly box up all the equipment
11. Return PTW

43. <u>SEAL AIR FAN ALIGNMENT</u>

1. Ensure PTW
2. Remove the coupling guard
3. Fix the alignment clamp and then fix dial gauges
4. Check the coupling gap as per design or not and correct if required
5. Take the alignment readings and note down the same
6. Correct the readings to desired value by adjusting the shims
7. After final reading achieved tight all the fixing bolts fully
8. Take one more final reading and then get it approved by EIC
9. Do the coupling
10. Return PTW

<u>SEAL AIR FAN COUPLING REPLACEMENT</u>

1. Ensure PTW
2. The scope includes Decoupling, inspection and replacement of coupling
3. Decouple the Fan with motor by removing the coupling bolts or Coupling grid
4. Inspect the coupling element and replace if required
5. Inspect the coupling and replace if damaged
6. The Alignment is not included in the scope and if alignment has to be done then the same will be covered in below line item
7. Box-up the coupling and fix coupling guard
8. Return PTW

Note – a) 1 BOQ shall be considered for Seal air fan alignment work
b) 2 BOQ shall be considered for seal air fan coupling replacement

44. <u>SEAL AIR FAN BEARING INSPECTION/REPLACEMENT, CLEARANCE CHECKS</u>

1. Ensure PTW
2. Remove the bearing end covers and inspect the oil seals
3. Take the clearance of bearing using feeler gauge
4. If clearance found high replace the same
5. Replace the Oil seal assembly if required
6. Check the bearing to housing clearance using lead wire and adjust the same if required
7. Assemble back the bearing housing
8. Final Box-up and return PTW

Note: a) 1 BOQ shall be considered for bearing inspection & replacement
b) 2 BOQ shall be considered for complete Rotor assembly replacement

c) 0.1 BOQ shall be considered for oil seal/Labyrinth Seal replacement

45. PREVENTIVE MAINTENANCE OF COAL MILL

1. Ensure PTW
2. Open Pulveriser Access Doors
3. Place exhaust fans on the inspection door.
4. Place 24 V DC light inside ensure sufficient illumination.
5. Clean the internals of mills completely by removing coal and foreign materials.
6. Check the oil level in lube oil tank and if necessary, top up the oil.
7. Check the oil level and quality in journal assembly with dip stick and top up if necessary.
8. Check and adjust ring to roll gap.
9. Check and adjust spring to journal head gap.
10. Check the condition of scrapper and adjust the scrapper clearance.
11. Check the gap between inner cone & inverted cone.
12. Check the gap between inner cone &center feed pipe.
13. Open the inner cone inspection door and inspect the internals.
14. Remove the gunny bags/wires or any other foreign materials from the classifier vanes. Adjust the classifier vanes setting.
15. Check the gap between the air restriction ring segments and bowl hub.
16. Repairing /welding of air restriction ring segment.
17. Check for spring tensioning as if required.
18. Purging of seal air line
19. Check coupling for wear or damages.
20. Check the Grinding roll and BRS wear.
21. Check trunnion bolts condition, if damaged replace it with new ones.
22. Check head liner and skirt assembly, and as per the instruction of EIC replace or repair it.
23. Check the deflector conditions and if necessary, repairing to be done.
24. Check the condition of vane wheel assembly and if necessary, repairing to be done.
25. Check the condition of feeder o/l chute and transition piece, if necessary, repairing to be done.
26. Check classifier vanes, if required repair or replacement to be done as per the instruction of EIC.
27. Lubrication of adjustment mechanism of classifier vanes.
28. If replacement of any spares required, issue it from store.
29. PM of lube oil system to be done in Coal Mill PTW only. No additional payment shall be provided for the same.
30. Close all pulveriser access doors.
31. Housekeeping of Coal Mill shall be done after completion of work.

Note –

1. **PM of Coal Mill, Lube oil system and feeder will be taken on the same day but different gangs to be allocated for the work.**

51. BULL RING SEGMENT REPLACEMENT

1. Open the separator body access doors.
2. Remove the seal air piping from the spring assembly.
3. Lower the journal so the grinding rolls is resting on the bowl by removing the stop bolt nut and fasteners. Remove the key, stop bolt & O-Ring.

4. Rig the journal opening cover through the two holes in the top. A choker around the end of the spring assembly with come-along up to the crane hook for balance may be used. Remove the fasteners and cover.
5. Tilt out the roller assembly.

6. There are Grind welds between the bull ring segment end shims and the bowl extension ring segments. Grind them out and remove the shims.
7. Remove bull ring clamping ring and remove the bull ring segments.
8. If the bull ring clamping ring and keys are undamaged, they may be left in place. If they are damaged, remove them.
9. Clean the surface of the bowl.
10. Install the bull ring clamping ring segments with fasteners.
11. install the key
12. Arrange the bull ring segments on the bowl in numbered sequence starting with the keyed segments #1 and proceeding clockwise. Be sure to push each segment down firmly against the bull ring clamping ring and driven counter-clockwise so that it is firmly up against the proceeding segment.
13. Bull ring segments side shims may be added or removed as required to make tight fitting assembly.
14. The upper surface of the segments should match within 1.5 mm. The total mismatch around the entire perimeter of the assembly must not exceed 3 mm.

Note -

1. **Planned replacement of BRS schedule to be given to contractor beforehand and the contractor should make proper arrangement prior to job. This includes shifting of spares from store to site, shifting of Tools, tackles and other consumables required for the work. Contractor should also be prepared for any unplanned replacement depending upon the equipment condition and instruction from EIC.**
2. **1 BOQ shall be paid for Bull ring segment replacement.**
3. **Payment for removal and installation of Journal assembly shall be made separately as per the respective schedule**

52. REPLACEMENT OF JOURNAL ASSEMBLY DUE TO BEARING FAILURE/OIL SEAL DAMAGE/WEAR OUT OF GRINDING ROLL(GRINDING ROLL REPLACEMENT)

1. The scope covers replacement of damaged roller assembly with new/serviced roller assembly
2. Ensure the PTW
3. Open the separator body access doors.
4. Remove the seal air piping from the spring assembly.
5. Lower the journal so the grinding rolls is resting on the bowl by removing the stop bolt nut and fasteners. Remove the key, stop bolt & O-Ring.
6. Rig the journal opening cover through the two holes in the top. A choker around the end of the spring assembly with come-along up to the crane hook for balance may be used. Remove the fasteners and cover.
7. Tilt out the roller assembly.
8. Remove the grinding roll keeper.
9. Remove the set screws which are in the grinding roll face. Do not remove the set screws in the journal housing face.

10. Install the grinding roll removal lug, ensure that the bolts thread into the grinding roll, not the journal housing. Torque the bolts to 50 ft-lb.
11. Install a wire rope sling through the grinding roll removal lug.
12. Attach the rope sling to the overhead crane positioned above the centre of the grinding roll. Take up the slack.
13. Remove the journal head liner assembly
14. Remove the damaged roller from the Journal head.
15. If grinding roll needs replacement then Heat the grinding roll with a stress relieving blanket or similar device; monitor the temperature.
16. As the temperature of the roll approaches 93°C, apply a slight load on the rigging. Maintain a constant heat for approximately 45 to 60 additional minutes to ensure that the roll is heated throughout.
17. Once the roll breaks free and lifts clear of the housing, move it away from the pulveriser to a suitable area to cool.
18. Clean the mating surfaces of the journal housing and the bore of the new roll.
19. Install the grinding roll removal lug on the new roll.
20. Use a stress relieving blanket or similar device to heat the new grinding roll. Monitor the roll temperature; it should not exceed 93°C.
21. Lift the roll and carefully lower it onto the journal housing.
22. Verify that the back face of the roll seats completely on the housing.
23. Remove the wire rope sling and grinding roll removal lug. Immediately install the grinding roll keeper plates and fasteners. Torque the fasteners to 310 ft-lb.
24. Allow the roll and journal housing to cool to near ambient.
25. Install the set screws into the face of the grinding roll.

26. Assembly new journal assembly into position and tight the bolts to required torque
27. Fix the Journal head liner assembly
28. Remove the journal lifting lug
29. Arrange roller tilt in mechanism
30. Tilt in the roller back into position
31. Assembly the spring assembly back into position
32. Maintain spring assembly clearance and bowl to roller gap to desired values
33. Tight the locknut
34. Ensure oil up to required level in the roller
35. Box-up the all removed spares back in position
36. Removal of scrap inside and outside the equipment
37. Shifting of damaged roller to service bay
38. Trail run of mill and inspection for any abnormalities and attend the same

Note -

1. **One BOQ refers to one no of roller.**

53. JOURNAL ASSEMBLY SERVICING

1. Drain the oil from the journal.
2. Remove the journal head liner assembly.
3. Remove the journal skirt assembly.
4. Remove the oil fill pipes. Plug the port in the end of the journal shaft with the pipe plug.
5. Remove the set screws in the face of the journal housing

6. Install the grinding roll removal lug; ensure that the bolts thread into the journal housing, not the grinding roll. Torque the bolts.
7. Install a wire rope sling through the grinding roll removal lug.
8. Attach the rope sling to the overhead crane positioned above the centre of the grinding roll. Take up the slack.
9. After removing the fasteners holding the journal shaft assembly to the journal head lift the journal shaft assembly off the journal head and take it to a maintenance facility.
10. Secure the shaft assembly to the foundation plate.
11. Remove the lower journal housing cover. Discard the O-Ring.
12. Unbolt the oil seal keepers and remove them.
13. Remove and discard the three oil seals. As the seals are removed, some residual oil may spill; be prepared for clean-up.
14. Unbolt and remove the two journal housing liners
15. Unbolt the upper journal housing cover and let it slide down to rest on the seal wear ring. When the O-ring seal loosens, some residual oil may spill; be prepared for clean-up. Discard the O-Ring.
16. Continue disassembly of the journal shaft by unbolting and removing the journal bearing keeper, cap screw lock plate, and bearing keeper shims.
17. Using a suitable puller, remove the inner outer race of the lower journal bearing from the journal shaft.
18. Attach lifting equipment, eyebolts and sling, to the journal housing. Lift the journal housing off the journal shaft. The upper and lower bearing inner races will remain inside the journal housing.
19. Using a suitable puller, remove the inner outer race of the upper bearing and spacer from the journal shaft.
20. Lift off the upper journal housing cover.
21. Using a suitable puller, remove the seal wear ring from the journal shaft.
22. Use a suitable puller to remove the upper and lower bearing cone assemblies from the journal housing.
23. Clean and inspect all components to determine required replacements.
24. Slide over the shaft the three solid oil seals and set them down on the flange. Be sure that the two closest to the large flange have the lips pointing towards the flange and the one farthest away from the flange has the lip pointing away from the flange**.**
25. Heat the new oil seal wear ring to 120°C and slide it into position on the journal shaft. The oil seal wear ring must be firmly seated against the shaft step before it cools.
26. Set the upper journal housing cover down over the journal shaft and block it up so that the end of the journal housing cover is at the same elevation as the end of the oil seal wear ring.
27. Grease the O-ring with molykote grease (or other equal product) and set in the upper journal housing cover grove.
28. Slide the journal bearing spacer over the journal shaft with the chamfer side against the shoulder.
29. Slide the inner race assembly for the upper bearing onto the journal shaft. It should rest firmly against the bearing spacer.
30. Chill the two tapered roller bearing outer races down to at least -15°C. Install both races in the journal housing and clamp them in place until the housing and race temperatures reach equilibrium.
31. Lower the journal housing assembly onto the journal shaft.
32. Install the inner race assembly of the lower tapered roller bearing on the journal shaft.
33. Attach the bearing keeper to the end of the journal shaft. Hand tighten the bolts.
34. When the component temperatures are equal, rotate the journal housing at least five times in each direction to seat the bearing rollers.

35. Remove the bearing keeper and use a depth micro meter to measure the gap between the end of the shaft and the edge of the lower bearing cone.
36. Assemble a shim set 0 ~0.05 mm more than the measured gap.
37. Install the shims, bearing keeper, and the lock plate, and torque the fasteners.
38. Install three eyebolts 120° apart on the bearing housing; attach chain shackles and a chain sling.
39. Centre a crane over the roll and shaft assembly and attach a chain fall, shackle, sling and load cell.
40. Install three dial indicators onto the bearing keeper plate. Rest the indicator needles on the machined surface of the journal housing.
41. Rotate the roll several times to be sure that the bearings are properly seated. Zero the indicators.
42. Number and mark the location of each indicator on the journal housing.
43. Rotate the journal housing five times and return to original indicator positions. If all indicator readings do not return to zero, repeat step.
44. Using the chain fall, apply a lift load (Lift Load with Roll) to the journal housing assembly.
45. Rotate the housing several times to be sure the bearings are properly seated. Align the indicators at their original positions, record the indicator readings, and average them.
46. Release the load on the journal housing assembly and rotate the housing several times to seat the bearings. Line up the indicators with their original marks. All indicator readings must return to zero.
47. Repeat procedure for bearing endplay checks five times and calculates the average of the averages. This average should be between 0.025 mm and 0.076 mm, the recommended initial endplay for new bearings. If the averaged readings are out of specification, add or subtract shims as necessary and repeat the bearing endplay check. When the measured endplay falls within the indicated range, remove the equipment used for checking, and proceed with the journal shaft reassembly.
48. Grease the lower journal housing cover O-ring with molykote grease or other equal product. Install the O-ring and the lower journal housing cover.
49. Replace pipe plugs in the lower journal housing cover using pipe sealant. Lubricate and replace setscrews in tapped holes; stake four places.
50. Remove the journal shaft from the foundation plate and turn the journal assembly over so that the lower journal housing cover is sitting on the floor. Verify that the O-ring is properly positioned between the upper journal housing and housing cover.
51. Fasten the upper journal housing cover to the journal housing.
52. Add to the journal assembly the journal oil thru the port in the end of the journal shaft.
53. Coat the journal housing cover upper seal bore with small amount of molykote grease.
54. Pack the oil seals with molykote grease.
55. Slide the first seal into the bore with the lip facing into the bore. Slide the second and third oil seals into the bore with the lip facing out.
56. Install the oil seal keeper.
57. Position and fasten both halves of the journal housing liner to the journal housing. Install the remaining bolts through the journal housing cover into the journal housing.

Note – 1) 1 BOQ shall be paid for 1 no. Journal servicing.
2) 0.5 BOQ shall be paid for servicing of 2 no. Trunnion shaft.

54. <u>GREASING IN TRUNNION SHAFT AND BUSH DURING RUNNING CONDITION</u>

1. After proper communication with the operation Dept. Greasing of trunnion shaft and bush to be done as the mill will be in running condition.

2. Remove the greasing nipple cover provided in the trunnion shaft assembly.
3. Greasing to be done with the help of grease gun until the grease comes out from the vent
4. Application of grease as per the manual (Servo gem- Super HTXX of IOC or equivalent).
5. Journal spring bearing cleaning/greasing

Note –

55. REPLACEMENTOF MILL LINERS (ALL TYPES)

REPLACEMENT OF JOURNAL HEAD LINER

1. Open the separator body access doors.
2. Remove the seal air piping from the spring assembly.
3. Lower the journal so the grinding rolls is resting on the bowl by removing the stop bolt nut and fasteners. Remove the key, stop bolt & O-Ring.
4. Rig the journal opening cover through the two holes in the top. A choker around the end of the spring assembly with come-along up to the crane hook for balance may be used. Remove the fasteners and open the cover.
5. Tilt out the roller assembly and lock it properly.
6. Remove the headliner
7. Replace the new liner assembly and fix it properly
8. Tit in the roller into position
9. Assembly the Journal opening cover and fix the bolts
10. Tight all the bolts to required position
11. Adjust the spring assembly to journal head gap to required value
12. Adjust the roller to Bullring gap to required value
13. Remove all the scrap from inside of mill
14. Box-up of coal mill
15. Trail run and attend if any problems

REPAIRING OF JOURNAL HEAD LINER

1. Ensure PTW.
2. Open the manhole door and three inspection doors of the mill.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyser/explosive meter.
5. Place 24 V DC light inside ensure sufficient illumination.
6. Check the condition of journal head liner. If it can be repaired then patching to be done.
7. Replacement of journal head liner should be done as per the instruction of E.I.C.

REPLACEMENT OF DEFLECTOR LINER

1. Ensure Valid PTW.
2. Inspection of mill inside for any damage of Liners
3. Replacement of liner plate as per EIC decision
4. Cutting and removal of damaged liner
5. Grinding of the base plate
6. Fixing of the new liner and locking suitably with welded plug
7. Scrap removal from inside the mill
8. Mill Manhole doors Box up

REPAIRING OF DEFLECTOR LINER

1. Ensure Valid PTW.
2. Inspection of mill inside for any damage of Liners
3. Preparation of patch plate to required size
4. Repair of Liner by patching with suitable size as per OPGC EIC instruction
5. Welding of the replaced patch
6. Scrap removal from inside the mill
7. Mill Manhole doors Box up

Note – 1) 1 BOQ shall be considered for 1 Journal Head Liner Replacement
2) 0.5 BOQ shall be considered for mill side 1 bottom liner Replacement
3) 0.1 BOQ shall be considered for 1 Deflector Liner Replacement
4) 0.1 BOQ shall be considered for one sq M area repaired.

56. REPLACEMENT/SERVICING OF JOURNAL SPRING ASSEMBLY

1. Ensure PTW.
2. Open the manhole door.
3. Open the spring assembly cover.
4. Loose the check nut of the studs.
5. Remove the lock.
6. Install the stud and the jack assembly for removal of tension in spring
7. Apply pressure in the jack till there is separation in the nut, then loose the nut.
8. Repeat the process till the nut is completely loosened.
9. Remove the spring, bush, shaft and all the components of the spring assembly. Clean and inspect all components to determine required replacements.
10. After complete servicing and placement install back the spring components in their correct sequence.
11. Tension the spring to its designed limit and maintain the designed journal head gap before installing the spring cover.

Note – a) 1BOQ=Replacement/Servicing of spring
b) 0.5 BOQ= Replacement of bush/sleeve
c) 0.5 BOQ shall be considered for only Spring load setting

57. SCRAPER ASSEMBLY REPAIR/REPLACEMENT

1. Open scrapper area manhole door(s).
2. Clean out any residual material in the bottom section of the mill.
3. Remove the stud and lock nut which will unload the spring preload on the scraper.
4. Disassembly the sub assembly consisting of -scraper support block, scraper pin, spring, scraper, and scraper wear plate from the scraper support bracket by removing the fasteners.
5. Remove the fasteners and the washer that are retaining the spring on the scraper pin, and remove the spring.
6. Remove the fasteners that are retaining the scraper pin to the scraper, and remove the scraper pin.
7. Remove the washer from the scraper pin.

8. Remove the scraper wear plate from the scraper.
9. Clean and inspect all components to determine required replacements.
10. Sub-assemble the scraper and spring to the scraper support block using the scraper pin and secure the components with washer and fasteners. Check to be sure that the spring is correctly oriented. Tack weld the nuts.
11. Install a new washer on the end of the scraper pin.
12. Assemble the scraper support block sub-assembly to the scraper support bracket.
13. Using the stud and nut, force the scraper so that it is vertical.
14. Install the scraper wear plate to the scraper using fasteners so that there is a gap of 8±1.5 mm between scrapper wear plate & mill side liner.
15. Using a strap wrench on either the motor shaft or planetary gear box input shaft, turn the bowl hub and scrapers to verify that the gap between the scraper wear plate and the bottom of the mill is correct in all positions. Adjust the height of the scraper wear plate as necessary.
16. Tack welds the scraper wear plate to the scraper.

Note –

1. **0.5 BOQ shall be paid for either scrapper assy. Repair or replacement. 1 BOQ shall be considered for both scrappers.**

58. INSPECTION OF MILL DUE TO ABNORMAL SOUND FROM FOREIGN MATERIAL OR DAMAGED MILL INTERNALS

1. Ensure PTW.
2. Open the manhole doors of bowl chamber/scraper chamber.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyzer/explosive meter.
5. Place 24 V DC light inside ensure sufficient illumination.
6. Clean the reject/ accumulated coal / burnt coal or clinker from scraper chamber, bowl chamber and from air inlet duct & reject chute.
7. Remove the foreign materials from scraper/bowl chamber/reject chute etc.
8. check for any high point between grinding roll and BRS by rotating the mill manually.
9. Remove the foreign materials or repair the broken part.
10. Adjust the gap between journal assemblies to BRS if there is any high point or if roller jacking is required for removing foreign material.
11. Close all the manhole doors.

INSPECTION OF MILL DUE TO MORE/LESS CURRENT

1. Ensure PTW.
2. Open the manhole door and three inspection doors of the mill.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyzer/explosive meter.
5. Place 24 V DC light inside ensure sufficient illumination.
6. Remove all the coal between journal assemblies and BRS.
7. Check the journal assemblies to BRS gap.
8. Ensure the free rotation of Journal assembly.

9. Check for any foreign material between grinding roll and BRS which restricts the journal assembly from rotating freely. If no foreign material is found between the mating parts and still there is jamming then go for the journal assembly replacement as bearings have been damaged.
10. Install the new journal assembly as per the steps described above in the Journal assembly replacement section.
11. Close all the manhole doors.

INSPECTION OF MILL DUE TO HIGH REJECT/LOW FINENESS

1. Ensure PTW.
2. Open the manhole door and three inspection doors of the mill.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyzer/explosive meter.
5. Place 24 V DC light inside ensure sufficient illumination.
6. Clean the internals of mills completely by removing coal.
7. Ensure the free rotation of Journal assembly.
8. Check for any foreign material between grinding roll and BRS which has increased the gap.
9. Check the roller gap, if not found as per the manual instruction then adjust the gap.
10. Check for grinding roll and BRS wear. If complete wear out of grinding roll and BRS has taken place then go for its replacement.
11. Check the vane wheel condition. If holes were found in the plates then repairing to be done.
12. Check if any air restriction segment is missing; if so install a new one.
13. Check the classifier settings.
14. After complete inspection, close the manhole door.

Note – a) In any of above cases, 1 BOQ shall be paid.

59. A) REPLACEMENT/REPAIRING OF PLATE VALVES OF PYRITE HOPPER(MILL REJECT)

1. Ensure PTW.
2. Opening the knife gate valves flange bolts
3. Repair or attend the leakages of gaskets/gland etc
4. Repair of the valve for any other damages or replace the valve
5. Replacement of gasket
6. Box-up of valve

Following job is also covered under this BOQ:
B) Repair/Replacement of Expansion Bellow
C) Repair/Replacement of Rupture Disc

Note: a) 1 BOQ shall be considered for each of A, B and C
b) 0.5 BOQ shall be considered for Pyrite hopper mill reject chock up removal
c) 0.4 BOQ shall be considered for gland rope replacement of 1 no. Mill outlet MDV.
d) 2 BOQ shall be considered for replacement of Mill outlet MDV.

60. REPLACEMENT OFVANE WHEEL ASSEMBLY

1. Ensure the PTW
2. Open the separator body access doors.
3. Remove the seal air piping from the spring assembly.
4. Lower the journal so the grinding rolls is resting on the bowl by removing the stop bolt nut and fasteners. Remove the key, stop bolt & O-Ring.
5. Rig the journal opening cover through the two holes in the top. A choker around the end of the spring assembly with come-along up to the crane hook for balance may be used. Remove the fasteners and cover.
6. Tilt out the roller assembly.
7. Remove the grinding roll keeper.
8. Remove the set screws which are in the grinding roll face. Do not remove the set screws in the journal housing face.
9. Install the grinding roll removal lug, ensure that the bolts thread into the grinding roll, not the journal housing. Torque the bolts to 50 ft-lb.
10. Install a wire rope sling through the grinding roll removal lug.
11. Attach the rope sling to the overhead crane positioned above the centre of the grinding roll. Take up the slack.
12. Remove the journal head liner assembly

1. Remove the roller from the Journal head
2. Grind out the welds holding the vane wheel segment wear shrouds to the bowl extension ring segments. Remove the shrouds.
3. Remove the vane wheel segments and fasteners.
4. Grind out the welds that are holding the air restriction ring segments to the bottom of deflector liner support plate.
5. Grind out the plug welds that are holding the deflector liners and remove the liners.
6. Install the deflector side liner in position. Secure it in place with a C-clamp or two weld plugs with tack welds only.
7. Install the middle deflector liners in place working from the right to the left. Secure each with a C-Clamp or two weld plugs with tack welds only. The gap between liners should be equal at 3 mm, adjust as necessary.
8. Install the deflector side liner in position. Secure it in place with a C-clamp or two weld plugs with tack welds only, adjust as necessary.
9. Install the intermediate liners working from the left to the right. Trim the right side of the last liners if required.
10. Complete all of the weld plug welds.
11. Fill all of the gaps between the liners with RTV #732.
12. Fill the weld plug holes with filler.
13. Fasten the vane wheel segments to the bowl extension ring segments using fasteners.
14. Fasten the vane wheel support lugs to the bowl using fasteners.
15. Weld the vane wheel support lugs to the vane wheel segments.
16. Weld the vane wheel segment wear shroud to the vane wheel segments.
17. Weld the air restriction ring segments to close up the gap between the vane wheel segments and deflector liner support plate. Rotating the bowl by using a strap wrench on the gearbox input shaft will aid in verifying that the gap is uniform as the mill spins.
18. Assembly journal assembly into position and tight the bolts to required torque
19. Fix the Journal head liner assembly
20. Remove the journal lifting lug
21. Arrange roller tilt in mechanism
22. Tilt in the roller back into position
23. Assembly the spring assembly back into position

24. Maintain spring assembly clearance and bowl to roller gap to desired values
25. Tight the locknut
26. Box-up the all removed spares back in position
27. Removal of scrap inside and outside the equipment
28. Trail run of mill and inspection for any abnormalities and attend the same

Note – Separate payment to be done for Journal assembly removal as mentioned in the respective schedule

B- REPAIRING OF AIR RESTRICTION RING SEGMENT

1. Ensure PTW.
2. Open the manhole door and three inspection doors of the mill.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyser/explosive meter.
5. Place 24 V DC light inside, ensure sufficient illumination.
6. Check for the damage of the air restriction ring segment. If welding found crack at some points, rebuilding to be done.
7. If any of the segment gets dislocated from its position, then fit up to be done first and then complete welding to be carried out. Designed gap to be maintained between air restriction segment and the vane wheel.
8. Close all the access doors after completion of work.

Note – a) 1 BOQ shall be considered for A
b) 0.1 BOQ shall be considered for each segment (B)

61. BOWL MILL ATTENDING DEFECT

A) REPLACEMENT / REPAIRING OF INNER CONE, INVERTED CONE AND SUPPORT PIPE ASSEMBLY

1. Remove the journal over cover.
2. Tilt out all 3-journal assembly and remove the journal assemblies from the journal heads.
3. Remove all three journal heads.
4. Make proper scaffolding inside the mill body for proper approach to inner cone bolt.
5. Make proper arrangement to rig the inner cone assembly by cutting pockets in theinner cone.
6. Remove all the inner cone bolts. Take full load in the chain block arrangement and cut the support pipes of the inner cone.
7. Slowly down the inner cone and remove the inner cone from the mill by cutting into different parts.
8. Assemble different parts of the new inner cone as per the sequence. Align the inner cone properly so that the inner cone edges are not in offset condition. Do not tighten the bolt fully.
9. Completely weld the edges of the inner cone from inside as well as from outside.
10. Maintain proper gap with the inverted cone and feed pipe

11. Tighten the bolt fully.
12. Complete the welding of the inner cone support pipes.

B) REPAIR/REPLACEMENT OF BOWL EXTENSION RING

1. Take Permit and open Mill manhole door.
2. Cut the eroded bowl extension ring and replace with new one. Welding/Hard facing shall be done as per EIC instruction.

C) REPAIR/REPLACEMENT OF INSULATION COVER PLATE

1. Take Permit and open Mill manhole door.
2. Cut the eroded insulation cover plate and replace with new one. Welding shall be done as per EIC instruction.

Note: For each defect as mentioned in A, B & C, 1 BOQ shall be considered.

Note -

1. **Planned replacement of vane wheel and deflector schedule to be given to contractor beforehand and the contractor should make proper arrangement prior to job. This includes shifting of spares from store to site, shifting of Tools, tackles and other consumables required for the work. Contractor should also be prepared for any unplanned replacement depending upon the equipment condition and instruction from EIC.**
2. **For Inner cone, 2 BOQ shall be paid.**

62. ALIGNMENT OF MOTOR WITH GEARBOX

1. Remove the coupling guard.
2. Decouple the motor from mill.
3. Check run out of the shaft.
4. Check the bolt tightness of mill gearbox foundation and sole plate.
5. Alignment of mill with motor (radial as well as axial) to be done after making necessary arrangement for checking of alignment & correction to be done by putting shims as per instruction of the E-I-C.
6. After alignment couple the motor with mill. Put the coupling guard.
7. Dial gauge, shims of required thickness will be in the contractor's scope.

HT MOTOR BEARING REPLACEMENT

1. Ensure PTW.
2. Decouple the motor from the gearbox.
3. Check whether bearing can be dismantled at this position or else it will be shifted to maintenance bay.
4. Bearing puller/jack etc will be in the contractor's scope.
5. Install the new bearing in place of damaged one.
6. Place the motor at its location and couple with the gearbox.

7. Align it as per the limits given by E.I.C.
8. Proper housekeeping is to be ensured after completion of work.

Note – a) 1 BOQ shall be considered for alignment of HT Motor with Gear Box.
b) 2 BOQ shall be considered for HT Motor Bearing replacement including alignment.

63. REPLACEMENT OF MILL COUPLING

1. Ensure PTW.
2. Remove coupling guard.
3. Loose the coupling bolts and remove the intermediate shaft.
4. Heat the coupling uniformly and by using suitable puller removes the coupling from gearbox and motor shaft.
5. Install the new coupling and tighten the intermediate shaft with the coupling.
6. Align the motor with gearbox.
7. Install the coupling guard.

Note – a) 1 BOQ shall be considered for coupling replacement
b) 0.3 BOQ shall be considered for decoupling and coupling work only.
c) For alignment after replacement of coupling, payment shall be made separately.

64. REPAIRING/REPLACEMENT OF CLASSIFIER VANES

1. Ensure PTW.
2. Open the manhole door and three inspection doors of the mill.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyser/explosive meter.
5. Place 24 V DC light inside, ensure sufficient illumination.
6. Ensure proper scaffolding to reach to classifier vanes so that inspection can be done. Clean the classifier assembly if any foreign material is found. if any classifier vanes are missing replace it with the new one.
7. Close the access door after completion of work.

Note –a) 1 BOQ shall be considered for servicing of complete set of classifier vanes
b) 0.1 BOQ shall be considered for servicing of 1 classifier vane.
c) 0.05 BOQ shall be considered for replacement/servicing of 1 classifier link.
d) 0.3 BOQ shall be considered for classifier vane position setting
e) Payment of scaffolding will be claimed separately

65. COAL MILL EXTERNAL CLEANING

1. Ensure PTW or Valid JSA.
2. Arrangement of Air hose pipe and clamping it safely with air tapping
3. Cleaning of mill body with air stream
4. Cleaning with cotton waste by manually wherever required
5. Removal of coal from MDV top platform

6. Removal of coal from Liner body pedestal, Gearbox area etc

66. ASST TO OTHER (C&I, EMD etc.) DEPT

1. Ensure PTW
2. Assistance to C&I in their defects
3. Assistance to EMD in LT motor coupling and decoupling, dismantling of valve actuator etc.

67. MILL CHOKE UP CLEARING

1. Ensure PTW.
2. Open the manhole door and three inspection doors of the mill.
3. Place exhaust fans on the inspection door.
4. Check the internal air by gas analyser/explosive meter.
5. Place 24 V DC light inside, ensure sufficient illumination.
6. Coal cleaning to be done in scrapper chamber and bowl area.
7. Close the manhole doors after clearing the mill choke up.

68. COAL MILL GB REPAIR/ REPLACEMET/INPUT SHAFT.

A. REPLACEMENT OF MILL GEARBOX

Unitofmeasurement:NO=per millpertime

1. EnsureproperPTWbeforestartinganyworkontheequipment.
1. Shiftingofemptyoildrumstothesite.
2. CleaningthesurroundingsofGearbox&motor.
3. Draiingofoilfromgearboxintoemptyoildrums.
4. Disconnecttheall-lubeoilpipelinesconnectedtogear box.
5. Completecleaningoflubeoiltank.
6. DecouplethemillGearbox-MotorCoupling.
7. Removalofmillmotorfromitsposition.
8. Removalofjournalopeningcoverbolts.
9. Removalofjournalopeningcoverfromitsposition&placingtonearbymill.
9. Disconnectingofsealairhoseassembly.
10. Removalof Journal Assembly&placingtonearbymill.
11. Removalofgearbox-bowlhubcouplingbolt.
12. CleaningofScrapper&lowerskirtsurroundingarea.
13. DismantlingofScrapper&lowerskirtassembly.
14. Dismantlingtheoflabyrinthseal.
15. Arrange the bowlliftingassembly(OilJacking).
16. HeatingtheBowlhubbyGasflame(minimumtwogasflameisrequiredforuniformheating)
17. Withheatinginprogress,simultaneouslyoperatetheoiljacktoliftthebowl.
18. AfterremovalofBowlhub,lockingthesamewithfournos.ofpipesupportweldedinbetweeninsulationcoverplate&bowl.
19. FixtheframeforgearboxliftingwithM52studs&nuts(4nos.).
20. Placefourjacksunderneaththeframe.Simultaneouslyoperateallthejacks.Raisethegearboxsuchthatbottomframeisabout155mmfromthetopofthesoleplate.
21. Insertthe rollerassemblyunderneaththeframe.
22. FixtheGearboxwithdrawalrailsinlinewiththeskateassembly.Attachtherailstothesoleplatewiththescrew.
23. Fixtherail&tracktieupwiththescrew.
24. Pullthegearboxontotheframeassemblytillitissufficientlyoutofthemill.

25. Liftthe gearbox usingtheservicecrane&takeitoutofthemillbay.
26. Replacetheserviced gearbox/newone.
27. Assembledallitemsinreverseorder.
28. Fittingofcouplinghalves,assemblinggreasingandalignmentofthemotorandputtingbackthecouplingguard.
29. Trialrun.
30. ReturnthePTWaftersuccessfultrialrun.

Note: For removal and refitting of the coupling and motor alignment work, payment shall be release in respectively.

B. SERVICINGOFMILLGEARBOX

Unit of measurement: NO = per mill per time

1. Shiftingofgearboxtomaintenancebayfromsite(ifrequired).
2. CleaningofGearboxfromoutside.
3. Drainingofoilfromgearboxintoemptyoildrums.
4. Openingof RotaryTable&Completegearboxinternals(gears,bearingsetc)asperrequirement.
5. Cleaning/Inspectionofparts.
6. Measurementofclearances
7. Replacementofwornoutparts.
8. Re-assemblyasperinstructionsofEIC.
9. OilTopupasrequired.
10. Paintingofgearbox(ifrequired).
11. CoveringofGearboxwithTarpaulin(ifrequired).
12. Shiftingofservicedgearboxtoproperstoragearea(asperEICinstructions).

C. MILL GEARBOX INPUT SHAFT / INPUT SHAFT BEARINGREPLACEMENT

Unit of measurement: NO = Per Input Shaft OR Input Shaft Bearing

1. EnsureproperPTWbeforestartinganyworkontheequipment.
2. Cleansurroundingsgearbox.
3. Decouplethemill-motorgearbox.
4. Draingearboxoil.
5. RemovalofGearboxInputshaftwithhousing.
6. Dismantletheinputshaftfromhousing.
7. Removalofbearingsfromtheshaft.
8. Identificationofthedamagepart of theshaft.
9. Assembletheinputshaftwiththenewspareparts(Millinputshaft/ Bearings)
10. Assembletheinputshaftassemblywiththehousing.
11. Fittheassemblyinthegearbox.
12. Filloilinluboiltank if required.
13. Couplethemillmotorgearboxafterpropergreasing.
14. Boxupthetotalsystem.
15. ReturnthePTWaftersuccessfultrialrun.

Note: For (A)Mill Gearbox Replacement or (B) Mill Gearbox Servicing - 1 BOQ will be consideredfor payment. For (C) Mill Gearbox Input Shaft / Input Shaft Bearing Replacement, 10% BOQ will beconsideredforpayment.

69. PREVENTIVE MAINTENANCE OF COAL FEEDER

1. Ensure PTW.
2. Open the manhole doors.
3. Check the liner condition of head pulley and take up pulley, if required replace it with new one
4. Check the bearing condition of head pulley and take up pulley, if required replace it with new one).

5. Check the condition of half coupling, pin and bush and if required replace.
6. Ensure the idlers freeness.
7. Ensure the idlers are in same level.
8. Checks the belt condition, if required replace it with new one.
9. Clean the belt tracking device and if damaged replace it with new one.
10. Checks the bearing condition of COC, if required replace it with new one.
11. Check the oil level in the gearbox and COC gearbox
12. Check COC sprockets, if required repairing/replacement to be done.
13. Check for any damages in the Head pulley and take up pulley shaft, if required replace with new one.
14. Grease all the feeder inlet gate and bunker outlet gate bearings
15. Close the access doors.

70. <u>COAL FEEDER BELT REPLACEMENT</u>

1. Ensure PTW.
2. Open all access doors
3. Remove the coal accumulated in the feeder.
4. Remove inner scraper.
5. Lift scraper balance weight with ropes to disengage outer scraper from the belt.
6. Dismantle gear reducer, motor and tachometer from head pulley shaft.
7. Locate service tool kit below the head pulley.
8. Loosen the fixings of the bearing at the opposite side of head pulley.
9. Unfasten flange bolts, remove bearing and flange, then insert head pulley dismantle bracket between belt and head pulley, and fix it with screws.
10. Insert pulley service tool between head pulley and belt, unfasten head pulley screws, and dismantle head pulley with dismantle bracket.
11. Remove weigh roller and load cell from side access openings, and take off supporting roller and four rollers below inlet, remove tension nuts and tension.
12. Use service tool lengthen bracket to dismantle take-up roller and belt.
13. Assemble take-up roller and belt
14. Assemble weigh roller and load cell from side access openings, and fit supporting roller and four rollers below inlet, fix tension nuts.
15. Insert head pulley and belt, fasten head pulley screws.
16. Fit the bearings and fasten flange bolts.
17. Tighten the fixings of the bearing at the opposite side of head pulley.
18. Assemble gear reducer, motor and tachometer from head pulley shaft
19. Attach scraper balance weight with ropes to engage outer scraper to the belt.
20. Fit the inner scraper.
21. Check & top up or change the oil in gear reducers for belt drive & clean out conveyor drive.
22. Lubricate all the bearings.
23. After belt mounted, operate coal feeder under no load condition. Run the belt as long as possible to eliminate stretches.
24. Adjust tension of the belt:
25. Check belt tension; verify belt tension through observing openings. While tension arrow pointed to the centre of permissive range, the belt is in proper tension.
26. Belt in slack: Clockwise turn the left and right screw for same turns.
27. Belt is over tensioned: counter clockwise turn the left and right screw for same turns.
28. Run and observe the belt for 10 revolutions, adjust it if necessary.
29. Adjust left and right screws 1/3-1/4 turn for different directions.

30. After adjustment, run and observe the belt for 5 revolutions, adjust again if necessary.
31. Close all access doors.

HEAD PULLEY REPLACEMENT

1. Ensure PTW.
2. Open all access doors
3. Remove the coal accumulated in the feeder.
4. Remove inner scraper.
5. Lift scraper balance weight with ropes to disengage outer scraper from the belt.
6. Dismantle gear reducer, motor and tachometer from head pulley shaft.
7. Locate service tool kit below the head pulley.
8. Loosen the fixings of the bearing at the opposite side of head pulley.
9. Unfasten flange bolts, remove bearing and flange, then insert head pulley dismantle bracket between belt and head pulley, and fix it with screws.
10. Insert pulley service tool between head pulley and belt, unfasten head pulley screws, and dismantle head pulley with dismantle bracket.
11. Remove weigh roller and load cell from side access openings, and take off supporting roller and four rollers below inlet, remove tension nuts and tension.
12. Insert head pulley and belt, fasten head pulley screws.
13. Fit the bearings and fasten flange bolts.
14. Tighten the fixings of the bearing at the opposite side of head pulley.
15. Assemble gear reducer, motor and tachometer from head pulley shaft
16. Attach scraper balance weight with ropes to engage outer scraper to the belt.
17. Fit the inner scraper.
18. Check belt tension; verify belt tension through observing openings. While tension arrow pointed to the centre of permissive range, the belt is in proper tension.
19. Belt in slack: Clockwise turn the left and right screw for same turns.
20. Belt is over tensioned: counter clockwise turn the left and right screw for same turns.
21. Run and observe the belt for 10 revolutions, adjust it if necessary.
22. Adjust left and right screws 1/3-1/4 turn for different directions.
23. After adjustment, run and observe the belt for 5 revolutions, adjust again if necessary.
24. Close all access doors.

TAKE UP PULLEY REPLACEMENT

1. Ensure PTW.
2. Open all access doors
3. Remove the coal accumulated in the feeder.
4. Remove inner scraper.
5. Lift scraper balance weight with ropes to disengage outer scraper from the belt.
6. Remove weigh roller and load cell from side access openings, and take off supporting roller and four rollers below inlet, remove tension nuts and tension.
7. Use service tool lengthen bracket to dismantle take-up roller and belt.
8. Remove the bearings from the take up pulley shaft.
9. Assemble bearings into the new take up roller shaft.
10. Assemble take-up roller and belt

11. Assemble weigh roller and load cell from side access openings, and fit supporting roller and four rollers below inlet, fix tension nuts.
12. Attach scraper balance weight with ropes to engage outer scraper to the belt.
13. Fit the inner scraper.
14. Check belt tension; verify belt tension through observing openings. While tension arrow pointed to the centre of permissive range, the belt is in proper tension.
15. Belt in slack: Clockwise turn the left and right screw for same turns.
16. Belt is over tensioned: counter clockwise turn the left and right screw for same turns.
17. Run and observe the belt for 10 revolutions, adjust it if necessary.
18. Adjust left and right screws 1/3-1/4 turn for different directions.
19. After adjustment, run and observe the belt for 5 revolutions, adjust again if necessary.
20. Close all access doors.

HEAD PULLEY/ TAKE-UP PULLEY/ COC & IDLER DE & NDE BEARINGS REPLACEMENT

1. Ensure PTW.
2. Open feeder end doors and side doors.
3. Open bearing end cover and remove bearings using suitable pullers.
4. New bearings supplied by department will be mounted after thorough cleaning of bearing shaft.
5. Checking of belt tracking.
6. Box up the feeder.

IDLERS REPLACEMENT

1. Ensure PTW.
2. Open feeder end doors and side doors.
3. Removal of idlers/rollers from position
4. Inspection of bearings for damage
5. Replacement of bearings
6. Replacement of Idlers if required/found damaged as per EIC decision
7. Greasing of rollers
8. Box up of Rollers back in position
9. Box up of all dissembled parts
10. Box up of manhole doors

COC REPLACEMENT

1. Ensure PTW.
2. Open all access doors
3. Remove the coal accumulated in the feeder.
4. Dismantle gear reducer and motor from coc shaft.
5. Loose the tension of the coc.
6. Dismantle the bearing of other end.
7. Remove the chain and install the new chain.
8. Fit the bearings and fasten flange bolts.
9. Assemble gear reducer and motor coc shaft
10. Tension the chain.
11. Take the trial run and adjust the tension in the chain

12. Close all access doors

Note –

1. **1 BOQ shall be considered for Belt replacement**
2. **0.5 BOQ shall be considered for Head Pulley or bearing replacement**
3. **0.8 BOQ shall be considered for Tail Pulley or bearing replacement**
4. **0.25 BOQ shall be considered for Idlers, COC shaft replacement or bearing replacement.**

71. <u>COAL FEEDER BREAKDOWN ATTENDING</u>

Following defects shall be attended under this line item

A) Inspection/Removal of foreign material from feeder belt/COC/feeder inlet & outlet pipe
B) Repair of COC chain/ Scrappers/Belt Tracking Device
C) Removal of Coal if Feeder is found chocked
D) Greasing in Bearing due to abnormal sound

1. Ensure PTW.
2. Open feeder end doors and side doors.
3. Remove the foreign material and coal if required.
4. Take no load trial
5. Box up the feeder
6. Return PTW.

Note –

1. **1 BOQ will be paid for A.**
2. **3 BOQ will be paid for B**
3. **2.5 BOQ will be paid for C**
4. **For D, 0.1 BOQ will be paid for greasing of 1 Bearing**

72. <u>FEEDER MAIN MOTOR GEARBOX SERVICING</u>

1. Ensure PTW.
2. Removal of motor from gearbox top
3. Removal of gearbox from the position
4. Drain the lube oil properly into a tray
5. Dismantling of the Gearbox and inspect the internals
6. Replace the damaged internals and bearings as per EIC instruction
7. Replace oil seals
8. Do blue matching of gears if required as per EIC instruction
9. Check the backslash of gears and get verified by EIC
10. Box-up the Gearbox
11. Inspect the coupling pins and replace if found damaged
12. Inspect the drive pulley bearing and replace if found damaged
13. Assembly the gearbox back in position along with drive pulley
14. Put the Motor back in position
15. Trail run and check for any abnormality
16. Attend if any problems found during trail run
17. Box-up the Feeder doors

18. Remove the spilled oil and do proper housekeeping
19. Removal of metal scrap at job area if found any

FEEDER MOTORGEARBOX OIL SEAL REPLACEMENT

1. Ensure PTW.
2. Dismantle the gear reducer and motor from the shaft.
3. Keep the assembly in the tray.
4. Remove the oil from the gearbox.
5. Remove the oil seal and fit the new oil seal.
6. Assemble the gear reducer and motor in the shaft.

Note –

1. **One BOQ refers to complete removal, servicing and replacement. If replacement of new gearbox (if spare gearbox available) done then later servicing of removed gearbox also to be done to get one BOQ. If either of only one done then 50% only will be paid**
2. **10% of BOQ shall be paid if only feeder motor gearbox oil seal replacement done.**

73. COC GEARBOX SERVICING

1. Ensure PTW.
2. Removal of motor from gearbox
3. Removal of gearbox from the position
4. Drain the lube oil properly into a tray
5. Dismantling of the Gearbox and inspect the internals
6. Replace the damaged internals and bearings as per EIC instruction
7. Replace oil seals
8. Do blue matching of gears if required as per EIC instruction
9. Check the backslash of gears if required and get verified by EIC
10. Box-up the Gearbox
11. Assembly the gearbox back in position
12. Put the Motor back in position
13. Trail run and check for any abnormality
14. Attend if any problems found during trail run
15. Box-up the Feeder doors if opened
16. Remove the spilled oil and do proper housekeeping
17. Removal of metal scrap at job area if found any

COC MOTOR GEARBOX OIL SEAL REPLACEMENT

1. Ensure PTW.
2. Dismantle the COC Motor
3. Replace the COC motor oil seal if found damaged
4. Dismantle the gear reducer if required.
5. Remove the oil from the gearbox.
6. Remove the oil seal and fit the new oil seal.
7. Assemble the gear reducer and motor in the shaft

Note –

1. **One BOQ refers to complete removal, servicing and replacement. If replacement of new gearbox (if spare gearbox available) done then later servicing of removed gearbox also to be done to get one BOQ. If either of only one done then 50% only will be paid**
2. **10% of BOQ shall be paid if only feeder motor gearbox oil seal replacement done.**

74. FEEDER I/L GATE / FEEDER O/L GATE / BUNKER O/L GATE SERVICING

1. Ensure PTW.
2. Ensure Bunker outlet gate is closed and coal emptied
3. Remove coal from the gate body
4. Do proper cleaning of the internals
5. Inspect the support rollers and repair/replace the damaged rollers
6. Inspect the bearings of support rollers and replace damaged bearings
7. Check gear drive is proper
8. Check operation of Gate is proper and rectify if any problems found
9. Box up the manhole doors

75. COAL FEEDER SHEAR PIN REPLACEMENT

1. Ensure PTW.
2. Decoupling and removal of broken COC shear pin
3. Replace the damaged pin
4. Reassemble the system
5. Check freeness of chain by moving the coupling hub
6. Take trial run and check for any abnormality
7. Box up the feeder
8. Return the permit

76. VICTUALIC COUPLING REPLACEMENT

1. Ensure valid PTW
2. Ensure safe approach for the coupling to be replaced
3. Remove the old coupling and inspect for damages
4. Inspect the condition of gasket
5. Replace the coupling along with gasket if needed
6. Box-up the coupling and ensure no leakage during mill operation
7. If leakage found again after taking mill into service same to be attended without any additional payment

REPLACEMENT OF VICTAULIC COUPLING GASKET

1. Ensure PTW.
2. Check for proper approach, if required scaffolding to be done (scaffolding price to be estimated per the cubic meter)

3. Replace the damaged gaskets or damaged Victaulic coupling.
4. Remove the scaffolding after replacement.

Note –

1. **1 BOQ shall be considered for coupling replacement**
2. **0.7 BOQ shall be considered for gasket replacement**

77. COAL PIPE (1M LENGTH) / ELBOW REPLACEMENT

1. Ensure PTW.
2. Ensure proper approach to reach to respective bends safely.
3. Lock the coal pipe with the help of chain block or supporting pipe.
4. Lock the bend which is to be taken out with the help of chain block
5. Loose the bolt of the Victaulic coupling.
6. Loose the bolt of the elbow with the burner corner flange.
7. Remove the bend from its position and place it on the floor.
8. Inspect the bend for any damage and as per the instruction of EIC replace or repair the bend.
9. Bring the repaired or new bend to its position with the help of chain block and tighten the bolt with the burner corner and Victaulic coupling.
10. Remove the locking of the coal pipe.
11. Remove the approach
12. Return the PTW.

Note -

1. **1 BOQ shall be provided for replacement of 1 M Coal Pipe or 1 no. Coal Pipe Elbow.**
2. **0. 05 BOQ shall be provided for any patch (200 sq cm) on Coal pipe/ any other pipe. Pro rata payment shall be made for patch size lesser or bigger than 200 sq cm.**
3. **scaffolding price to be estimated as per the cubic meter**

78. COAL PIPE CHOCKING REMOVAL

1. Ensure PTW.
2. Identify chocked portion of coal pipe/bends.
3. Ensure proper approach to reach to respective pipe/ bends safely.
4. Lock the coal pipe with the help of chain block or supporting pipe.
5. Lock the bend which is to be taken out with the help of chain block
6. Loose the bolt of the Victaulic coupling.
7. Loose the bolt of the elbow with the burner corner flange.
8. Remove the bend from its position and place it on the floor.
9. Clean the chocked pipe/bends by service air or fire water as per EIC instruction.
10. Refix the dismantled bends/pipe.
11. Return PTW.

79. CUTTING, WELDING OF LP PIPING - STEAM LINE, OIL LINE, AIRLINE, WATER LINE, ETC.

1. Ensure PTW.
2. Removal ofinsulation if any.

3. Cutting and removal of old pipelines / bends/defective welding joint if required for carving out the work.
4. Fitting of new pipelines after edge preparatlon.at both ends·
5. Welding of pipelines with proper electrodes and procedures as per EIC instructions
6. Checking of leakages after charging and attending the same.
7. Giving proper supports to the piping.
8. NDT requirements – Thickness / DPT / Radiography to be carried out as per EIC instructions. Separate payment will be done as per each schedule.
9. Return of the old material to the store.
10. Any material required for the activity to be issued from stores/yard as per the EIC instructions.
11. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

Note -

1. **01 BOQ refers to attending 01 welding joint.**
2. **Laying of LP pipeline shall be done against this schedule.**
3. **Weld joint for pipeline shall be done by OPGC approved 6G welder. Radiography of weld joint if required as per instructions of EIC shall be carried out by contractor and repair if any observed in the joints shall be attended by the party without any payment. Radiography payment will be done separately.**
4. **Payment for weld joint in HP line shall be paid separately against respective schedules. Stress relieving if required shall be carried out by agency. Payment for stress relieving shall be paid separately.**
5. **Rate for this schedule is for 50 NB pipeline. For higher& lower size pipes payment shall be made on pro Rota basis, based on area of cross section.**

80. FABRICATION & ERECTION OF STRUCTURE

1. Ensure PTW.
2. Transportation of the material from central store/ site store or any other place as per the availability shall be in the scope of the contractor.
3. Cutting of the material as per the required size.
4. Welding of the pieces as per the required shape and sizes. All load carrying members shall be welded at least 2 runs of the welding or as directed by EIC. At least 100mm stitch welding is required with 100mm gap. Structural class welder certified by OPGC should perform the job.
5. General purpose welding electrodes (6013, 7018) shall be under the scope of contractor for the same.
6. Collecting and returning the scrap generated to the stores as per instructions of EIC.
7. This work can be performed for the following purposes:
    a. Erection/Extension of platforms/ladders/walkways/stairs/approaches/toe guards/canopy/tray for drains as directed by EIC.
    b. Fabrication of coil alignment fixtures/end gap templates.
    c. Fabrication of racks for spares/consumables/special tools up keeping.
    d. Fabrication of structures for complying to safety/5S standards.
    e. Any other works requiring fabrication of steels as directed by EIC.
8. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
9. Any material required to be issued/returned from the main stores is under this scope.
10. Painting shall also be in the scope of the contractor. However, paint shall be provided by the owner.

PAINTING OF STRUCTURE-

1. Ensure PTW.
2. Protective coating is required to be applied to pipes, equipment, structure at various locations & elevations inside the plant.
3. The scope of work includes cleaning the surface to remove dirt oil , grease , rust, scale & other contamination etc. by chipping , scrapping ,wire brushing etc. , applying one coat of primer paint & two coats of finishing enamel paint.
4. Paints / Primers to be provided by OPGC. While the contractor has to arrange wire brush/scrappers/buffing m/c etc.
5. Contractor has to maintain a dedicated rack of paints and handling of the paints should as per safety standards maintained by OPGC.
6. No spillage/ leftovers/ traces of paint is allowed after the painting activity. Same has to be properly cleaned.
7. If minor scaffolding required for painting same has to be carried out. While major scaffolding will be paid as per separate schedule.
8. The interval of surface preparation & painting shall be minimum and in case be longer than 4 hours.
9. Any material required for the activity to be issued from stores/yard as per the EIC instructions.
10. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

Note: 0.05 BOQ shall be considered in case of only painting work per MT

81. ARRESTING OF COAL LEAKAGE (ON LINE)

1. Identify the leakage area and provide suitable safe working platform.
2. Clean the area to expose the leakage.
3. Apply sodium silicate/foam seal sealant with rope/cotton waste to arrest the leakage.
4. Clean the area of coal dust.

General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
Any material required to be issued/returned from the main stores is under this scope.

82. PREVENTIVE MAINTENANCE OF EOT HOISTS – MILL, FAN, APH, BCP, PP

1. Ensure PTW.
2. Check the oil level in the gearbox.
3. Ensure free movement of hoist in the beams.
4. Check the operation of limit switches by moving the hook up and down, carriage forward and reverse.
5. Check the lubrication of the wire rope and check for any damages.
6. Check the condition of the hoist hook and latch.
7. Check the condition of the brake and drum.
8. Boom lift to be provided by OPGC and if boom lift is not available contractor has to make alternative arrangements to carry out all the checks.

ASSISTANCE IN LOAD TESTING OF HOIST/CHAIN PULLEY/SKY CLIMBER

The Electric Hoist with chain blocks shall to be physically checked for operation of limit switches/lubrication of ropes etc& it is to be rectified if required. Then hoists are to be tested individually at 1.25 times of its capacity or as per instruction of competent authority .The test load shall be given by OPGC & the contractor has to make their own arrangement for transporting the test loads to different spots & returning them back again as per requirement. The test load shall be kept in lifted condition for at least 1-½ hours & the lift clearance to the ground shall be measured at the interval of 10 mins. Further, along with the test load the crane shall be operated in long & cross travels. On satisfactory results the job is said to be completed.
NOTE: - After servicing & load testing of lifting machine, the date of testing & due date of testing should be stamped on the equipment by paint/label clearly.

NOTE: -a) After servicing / load testing of lifting machine, the date of testing & the load for which it is tested has to be stamped on the equipment by paint clearly.
b) 1 BOQ shall be considered for PM.
c) 1 BOQ shall be considered for assistance in load testing of EOT Hoists/Sky Climber

83. METALLIC / NON-METALLICBELLOW REPLACEMENT/REPAIRING

FOR METALLLIC EXPANSION JOINT: -

1. Shifting sheet from steel yard to site.
2. Fabricate die, if required, as per size of expansion joint /drawing given by EIC.
3. Fabricate sheet as per drawing.
4. Fabricate bend if reqd.
5. Cut the duct position & erect the expansion joint after confirmation of PTW.
6. Erectscaffolding for installationofmetallicexpansionjoint.
7. Proper weldingtobedoneonexpansionmetallicsheettoduct.
8. Removescaffoldingmaterialfromduct.
9. Attend defectsifanyafterATT.

FOR NON-METALLIC EXPANSION JOINT: -

1. Shiftingoffabricclothfromstoretosite.
2. Removalofboltsandnuts.
3. Removalofdamagedexpansionjoint'sfabriccloth.
4. Placebolster/mineralwoolbeforefabriccloth.
5. Placenewpieceoffabriccloth.
6. Positioningofnewfabricclothatthejoint.
7. Joining oftwoendsofthefabric.
8. Fulltighteningofboltsandnuts.

Note:1)ExtrapaymentforscaffoldingasperBOQ
1) For payment purpose: a) For Repair/ Replacement of metallic existing joint 100 % item ratewill be paid / unit mtr. b) For Repair/Replacement ofNon- metallicexisting joint 70 % itemratewillbepaid/unitmtr.

84. <u>DUCT LEAKAGES/ADDITIONAL WELDING/STIFFENING ATTENDING</u>

1. Draw steel/materials/bracing pipe from store and shift the same to site.
2. Remove insulation as per requirement if reqd.
3. Inspect duct plate/bracing pipe thickness & erosion and cut worn out portion in ducts. Make approach /scaffolding as per requirement.
4. Replace and weld cutout portion by grafting with 6mm/8mm/10 mm/12mm plates or as per instructions of EIC.
5. Replace eroded bracing pipe or fit new pipe if reqd.
6. Attend leakages/defects if any after ATT.

Inspection during ATT of duct is to be performed by agency and no extra payment will be made for this work.

Note: i) ExtrapaymentforscaffoldingasperBOQ

ii) Welding electrodewillbearrangedbyagencyathis own cost.

iii) 01 BOQ refers to payment of welding per 01 meter running length.

85. <u>DAMPER / GATE INSPECTION & DEFECT ATTENDING</u>

A. **<u>SERVICING OF DAMPER (01 no BOQ = 01 No Damper)</u>**

1. Take PTW & ensure isolation before starting of the work.
2. Removal of insulation wherever it is required.
3. Cleaning & dismantling of all moving parts.
4. Removal of damper bush bearings, side retainers, clean and grease.
5. Cleaning of bearing bushes, pins etc. and replacing the damaged one.
6. All moving parts are to be greased and glands packings are to be replaced.
7. All flaps cleaning, checking their movement and repairing as per requirement.
8. Lever distances are to be adjusted, if required.
9. Ensuring full range of damper operation i.e. full close and open.
10. Open / Close markings externally on shafts are to be cleaned and high temp. resistance spray is to be applied as per instruction of site engr.
11. Assisting the commissioning activities for damper operation for at least up to full load of unit achievement if reqd.
12. Proper safety precaution is to be taken for locking & operation of dampers.
13. Return PTW.

B. <u>SERVICING OF GATES (01 no BOQ= 01 NO GATES)</u>

i) Take PTW & ensure isolation before starting of the work.
ii) Removal of insulation wherever it is required.
iii) Replacement of pins/coupling bolts of actuators, if required.
iv) Cleaning of gate seals both bulb & leaf and replace as per requirement.
v) Repairing of gate flaps if required.
vi) Ensuring full range operation of gates.
vii) Keeping gates in open condition after servicing.
viii) Assisting the commissioning activities for gate operation.
ix) Attending to leakages of gas at gate seals with sealing ropes/compound.
x) Return PTW.

<u>C. For delink and relink</u>

1. LockthedampermechanicallyonitspositionafterconfirmationofPTW.

2. Delinkdamperfromitsactuator.
3. RelinkdamperaftergettingclearancefromEIC.
4. Removethelock.

D. HAG/CAG SEAL REPLACEMENT

1. Ensure valid PTW.
2. Ensure dedicated Hole watcher while working inside duct
3. Opening of manhole doors
4. Shifting of new seal set from warehouse
5. Inspection and Removal of damaged seals
6. Replacement of new seals and fitting properly
7. Trail run by operating the gate and attend if any problems found
8. Box up of manhole doors

Note:
a) For servicing of ID, FD, PA, APH, ESP Inlet/Outlet gate / damper, 01(one) BOQ will be paid for 01(One) gate or damper.
b) For servicing of mill gate/damper/SOFA damper 70% of item rate will be paid.
C) For Delink and Relink 10% of BOQ will be paid.
D) For HAG / CAG seal replacement, 40 % of BOQ shall be paid
E) For any other defect. 10% of BOQ shall be paid.
D) For above work, if scaffolding is required, the payment for scaffolding will be done separately.

86. SCAFFOLDINGSUPPLY, ERECTION & REMOVAL - BOILER/DUCT/APH/MILL/FAN/FOPH.

1. Ensure PTW.
2. The scope of works includes supply, fabrication & erection of scaffolding inside & outside of Boiler/Duct/APH/Mill/Fan/FOPH etc. to facilitate inspection & other job to be carried out by OPGC. The scaffolding should be rigid. **Minor scaffolding works like providing access/ batten only will be exclusive of this scope.**
3. Scaffolding materials should be M.S. Pipes confirming to IS: 1161 and couplers (Right angle couplers/Cup lock couplers/ Swivel Couplers) confirming to IS: 1570. Platforms should be provided with toe guards in order to prevent falling. Earth connection points should be provided wherever electrical power is expected to pass through the scaffolding. Ladders shall be provided for proper access.
4. Scaffolding material shall be free from rust and can be rejected if integrity of material not found up to the requirements of EIC.
5. Wherever required, the contractor has to provide platform by using good wooden planks, which can withstand a minimum of 4 people of about 300 kg. Load.
6. All materials such as binding wire/ coconut rope required for executing the above job should be arranged by the contractor at his cost.
7. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width.
8. The payment shall be per cubic meter of erection from the base of the scaffolding up to the top most platforms only covering a minimum base area of 4 sq. mtrs.
9. The start point for measurement at height shall be from the base of the erected scaffolding & not from the bottom of the boilers of ground as the case may be.

10. Contractor will quote the price for outside scaffolding. If any job involves scaffolding inside confined space – boiler, duct, etc. then 1.2 times BOQ will be paid.
11. **Complete scaffolding materials is under contractor's scope.**
12. OPGC will designate a dedicated place for storing scaffolding material inside plant premises.
13. Contractor has to shift the material from that place to the location of scaffolding and again after removal of the scaffolding, store at the same place. Transportation has to be arranged by the contractor on its own. Designated place may be any Boiler elevation, site store, plant store, etc.
14. Proper housekeeping has to be maintained at all times during and after scaffolding.
15. A proper scaffold will include side railings, accessible ladder approaches, and fall arrestor if applicable and all other safety standards for scaffolding has to be followed. Any other site-specific standards related to scaffolding erection shall be strictly followed by the contractor as and when instructed by EIC.
16. Whenever instructed scaffolding material has to be shifted well in advance to the site location as per EIC instructions.
17. Only designated riggers will perform the scaffolding job.
18. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

NOTE - 01 BOQ refers to payment of scaffolding per cubic meter.

87. SPARES PRESERVATION ACTIVITY IN STORES

1. Ensure PTW.
2. Contractor has to provide manpower for assistance to spares preservation at site store/ plant main store.
3. All the T&Ps and any other accessories required for spares preservation has to be shifted to plant main store as per EIC instructions.
4. 1 fitter, 1 rigger and 1 helper may be supplied for the same. If any special requirements exists – additional manpower has to be provided from Contractor.
5. Major spares requiring preservation are BCP set, Boiler tubes & bends, Fan Rotor bearing assembly, APH bearings, Servo motor, Oil seals, O rings, FOPH pump assembly, etc.

88. THICKNESS SURVEY OF TUBES, DUCTS, COAL PIPE ETC.

1. Thickness Survey is to be done at specified points
2. Contractor has to arrange Ultrasonic thickness meter for thickness measurement.
3. At least 2 sets have to be maintained at all times for thickness survey in Boiler & Aux. area
4. All measuring device should have valid calibration certificate at all times.
5. Tube OD vary from 15 mm to 90mm.Thickness to be measured may vary from 4mm to 30mm.
6. Contractor has to take the measurements and send reports/data to the OPGC in the OPGC prescribed format.
7. Payment will be done per point basis as certified by OPGC EIC.
8. Numbering of water wall tubes around the WB, WW hopper, above burner zone & burner panel tube, rear arch area on RH tubes, ww screen tubes, ww hanger tubes, rear arch bottom tubes, extended ww tubes, final super heater tubes, LTRH coil top & bottom, economiser coil top & bottom, SH hanger tubes, LTRH terminal tubes, Eco. Hanger tubes, Eco. Inlet header tubes and SH bottom ring header for thickness measurement.
9. Clean the tube surface by buffing wheel and emery paper.

10. Carry out physical inspection of tube surface in 1st & 2nd pass as per the instruction of the E-I-C.
11. All electrical connections, safety supervision is under Contractor's scope. Illumination inside furnace is under contractor's scope.
12. PTW will be issued from OPGC EIC. Conducting Job safety analysis and Pre-job briefing will be under the scope of Contractor supervisor.
13. Payment will be done per point basis as certified by OPGC EIC.

89. OPERATION OF 23 T HYDRA

1. Contractor has to deploy 1 no. skilled & well experienced hydra operator who must have minimum 1 year of experience in operation of new generation hydra/crane.
2. Hydra operator may have to be deployed at any time as per EIC instruction.
3. Payment will be made on man day basis. 8 working hours will be considered as 1 manday. Payment for additional working hour shall be made as pro-rata.
4. Contractor must furnish heavy vehicle driving license, health certificate etc. of the operator before deployment.

All required safety gadgets shall be provided by the contractor. Routine checks/ Inspection like oil/ fuel level check, top up of oil/ fuel, tyre air pressure check, rope inspection, lubrication of rope as well as telescopic boom as and when required and any other minor defects has to be done by the operator. Check list shall be filled up on daily basis.

90. BOILER/ APH / DUCT / HOPPER/ MILL MANHOLE DOOR ROPE REPLACEMENT

1. Ensure PTW.
2. Remove the old/damaged rope/gasket.
3. Clean the surface with Rustolene/ Diesel. Ensure the sealing surface to be free from any burrs/ nicks. Also check no eroded marks present no the sealing surface. Rectify of any.
4. Place the new rope/ gasket with sealing paste provided from OPGC.
5. Tighten the bolts uniformly. Torque tighten if required as per EIC instructions.
6. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
7. Any material required to be issued/returned from the main stores is under this scope.

   Note: 1 BOQ will be paid for each manhole/peephole door rope/gasket replacement. 0.5 BOQ shall be considered for only manhole door opening & closing. 2 BOQ shall be considered for Elephant Door.

91. ASSISTANCE FOR ONLINE SEALING

1. Ensure PTW.
2. Contractor has to arrange the necessary material required for online sealing – welding m/c, air hose supply, scaffolding/access, insulation removal and any other materials if required.
3. 01 BOQ for the activity will be assistance for one instance of attending online sealing.
4. Contractor has to provide assistance to the online sealing party technician/service engineer.
5. Contractor has to fabricate online clamps required for the activity as prescribed by Online sealing party technician. Job may involve welding/clamp fabrication at workshop.
6. Any welding jobs in HP/LP line may also involve. HP line welding has to be performed by IBR class welder as per instructions of EIC.

7. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.
8. Any material required to be issued/returned from the main stores is under this scope.

92. <u>ASH CLEANING</u>

1. Ensure PTW
2. Cleaning of Ash from Pent House, APH, Duct (Inside and outside), Boiler (Inside and Outside), fans.
3. Scope of work includes removal of ash via gunny bags or through any other arrangement.
4. Payment will be done as per the tonnage of ash cleaned from the duct.
5. Truck/tractor for ash disposal will be in the contractor's scope.
6. Area where ash is to dispose will be allocated by OPGC.
7. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job.

93. <u>HOUSEKEEPING OF MILL LUBE OIL SKID AND OTHER AREA</u>

Contractor shall deploy manpower for housekeeping of the area as well as equipment. Payment shall be made on the basis of no of times the housekeeping of unit has been done. Supervisor of the contractor shall maintain the record of supply of manpower for housekeeping and it should be duly signed by the EIC on that particular date. Housekeeping is to be done by blowing service air/cotton waste/cloth whatever is applicable. If the contractor fails to deploy specified manpower, penalty for the shortage equal to double the awarded rate shall be imposed.

Note: a) 1 BOQ shall be considered for 1 no. lube oil skid (Mill/Fans/HPSU/APH)
b) 2 BOQ shall be considered for 1 Elevation Buckstay of either 1^{st} pass or 2^{nd} pass

94. <u>PM OF LOS - APH / PA / FD / ID FANS</u>

1. Ensure PTW
2. Clean the Lube oil skids properly
3. Check pump foundation bolts and tighten, if required
4. Check pump coupling and coupling inserts. Replace coupling/coupling inserts, if damaged.
5. Check alignment of the pump and correct if required.
6. Check the oil level
7. Top up the equipment with suitable oil if found low level
8. Check for any oil leakages in the lube oil system.
9. Attend the leakages after getting clearance from operation team
10. Clean the standby Lube oil filter
11. After cleaning filter changeover will be done and then clean the second filter also

95. <u>FILTER CLEANING OF LUBE OIL SYSTEM OF MILL/ FAN/ RAPH/ SCANNER AIR FAN/ IDF SEALING COOLING FAN</u>

1. Removal of filters/strainers from lube oil system of Mill/Fan/APH and ID Fan sealing cooling fan after confirmation of PTW.
2. Draining of oil and cleaning of filter basket.
3. Thorough cleaning of filters/strainers with diesel and air.
4. Fixing of cleaned filters/strainers in lube oil system.
5. Box up filter basket with new gasket.
6. Taking successful trial run & defect rectification, if any.

SCANNER AIR / IDF SEALING COOLING FAN FILTER CLEANING

1. Ensure PTW
2. Remove the filter cover
3. Remove the filter element
4. Clean the filter element with air
5. If the filter element found damage replace the same
6. Box up the filter cover
7. Clean the fan casing with air & then with cotton waste
8. Return PTW

Note -

One BOQ includes cost for cleaning of one Filter and casing body but excludes impeller cleaningIf Impeller cleaning also needs to be done then one BOQ cost will be paid additionally.

96. REPLACEMENT / SERVICING OF LUBE OIL PUMP – PA/ FD / ID / MILL/APH

1. Removal of LOP from foundation after confirmation of PTW.
2. Removal of coupling half from LOP.
3. Replacement of coupling (both motor & LOP) and spider, if require.
4. fixing of new/serviced LOP.
5. Alignment of LOP with motor.
6. Taking successful trial run & defect rectification, if any.
7. servicing of old LOP after completion of replacement work.
8. Storage of LOP after proper painting and marking with date of servicing.

MECHANICAL SEAL/ BEARING REPLACEMENT OF LUBE OIL PUMPS APH/FD/PA/ID FAN

1. Ensure PTW if required
2. Open the lube oil pumps end covers and inspect the seals & bearings
3. Replace the oil seals and bearings as per requirement
4. Final box-up and test for smooth operation and store properly
5. Return PTW

REPLACEMENT, SERVICING & SETTING OF VALVES

1. As per the instruction of EIC v/v setting to be done.
2. For replacement ensure PTW.
3. Make the new v/v available at site prior to replacement.
4. Servicing of the damaged v/v to be carried out in the presence and as per the instruction of EIC.
5. Ensure use of tray.
6. Proper housekeeping to be ensured.
7. Use of proper solvents/ diesel for cleaning of v/v components.

ATTENDING COAL MILL LUBE OIL CHANGE OVER VALVE PASSING

1. Ensure Valid PTW with isolations
2. Draining of the oil properly into a tray/drum

3. Removal of Changeover valve from position
4. Dismantling of the valve
5. Replacement of Valve seats wherever found damaged
6. Assembly of valve and testing for any passing before fitting into position
7. Fitting the valve in position after EIC approval
8. Replacement of gaskets wherever required
9. Box up of valve
10. Removal of oil spills and housekeeping

Note: a) 1 BOQ shall be considered for replacement/servicing of LOP.
b) 0.3 BOQ shall be considered for lube oil pump decoupling, alignment and coupling.
c) 0.5 BOQ shall be considered for mechanical seal/ bearing replacement.
d) 0.1 BOQ shall be considered for 1 no. hose replacement/ attending oil leakage
e) 0.1 BOQ shall be considered for replacement/repairing of any valve in Fan/APH Lube Oil system
e) 0.2 BOQ shall be considered for replacement/repairing of any valve in Mill Lube Oil system except lube oil change over valve
e) 1 BOQ shall be considered for replacement/repairing of Lube oil change over valve

97. SERVICING OF LUBE OIL COOLER

Coolercleaningandleakageattend:

1. ChargestandbycoolerandRemoveLOScoolerfittings.
2. Cleanthecooler.
3. Checkforleakage(hydrotest).
4. Attendleakageinoldcoolerorreplacewithnewcooler.
5. Re-assemblethesystem.
6. Takesuccessfultrialrun.
7. Serviceoldcooler

FollowingactivitiesmaybecarriedoutifrequiredorinstructedbyEIC.

Bearingflushing:(thisservicemustexecuteinpresenceofOPGCrepresentativeonly)

1. Cleanthearea
2. Coverthareasothatdust/ashetc.doesnotcontaminatethe bearing.
3. Removethebearingcover
4. Removethefiltersimultaneouslystartoiltop up.
5. Cleanthefilters(both filters).
6. Fixthebearingcover.
7. Reassemblethefilter.

Note: - a) For Mill Lube Oil Cooler Cleaning work: Payment will be 1.5 times of BOQ
b) For Fan & APH oil cooler, 1 BOQ shall be provided.

98. LUBE OIL TOP UP (20 LTR EACH TIME)

1. Shiftingoflubeoilfromsitestore/centralstoretosite.
2. Toppingupoflubeoilintotank.
3. Cleaningofsurroundings.

OIL REPLACEMENT AND TANK CLEANING-COAL MILL/FANS/APH/SEAL AIR FAN

1. Ensure PTW.
2. Make sure the availability of the empty drum, bucket, clothes, tray etc. at site prior to start of work.
3. Remove the oil from the tank to the empty drum via flusher machine or hand pump as per the availability.
4. After complete removal of the oil, clean the tank properly.
5. Final inspection will be done by the EIC.
6. Close the oil tank manhole after inspection.
7. After the approval of the EIC, oil to be filled in the tank.

Note: a) 1 BOQ shall be considered for 20 litre oil top up

b) 10 BOQ shall be considered for tank cleaning & complete replacement of oil in PA/FD/ID Fan Lube oil skid

c) 20 BOQ shall be considered for tank cleaning complete replacement of oil in Coal mill lube oil skid

d) For oil top up less than 20 litres, payment shall be made on pro-rata basis.

99. LUBE OIL FILTRATION – MILL/ ID/ PA /FD FANS - ELC/LVDH SERVICING / SHIFTING

1. Remove oil hose connections safely by closing suction valves of Equipment properly
2. Cover the openings properly after removal of LVDH/ELC from the machines
3. Ensure electrical connections removed before shifting the ELC/LVDH to any other equipment
4. Shift the machine to the equipment as instructed by the EIC
5. Connect the suction and discharge hoses to Lube oil tank properly
6. Cleaning of the centrifuge cups for the oil garbage collected during centrifuging of oil or Oil filter/strainer of ELC M/c.
7. Get electrical connection done
8. Start the machine and check for leakages
9. If any leakage found stop the ELC/LVDH machine immediately and attend the leakage
10. Start Machine and ensure no leakage

Notes:

1. **One BOQ refers to servicing &shifting of One no. LVDH or ELC from one equipment to another and then starting. Also, it includes replacement of filters if required.**
2. **0.25 BOQ shall be paid for only shifting of either LVDH or ELC.**

100. ASSISTANCE IN O&M OF WORKSHOP MACHINES

1. Contractor to deploy highly skilled man power of different category as mentioned in "DEPLOYMENT OF MINIMUM MANPOWER AT SITE".
2. Working hours for each person shall be 8 Hrs. excluding Lunch and Tea break.
3. All the manpower to be deployed shall be interview by EIC, OPGC. Manpower to be deployed only after approval of EIC, OPGC.
4. Lodging, Boarding, local conveyance and transportation of the staff & workers shall be in the scope of contractor.

5. Contractor shall arrange accommodation of all the deployed manpower within near vicinity of the OPGCL.
6. All the PPEs like safety helmet, shoes, masks, goggles, earplugs, welding screen, safety belts etc. shall be in the scope of contractor. All the PPEs should be of approved brand and of good quality as per OPGCL standard.
7. Consumables as mentioned in the "LIST OF MINIMUM CONSUMABLES TO BE MAINTAINED BY CONTRACTOR" shall be in the scope of contractor.
8. T&Ps as mentioned in the "LIST OF MINIMUM T&P'S TO BE MAINTAINED BY CONTRACTOR" shall be in the scope of contractor.
9. Contractor shall maintain a proper account of all the material received from OPGCL.
10. Damage caused to the workshop equipment's due to mishandling of contractor personnel shall be attended by contractor free of cost.
11. The Contractor must ensure the cleanliness of the work place at all the time.
12. The contractor must ensure to achieve all the required safety compliances as per OPGCL safety standard.
13. All high-risk activities inside workshop should be carried out as per safety standard of OPGCL.
14. Contractor and OPGCL representative shall conduct a safety audit on monthly basis which will include electrical safety, mechanical safety, housekeeping etc. If any deviation is observed, contractor may get penalized accordingly.
15. Contractor must ensure 100% reporting of near misses, unsafe act and unsafe condition to EIC, OPGCL on immediate basis.
16. Contractor must ensure availability of First aid boxes inside workshop all the time and a register to be maintained for the stock of the same.
17. Contractor shall make proper replacement of any of the deployed personnel within 10 days from the date of resignation and before the person leaves.
18. All the labour laws and statutory compliances shall be in the scope of contractor.
19. Subletting of the contract is not allowed.
20. PM of workshop equipment's and EOT shall be in contractor scope and frequencies of PM and scope of PM activities shall be as per OPGCL directives.
21. Repair jobs mainly involves machining, drilling, boring, milling, thread preparation, gear preparation/repairing, straightening of bend shafts, welding and fabrication jobs, etc.
22. Quality standard of any component, repaired or newly shall be decided by EIC, OPGCL. Any deviation shall be rectified then and there at free of cost.
23. During BTL or any other unforeseen plant outages, contractor has to deploy manpower for extended hour as per instruction of EIC.

SCOPE OF WORK (OPGCL)

1. All the workshop machines
2. EOT Crane.
3. Special Tools and required spares.
4. Compressed air
5. Drinking water supply.
6. Electricity supply
7. Raw material/semi-finished materials/defective parts for repairing.
8. Raw material for fabrication jobs like plates/angles/channels etc.
9. Hydraulic oil, Lube oils and coolant.

List of Workshop Equipment's (OPGCL Scope)

Sl. No	Type of Machine	Machine Description	Qty
01	Lathe Machine	L50/5000	02
02	Lathe Machine	NH32/3000	01
03	Lathe Machine	NH26	01
04	Lathe Machine	Vikram-1	01
05	Lathe Machine	Vikram-2	01
06	Universal Milling Machine	FN3U	01
07	Milling Machine		01
08	Radial Drilling Machine	RM 62	02
09	Slotting Machine	DSL 400	02
10	Shaper Machine	AMT	01
11	Hydraulic Press	200 TN	01
12	Hydraulic Press	50 TN	01
13	Pillar Drilling Machine	BR 618	01
14	Surface Grinder		01
15	Hydraulic Cylindrical Grinder		01
16	Cutting Tool Grinder		01
17	Bench Grinder	BOSCH Make	02

101. DEPLOYMENT OF SUPERVISOR FOR UNFORESEEN JOBS

102. DEPLYMENT OF MILL WRIGHT FITTER / IBR WELDER FOR UNFORESEEN JOBS

103. DEPLOYMENT OF SKY CLIMBEROPERATOR/HYDRA OPERATOR/FABRICATOR/VALVE TECHNICIAN FOR UNFORESEEN JOBS

104. DEPLOYMENT OF FITTER / GRINDER / CUTTER / WELDER FOR UNFORESEEN JOBS

105. DEPLYMENT OF RIGGER FOR UNFORESEEN JOBS

106. DEPLOYMENT OF HELPER FOR UNFORESEEN JOBS

General Notes –

1. **Issuing and transportation of spares, consumables, lubricants etc. from OPGC warehouse and local stores shall be in the scope of the vendor. No additional cost shall be provided for this.**
2. **Proper housekeeping to be ensured after work is completed and returning of scrap material to the store.**
3. **Issuing of oil drum and transporting from the store to the site will be in contractor's scope. Shifting of waste oil drum shall also be in the scope of the contractor. No additional cost shall be provided for this.**

LIST OF MINIMUM T&P'S TO BE MAINTAINED BY CONTRACTOR					
MINIMUM QTY. IS ESTIMATED CONSIDERING LEAD PERIOD AND CONSUMPTION DURING THAT PERIOD.					
SR. NO.	**DETAILS OF TOOLS & PLANTS**	**DETAILED SPECIFICATION**	**MAKE & CAT NO. (PLEASE WRITE IF APPLICABLE)**	**UNIT**	**QUANTITY**
1	WELDING MACHINE 400AMPS,3PHASE WITH REGULATOR	L&T, ADORE, ESAB	L&T, ADORE, ESAB	NOS	10
2	WELDING MACHINE PORTABLE 1 PHASE WITH REGULATOR	L&T, ADORE, ESAB	L&T, ADORE, ESAB	NOS	6
3	CHOPSAW MACHINE FOR TUBE CUTTING	BOSCH/EQUIVALENT	BOSCH/EQUIVALENT	NOS	1
5	WELDING REGULATOR WITH CABLE 100MTR EACH	L&T, ADORE, ESAB	L&T, ADORE, ESAB	NOS	6
6	WELDING CABLE 100MTR ALONG WITH TORCH	L&T, ADORE, ESAB	L&T, ADORE, ESAB	NOS	6
7	WELDING CABLE-COPPER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT		METRE	50
8	CUTTING NOZZLE	A 1/16	ESAB/EQUIVALENT	NOS	7
9	CUTTING NOZZLE	B 3/64	ESAB/EQUIVALENT	NOS	7
10	CUTTING HOSE(OXYGEN & DA)	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	Meter	1000
11	CUTTING SET	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	7
12	FIREBACK ARRESTOR	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	11
13	REGULATOR O2	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	11

14	REGULATOR DA	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	9
16	ARGON REGULATOR	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	10
17	ARGON TORCH	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	6
18	ARGON HOSE 100 M LENGTH	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	ESAB/EQUIVALENT	NOS	6
20	MEASUREMENT TAPE	3M	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	15
21	MEASUREMENT TAPE	5M	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	12
22	MEASUREMENT TAPE	15M	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	3
23	MEASUREMENT TAPE	50M	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	1
24	WHITENER FOR MARKING	Camlin	Camlin/EQUIVALENT	NOS	30
25	SEARCH LIGHT	Brite light	Brite light/EQUIVALENT	NOS	5
26	LED TORCH LIGHT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	EVEREADY/EQUIVALENT	NOS	10
27	LIFE LINE ROPE	Karam	Karam/EQUIVALENT	M	200
28	CHAIN PULLEY BLOCKS	1MT/5M	SAFEX/INDEF	NOS	8
	CHAIN PULLEY BLOCKS	2MT/6M	SAFEX/INDEF	NOS	6
29	CHAIN PULLEY BLOCKS	3MT/8M	SAFEX/INDEF	NOS	10

30	CHAIN PULLEY BLOCKS	5MT/8M	SAFEX/INDEF	NOS	6
31	CHAIN PULLEY BLOCKS	10MT/10M	SAFEX/INDEF	NOS	6
32	D-SHACKLES	1MT TO 10 MT	SAFEX/INDEF	NOS/EACH	8
33	D-SHACKLES	15MT & 20 MT	SAFEX/INDEF	NOS/EACH	4
34	EYE BOLT	10MM,12MM,16MM,20MM	SAFEX/INDEF	NOS/EACH	8
35	EYE BOLT	24MM,30MM,36MM,42MM	SAFEX/INDEF	NOS/EACH	4
36	BELT SLING	1MT,2MT,3MT,5MT,8MT,10MT	SAFEX/INDEF	NOS/EACH	4
37	WIRE ROPE SLINGS	8MM*2M	SAFEX/INDEF	NOS	10
38	WIRE ROPE SLINGS	16MM*6M	SAFEX/INDEF	NOS	10
39	WIRE ROPE SLINGS	20MM*8M	SAFEX/INDEF	NOS	8
40	WIRE ROPE SLINGS	25MM*8M	SAFEX/INDEF	NOS	4
41	WIRE ROPE SLINGS	32MM*10M	SAFEX/INDEF	NOS	4
42	WIRE ROPE SLINGS	46MM*6M	SAFEX/INDEF	NOS	4
43	HYDRAULIC JACK WITH PUMP 30MT	30MT/50MM STROKE	ENERPAC/EQUIVALENT	NOS	2
44	HYDRAULIC JACK WITH PUMP 50MT	50MT/100MM STROKE	ENERPAC/EQUIVALENT	NOS	2
45	HYDRAULIC JACK WITH PUMP 100MT	100MT/150MM STROKE	ENERPAC/EQUIVALENT	NOS	2
126	TAPER WEDGE JACK	50MT/50MM STROKE	ENERPAC/EQUIVALENT	NOS	4
46	HALOGEN -LED TYPE			NOS	20

47	AIR HOSE 1" FIBRE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	METRE	300
48	GRINDING MACHINE	AG-4	BOSCH/EQUIVALENT/KPT	NOS	4
49	GRINDING MACHINE	AG-5	BOSCH/EQUIVALENT/KPT	NOS	8
50	GRINDING MACHINE	AG-7	BOSCH/EQUIVALENT/KPT	NOS	4
51	GRINDING MACHINE	FLEXIBLE FF-2	BOSCH/EQUIVALENT/KPT	NOS	4
54	HAND DRILL MACHINE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	BOSCH/EQUIVALENT/KPT	NOS	1
55	MAGNETIC DRILL MACHINE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	BOSCH/EQUIVALENT/KPT	NOS	1
57	BOX SPANNER SET	6-32MM	TAPARIA/EQUIVALENT/MEKASTER	SETS	4
58	BOX SPANNER SET	36-80MM	TAPARIA/EQUIVALENT/MEKASTER	SETS	3
59	VERNIER CALIPER	150MM	MITUTOYO/EQUIVALENT	NOS	4
60	VERNIER CALIPER	300MM	MITUTOYO/EQUIVALENT	NOS	2
	DIGITAL VERNIER	150MM	MITUTOYO/EQUIVALENT	NOS	4
61	DEPTH VERNIER	300MM	MITUTOYO/EQUIVALENT	NOS	4
62	FILLER GUAGE SET	150MM	MITUTOYO/EQUIVALENT	NOS	6
63	FILLER GUAGE SET	300MM	MITUTOYO/EQUIVALENT	NOS	6
64	TELESCOPIC GAUGE		MITUTOYO/EQUIVALENT	NOS	1
	DIAL GAUGE	3MM	MITUTOYO/EQUIVALENT	NOS	4
65	DIAL GAUGE	5MM	MITUTOYO/EQUIVALENT	NOS	6

66	DIAL GAUGE	10MM	MITUTOYO/EQUIVALENT	NOS	12
67	MAGNETIC BASE FOR DIAL GAUGE		MITUTOYO/EQUIVALENT	NOS	6
68	INSIDE MICROMETER	50-1000MM	MITUTOYO/EQUIVALENT	NOS	2
69	OUTSIDE MICROMETER	0-25	MITUTOYO/EQUIVALENT	NOS	3
70	OUTSIDE MICROMETER	0-150MM	MITUTOYO/EQUIVALENT	NOS	2
71	OUTSIDE MICROMETER	150-300	MITUTOYO/EQUIVALENT	NOS	2
72	OUTSIDE MICROMETER	300-400MM	MITUTOYO/EQUIVALENT	NOS	2
73	MASTER LEVEL	150MM	MITUTOYO/EQUIVALENT	NOS	2
74	MASTER LEVEL	300MM	MITUTOYO/EQUIVALENT	NOS	2
75	SPIRIT LEVEL	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	4
76	PITCH GUAGE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	4
77	TAPER GUAGE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	2
78	ANGLE PROTRACTOR	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	2
79	STEEL RULE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	2
80	DIVIDER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	3
81	PROTACTOR	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	MITUTOYO/EQUIVALENT	NOS	2

82	BENCH VICE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	2
83	CUTTING SET TROLLEY	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	7
84	HAMMERING SPANNER-RING & D	24MM,27MM,30MM,32MM,36MM,41MM,46MM,50MM,55MM,60MM,65MM,70MM,75MM,80MM,85MM,90MM,95MM,110MM	TAPARIA/EQUIVALENT/MEKASTER	NOS/EACH	2
85	SPANNER-RING & D	41MM,46MM,50MM,55MM,60MM,65MM,70MM,75MM,80MM,85MM,90MM,95MM	TAPARIA/EQUIVALENT/MEKASTER	NOS/EACH	2
86	TAP SET	3MM,4MM,5MM,6MM,8MM,10MM,12MM,16MM,20MM,24MM,27MM,30MM,36MM(METRIC/FINE)	TOTEM/JK	NOS/EACH	2
87	TAP WRENCH	TOTEM/JK	TOTEM/JK	NOS	2
88	RING SPANNER	6MM-32MM	TAPARIA/EQUIVALENT	SETS	15
89	D-SPANNER	6MM-32MM	TAPARIA/EQUIVALENT	SETS	16
90	RIGHT ANGLE	6 & 12	TAPARIA/EQUIVALENT	NOS	10
91	MOTHER OVEN	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	1
92	ELECTRODE BAKING OVEN(PORTABLE)	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	10
93	BEARING SCRAPPER HALF ROUND	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	1
94	BEARING SCRAPPER TRIANGLE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	1

95	HACKSAW FRAME BIG	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	3
96	HACKSAW FRAME MINI	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	3
97	SHIM CUTTER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	4
98	CUTTING PLIER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	10
99	NOSE PLIER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	10
100	MONKEY PLIER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	5
101	CIRCLIP PLIER-SMALL	INTERNAL & EXTERNAL	TAPARIA/EQUIVALENT	NOS	4
102	CIRCLIP PLIER-MEDIUM	INTERNAL & EXTERNAL	TAPARIA/EQUIVALENT	NOS	4
103	CIRCLIP PLIER-LARGE	INTERNAL & EXTERNAL	TAPARIA/EQUIVALENT	NOS	4
104	CONCRETE DRILL BIT	12MM,14MM,16MM	BOSCH/EQUIVALENT/KPT	NOS/EACH	3
105	DRILL BIT SETS	6-12MM	BOSCH/EQUIVALENT/KPT	SETS	5
106	HSS TAPER SHANK DRILL BITS	13MM TO 30MM	BOSCH/EQUIVALENT/KPT	NOS/EACH	2
107	BEARING PULLER	8" & 12"	TAPARIA/EQUIVALENT	NOS	4

108	SCAFFOLDING PIPE	3 METRE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	300
109	SCAFFOLDING PIPE	6 METRE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	350
110	BATTERN	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	250
111	SCAFFOLDING CLAMPS	FIXED AND SWIVEL	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS/EACH	500
112	C-CLAMP	4",6",8",10",12"	TAPARIA/EQUIVALENT	NOS/EACH	2
113	ALLEN KEY	1-10MM(BOX)	TAPARIA/EQUIVALENT	SET	12
114	ALLEN KEY	12MM,14MM,17MM,19MM,22MM,24 MM,27MM,30MM,32MM	TAPARIA/EQUIVALENT	NOS/EACH	3
115	ALLEN KEY	1/6 TO 3/8 INCH	TAPARIA/EQUIVALENT	SET	5
116	PIPE WRENCH	12"	TAPARIA/EQUIVALENT	NOS	4
117	PIPE WRENCH	18"	TAPARIA/EQUIVALENT	NOS	4
118	PIPE WRENCH	24"	TAPARIA/EQUIVALENT	NOS	2
119	SCREW DRIVER	12'	TAPARIA/EQUIVALENT	NOS	12
120	SCREW DRIVER	18''	TAPARIA/EQUIVALENT	NOS	12

121	SCREW SPANNER	12",18"	TAPARIA/EQUIVALENT	NOS	20
122	HAMMERS	4LB	TAPARIA/EQUIVALENT	NOS	10
123	HAMMERS	10LB,22LB	TAPARIA/EQUIVALENT	NOS/EACH	4
124	HAMMERS	33LB	TAPARIA/EQUIVALENT	NOS/EACH	2
125	HAMMERS	44LB	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2
129	FRP LADDER 3 MTR	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	4
131	PICK UP FOR MATERIAL MOVEMENT		TATA/MAHINDRA/ESCORT	NOS	1
132	NYLON HAMMERS	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	NOS	5
133	GREASE GUN WITH HOSE AND NIPPLES	1KG,3KG,5KG		NOS/EACH	2
134	TOOL BOX WITH ALL HAND TOOLS	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	15
135	SINGLE ROPE PULLEY	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	3
136	LETTER PUNCH	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2
137	NUMBER PUNCH	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2

138	AIR GUN WITH ACCESSORIES	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	1
139	OIL BARREL PUMP	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2
140	COPPER ROD	300MM -LENGTH.40MM-OD	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	10
141	ROPE LADDER	6M LENGTH	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2
142	TRANSFORMER 24V	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	15
143	AIR BLOWER	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2
144	MULTI METER DIGITAL	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	2
145	TWO CORE CABLE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	METRE	200
146	THREE CORE CABLE	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	METRE	200
147	LIGHTING/EXTENSION BOARDS WITH MCB HAVING PROPER PLUGS 5 POINT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	25
148	HAND LAMP WITH 24 V	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	10
149	FILE FLAT	6" & 12" ROUGH	TAPARIA/EQUIVALENT	NOS	12
150	FILE FLAT	6" & 12" SMOOTH	TAPARIA/EQUIVALENT	NOS	12

151	FILE TRIANGLE	6" & 12" ROUGH	TAPARIA/EQUIVALENT	NOS	12
152	FILE TRIANGLE	6" & 12" SMOOTH	TAPARIA/EQUIVALENT	NOS	12
153	NEEDLE FILE SETS	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	TAPARIA/EQUIVALENT	SET	4
154	PIPE THREADING DIE SET	3/8"	TOTEM/JK	NOS	1
155	PIPE THREADING DIE SET	1/2"	TOTEM/JK	NOS	1
156	PIPE THREADING DIE SET	3/4"	TOTEM/JK	NOS	1
157	PIPE THREADING DIE SET	1"	TOTEM/JK	NOS	1
158	PIPE THREADING DIE SET	1 1/4"	TOTEM/JK	NOS	1
159	BEARING PULLER (HYDRAULIC)		SKF/EQUIVALENT	NOS	1
160	BEARING HEATING MACHINE	20-100MM	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	1
161	BEARING HEATING MACHINE	60-600MM	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	NOS	1
163	WATER LEVEL PIPE			METRE	50
164	PLUMB			NOS	2

165	HI-LO WELDING GUAGE/BRIDGE CAM GAUGE			NOS	1
166	Ceramic Heating coil for coal mill grinding roll removal/fixing	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	Metre	100
167	Induction Heating machine with temperature controller for coal mill grinding roll removal/fixing	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	No	1
168	Beam Clamp		SUITABLE FOR SAFE & QUALITY WORK ENVIRONMENT	No	100

Note:

1. The above mentioned minimum quantity of Tools & Plants and equipment have to be maintained by the Contractor at the Owner's site through out the Contract period and has to be replenished by the Contractor as and when the quantity is consumed. The Tools & Plants as specified above are not exhaustive and the Contractor has to deploy additional Tools & Plants as per site requirement to complete the scope of work in all respects, without any financial implication to the Owner. Other details shall be as per scope of work.

2. The above mentioned equipment must be of ISI and of industrial grade from standard manufacturer.

3.The vendor should provide 3rd party testing certificate of all T&P's.

4. The vendor should provide the calibration certificate of all the measuring instrument.

LIST OF MINIMUM CONSUMABLES TO BE MAINTAINED BY CONTRACTOR					
Minimum qty. is estimated considering lead period and consumption during that period..					
SL.NO.	**CONSUMABLE ITEMS**	**DETAIL SPECIFICATION (IF APPLICABLE)**	**UOM**	**MINIMUM QTY**	**REMARKS**
1	GRINDING WHEEL	AG-4	Nos	30	
2	GRINDING WHEEL	AG-5	Nos	50	
3	GRINDING WHEEL	AG-7	Nos	30	
4	CUTTING WHEEL	14''	Nos	20	
5	**WELDING RODS 7018 (D&H/ESAB/ADOR)**				
6	2.5*350 MM	7018 x 2.5 mm	Kg	50	
7	3.15*450 MM	7018 x 3.15 mm	Kg	100	
8	**WELDING RODS 6013 (D&H/ESAB/ADOR)**				
9	2.5*350 MM	6013 x 2.5 mm	Kg	25	
10	3.15*450 MM	6013 X 3.2 mm	Kg	25	
11	PAINT BRUSH 1”,2”,3”,4”		Nos/Each	5	
12	PVC TAPE		Nos	40	
13	MASKING TAPE		Nos	40	
14	TEFLON TAPE		Nos	40	
15	TARPAULIN COVER	6 mtr X 6 mtr	Nos	12	
16	COTTON WASTE		Kg	400	
17	OIL STONE		Nos	10	
18	BUFFING WHEEL - GRIND WELL NORTON/ CARBORUNDOM	2”,3”,4”,5",6”	Nos/Each	20	

19	MILLING CUTTER CONICAL OVAL, CYLINDRICAL ETC		Nos/Each	5	
20	EMERY WHEEL FOR AG - 4	FINE, ROUGH	Nos/Each	20	
21	EMERY PAPER	(ROUGH, MEDIUM,SMOOTH)	Nos/Each	40	
23	WIRE BRUSH OF DIFFERENT SIZES		Nos	30	
24	WD 40 SPRAY	500 ml	Nos	30	
25	CLEANER		Can	10	
26	DEVELOPER		Can	10	
27	PENETRANT		Can	10	
28	M-SEAL		Nos	30	
29	DIESEL		LTR	50	
30	OXYGEN CYLINDER		Nos	50	
31	D.A. CYLINDER		Nos	15	
32	ARGON CYLINDER		Nos	10	
33	FF2 GRINDING MACHINE STONE WHEELS		Nos	20	
34	FF2 GRINDING MACHINE METALLIC WHEELS - CONICAL, CYLINDRICAL, OVAL		Nos	10	
35	CHALK / SLATE PENCIL		box	2	
36	24V BULB		Nos	50	
37	BULB FOR HAND LAMP	100 W	Nos	50	
38	LED HALOGEN FILAMENT	500W, 1000W	Nos/Each	10	
39	MARKING CLOTH	1M WIDTH ROLL	M2	20	
41	PRUSSIAN BLUE		Nos	10	
42	ARALDITE TUBE SET		Nos	5	

43	HACKSAW BLADES		Nos	10	
44	MANILA ROPE		Mtr	200	
45	COIR ROPE		Kg	200	
46	BINDING WIRE		Kg	50	
47	GLASS FOR LAPPING VALVES OF DIFFERENT SIZES		Nos/Each	3	
48	BELCHA, TAKLON, SPADE TOOLS		Nos/Each	5	
49	PIANO WIRE		M	50	
50	LINE DORI		M	100	
51	LEAD WIRES UPTO 2 MM DIA		Kg	0.5	
52	THERMO CHALKS UP TO 300 DEGREES	150 degree, 220 degree, 300 degree Celsius	Nos/Each	3	
53	SAFETY NET HAVING TWO LAYER	10 M X 5 M,6 M x 4M	Nos/Each	2	
54	FIRE BLANKET	Temp 550 deg C	No.	10	

Note:
1. The above mentioned minimum quantity of Consumables that has to be maintained by the Contractor at the Owner's site through out the Contract period and has to be replenished by the Contractor as and when the quantity is consumed. The consumables as specified above are not exhaustive and the Contractor has to arrange additional consumables as per site requirement to complete the scope of work in all respects, without any financial implication to the Owner. Other details shall be as per scope of work.

CATEGORY WISE MANPOWER QUALIFICATION REQUIREMENT (Boiler & Aux)		
SL.NO.	**DESCRIPTION**	**QUALIFICATION(EDUCATION/WORK EXPERIENCE)**
1	Site-in-charge	BE with minimum 10 yrs /Diploma with minimum 15 yrs in maintenance experience of equipments in thermal power plant having Unit size more than 250 MW and minimum 3 years Ex. as site-in-charge
2	Supervisor	B. E with Minimum 3 years/Diploma with minimum 5 years experience in relevent area.
3	Safety Officer	Graduate with Certfication course from a reputed institute with minimum 3 Yr of industrial experience
4	Storekeeper	Any Graduate with 3 yrs. Work Ex. In relevant work
6	MW Fitter	ITI with minimum 10 years relevant experience in relevant mechanical work
7	Welder (IBR)	ITI/IBR Welder Certification with 6 Yr of experience in relavent mech works
8	Fitter	ITI with minimum 3 years of experience in relevant mechanical work
9	Gas Cutter/Grinder	ITI with minimum 3 years relevant experience
10	Welder	ITI with minimum 3 years relevant experience
11	Valve Technician	ITI with minimum 5 years of experience in relevant mechanical work
12	EOT/Sky Climber/Hydra /Boom Lift operator	ITI with minimum 3 years of experience in relevant mechanical work
13	Fabricator	ITI with minimum 3 years of experience in relevant mechanical work
14	Electrician	ITI with minimum 3 years of experience in relevant work

15	Rigger	Non ITI with minimum 3 Yr of experience in relaventmech works.
16	Helper	Non ITI with minimum 3 Yr of experience in relaventmech works.
CATEGORY WISE MANPOWER QUALIFICATION REQUIREMENT (Workshop)		
1	Supervisor cum Workshop I/C	BE with min 6/Diploma with min 10 Years of Experience. Should have worked as In charge of workshop. Should be able to effectively execute all workshop related works. Should have sound knowledge on Operation & Maintenance/Overhauling of all workshop equipment's.
2	Machinist(Lathe/Drilling/Slotting/Millin g Machine Operator)	ITI with minimum 6 years of Hands-on experience on operation and maintenance/overhauling/dismantling/assembling and routine checking of center lathes, slotter machine, milling machines, drilling machines. Knowledge of master leveling, water leveling, marking, sawing, chipping, filing, scraping, drilling etc. Makes and understands sketches of parts; fabricates fits and assemble machinery parts as required and does necessary repairs either in Workshop or at site under the engineer guidance. Understands assembly-drawing, functions of individual parts of industrial equipment's.
3	Fabricator	ITI with minimum 3 years of experience in relevant workshop work.
4	Welder	ITI with minimum 3 years relevant experience
5	Gas Cutter/Grinder	ITI with minimum 3 years relevant experience
6	Rigger	Non ITI with minimum 3 Yr of experience in relevantmech works.
7	Helper	Non ITI with minimum 3 Yr of experience in relevantmech works.

DEPLOYMENT OF MINIMUM MANPOWER AT SITE - BOILER AMC				DEPLOYMENT OF MINIMUM MANPOWER AT SITE - WORKSHOP		
A) Minimum Manpower required on Normal working days (NWD) for Boiler & Aux.				A) Minimum Manpower required on Normal working days (NWD) for Workshop		
SL.NO.	**MANPOWER CATEGORIES**	**Qty**		**SL.NO.**	**MANPOWER CATEGORIES**	**Qty**
a)	**CRITICAL**			**a)**	**CRITICAL**	
1	SITE IN CHARGE	1		**1**	Supervisor Cum Workshop Incharge	2
2	SAFETY OFFICER	1		**2**	Lathe Machine Operator	4
3	SUPERVISOR	6		**3**	Milling Machine Operator	1
4	MWF	3		**4**	Drilling & Slotting Machine Operator	2
5	IBR WELDER	1			**TOTAL (CRITICAL)**	**9**
6	ELECTRICIAN	2				
7	VALVE TECHNICIAN	1		**b)**	**NON-CRITICAL**	
8	HYDRA OPERATOR	1		**5**	Fabrication Fitter	1
9	FITTER- PRESSURE PARTS	3		**6**	Welder (6G)	1
10	FITTER- ROTARY	2		**7**	Grinder	1
11	GAS CUTTER-PRESSURE PARTS	2		**8**	Gas Cutter	1
12	GRINDER-PRESSURE PARTS	2		**9**	Rigger	1
13	WELDER-6G	2		**10**	Helper	1
	SUB-TOTAL (CRITICAL)	**27**			**SUB-TOTAL (NON-CRITICAL)**	**6**
b)	**NON-CRITICAL**				**TOTAL**	**15**
1	STORE KEEPER	2				
2	ASST. FITTER	3				
3	RIGGER	13				
4	HELPER	18				
	SUB-TOTAL (NON-CRITICAL)	**36**				
	TOTAL	**63**				
B) Minimum Manpower Requirement on Sundays & Holidays for Boiler & Aux.						

	CRITICAL					
1	SUPERVISOR	3		**B) Minimum Manpower Requirement on Sundays & Holidays for Workshop**		
2	MWF	1				
3	ELECTRICIAN	1		**1**	Supervisor Cum Workshop Incharge	1
4	WELDER	1		**2**	Lathe Operator	1
5	FITTER	4		**3**	Driller &Slotter	1
6	GAS CUTTER	1		**4**	Rigger	1
7	GRINDER	1		**5**	Helper	1
8	RIGGER	4			**TOTAL**	**5**
9	HELPER	8				
10	STORE KEEPER	1				
	TOTAL	**25**				

Notes:
1. It is to be noted that the tentative manpower schedule as mentioned above is just indicative. In case of additional manpower requirement in shutdown or in emergency, contractor shall deploy the required manpower within 12 hours.

2. Contractor shall maintain above mentioned manpower all the time so that plant operation is not affected due to lack of manpower. Appropriate arrangement for manpower shall be made to cover holidays and weekly off, substitute for long leave of personnel. Failsafe coverage arrangement shall be in place to avoid shortage of manpower.

Notes:
1. It is to be noted that the tentative manpower schedule as mentioned above is just indicative. In case of additional manpower requirement in shutdown or in emergency, contractor shall deploy the required manpower within 2 hours.

2. Contractor shall maintain above mentioned manpower all the time so that workshop operation is not affected due to lack of manpower. Appropriate arrangement for manpower shall be made to cover holidays and weekly off, substitute for long leave of personnel. Failsafe coverage arrangement shall be in place to avoid shortage of manpower.

DIVISION OF RESPONSIBILITY				
SL..NO.	DESCRIPTION	RESPONSIBILITY		REMARKS
		OWNER	CONTRACTOR	
1.00	**GENERAL**			
1.01	Deployment of minimum guaranteed category wise manpower.	X	Y	
1.02	Tentative manpower deployment Plan	X	Y	
1.03	Arrangement of all category of Manpower	X	Y	
1.04	Travel expenses for staff and workers	X	Y	
1.05	Accommodation and boarding for staff and workers	X	Y	
1.06	Local conveyance of staff and workers	X	Y	
1.07	Unifrom& Boiler suits for manpower	X	Y	
1.08	Arrangement of mobile/telephone for day to day jobs from Contractor's side.	X	Y	
1.09	Arrangement of refreshments/tiffins/meals during extra work	X	Y	
2.00	**INFRASTRUCTURE**			
2.01	Construction of site office and store	X	Y	OPGC will provide space to the contractor for construction of office/store. Construction of office/store with all infrastructure including IT will be in the scope of the contractor.
2.02	Furniture for office	X	Y	
2.03	Rest room and changing room for workers	Y	X	
2.04	Canteen facility on chargeable basis.	Y	X	

2.06	Power and drinking water for Contractor site office on free of cost basis	Y	X	
2.07	Adequate toilets at work area.	Y	X	
2.09	Access to First aid centre on chargeable basis	Y	X	
3.00	**TOOLS & PLANTS**			
3.01	All General Tools	X	Y	
3.02	Special tools supplied by OEM	Y	X	
3.03	General scaffolding materials	X	Y	
3.04	General consumables	X	Y	
3.05	Special consumables which goes permanently into the machine like gaskets, 'O' rings, joint compounds etc.	Y	X	
3.06	All spares required for completion of job	Y	X	
3.07	General welding electrodes/ filler wire, structural electrodes like 6018, 7018, 6013 etc.	X	Y	
3.08	Special welding electrodes, filler wires etc. For welding	Y	X	
3.09	TIG welding sets	X	Y	
3.11	Oil, grease and any other lubricants etc.	Y	X	
3.12	Diesel/cleaning solvent for components cleaning	X	Y	
4.00	**SITE ACTIVITIES**			
4.01	Daily report, weekly & monthly reports	X	Y	As per Owner's prescribed formats
4.02	Carrying out preventive, predictive and breakdown maintenance schedules as per the scope	X	Y	
4.03	Provide SMPs and available required drawings	Y	X	
4.04	Security within plant premises	X	Y	Security of contractor's resources at site is in scope of the contractor.
4.05	Loading & unloading, handling of material at site.	X	Y	
4.06	Inland transportation of spares, materials etc.	X	Y	

4.07	14 Ton Hydra	Y	X	
4.08	All required Cranes with Operator and & fuel supply	Y	X	
4.10	Utility Vehicle/pick up with transportation, maintenance & fuel.	X	Y	
4.11	EOT Crane with out operator	Y	X	
4.12	EOT Crane - Operator and maintenance charges	X	Y	
4.13	Any major and minor civil works	Y	X	
4.14	General housekeeping	X	Y	
4.15	House keeping responsibility after completion of the work	X	Y	
5.00	**SITE SERVICES**			
5.01	Condition monitoring for mechanical and electrical equipment	Y	X	
5.02	Required NDT - DP, MPT	X	Y	
5.03	Purging paper for boiler tube leakages	Y	X	
5.04	100% Radiography Inspection and UT	X	Y	
5.05	Pre heating and stress reliving	X	Y	
5.08	OEM experts service for any equipment	Y	X	
5.09	De-watering activity at work area	X	Y	
5.10	Online leak sealing works	Y	X	
5.11	Oil filtration equipment	Y	X	
5.12	Oil Testing and samples	Y	X	
5.14	Painting works	X	Y	However, Contractor will be responsible for painting of area limited to Contractor's work. Material shall be in Owner's scope.
5.15	Power Supply and compressed air for site activities	Y	X	
5.16	Erection of scaffolding	X	Y	

5.17	Sky Climber	Y	Y	Sky climber shall be provided by OPGC. Assemby/Disassembly and operation of the same shall be in the scope of contractor.
6.00	**SAFETY**			
6.01	Qualified Safety Engineers/ Safety Supervisors	X	Y	
6.02	PPE for staff and workers	X	Y	
6.03	Safety Nets wherever required	X	Y	
6.04	Regular tool box talk	Y	Y	
6.05	Third party inspection of contractor's tools & tackles	X	Y	However validation of certification will be in presence of Owner. Assistance of manpower for Owner's Tools & tackles under contracor's scope.
6.06	Ensuring safety of manpower inside plant premises.	X	Y	
7.00	**FEES**			
7.01	IBR approval for repair of Boiler pressure parts and License renewal with/without Boiler (Unit#3, Unit#4 and Aux Boiler) Shutdown.	X	Y	Owner shall pay required statutory fees. However, liasoning with Director/Asst. Director of Boiler for any IBR activities will be in the scope of the Contractor.
7.02	Labour license	X	Y	
7.03	Provident Fund	X	Y	
7.04	ESI/WC Policy	X	Y	
	Y - In scope			
	X - Not in scope			

BOQ

Equipment/area	Job No	Job Desription	UOM	1st Year	2nd Year	3rd Year
				Quantity	Quantity	Quantity
SOOT BLOWER	1	PM OF WALL BLOWER (MONTHLY CHECKS)	Nos	2880	2880	2880
	2	SERVICING OF WALL BLOWER /LRSB/SOOT BLOWER GEARBOX	Nos	24	24	24
	3	DEFECTS ATTENDING OF SOOT BLOWERS	Nos	377	377	377
	4	SOOT BLOWER ASSISTANCE FOR OPERATION/MANUAL RETRACTING OF STUCKUP LRSB	Days	1460	1460	1460
OIL GUNS & OIL SYSTEM	5	PM OF OIL GUN	Nos	200	200	200
	6	OIL GUN CLEANING	Nos	640	640	640
	7	LDO HFO STRAINER CLEANING/REPLACEMENT	Nos	40	40	40
	8	REPLACEMENT OF OIL/AIR/STEAM FLEXIBLE HOSES	Nos	32	32	32
BOILER - PRESSURE PARTS	9	ATTENDING BOILER TUBE LEAKAGE	LS	15	15	15
	10	APPLICATION OF REFRACTORY	MT	10	10	10
	11	SKY CLIMBER INSTALLATION & REMOVAL	Nos	16	16	16
	12	SKY CLIMBER OPERATION	Nos	60	60	60
	13	WATER WASHING AT BUTTERFLY AREA/REAR ARCH/GOOSENECK/2ND PASS	Nos	6	6	6
	14	ATTENDING HP WELDING JOINTS	Nos	300	300	300
	15	BOILER TUBE BENDS FABRICATION	Nos	100	100	100
	16	PWHT OF WELDING JOINTS	Days	30	30	30
	17	RADIOGRAPHY OF WELDING JOINTS	Days	25	25	25
	18	HANGER INSPECTION / RECTIFICATION	Nos	50	50	50
	19	BOILER LICENSE RENEWAL	Nos	10	10	10
VALVES(GATE/GLOBE / PLUG/BALL),(MOT., PNEUMATIC, HYDRAULIC,MIV, STEAM TAP,NRV, CONTROL VALVE)	20	BOILER SAFETY VALVE & ERV SERVICING/SOOT BLOWER/AUX BOILER SAFETY VALVE SERVICING	Nos	4	4	4
	21	HP VALVE SERVICING (SIZE>12")	Nos	2	2	2
	22	HP VALVE SERVICING (SIZE= 6'')	Nos	10	10	10
	23	HP VALVE SERVICING (SIZE= 4'')	Nos	10	10	10
	24	HP VALVE SERVICING (SIZE= 3'')	Nos	10	10	10
	25	HP VALVE SERVICING (SIZE= 2.5'')	Nos	20	20	20
	26	HP VALVE SERVICING/REPLACEMENT (SIZE<= 2'')	Nos	50	50	50

	27	FLANGE GASKET REPLACEMENT	Nos	200	200	200
COAL BURNER NOZZLE & TIPS/WINDBOX/BURNER TILT/SADC	28	IN-SITU REPAIR/HARDFACING OF BURNER / AIR NOZZLE TIPS	Nos	28	28	28
	29	IN-SITU REPAIR/HARDFACING OF BURNER NOZZLE COMPARTMENT	Nos	14	14	14
	30	BURNER TILT DEFECT ATTENDING	Nos	8	8	8
	31	INSTALLATION / REMOVAL OF BURNER TILT SHEAR PIN	Nos	8	8	8
	32	SADC FREENESS - SERVICING /MECHANICAL JAM CLEARING	Nos	50	50	50
FOPH	33	PM OF HFO/LDO/DRAIN OIL PUMP/ ETP SYSTEM PUMPS AT FOPH(3 MONTHLY)	Nos	136	136	136
	34	HFO/LDO/DRAIN PUMP OH/SERVICING	Nos	16	16	16
	35	DECOUPLING/COUPLING/ALIGNMENT OF HFO/LDO/DRAIN OIL PUMP/ ETP SYSTEM PUMPS	Nos	16	16	16
APH PROPER	36	REPLACEMENT OF OVER RUNNING CLUTCH	NOS	2	2	2
	37	REPLACEMENT & SERVICING OF FLUID COUPLING	NOS	2	2	2
	38	SERVICING OF AIR MOTOR	NOS	2	2	2
	39	ALIGNMENT OF MAIN MOTOR/AIR MOTOR	NOS	4	4	4
	40	RADIAL SEAL REPLACEMENT/SETTING	NOS	48	48	48
	41	SECTOR PLATE LEVELLING CHECKING & ALIGNMENT	NOS	1	1	1
	42	AIR SEAL ASSY. LEAKAGE ATTENDING	NOS	2	2	2
	43	RACK PINION ARRANGEMENT INSPECTION	NOS	1	1	2
FANS	44	SCANNER AIR FAN INSPECTION/ PM	NOS	40	40	40
	45	FAN INSPECTION FD/ID/PA FAN	NOS	40	40	40
	46	OVERHAULING OF MBA/IMPELLER-FD/PA/ID FAN	NOS	4	4	4
	47	PM OF SEAL AIR FAN(BI MONTHLY)	NOS	30	30	30
	48	SEAL AIR FAN ALIGNMENT	NOS	4	4	4
	49	SEAL AIR FAN BEARING INSPECTION/REPLACEMENT,CLEARANCE CHECKS,DPT ETC	NOS	3	3	3
COAL MILL	50	PM OF COAL MILL	NOS	112	112	112
	51	REPLACEMENT OF BULL RING SEGMENT / GRINDING ROLL	SET	6	27	12

	52	REPLACEMENT OF JOURNAL ASSEMBLY DUE TO BEARING FAILURE/OIL SEAL DAMAGE	NOS	12	12	12
	53	SERVICING OF JOURNAL ASSEMBLY.	NOS	12	27	12
	54	GREASING IN TRUNION SHAFT AND BUSH DURING RUNNING CONDITION/JOURNAL SPRING BEARING CLEANING/GREASING	NOS	56	56	56
	55	REPLACEMENT / REPAIRING OF MILL LINERS	NOS	50	50	50
	56	REPLACEMENT/SERVICING OF SPRING ASSEMBLY	NOS	12	12	12
	57	REPAIRING / REPLACEMENT OF SCRAPPER ASSEMBLY	NOS	14	14	14
	58	INSPECTION OF MILL DUE TO ANY ABNORMALITY (ABNORMAL SOUND/ ABNORMAL CURRENT/HIGH MILL REJECT ETC)	NOS	48	48	48
	59	REPLACEMENT/REPAIRING OF PLATE VALVES OF PYRITE HOPPER	NOS	30	30	30
	60	REPALCEMENT OF VANEWHEEL ASSEMBLY	NOS	10	10	10
	61	BOWL MILL ATTENDING DEFECT-INVERTED CONE,SUPPORT PIPE, BOWL EXTENSION RING	NOS	15	15	15
	62	ALLIGNMENT OF MOTOR WITH GEARBOX	NOS	10	10	10
	63	REPLACEMENT OF COUPLING	NOS	2	2	2
	64	REPAIRING OF CLASSIFIER VANES	NOS	8	8	8
	65	COAL MILL EXTERNAL CLEANING	NOS	336	336	336
	66	ASSISTACE TO C&I IN THEIR DEFECTS/MILL & FEEDER/VALVE LIMIT SETTING/ EMD FOR COUPLING & DECOUPLING OF LT MOTORS	NOS	60	60	60
	67	MILL CHOKE UP CLEARING	NOS	50	50	50
	68	COAL MILL GB REPAIR/ REPLACEMET/INPUT SHAFT	NOS	2	2	2
COAL FEEDER	69	PM OF COAL FEEDER	NOS	112	112	112
	70	COAL FEEDER BELT REPLACEMENT	NOS	64	64	64
	71	FEEDER BREAKDOWN ATTENDING	NOS	100	100	100
	72	FEEDER MAIN MOTOR GEARBOX SERVICING/REPLACEMENT	NOS	14	14	14
	73	COC GEARBOX SERVICING	NOS	5	5	5
	74	FEEDER I/L GATE SERVICING O/L GATE/ BUNKER O/L GATE	NOS	28	28	28
	75	SHEAR PIN REPLACEMENT	NOS	56	56	56
COAL PIPE	76	VICTUALIC COUPLING	NOS	20	30	30

		REPLACEMENT				
	77	COAL PIPE (1M LENGTH) / ELBOW REPLACEMENT	NOS	10	10	10
	78	COAL PIPE CHOCKING REMOVAL	Nos	6	6	6
MISCLANEOUS	79	CUTTING, WELDING OF LP PIPING - STEAM LINE, OIL LINE, AIR LINE,WATER LINE, ETC.	RM	200	200	200
	80	FABRICATION & ERECTION OF STRUCTURE	MT	20	20	20
	81	ONLINE COAL LEAKAGES TO BE ATTENDED BY SODIUM SILICATE	NOS	425	425	425
	82	PM OF /HOIST OF COAL MILL, FAN AND APH	NOS	72	72	72
	83	METALLIC/NON METALLIC BELLOW REPLACEMENT	RM	150	150	150
	84	DUCT LEAKAGES/ADDITIONAL WELDING/STIFFENING ATTENDING	MT	20	20	20
	85	DAMPER/GATE INSPECTION & DEFECT ATTENDING	NOS	60	60	60
	86	SCAFFOLDING ERECTION & REMOVAL - BOILER/DUCT	Cu. Mtr	5000	5000	5000
	87	SPARES PRESERVATION ACTIVITY IN STORES	Nos	12	12	12
	88	THICKNESS SURVEY OF TUBES, DUCTS,COAL PIPES ETC.	Points	1200	1200	1200
	89	OPERATION OF 23 T HYDRA	Manday	365	365	365
	90	BOILER /APH/DUCT/HOPPERS/MILL MANHOLE DOORS ROPE REPLACEMENT	Nos	200	200	200
	91	ASSISTANCE FOR ONLINE SEALING	Nos	30	30	30
	92	ASH CLEANING	MT	40	40	40
	93	HOUSEKEEPING OF MILL/ FAN LUBE OIL SKID AND SURROUNDING AREA	NOS	2688	2688	2688
LUBE OIL SYSTEM MILL/FAN/APH	94	PM OF LOS -APH / PA / FD /ID FANS	NOS	120	120	120
	95	FILTER CLEANING	NOS	6000	6000	6000
	96	REPAIR/ REPLACEMENT OF LUBE OIL PUMP	NOS	100	100	100
	97	SERVICING OF LUBE OIL COOLER	NOS	10	10	10
	98	LUBE OIL TOP UP (20 LTR EACH TIME)	NOS	400	400	400
	99	LUBE OIL FILTRATION - MILL/FANS	NOS	96	96	96
WORKSHOP	100	ASSISTANCE IN O&M OF WORKSHOP MACHINES	Month	12	12	12
ADDITIONAL MANPOWER	101	SUPERVISOR	Manday	100	100	100

	102	MILL WRIGHT FITTER/IBR WELDER	Manday	150	150	150
	103	SKY CLIMBER OPERATOR/FABRICATOR/VALVE TECHNICIAN	Manday	200	200	200
	104	FITTER/GRINDER/CUTER/WELDER	Manday	600	600	600
	105	RIGGER	Manday	600	600	600
	106	HELPER	Manday	600	600	600

The above mentioned quantity is for 3 years.

BLANK PRICE BID

Name of the work: "AMC for Unit-3&4 Boiler & Auxiliaries, and Workshop (for both OPGC-I & II) for a period 03 years, ITPS."

Equipment/area	Job No	Job Desription	UOM	Quantity	Rate/ Unit	Amount
SOOT BLOWER	1	PM OF WALL BLOWER (MONTHLY CHECKS)	Nos	2880		
	2	SERVICING OF WALL BLOWER /LRSB/SOOT BLOWER GEARBOX	Nos	24		
	3	DEFECTS ATTENDING OF SOOT BLOWERS	Nos	377		
	4	SOOT BLOWER ASSISTANCE FOR OPERATION/MANUAL RETRACTING OF STUCKUP LRSB	Days	1460		
OIL GUNS & OIL SYSTEM	5	PM OF OIL GUN	Nos	200		
	6	OIL GUN CLEANING	Nos	640		
	7	LDO HFO STRAINER CLEANING/REPLACEMENT	Nos	40		
	8	REPLACEMENT OF OIL/AIR/STEAM FLEXIBLE HOSES	Nos	32		
BOILER - PRESSURE PARTS	9	ATTENDING BOILER TUBE LEAKAGE	LS	15		
	10	APPLICATION OF REFRACTORY	MT	10		
	11	SKY CLIMBER INSTALLATION & REMOVAL	Nos	16		
	12	SKY CLIMBER OPERATION	Nos	60		
	13	WATER WASHING AT BUTTERFLY AREA/REAR ARCH/GOOSENECK/2ND PASS	Nos	6		

	14	ATTENDING HP WELDING JOINTS	Nos	300		
	15	BOILER TUBE BENDS FABRICATION	Nos	100		
	16	PWHT OF WELDING JOINTS	Days	30		
	17	RADIOGRAPHY OF WELDING JOINTS	Days	25		
	18	HANGER INSPECTION / RECTIFICATION	Nos	50		
	19	BOILER LICENSE RENEWAL	Nos	10		
VALVES(GATE/GLOBE/ PLUG/BALL),(MOT., PNEUMATIC, HYDRAULIC,MIV, STEAM TAP,NRV, CONTROL VALVE)	20	BOILER SAFETY VALVE & ERV SERVICING/SOOT BLOWER/AUX BOILER SAFETY VALVE SERVICING	Nos	4		
	21	HP VALVE SERVICING (SIZE>12")	Nos	2		
	22	HP VALVE SERVICING (SIZE= 6'')	Nos	10		
	23	HP VALVE SERVICING (SIZE= 4'')	Nos	10		
	24	HP VALVE SERVICING (SIZE= 3'')	Nos	10		
	25	HP VALVE SERVICING (SIZE= 2.5'')	Nos	20		
	26	HP VALVE SERVICING/REPLACEMENT (SIZE<= 2'')	Nos	50		
	27	FLANGE GASKET REPLACEMENT	Nos	200		
COAL BURNER NOZZLE & TIPS/WINDBOX/BURNER TILT/SADC	28	IN-SITU REPAIR/HARDFACING OF BURNER / AIR NOZZLE TIPS	Nos	28		
	29	IN-SITU REPAIR/HARDFACING OF BURNER NOZZLE COMPARTMENT	Nos	14		
	30	BURNER TILT DEFECT ATTENDING	Nos	8		
	31	INSTALLATION / REMOVAL OF BURNER TILT SHEAR PIN	Nos	8		
	32	SADC FREENESS - SERVICING /MECHANICAL JAM CLEARING	Nos	50		
FOPH	33	PM OF HFO/LDO/DRAIN OIL PUMP/ ETP SYSTEM PUMPS AT FOPH(3 MONTHLY)	Nos	136		
	34	HFO/LDO/DRAIN PUMP OH/SERVICING	Nos	16		
	35	DECOUPLING/COUPLING/ALIGNMENT OF HFO/LDO/DRAIN OIL PUMP/ ETP SYSTEM PUMPS	Nos	16		
APH PROPER	36	REPLACEMENT OF OVER RUNNING CLUTCH	NOS	2		

	37	REPLACEMENT & SERVICING OF FLUID COUPLING	NOS	2		
	38	SERVICING OF AIR MOTOR	NOS	2		
	39	ALIGNMENT OF MAIN MOTOR/AIR MOTOR	NOS	4		
	40	RADIAL SEAL REPLACEMENT/SETTING	NOS	48		
	41	SECTOR PLATE LEVELLING CHECKING & ALIGNMENT	NOS	1		
	42	AIR SEAL ASSY. LEAKAGE ATTENDING	NOS	2		
	43	RACK PINION ARRANGEMENT INSPECTION	NOS	1		
FANS	44	SCANNER AIR FAN INSPECTION/ PM	NOS	40		
	45	FAN INSPECTION FD/ID/PA FAN	NOS	40		
	46	OVERHAULING OF MBA/IMPELLER- FD/PA/ID FAN	NOS	4		
	47	PM OF SEAL AIR FAN(BI MONTHLY)	NOS	30		
	48	SEAL AIR FAN ALIGNMENT	NOS	4		
	49	SEAL AIR FAN BEARING INSPECTION/REPLACEMENT,CLEARANCE CHECKS,DPT ETC	NOS	3		
COAL MILL	50	PM OF COAL MILL	NOS	112		
	51	REPLACEMENT OF BULL RING SEGMENT / GRINDING ROLL	SET	6		
	52	REPLACEMENT OF JOURNAL ASSEMBLY DUE TO BEARING FAILURE/OIL SEAL DAMAGE	NOS	12		
	53	SERVICING OF JOURNAL ASSEMBLY.	NOS	12		
	54	GREASING IN TRUNION SHAFT AND BUSH DURING RUNNING CONDITION/JOURNAL SPRING BEARING CLEANING/GREASING	NOS	56		
	55	REPLACEMENT / REPAIRING OF MILL LINERS	NOS	50		
	56	REPLACEMENT/SERVICING OF SPRING ASSEMBLY	NOS	12		
	57	REPAIRING / REPLACEMENT OF SCRAPPER ASSEMBLY	NOS	14		

	58	INSPECTION OF MILL DUE TO ANY ABNORMALITY (ABNORMAL SOUND/ ABNORMAL CURRENT/HIGH MILL REJECT ETC)	NOS	48		
	59	REPLACEMENT/REPAIRING OF PLATE VALVES OF PYRITE HOPPER	NOS	30		
	60	REPALCEMENT OF VANEWHEEL ASSEMBLY	NOS	10		
	61	BOWL MILL ATTENDING DEFECT- INVERTED CONE,SUPPORT PIPE, BOWL EXTENSION RING	NOS	15		
	62	ALLIGNMENT OF MOTOR WITH GEARBOX	NOS	10		
	63	REPLACEMENT OF COUPLING	NOS	2		
	64	REPAIRING OF CLASSIFIER VANES	NOS	8		
	65	COAL MILL EXTERNAL CLEANING	NOS	336		
	66	ASSISTACE TO C&I IN THEIR DEFECTS/MILL & FEEDER/VALVE LIMIT SETTING/ EMD FOR COUPLING & DECOUPLING OF LT MOTORS	NOS	60		
	67	MILL CHOKE UP CLEARING	NOS	50		
	68	COAL MILL GB REPAIR/ REPLACEMET/INPUT SHAFT	NOS	2		
COAL FEEDER	69	PM OF COAL FEEDER	NOS	112		
	70	COAL FEEDER BELT REPLACEMENT	NOS	64		
	71	FEEDER BREAKDOWN ATTENDING	NOS	100		
	72	FEEDER MAIN MOTOR GEARBOX SERVICING/REPLACEMENT	NOS	14		
	73	COC GEARBOX SERVICING	NOS	5		
	74	FEEDER I/L GATE SERVICING O/L GATE/ BUNKER O/L GATE	NOS	28		
	75	SHEAR PIN REPLACEMENT	NOS	56		
COAL PIPE	76	VICTUALIC COUPLING REPLACEMENT	NOS	20		
	77	COAL PIPE (1M LENGTH) / ELBOW REPLACEMENT	NOS	10		
	78	COAL PIPE CHOCKING REMOVAL	Nos	6		

MISCLANEOUS	79	CUTTING, WELDING OF LP PIPING - STEAM LINE, OIL LINE, AIR LINE,WATER LINE, ETC.	RM	200		
	80	FABRICATION & ERECTION OF STRUCTURE	MT	20		
	81	ONLINE COAL LEAKAGES TO BE ATTENDED BY SODIUM SILICATE	NOS	425		
	82	PM OF /HOIST OF COAL MILL, FAN AND APH	NOS	72		
	83	METALLIC/NON METALLIC BELLOW REPLACEMENT	RM	150		
	84	DUCT LEAKAGES/ADDITIONAL WELDING/STIFFENING ATTENDING	MT	20		
	85	DAMPER/GATE INSPECTION & DEFECT ATTENDING	NOS	60		
	86	SCAFFOLDING ERECTION & REMOVAL - BOILER/DUCT	Cu. Mtr	5000		
	87	SPARES PRESERVATION ACTIVITY IN STORES	Nos	12		
	88	THICKNESS SURVEY OF TUBES, DUCTS,COAL PIPES ETC.	Points	1200		
	89	OPERATION OF 23 T HYDRA	Manday	365		
	90	BOILER /APH/DUCT/HOPPERS/MILL MANHOLE DOORS ROPE REPLACEMENT	Nos	200		
	91	ASSISTANCE FOR ONLINE SEALING	Nos	30		
	92	ASH CLEANING	MT	40		
	93	HOUSEKEEPING OF MILL/ FAN LUBE OIL SKID AND SURROUNDING AREA	NOS	2688		
LUBE OIL SYSTEM MILL/FAN/APH	94	PM OF LOS -APH / PA / FD /ID FANS	NOS	120		
	95	FILTER CLEANING	NOS	6000		
	96	REPAIR/ REPLACEMENT OF LUBE OIL PUMP	NOS	100		
	97	SERVICING OF LUBE OIL COOLER	NOS	10		
	98	LUBE OIL TOP UP (20 LTR EACH TIME)	NOS	400		
	99	LUBE OIL FILTRATION - MILL/FANS	NOS	96		
WORKSHOP	100	ASSISTANCE IN O&M OF WORKSHOP MACHINES	Month	12		

ADDITIONAL MANPOWER	101	SUPERVISOR	Manday	100		
	102	MILL WRIGHT FITTER/IBR WELDER	Manday	150		
	103	SKY CLIMBER OPERATOR/FABRICATOR/VALVE TECHNICIAN	Manday	200		
	104	FITTER/GRINDER/CUTER/WELDER	Manday	600		
	105	RIGGER	Manday	600		
	106	HELPER	Manday	600		
					Total Amount:	

In words: Rupees_____Only

Note:

- **Bidder has to use the above Price Bid Format failing which Bid shall be rejected.**
- **Unit price of 2nd year and 3rd year shall be derived considering an escalation of 5% on unit price of immediate preceding year. The quantity of 2nd year and 3rdyear shall be as per the BOQ stipulated.**