# BID DOCUMENT

**Name of the work:**
**"Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, ITPS."**

| | |
|---|---|
| **Cover Page** | **01 Page** |
| **Copy of NIT** | **02 Pages** |
| **Instruction to Bidders** | **04 Pages** |
| **General Conditions of Contract** | **121 Pages** |
| **Special Conditions of Contract** | **12 Pages** |
| **Integrity Pact** | **05 Pages** |
| **Safety, Health & Environment (SHE) Rules & Regulations for Contractors** | **38Pages** |
| **Scope of Work, BOQ, T&P, Consumables etc** | **92Pages** |
| **Blank Price Bid** | **14 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. 09/07/2022 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-22/2022-23/05, Date: 22.06.2022 (Telephone: 06645-289-315/221/354) Email: debesh.mohanty@opgc.co.in; satya.tarai@opgc.co.in; satyabrata.behera@opgc.co.in; siba.pati@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 Fire Tender Manning & Fire Supervision Services for 01 year | Rs.1000/- including GST | 64,000/- | As per Bid Document | 23.06.22 to 07.07.22 | Up to 15:00 Hrs on 08.07.22/ 15:30 Hrs onwards on 08.07.22 |
| 2. | Rate Contract for Machining Jobs in Machine Shop at ITPS (OPGC 1&2) for a period of 01 (One) year. | Rs.2000/- including GST | 1,25,000/- | As per Bid Document | 25.06.22 to 08.07.22 | Up to 15:00 Hrs on 09.07.22/ 15:30 Hrs onwards on 09.07.22 |
| 3. | Up-gradation of 350 NB Cast Iron to MS pipe line of Ash Slurry Disposal Pipe line at different locations from Plant Boundary to Reservoir Bridge | Rs.1000/- including GST | 77,000/- | As per Bid Document | 25.06.22 to 08.07.22 | Up to 15:00 Hrs on 09.07.22/ 15:30 Hrs onwards on 09.07.22 |
| 4. | Fabrication and Erection of 3rd Bottom Ash slurry disposal line from Ash slurry pump house to Old Ash pond-C of U# 3 & 4. | Rs.1000/- including GST | 91,000/- | As per Bid Document | 25.06.22 to 08.07.22 | Up to 15:00 Hrs on 09.07.22/ 15:30 Hrs onwards on 09.07.22 |
| 5. | Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, ITPS | Rs.3000/- including GST | 17,82,000/- | As per Bid Document | 28.06.22 to 12.07.22 | Up to 15:00 Hrs on 13.07.22/ 15:30 Hrs onwards on 13.07.22 |
| 6. | Bottom Ash Evacuation System Augmentation of Unit 3 & 4 Ash Handling Plant at ITPS | Rs.5000/- including GST | 33,71,000/- | As per Bid Document | 25.06.22 to 08.07.22 | Up to 15:00 Hrs on 09.07.22/ 15:30 Hrs onwards on 09.07.22 |
| 7. | Hiring of Line men & Helper for Colony | --- | 21,000/- | As per Bid Document | 25.06.22 to 10.07.22 | Up to 15:00 Hrs on 11.07.22/ 15:30 Hrs onwards on 11.07.22 |
| 8. | Landscaping from plant gate to switchyard Junction | Rs.1000/- including GST | 51,000/- | As per Bid Document | 01.07.22 to 15.07.22 | Up to 15:00 Hrs on 16.07.22/ 15:30 Hrs onwards on 16.07.22 |

- **e-Reverse Auction (E-RA) shall be conducted for the works at Sl. No. 1, 2, 3, 4, 5, 6 & 8. 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:**
**"Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, 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 meet the following Qualifying Requirements with respect to the below.

1. Party must have executed Annual Maintenance Contract for Turbine Auxiliaries and Balance of plant (BOP) for Power Plant station capacity greater than 1200 MW (Govt. / Public Sector Utility/ Private IPPs/ CPPs) or above and Unit size 600 MW or above.

And

2. Party must have executed successfully Minimum Two Annual Maintenance Contracts for Similar work * for Mechanical Equipment's of minimum 600 MW 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. 2.4 Cr for Similar work.

   Or

   b) At least of two contracts of annual contract value not less than Rs. 1.5 Cr each for Similar work

   Or

   c) At least of three contracts of annual value not less than Rs. 1.2 Cr 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 equal to or greater than 600 MW shall not be less than Rs. 10.00 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

   If bidder executed / executing any job at OPGC then their past/ current performance shall be taken into consideration during evaluation. Qualifying of these bidders in the tender shall be at discretion of OPGC based upon documentary evidence in support to the same.

   *Similar Work – It implies the Annual Maintenance Contract of following
   a) Turbine Generator and its Auxiliaries
   b) Balance of plant (BOP)- DM Plant /PTP /CT /CW /ETP /RO /CTBD /Chlorination/Fire Fighting/H2 plant etc.

   The party must have carried out the Annual Maintenance Contract of all 2 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.

**<u>Documents to be submitted in support of QR</u>**

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) OPGC reserves the right to do due diligence and take customer feedback in order to verify the document submitted by the bidders.
c) 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.
d) OPGC reserves the right to evaluate the quotation on such deviations having financial implications by adding the cost determined by OPGC.
e) 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.
f) 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.
g) 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.
h) 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.
i) Bidder shall also indicate the cost of PPEs (in %) included in the Price Bid.
j) OPGC reserves the rights to split the scope & quantity to more than one agency among the bidders.
k) OPGC reserves the rights to cancel the tender without assigning any reasons thereof.
l) 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**

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

**TENDER**
**FOR**

**Name of the work: "Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, ITPS."**

1. To be submitted by **15:00 Hours on 13/07/2022to 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 13/07/2022** 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 **"Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, 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. 3,000/- (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 **28/06/2022** up to **12/07/2022.**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 13/07/2022**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. 17,82,000.00**. 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 enclosed proforma 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

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## 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 Contract labour 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 7$^{th}$ 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 1$^{st}$ 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 15$^{th}$ 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 Contract Labour (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 Contract Labour (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 1$^{st}$ 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 Contract labour 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) The Contractor 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) The Contractor 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 OdishaContract Labour (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 to Odisha 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) The Contractor 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

Contract Labour (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<br>(a)<br>(b)<br>(c)<br>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

ANNEXURE-IX

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:**
**"Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, 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 Turbine Auxiliaries and BOP**: 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 Annexure-6 for critical and non-critical category manpower.

2. **Penalty for LTI**: 1% Penalty shall be imposed for every LTI in a month. (Penalty shall be calculated on monthly basic billing amount)
3. **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)
4. **Penalty for Shortfall in T&Ps**: Rs. 10000/- Penalty shall be imposed for each occurrence of shortfall in T&Ps.
5. 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.
6. 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.
7. **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) Penalty against clause no. 3 to 7 shall be capped to 10% of Annual Contract Value.*

**E) Penalty for Loss or damages to the purchaser's properties**

g) Damages to the purchaser's properties, attributed to the contractor though caused inadvertently shall attract penalty. e.g. Damage to plant equipment(s) and its critical parts.
h) Generation loss due to improper maintenance, specifically attributed to the contractor shall attract penalty.
i) Hampering of O&M activities at TG&BOP due to any IR issues at the contractor's end affecting Generation shall be treated as Loss to Purchaser's property.
j) The purchaser shall have right to initiate requisite penal action against any of the incidences of Loss or Damage to Purchaser's property.
k) In-case any T&P issued by OPGC on loan is lost/damaged, shall be made good by the party or cost of T&P along-with overhead shall be recovered from him as decided by Engineer-in-Charge. Damages to the purchaser supplied tools tackles, property shall be recovered at penal rates

**F) 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.

**G) 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.

**H) 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.

**I) Familiarization:**

1. Bidder shall visit the site and make himself familiar with the equipment/system related to Turbine Auxiliaries and BOP, 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.

**J) 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 Turbine auxiliaries and BOP.
2. Contractor shall be responsible for all jobs related to Turbine Aux and BOP 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.

**K) Manpower:**

1. The contractor shall deploy adequate manpower of required qualification and experience as mentioned. 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. 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 (Please refer scope of work

Annexure item No 124). This gang shall cover all works as defined in scope of work and any other work as per instruction of OPGC EIC or his representative.

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.
8. Manpower deployment for unpredicted jobs as mentioned in the scope work to be arranged with in 24 hrs timeline as per actual site requirement. The category of manpower shall be arranged based on nature of job &actual site requirement basis or as instructed and communicated in advance by OPGC EIC to meet site urgency and requirement.

**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.

**L) IBR Welder:**

1. IBR welders must have valid "Qualified Boiler Welder's Certificate (Form XIII)" duly endorsed for validity in the state of Odisha.
2. The contractor shall get his IBR welders tested by OPGC EIC or his representative immediately after award of the contract.
3. The arrangement for the test shall be made by the contractor including Visual, Radiography and bend test.

**M) Tools & Plants and Consumable Items:**

1. The contractor shall maintain the tools & plants at any time. 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. 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.

4. Wrapping coating materials, corrosion resistance premier paint & corrosion resistance tapes required for underground piping in firefighting line & LP piping are included in contractor scope.
5. Civil works required for attending defects in Firefighting/LP Piping underground piping defects are included in contractor's scope. Hiring of mechanical equipment's like JCB/Hilti machines for removal of soil/concrete, arrangement of civil manpower for manual excavation and concrete breaking during underground leakages are required to be arranged by contractor as when needed at site/ EIC instructions for above job. Raw materials for additional filling whenever required also included in contractors' scope like sand & additional soil.
6. New Generation Hydra along with operator, Trailer/Truck and utility vehicle shall be in the scope of the vendor/Contractor
7. Dedicated Pickup vehicle for movement of tools tackles, contractor persons etc. shall be arranged by the contractor at his own cost.
8. Manpower engaged for maintenance job is required to be ensured FR Suit of rating minimum of 8 cal. & each personal engaged shall be provided minimum 2 sets on yearly basis.

**N) 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. Safety supervisor shall be deployed at the ration of 50:1.
3. All the PPEs issued to manpower shall be verified and certified by OPGC safety department.
4. Manpower engaged for maintenance job is required to be ensured FR Suit of rating minimum of 8 cal. & each personal engaged shall be provided minimum 2 sets on yearly basis.
5. 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.
6. 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.
7. Contractor engineers who are designated as Competent Persons (CPs) authorized by OPGC can only check respective isolations and receive PTW prior commencement of work.
8. Scaffolding work shall be carried out only by the persons capable of doing the same and shall be assembled as per the specified norms of OPGC.
9. 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.
10. 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 equipment's 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.

11. The contractor shall ensure that the tools and tackles used for lifting/pulling are tested and certified by competent person before deployment on job.

**O) 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 common 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. The owner shall provide him space for storage of materials tools in plant. The contractor shall maintain site stores for keeping their T&P and safe custody of all belongings at site.
7. 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.
8. The contractor shall make his own arrangements for transportation of materials and Manpower from store, sub-store or any stock yard.
9. Collecting material from stores, transporting to work site shall be responsibility of the contractor.
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. Job to be completed by agency as per duration given in the service order without any deviation, all the work execution performed under the supervision of OPGC engineers.
14. The decision of Engineer-in-Charge with reference to an item, whether falling in consumables or spares category, not explicitly defined shall be final & binding. Material which is not going into the system permanently is considered as a consumable which is a part of the contractor.
15. All the required material to be issued by OPGC needs to be handled safely with good engineering practices and any unused material shall be returned after completion of job. The material shall be issued/returned as per procedure/practice of OPGC. The contractor shall maintain a record of issue, consumption and return of material/spares provided to him by OPGC.
16. The contractor or his workmen should strictly observe all the instructions relating to the work issued from time to time by the Engineer-in-Charge. It is the responsibility of the contractor to supervise all the contract jobs. The contractor's representative has to interact with the area engineer continuously on daily basis for work progress, work instructions. The contractor has to complete the contract jobs as per the schedule. The contractor shall have to carry out the work to the entire satisfaction of the Engineer-in-Charge.
17. The contractor is required to maintain a logbook for the work carried out and attendance for their employees, which should be presented to the Engineer-in-Charge whenever, demanded.

18. After dismantling the equipment's, all items to be kept in the safe custody by the contractor. If any item is found missing or damaged due to negligence of contractor, the same shall be recovered from the contractor or item will be arranged by the contractor.
19. To meet the workshop related jobs for machining/ repairing of new/ used machine parts, party shall arrange support manpower for transportation in house plant premise.
20. The entire job should be performed as per the good engineering practice and as per the guideline of the OEM. OPGC Engineers decision regarding the correctness of work and method of working shall be final and binding to contractor.
21. It will be the contractor's responsibility to preserve the equipment's / materials daily under overhaul by tarpaulin / cloth/ plastic sheet etc. as per engineer's instruction.
22. The contractor shall not be given any extension of time for execution of specified work except in extra ordinary circumstances, which will be decided at the discretion of engineer
23. Contractor shall also preserve all parts, components, fasteners, pipes, fittings, etc with proper identification tags and shall store the same separately.
24. Planning & execution: The contractor in consultation with OPGC Engineer will prepare job planning in the form of PERT CHART / BAR CHART. He should prepare detailed working sheets for the various activities separately including category wise man power required for each activity and nominating one individual responsible for execution of each activity. Daily progress report in the evening has to be submitted to EIC.
25. Contractor has to ensure that all man and material has been removed & due cleaning of work place / site after completion of work and before trial of the equipment. Contractor should attend any defect, abnormality if observed, during this period at no extra cost.
26. The item rates for the jobs carried out during odd hours, holidays etc. shall be same as normal one.
27. The quantities mentioned in the contract may vary during the tenure of the contract.
28. Any job pertaining to AMC of TG&BOP which has not been specifically mentioned in the list, shall also be executed by the agency at mutually agreed derived rate on actual man power engagement basis.
29. The agency shall ensure that non-receipt of payment from the purchaser for up to three months at any stage of the contract shall not affect the AMC job in any manner including timely disbursement of wages to his employees.
30. 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.
31. 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.

| 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/FR Suit with min 8 Cal for manpower | X | Y | Min 2 Pairs/year per person |
| 1.08 | Arrangement of mobile/telephone for day to day jobs from Contractor's side. | X | Y | Common mobile for shift maintenance |
| 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 | Consumable stock shall be submitted to EIC on monthly basis. |
| 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 | X | Y | |

| | | | | |
|---|---|---|---|---|
| | 6018, 7018, 6013 etc. | | | |
| 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 | 15 Ton New Generation Hydra With Operator | X | Y | |
| 4.08 | Crawler/ Tyre mounted cranesalong with operator capacity > 20 Ton required at site | Y | X | |
| 4.10 | Utility Vehicle/pick up with transportation, maintenance & fuel. | X | Y | |
| 4.11 | EOT Crane with out operator | X | Y | |
| 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 attending welding jobs | X | Y | |
| 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 | Manpower assistance during online sealing work is in contractor scope. |
| 5.11 | Oil filtration equipment | Y | X | |
| 5.12 | Oil Testing and samples | Y | X | Sample colletion assistance and support to be provided by contractor. |
| 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 | Extension of Power supply from Welding Recipticles/designated locations will be in contractor scope. Connection of piping for extenstion of compressed air will be in contractor scope. |
| 5.16 | Erection of scaffolding | X | Y | |
| **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 during certification of 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** | | | |

| **Category wise manpower qualification requirement** | | |
|---|---|---|
| **SL.NO.** | **DESCRIPTION** | **QUALIFICATION(EDUCATION/WORK EXPERIENCE)** |
| 1 | Site-in-charge | BE with minimum 8 yrs /Diploma with minimum 12 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 | BE/Diploma with minimum 3-6 years experience in relevant mechanical work |
| 3 | Safety Officer | Graduate with Certfication course from a repuated institute with 3-6 Yr of industrial experience |
| 4 | Storekeeper | Any Graduate with 1-3 yrs. Work Ex. In relevant work |
| 5 | HR/Admin Officer | Any Graduate with 1-3 yrs. Work Ex. In relevant work |
| 6 | MW Fitter | ITI with minimum 10-15 years relevant experience in relevant mechanical work |
| 7 | Welder (IBR) | ITI/IBR Welder Certification with 10-15 Yr of experience in relavent mech works |
| 8 | Fitter | ITI with minimum 3-6 years of experience in relevant mechanical work |
| 9 | Cutter/Grinder | ITI with minimum 3-6 years relevant experience |
| 10 | Welder | ITI with minimum 3-6 years relevant experience |
| 11 | Valve Technician | ITI with minimum 6-10 years of experience in relevant mechanical work |
| 12 | EOT/Sky Climber/Hydra /Boom Lift operator | ITI with minimum 6-10 years of experience in relevant mechanical work having valid licesnse |
| 14 | Electrician | ITI with minimum 1-3 years of experience in relevant work |
| 15 | Rigger | Non ITI with minimum 3-6 Yr of experience in relavent mech works |
| 16 | Helper | Non ITI with minimum 1-3 Yr of experience in relavent mech works |

# 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). **I** 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 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.

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. 13** 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<br>(A Unit of Odisha Power Generation Corporation Limited) |
| **Auction To Be Conducted By** | MSTC Limited |
| **Name of the work** | **Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, ITPS** |
| **Reference** | ITPS/CC-22/2022-23/05, Date: 22.06.2022, SL No. 05 |
| **Date & Time Of Auction** | Auction Date: [To be intimated later]<br><br>Online e-Reverse Auction Time : [To be intimated later]<br><br>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<br>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 price shall be confirmed before start of the e-RA and the same should be the estimated price as decided by OPGC. |

1. For the proposed e-Reverse Auction, techno-commercially qualified bidders only shall be eligible to participate.
2. 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.
3. 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.
4. Quotation once submitted through e-Reverse Auction cannot be withdrawn /deleted. Otherwise, the EMD submitted by the bidder shall stand forfeited.
5. 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.
6. Buyer reserves the rights to extend / cancel the e-Reverse Auction.
7. E-Reverse Auction shall be conducted in Indian Rupees only.

8. All prices submitted by Bidder in e-Reverse Auction shall be as per Tender's Terms & Conditions.
9. Validity of bids: As mentioned in Tender Document.
10. Written Confirmation shall be taken in advance regarding participation in the e-Reverse Auction to buyer along with the Authorized person name and details.
11. Buyer reserves the right to award the Purchase Order / Service Order as per buyer's discretion irrespective of Live Auction Rank.
12. Buyer reserves the right to repeat the e-Reverse Auction of same package.
13. **Before e-Reverse Auction, OPGC shall open the manual price bids submitted during tendering. 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.**
14. The bidders shall quote from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.
15. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, OPGC at its own discretion shall debar the bidder from the e-Reverse Auction/Tender and future participation also.
16. 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.
17. 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.
18. 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.
19. 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.
20. The total L1 Price obtained through e-Reverse Auction shall be proportionately distributed among each line item inline with the price quoted w.r.t. each year and evaluated in the hard copy price bid.
21. The price quoted in e-Reverse Auction is the total price for three years 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.
22. 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.
23. 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.
24. 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 service tax 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:**


OPGC
Power for Progress

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**ODISHA POWER GENERATION CORPORATION LIMITED(OPGC)**

**IB THERMAL POWER STATION,**

**BANAHARPALI, JHARSUGUDA**

**ODISHA**

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# EM-4/61 (Part-B)

# SAFETY, HEALTH & ENVIRONMENT (SHE)

# RULES & REGULATIONS FOR CONTRACTORS
## Revision- 01, Dtd 26.08.2019

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## 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 Karam Polyster 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,<br>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, 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) | Excuse for non-dust 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

# Environment, Health & Safety (EHS) Policy of OPGC at ITPS

OPGC
*Power for Progress*

**Odisha Power Generation Corporation Limited., at Ib Thermal Power Station (ITPS), Banharpali, Jharsuguda, commits to have continual improvement in the Environment, Health and Safety standard in all its activities related to Power generation at all times;**

**To achieve this, the objectives envisaged for commitment are to-**

1. Provide the appropriate resources to ensure that all our people have the means to work safely and its surrounding environment is protected.
2. Minimize impact on the environment through control and prevention of Pollution.
3. Conserve all natural resources used as input.
4. Minimize fugitive emission & improve work zone condition.
5. Manage solid & hazardous waste in a safe and eco-friendly manner.
6. Believe "Put Safety First at OPGC" & "All Occupational Incidents are preventable".
7. Provide safe & healthy working condition by prevention of injury & ill health to all persons working at ITPS through elimination of hazards & reduction of occupational health & Safety risks;
8. Adopt Zero Tolerance on OPGC Safety Cardinal Rules and be responsible and accountable for Safety of all persons working at ITPS through their consultation & participation;
9. Empower to stop & report any work when there is a reasonable belief that the work poses imminent risk of injury.
10. Be responsible for own Safe Behaviors & those of co workers.
11. Reward outstanding Environment, Health & Safety performances & discourage at risk behaviours.
12. Comply with applicable Environment, Health & Safety regulations and other requirements.
13. Have on-site emergency plan & preparedness for handling various emergency situations related to Environment, Health & Safety.
14. Build Environment, Health & Safety competency and awareness among all persons working for or on behalf of ITPS through training and awareness campaign;
15. Communicate this Policy to all persons working at ITPS, contractors, suppliers, visitors and other interested parties.

**Manas Ranjan Rout**
Occupier & Director (Operation), OPGC
Last Reviewed on Date : 24.04.2021

## 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:**
**"Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, ITPS."**

| | Turbine and Auxiliary |
|---|---|
| 1 | CEP/BP SUCTION STRAINER CLEANING/INSPECTION<br>1) Make necessary approach and platform for carrying out the work if required<br>2) Ensure Complete Isolation for the strainer cleaning.<br>3) Loosen the necessary fasteners of Strainer lid / flange<br>4) Remove the strainer element as per requirement, thoroughly clean it and check for damage in mesh etc.<br>5) Check for any damage on the seating surface. Thoroughly clean the surface and repair if required<br>6) Replace or repair mesh as per requirement and install strainer element with new gasket<br>7) Box up strainer lid with new gasket and tighten the fasteners, the vent line etc.<br>8) Attend for any leakage after charging.<br>9) Clean the area for any scrap and unused items. |
| 2 | MD/TDBFP MAIN PUMP SUCTION STRAINER CLEANING/INSP<br>1) Make necessary approach and platform for carrying out the work if required<br>2) Ensure Complete Isolation for the strainer cleaning.<br>3) Loosen the necessary fasteners of Strainer lid / flange<br>4) Remove the strainer element as per requirement, thoroughly clean it and check for damage in mesh etc.<br>5) Check for any damage on the seating surface. Thoroughly clean the surface and repair if required.<br>6) Replace or repair mesh as per requirement and install strainer element with new gasket<br>7) Box up strainer lid with new gasket and tighten the fasteners, the vent line etc.<br>8) Attend for any leakage after charging.<br>9) Clean the area for any scrap and unused items. |
| 3 | MOT (DUPLEX STRAINER/FILTER) CLEANING/REPLACEMENT<br>1) Make necessary approach and platform for carrying out the work if required<br>2) Ensure Complete Isolation for the Filter cleaning in case of MOT filter.<br>3) Loosen the necessary fasteners of Strainer lid / flange.<br>4) Remove the filter elements one by one.<br>5) Repair mesh as per requirement and install clean/new filter element with new gasket.<br>6) Box up filter lid/plate with new gasket and tighten the fasteners, the vent line etc.<br>7) Thoroughly clean the area for any oil spillage or scraps.<br>8) Attend for any leakage after charging.<br>9) Transport the dirty filter element to the designated cleaning area and thoroughly clean the filter element with diesel and<br>compressed air.<br>10) Suitably pack the cleaned filter and transport and store filter element for future use.<br>11) Thoroughly clean the area for any oil spillage or scraps<br>**Note: Filter cleaning 1 set consists of 4 No of Lube oil filters and the same to be considered as 1 BOQ.** |
| 4 | LUB OIL SYSTEM (FILTER) CLEANING/INSPECTION<br>Description: Filter cleaning (oil): JOP filter / Turbine governing filters / COPU filters / TDBFP lub oil filter/CF regeneration filter<br>cartridge/HPLP Bypass Oil filters/Lub Oil line filters/Oil Pump Suction Filters / centrifuge lub oil line filters.<br>1) Loosen the necessary fasteners of Strainer lid / flange<br>2) Remove the strainer element as per requirement, thoroughly clean it and check for damage in mesh etc.<br>3) Repair mesh as per requirement and install strainer element with new gasket if required.<br>4) Box up strainer lid with new gasket and tighten the fasteners, the vent line etc.<br>5) Attend for any leakage after charging.<br>6) Thoroughly clean the area for any oil spillage and scraps. |

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| 5 | BFP (MAGNECTIC FILTER) CLEANING/INSP<br>Description: Filter cleaning: MDBFP/TDBFP/MDBP/TDBP Mech seal magnetic filter.<br>1) Loosen the necessary fasteners of Strainer lid / flange<br>2) Remove the strainer element as per requirement, thoroughly clean it and check for damage in mesh etc.<br>3) Repair mesh as per requirement and install strainer element with new gasket if required.<br>4) Box up strainer lid with new gasket/Oring and tighten the fasteners, the vent line etc.<br>5) Attend for any leakage after charging.<br>6) Thoroughly clean the area for any water spillage and scraps.<br>**Note: 1. Set of magnetic filter cleaning consists of 4 nos seal cooling skid to be considered as 1 BOQ for BFP**.<br>**2. Set of magnetic filters in BP both DE&NDE in sealing skid considered as 1 BOQ.** |
| 6 | STRAINER/FILTER CLEANING AND ATTENDING DEFECT ≤100NB<br>1) Loosen the necessary fasteners of Strainer lid / flange<br>2) Remove the strainer element as per requirement, thoroughly clean it and check for damage in mesh etc.<br>3) Repair mesh as per requirement and install strainer element with new gasket if required.<br>4) Box up strainer lid with new gasket and tighten the fasteners, the vent line etc.<br>5) Attend for any leakage after charging.<br>6) Thoroughly clean the area for any water spillage and scraps. |
| 7 | ACW STRAINER/FILTER (800NB) CLEANING/INSPECTION<br>Description: Inspection and manual cleaning of ACW self-cleaning strainer<br>1) Make necessary platform and use necessary lifting arrangement as per requirement.<br>2) Assistance in draining and isolation of the strainer.<br>3) Loosen the necessary fasteners of strainer body flange / pipe elbow flanges and removal of spool piece etc as applicable.<br>4) Inspect the strainer element as per requirement after removal, thoroughly clean it and check damage in mesh etc.<br>5) Repair mesh as per requirement and install spool piece with new gaskets.<br>6) Check drive gear box and shaft/ shaft seals and other internal parts for any abnormalities and rectification to be done<br>6) Box up strainer body / elbow and tighten the fasteners, connected piping etc<br>7) Attend for any leak after charging |
| 8 | SG/TGDMCW PHE CLEANING/ LEAKAGE INSPECTION<br>1. Make necessary arrangement for cleaning of PHE.<br>2. Measure the initial tightened size of plate stack<br>3. Dismantling of plates by removing studs<br>4. Open the flanges of DMCW/ACW inlet & outlet pipe and replace the gasket if required<br>5. Loosen the holding studs of PHE<br>6. Cleaning of all plates by water jet and Nylon brush along with detergent powder.<br>7. Inspect each and every plate for damage and check the sealing ring condition<br>8. Replace sealing rings in plates/plate as per requirement<br>9. Arrange the plate stack and tighten with tightening studs<br>10. Charge the PHE after assembly, check for any leakages and attend the defect if any |
| 9 | PHE PRIMARY WATER/SEAL OIL (PLATE) INSP/ CLEANING<br>1. Make necessary arrangement for cleaning of PHE.<br>2. Measure the initial tightened size of plate stack<br>3. Dismantling of plates by removing studs<br>4. Open the flanges of oil/water inlet & outlet pipe and replace the gasket if required<br>5. Loosen the holding studs of PHE<br>6. Cleaning of all plates by water jet and Nylon brush along with detergent powder.<br>7. Inspect each and every plate for damage and check the sealing ring condition<br>8. Replace sealing rings in plates/plate as per requirement<br>9. Arrange the plate stack and tighten with tightening studs<br>Charge the PHE after assembly, check for any leakages and attend the defect if any |

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| 10 | CONDENSER (HOTWELL) CLEANING/INSPECTION<br>1. Make necessary arrangement for approach and platform for hot well manhole.<br>2. Make necessary arrangement for illumination and air supply for hot well cleaning<br>3. Open all the manhole of hot well and ensure check the temperature and provide air supply for maintaining oxygen level and 24 V DC light for illumination.<br>4. Thoroughly clean each compartment of the hot well including CEP Suction area.<br>5. Flush the hot well with DM water.<br>6. Assistance in inspection of hot well by OPGC representatives.<br>7. After clearance box up all manhole with new gasket.<br>8. Check for leakages in any and attend the same. |
| 11 | DEARATOR/FST INSP/OVERHAULING/SERVICING<br>1. Make necessary arrangement for approach and platform for De-aerator tower and FST manhole.<br>2. Make necessary arrangement for illumination and air supply for De-aerator tower and FST cleaning<br>3. Open all the manhole of De-aerator tower and FST and ensure check the temperature and provide air supply for maintaining oxygen level and 24 V DC light for illumination.<br>4. Inspection of De-aerator & FST internals like trays, spray valves, supports etc and rectification of any defects as per<br>requirement.<br>5. Replacement of defective nozzles. Repair of internals like trays, spray valves, supports etc by welding & grinding as per<br>requirement. All fasteners tightness checking.<br>6. Manual cleaning of debris & sediments.<br>7. Cleaning of chockage in drain pots / other connections.<br>8. Safety of the personnel's working in the confined space to be ensured and ensure no personnel inside the confined space before going for box up the tank /heat exchangers/ confined space vessel<br>9. Assistance in inspection of De-aerator tower and FST by OPGC representatives.<br>10. After clearance box up all manhole with new gasket.<br>11. Check for leakages in any and attend the same. |
| 12 | DEARATOR/FST CLEANING/ATTENDING DEFECTS<br>1. Make necessary arrangement for approach and platform for De-aerator tower and FST manhole.<br>2. Make necessary arrangement for illumination and air supply for De-aerator tower and FST cleaning<br>3. Open all the manhole of De-aerator tower and FST and ensure check the temperature and provide air supply for maintaining oxygen level and 24 V DC light for illumination.<br>4. Clean all internals and inside surface of tank by means of wire brushing and water washing.<br>5. Flush out the scale, rust etc. removed from the surface.<br>6. Cleaning of spray nozzle.<br>7. Cleaning of tray<br>8. Offer for inspection after cleaning.<br>9. Remove all scaffolding materials from inside.<br>10. Close the manhole after replacing the gasket. |
| 13 | CPU VESSEL NOZZLE INSPECTION /OVERHAULING/SERVICING<br>1. Open the manhole.<br>2. Erect scaffolding inside if required.<br>3. Clean the inside surface of tank by means of wire brushing and water washing.<br>4. Inspect all the nozzles and repair/replace as required<br>5. Flush out the foreign particles.<br>6. Shift all the removed scrap to temporary scrap yard.<br>6. Offer for inspection after cleaning.<br>7. Remove all scaffolding materials from inside.<br>8. Close the manhole after replacing the gasket. |

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| 14 | MOT/COT/DOT CLEANING/INSPECTION<br>1. Assistance in draining / transferring oil from tank to COT/DOT / Temporary tank as applicable and vice versa.<br>2. Oil will be drained / filled in tank by OPGC using transfer pump / Centrifuge. Assistance shall be given by the party. Any oil leakages shall be attended by the party.<br>3. Opening of tank manhole covers including MOT/DOT / COT / Temporary tank as applicable.<br>4. Removing of Sludge of tank bottom into empty oil drums and shifting those drums to Zero-meter area as per instruction of EIC.<br>5. Cleaning of tank inside by using marking cloth and diesel as per requirement up to the satisfaction of EIC.<br>6. Box up of manhole covers. Charge the system and attend leakage / defects etc if any. |
| 15 | BFP (LUB OIL TANK) CLEANING/INSPECTION<br>1. Assistance in draining / transferring oil from tank to Drum/COT/DOT/Temporary tank as applicable and vice versa.<br>2. Oil will be drained / filled in tank by OPGC using transfer pump / Centrifuge. Assistance shall be given by the party. Any oil leakages shall be attended by the party.<br>3. Opening of tank manhole covers of TDBFP MOT.<br>4. Removing of Sludge of tank bottom into empty oil drums and shifting those drums to Zero-meter area as per instruction of EIC.<br>5. Cleaning of tank inside by using marking cloth and diesel as per requirement up to the satisfaction of EIC.<br>6. Box up of manhole covers. Charge the system and attend leakage / defects etc if any. |
| 16 | CONTROL FLUID/HPLP BYPASS TANK CLEANING<br>1. Assistance in draining / transferring oil from tank to Drum/ Temporary tank as applicable and vice versa.<br>2. Oil will be drained / filled in tank by OPGC using transfer pump. Assistance shall be given by the party. Any oil leakages shall be attended by the party.<br>3. Opening of tank manhole covers including CF/HPLP bypass Tank.<br>4. Removing of Sludge of tank bottom into empty oil drums and shifting those drums to Zero-meter area as per instruction of EIC.<br>5. Cleaning of tank inside by using marking cloth and diesel as per requirement up to the satisfaction of EIC.<br>6. Box up of manhole covers. Charge the system and attend leakage / defects etc if any. |
| 17 | CONDENSER (WATERBOX) CLEANING/INSPECTION<br>1. Complete drain the water box on both sides.<br>2. Open the manhole doors on both sides.<br>3. Erect scaffolding or use rope ladder inside if required.<br>4. Thoroughly clean the water boxes by manually and water jetting.<br>5. Flush out the scale, rust etc. removed from the surface.<br>6. Shift all the removed scrap to temporary scrap yard.<br>7. Offer for inspection after cleaning.<br>8. Remove all scaffolding materials/Rope ladder from inside.<br>9. Box up the manhole doors with new gasket.<br>10. Charge the system and attend defects if any. |
| 18 | CONDENSER (COLTCS) SCREEN/SYSTEM INSPECTION<br>Description: Inspection, cleaning and adjustment of Condenser COLTCS Screen<br>1) Open the manhole doors of COLTCS Screen.<br>2) Inspect the internal like screen mesh and supporting & ball collecting structure & attending of defects if any.<br>3) Thoroughly clean the screen mesh by grinding or buffing as per requirement and checking the open and close operation<br>of screen actuators and adjustment if any.<br>4) Servicing of actuator gear boxes.<br>5) Box up the manhole door with new gasket.<br>6) Charging of the system and attending of defects if any. |

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| 19 | HP/LP HEATER INSPECTION/ ATTNDENDING TUBE LEAKAGE<br>1. HP Heater / LP Heater Internal inspection/servicing<br>2. Attending Tube leaks and internal inspection<br>3. Make necessary lifting & holding arrangement for the manhole door opening fixture.<br>4. Loosen the manhole door bolts and remove the studs after connecting the fixture<br>5. Remove the manhole door and take it outside<br>6. Check and identifies for tube leakages by air or water as guided by EIC, Plugs the defective tubes<br>7. Inspect the internal parting plane doors and the heater dome for erosion and other damages.<br>8. Open the parting plane bolts and remove the parting planes as per requirement<br>9. Clean the gasket area of parting plane and check for erosion marks<br>10. Repair the erosion / damages by welding & grinding if any as per requirement<br>11. Cut new gasket for parting plane and box up the parting plane<br>12. Clean the gasket area of the manhole door and Heater body face<br>13. Check the gasket area faces and repair for any erosion / defects by welding & grinding as per requirement.<br>14. Cut new gasket / use new gasket as per requirement<br>15. Hold the manhole door in the fixture and insert inside the heater after keeping gasket in place<br>16. Tighten the manhole door studs<br>17. Remove the fixture from manhole door<br>18. Charge the heater and pressure tighten the door studs and check for leaks and attend if any after disposing off the waste<br>generated. |
| 20 | HP HEATER (GASKET) INSTALLATION/REMOVAL<br>1) Make necessary lifting & holding arrangement for the manhole door opening fixture<br>2) Loosen the manhole door bolts and remove the studs after connecting the fixture<br>3) Remove the manhole door and take it outside<br>4) Clean the gasket area of manhole plane and check for erosion marks<br>5) Repair the erosion / damages by welding & grinding if any as per requirement<br>6) Clean the gasket area of the manhole door and Heater body face<br>7) Cut new gasket / use new gasket as per requirement<br>8) Hold the manhole door in the fixture and insert inside the heater after keeping gasket in place<br>9) Tighten the manhole door studs<br>10) Remove the fixture from manhole door<br>11) Charge the heater and pressure tighten / hot tightening of the door studs and check for leaks and attend defect if any. |
| 21 | HP WATER PUMP (BEARING) REPLACEMENT<br>Description: Bearing replacement for TG/SG DMCW/ACW/Primary Water Pump/Seal Oil Pump/TG EOP/TDBFP EOP/MDBFP<br>AOP/CPU REGENERATION AREA PUMP :DM TRANSFER PUMP/RESIN TRANSFER PUMP/DM WATER PUMP FOR<br>REGENERATION/ALKALI TRANSFER/RECIRCULATION PUMP/RESIN WASTE WATER RECYLE PUMP/NEUTRALISED EFFFULENT DISPOSAL PUMP and other HP pumps<br>1. Make necessary arrangement for Bearing replacement.<br>2. Decouple the pump in case replacement of DE Side Bearing.<br>3. Dismantle the bearing housing and clean bearing and shaft.<br>4. Remove the bearing with proper bearing puller arrangement. Care shall be taken to avoid scoring on the shaft while pulling the bearing.<br>5. Carry out induction heating of the new bearing to achieve optimum clearance for mounting the bearing.<br>6. Mount the new bearing and clean thoroughly.<br>7. Apply grease as per requirement.<br>8. Box up the bearing housing with recommended setting.<br>9. Pump coupling / alignment nd box up<br>10. Clean the area and remove all scraps, used grease etc.<br>11. Witness the trial of pump. Rectify the defects |

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| 22 | LP WATER PUMP (BEARING) REPLACEMENT<br>Description: Bearing Inspection & Replacement COLTCS Pump/CF Pump/Dewatering Pump/Vac Pump Seal water pump/TDBFP AOP/EOP Condensate transfer Pump/ACW SCF Pump/Oil transfer pump in MOT, COPU and Purifier/HPBP Oil Pump/ALKALI UNLOADING PUMP/ACID DOSING PUMP/ALKALI DOSING PUMP/ACID UNLOADING PUMP<br>1. Make necessary arrangement for Bearing replacement.<br>2. Decouple the pump in case replacement of DE Side Bearing.<br>3. Dismantle the bearing housing and clean bearing and shaft.<br>4. Remove the bearing with proper bearing puller arrangement. Care shall be taken to avoid scoring on the shaft while pulling the bearing.<br>5. Carry out induction heating of the new bearing to achieve optimum clearance for mounting the bearing.<br>6. Mount the new bearing and clean thoroughly.<br>7. Apply grease as per requirement.<br>8. Box up the bearing housing with recommended setting.<br>9. Pump coupling / alignment nd box up<br>10. Clean the area and remove all scraps, used grease etc.<br>11. Witness the trial of pump. Rectify the defects |
| 23 | VACCUME PUMP/ BLOWER (BEARING) ATTENDING DEFECT<br>Description: Bearing Inspection & Replacement: Vacuum Pump DE/NDE<br>1. Make necessary arrangement for Bearing replacement.<br>2. Decouple the pump in case replacement of DE Side Bearing.<br>3. Dismantle the bearing housing and clean bearing and shaft.<br>4. Remove the bearing with proper bearing puller arrangement. Care shall be taken to avoid scoring on the shaft while pulling the bearing.<br>5. Carry out induction heating of the new bearing to achieve optimum clearance for mounting the bearing.<br>6. Mount the new bearing and clean thoroughly.<br>7. Apply grease as per requirement.<br>8. Box up the bearing housing with recommended setting.<br>9. Pump coupling / alignment nd box up<br>10. Clean the area and remove all scraps, used grease etc.<br>11. Witness the trial of pump. Rectify the defects |
| 24 | LP WATER PUMP - REPLACEMENT OF MECH-SEAL < 6"<br>1) Close the pump inlet & outlet valves. Drain oil/ water from pump casing.<br>2) De-couple motor with pump and take out coupling spacer.<br>3) Remove pump cartridge assembly from volute casing.<br>4) Take out impeller from shaft.<br>5) Take out mechanical seal from pump and clean thoroughly.<br>6) Install the new/ repaired seal on the pump.<br>7) Fit the impeller on the shaft and tighten and tighten the lock nut.<br>8) Assembly the pump with volute casing with new gasket and O-ring.<br>9) Carry out alignment of pump with motor as per EIC / OEM Manual.<br>10) Couple motor with pump.<br>11) Dismantle the removed mechanical seal, renew/ lap sealing surfaces as per requirement.<br>12) Assemble the mechanical seal by using new `O' rings & gaskets and keep it as spare.<br>13) Take trail run and attend defects, if any. |
| 25 | LP WATER PUMP REPLACEMENTACEMENT OF MECH-SEAL - DIA >=6"<br>1) Close the pump inlet & outlet valves. Drain oil/ water from pump casing.<br>2) De-couple motor with pump and take out coupling spacer.<br>3) Remove pump cartridge assembly from volute casing.<br>4) Take out impeller from shaft.<br>5) Take out mechanical seal from pump and clean thoroughly.<br>6) Install the new/ repaired seal on the pump.<br>7) Fit the impeller on the shaft and tighten and tighten the lock nut.<br>8) Assembly the pump with volute casing with new gasket and O-ring.<br>9) Carry out alignment of pump with motor as per EIC / OEM Manual.<br>10) Couple motor with pump.<br>11) Dismantle the removed mechanical seal, renew/ lap sealing surfaces as per requirement.<br>12) Assemble the mechanical seal by using new `O' rings & gaskets and keep it as spare.<br>13) Take trail run and attend defects, if any. |

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| 26 | LP WATER PUMP (GLAND) REPLACEMENT<br>HP/LP Pump gland replacement<br>1. Ensure pump is completely isolated from water side, electrical connection is made off and PTW is issued for gland replacement.<br>2. Dismantle the gland plate and take out all the old glands one by one.<br>3. Thoroughly clean the gland sleeve area and insert new gland.<br>4. New gland packing has to be inserted after preparation of gland ropes<br>5. Gland system has to be boxed up<br>6. Suitable adjustment may have to be done in the running system also after taking suitable safety precaution to ensure<br>minimal leakage<br>7. Necessary tightening and adjustment of the glands to be done. |
| 27 | HP/LP WATER PUMP - DECOUPLING/COUPLING/ALIGNMENT<br>1) De-couple motor from pump, remove coupling bolts / bushes/ spacers/ hubs etc as applicable.<br>2) Match motor with base plate, if required.<br>3) Align motor with pump.<br>4) Couple motor with pump after necessary replacement of worn out parts of coupling bolts/ spacers/hubs, torque tighten coupling bolts as per requirement.<br>5) Take trail and attend defects, if any. |
| 28 | HP/LP PUMP - COUPLING INSP/REPLACEMENT<br>1. De-couple motor from pump, remove coupling bolts, bushes etc.<br>2. Match motor with base plate, if required.<br>3. Align motor with pump up to design value or specified by EIC or site engineer.<br>4. Couple motor with pump after necessary replacement of worn out parts of coupling bolts, spider, bush etc and torque tighten coupling bolts as per requirement.<br>5. Take trail and attend defects, if any. |
| 29 | HP WATER PUMP - SERVICING/OVERHAULING<br>TG/SG DMCW/ACW/Vacuum pump etc<br>1. Decouple pump from motor and remove coupling bolts etc.<br>2. Loosen casing parting plane bolts, bearing housing bolts etc.<br>3. Make necessary arrangement for lifting arrangement of pump casing & rotor<br>4. Remove top half casing from bottom half. Remove rotor along with mechanical seal/gland sleeve/bearing housing etc. as<br>per requirement.<br>5. Dismantle all the components, clean them and repair/replace old parts as per requirement.<br>6. Assemble bearing/mechanical seal/gland sleeve etc. on shaft/ brg. housing & install on casing.<br>7. Replace the parting plane gasket & O-rings as per requirement.<br>8. Place top half casing and tighten casing/bearing housing bolts.<br>9. Replace and Fix gland packing / Mech seals in both DE / NDE.<br>10. Alignment of pump and motor.<br>11. Fix seal pipes, coupling bolts etc.<br>12. Charge the system, take trial & attend defects if any.<br>13. Dismantle the removed mechanical seal, Renew/ lap the sealing surfaces as per requirement.<br>14. Assemble the mechanical seal by using new `O' rings and gaskets and keep it as spare as per requirement |
| 30 | CHEM DOSING PUMP - SERVICINGICING/OVERHAULING<br>1. De-couple motor with pump and take out the coupling spacer/ hub as per requirement.<br>2. Drain the oil completely from bearing housing.<br>3. Decouple pump with gear box<br>4. Dismantle the pump assembly completely & gear box,<br>5. Thoroughly clean and inspection of the parts and replace/ repair damaged parts if any.<br>6. Assemble the pump and gear box in order with new/ repaired parts as per requirement.<br>7. Fill it up with required quantity of fresh oil as per condition.<br>8. Alignment of pump and motor.<br>9. Couple motor with pump.<br>10. Take trail run and attend defects if any. |

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| 31 | LP WATER PUMP - SERVICING/OVERHAULING<br>1. De-couple motor with pump and take out the coupling spacer/ hub as per requirement.<br>2. Drain the oil completely from bearing housing.<br>3. Remove pump assembly from volute casing<br>4. Dismantle the pump assembly completely<br>5. Thoroughly clean and inspection of the parts and replace/ repair damaged parts if any.<br>6. Assemble the pump with mechanical seal with new/repaired parts as per requirement.<br>7. Fill it up with required quantity of fresh oil as per condition.<br>8. Alignment of pump and motor.<br>9. Couple motor with pump.<br>10. Take trail run and attend defects if any. |
| 32 | TG OIL PUMP - OVERHAULING/SERVICING<br>Servicing of CF pump/Oil transfer pumps /CF recirculation pump/Seal oil vacuum Pump/HPBP oil pump<br>1. De-couple motor with pump and take out the coupling spacer/ hub as per requirement.<br>2. Remove pump assembly from casing.<br>3. Dismantle the pump assembly completely, like bearing covers, seals, bearings, bushes, impeller and mechanical seal.<br>4. Thoroughly clean the parts and replace/ repair damaged parts if any.<br>5. Assemble the pump in order with new/ repaired parts as per requirement.<br>6. Alignment of pump and motor as per requirement<br>7. Couple motor with pump.<br>8. Take trail run and attend defects if any |
| 33 | MD/TDBFP (LUB OIL PUMP) OVERHAULING/SERVICING<br>Overhauling/Servicing of TDBFP Lub oil pump/ TDBFP Emergency Oil pump/MDBFP AOP<br>1. De-couple motor with pump and take out the coupling spacer/ hub as per requirement.<br>2. Remove pump assembly from casing.<br>3. Dismantle the pump assembly completely, like bearing covers, seals, bearings, bushes, impeller and mechanical seal.<br>4. Thoroughly clean the parts and replace/ repair damaged parts if any.<br>5. Assemble the pump in order with new/ repaired parts as per requirement.<br>6. Alignment of pump and motor.<br>7. Couple motor with pump.<br>8. Take trail run and attend defects if any. |
| 34 | TURBINE AOP 660MW-OVERHAULING/SERVICING<br>Servicing of Main Turbine Aux Oil Pump/Emergency Oil Pump<br>1. Loose & remove foundation bolt of motor, De-couple motor with pump and take out the coupling spacer/ hub as per requirement.<br>2. Remove pump assembly from MOT Tank.<br>3. Dismantle the pump assembly completely, like bearing covers, seals, bearings, bushes, impeller and mechanical seal.<br>4. Thoroughly clean the parts and replace/ repair damaged parts if any.<br>5. Assemble the pump in order with new/ repaired parts as per requirement.<br>6. Put pump assembly in position<br>7. Alignment of pump and motor<br>8. Couple motor with pump.<br>9. Take trail run and attend defects if any. |
| 35 | TURBINE JOP--OVERHAULING/SERVICING<br>Overhauling/Servicing of TG JOP (AC&DC) / Seal Oil Pump (AC&DC)<br>1. Loosen the fasteners of motor base frame & remove the necessary pipe connections.<br>2. Remove the pump along with motor and base frame from tank<br>3. De-coupling the pump from motor<br>4. Remove the pump from position<br>5. Dismantling the pump internals<br>6. Repair / replace damaged internals such as bush bearings, screws, pump end covers etc. as per requirement<br>7. Clean the internals as per requirement<br>8. Box up the pump with new o ring / gasket/sealing ring etc. as per requirement<br>9. Mount the pump in the base plate & coupling with motor<br>10. Place the pump along with motor & base frame on the tank<br>11. Tighten the base frame fasteners & pipe connections with new o ring/gaskets etc. as per requirement<br>12. Charge the system and attend if any defects. |

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| 36 | HP/LP WATER PUMP (DIA<=6") OVERHAULING/SERVICING<br>1. De-couple motor with pump and take out the coupling spacer/ hub as per requirement.<br>2. Drain the oil completely from bearing housing.<br>3. Remove pump assembly from volute casing<br>4. Dismantle the pump assembly completely<br>5. Thoroughly clean and inspection of the parts and replace/ repair damaged parts if any.<br>6. Assemble the pump with mechanical seal with new/repaired parts as per requirement.<br>7. Fill it up with required quantity of fresh oil as per condition.<br>8. Alignment of pump and motor.<br>9. Couple motor with pump.<br>10. Take trail run and attend defects if any. |
| 37 | VACUUM PUMP TG OVERHAULING/SERVICING<br>1. De-couple motor with pump and take out the coupling tyre / spacer / hub as per requirement.<br>2. Remove pump assembly from casing.<br>3. Dismantle the pump assembly completely, like bearing covers, seals, bearings, bushes, impeller and mechanical seal etc<br>4. Opening of both port plate inspection door and supporting plate<br>5. Removal of Teflon port plate and Checking for damage.<br>6. Thoroughly clean the parts and replace/ repair damaged parts if any.<br>7. Assemble the pump in order with new/ repaired parts as per requirement.<br>8. Alignment of pump and motor.<br>9. Couple motor with pump.<br>10. Take trail run and attend defects if any. |
| 38 | PIT SUMP PUMP SERVICING/OVERHAULING<br>1. Motor removal from pump pedestal.<br>2. Lifting of pump from sump pit.<br>3. Sump pit cleaning.<br>4. Dismantling of pumps.<br>5. Internal inspection of pumps, cleaning, measurements & painting.<br>6. Replacement of necessary spares & consumables & repair as required.<br>7. Complete assembly of pump.<br>8. Repositioning of pump in pit.<br>9. Pipe fitting and oil filling in lubrication pots.<br>10. Motor placing on pump pedestal.<br>11. Pump commissioning and trial run. |
| 39 | OVEF BLOWER/FAN - SERVICING/OVERHAULING<br>overhauling/Servicing of MOT/ GSC/ CF/ SEAL OIL/ TDBFP Vapor Extraction fan<br>1. Loosen the fasteners of fan support and connecting flanges .<br>2. Decouple motor from fan.<br>3. Repair fan for any damage/replace completely new fan as per the requirement.<br>4. Assemble the repair/ new fan in the casing.<br>5. Normalize the connection with the connecting flanges.<br>6. Take trail and attend defects, if any. |
| 40 | CEP THURST/JOURNAL BEARING REPLACEMENT<br>Inspection & Replacement of bearing Radial or Thrust for CEP<br>1. Decouple motor from pump & remove motor from stool.<br>2. Remove coupling spacer/ hub, drain oil from housing, and<br>3. Completely remove Bearing assembly from the pump, including thrust collar after lowering shaft.<br>4. Remove bearing housing from the distributor casing.<br>5. Assemble the bearing housing, thrust bearing, thrust collar etc in reverse order with old/ repaired/ new spares as per requirement.<br>6. Check and adjust the float setting<br>7. Installation of all related pipelines<br>8. Box up the bearing covers; Oil top up as per requirement.<br>9. Install coupling hubs, spacer & placement of motor, alignment of pump with motor, DOR Checking, couple pump with motor.<br>10.Take trail run after charging and attend defects if any. |

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| 41 | CEP MECHANICAL SEAL REPLACEMENT<br>1. Lock the mechanical Seal and Take necessary reference measurement for shaft coupling position.<br>2. Decoupling of Pump&Motor, remove coupling spacer/ hub/ removal of motor assembly from stool and kept at safe location.<br>3. Removal of thrust bearing assembly along with housing, follow the steps during removal of thrust bearing assembly.<br>4. Remove complete mechanical seal from pump.<br>5. Remove the Mech seal jacket from position. Replace the gasket of Mech seal jacket.<br>6. Install new/ repaired mechanical seal onto the pump, assemble the thrust bearing assembly, setting of float.<br>7. Install coupling hubs, spacer & placement of motor, alignment of pump with motor, DOR cheking,couple pump with motor. House keeping and removal of debris.<br>8. Take trail run after charging and attend defects if any.<br>9. Dismantle the mechanical seal and check for damage in the seal face and other assembly components.<br>10. Repair and replace the defective components in the seal assembly<br>11. Assemble the mechanical seal by using new `O' rings and gasket and keep it as spare. |
| 42 | CEP DECOUPLING/COUPLING/ALIGNMENT<br>1) Decouple motor from pump, remove spacer etc.<br>2) Align motor with pump as per EIC / OEM Manual.<br>3) Install coupling spacer, torque tighten coupling bolts as per requirement.<br>4) Take trail and attend defects if any. |
| 43 | CEP-OVERHAULING/SERVICING<br>Overhauling and Servicing of CEP<br>1. Decouple motor from pump & remove motor from stool.<br>2. Remove coupling spacer/ hub and remove the thrust collar nut,<br>3. Drain oil from bearing housing; Remove the bearing inlet & outlet cooling water pipe lines. and completely remove bearing cover securing screws and remove the top half of bearing cover with cooler assembly.<br>4. Remove carefully the top thrust bearing pads & side journal pads from bearing assembly. Remove the thrust collar and then lower half thrust pads.<br>5. Remove bearing housing from the distributor casing.<br>6. Disconnect the inlet & outlet seal water connection pipes.<br>7. Remove complete mechanical seal/gland packing from pump if applicable.<br>8. Remove the stuffing box from head piece. Remove the restriction bush from stuffing box.<br>9. Remove the motor spool from head piece.<br>10. Disconnect discharge pipe from pump. Remove the bolts securing the head piece to the canister.<br>11. Lift carefully the head piece & pump assembly from the canister. Cover the canister opening with suitable temporary cover. Transport the head piece & pump assembly to suitable maintenance area. Carefully lower & support the head<br>piece & pump assembly in horizontal position.<br>12. Measure the total axial travel of the rotating assembly by pushing & pulling the pump shaft.<br>13. Dismantling of the pump assembly such as casing, impellers, wear rings, shaft, shaft sleeves, rubber bearings etc.<br>14. Through cleaning of all parts and measurements of all controlled dimensions.<br>15. Examine the internals such as wear rings, shaft sleeves, shaft, impeller & casings, rubber bearings for wear & damage<br>and replace/repair as necessary. Examine the shaft for damage & check the concentricity/runouts. Renew as necessary.<br>16. Assembly of pump internals. Replace all interstage joint O-rings.<br>17. Check the total axial float of the rotating assembly.<br>18. Lower the head piece & pump assembly in to the canister. Secure the head piece with canister with bolts & nuts. Connect<br>the pump discharge pipe with pump.<br>19. Place the motor spool piece on head piece.<br>20. Checking of stuffing box restriction bush, renew if required & Install the stuffing box.<br>21. Install new/ repaired mechanical seal/gland packing onto the pump if applicable.<br>22. Assemble the bearing housing, thrust bearing, thrust collar etc in reverse order with old/ repaired/ new spares as per<br>requirement.<br>23. Check cooling coil leakage, make necessary repair and do hydro test and install it back as per requirement.<br>24. Box up the bearing covers; install coupling hubs, spacer & after placement of motor alignment of motor with pump and<br>couple them.<br>25. Take trail run after charging and attend defects if any.<br>26. Dismantle the removed seal, renew/ lap the sealing surfaces as per requirement. |

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| | 27. Assemble the mechanical seal by using new `O' rings and gasket and keep it as spare. |
| 44 | BFP BP (DE MECH SEAL) REPLACEMENT :<br>TD/MD BP DE Mechanical Seal Replacement.<br>1. Loosen the fasteners of the coupling and remove coupling spacer/ coupling hub as per requirement.<br>2. Remove the oil/ seal water connections as per requirement.<br>3. Open bearing covers, remove bearing etc from shaft as per requirement. Remove bearing housing from position.<br>4. Remove complete seal assembly from pump after necessary locking arrangement etc..<br>5. Cleaning of internals/ Install the new/ repaired seal with pump.<br>6. Fix the bearing/ bearing housing into the shaft/ housing after necessary cleaning.<br>7. Measurement of bearing clearances & thrust bearing float as per requirement..<br>8. Normalize the oil/ seal water lines.<br>9. Fit the coupling spacer/ hub and tighten the fasteners as per torque requirement etc as per requirement.<br>10. Alignment of BP with Motor/GB, coupling assembly, coupling guard installation, cleaning and removal of debris.<br>11. Take trail and attend defects, if any.<br>12. Dismantle the removed mechanical seal, renew/ lap sealing surface as per requirement.<br>13. Assemble the mechanical seal by using new `O' ring/ gasket and keep it ready as spare |
| 45 | BFP BP (NDE MECH SEAL) REPLACEMENT:<br>TD/MD BP NDE Mechanical Seal Replacement.<br>1. Loosen the fasteners of the coupling and remove coupling spacer/ coupling hub as per requirement.<br>2. Remove the oil/ seal water connections as per requirement.<br>3. Open bearing covers, remove bearing, bearing housing, thrust collar etc from shaft as per requirement.<br>4. Remove complete seal assembly from pump after necessary locking arrangement etc..<br>5. Cleaning of Internals/ Install the new/ repaired seal with pump.<br>6. Fix the bearing/ bearing housing into the shaft/ housing after necessary cleaning.<br>7. Measurement of bearing clearances & thrust bearing float as per requirement.<br>8. Normalize the oil/ seal water lines.<br>9. Fit the coupling spacer/ hub and tighten the fasteners as per torque requirement etc as per requirement.<br>10) Alignment of BP with Motor/GB, coupling assembly, coupling guard installation, cleaning and removal of debris<br>10. Take trail and attend defects, if any.<br>11. Dismantle the removed mechanical seal, renew/ lap sealing surface as per requirement.<br>12. Assemble the mechanical seal by using new `O' ring/ gasket and keep it ready as spare. |
| 46 | BFP (DE MECH SEAL) REPLACEMENT:<br>TD/MD BFP DE Mechanical Seal Replacement.<br>1) Open top half casing of connect – disconnect coupling/ Flexible coupling between Turbine/HC and BFP.<br>2) Remove coupling fasteners, Oil & water lines as per requirement.<br>3) Remove power pack arrangement / flexible coupling, coupling hubs on BFP etc. as per requirement.<br>4) Remove bottom half of the coupling housing.<br>5) Remove bearing / bearing housing of BFP DE side.<br>6) Remove complete mechanical seal, seal cooling jacket etc. for BFP DE side.<br>7) Cleaning of internals/Install new/repaired mechanical seal/seal cooling jacket.<br>8) Assemble back the bearings, bearing housing, Checking of bearing clearances as per requirement and carry out<br>necessary corrections if any.<br>9) Complete box up of bearing housing.<br>10) Alignment of BFP to HC/Turbine/ Assemble of coupling housing, power pack arrangement/flexible coupling etc as per requirement.<br>11) Install connect-disconnect coupling / flexible coupling & necessary oil/water lines etc. removal of debris, area cleaning.<br>12) Charge/take trial and attend defects if any.<br>13) Dismantle the removed mechanical seal, renew/ lap sealing surface etc. as per requirement.<br>14) Assemble the mechanical seal using new "O "rings, gaskets etc. and keep as spare. |

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| 47 | BFP (NDE MECH SEAL) REPLACEMENT:<br>TD/MD BFP NDE Mechanical Seal Replacement.<br>1. Removal of Lub oil lines & seal water lines as per requirement.<br>2. Removal of bearing housing NDE side top cover.<br>3. Removal of thrust & journal bearing from NDE side bearing.<br>4. Removal of bearing housing (NDE)bottom half from position.<br>5. Removal of thrust collar from shaft by proper heating & as recommended by OEM<br>6. Remove complete mechanical seal, seal cooling jacket etc. for BFP NDE side.<br>7. Cleaning of internals/Install new/repaired mechanical seal/seal cooling jacket.<br>8. Assemble back the thrust collar, bearings, bearing housing, Checking of bearing clearances as per requirement and carry<br>out necessary corrections if any.<br>9. Complete box up of bearing housing.<br>10. Install necessary oil/water lines etc.<br>11. Charge/take trial and attend defects if any. Removal of debris and cleaning of area.<br>12. Dismantle the removed mechanical seal, renew/ lap sealing surface etc. as per requirement.<br>13. Assemble the mechanical seal using new " O " rings, gaskets etc. and keep as spare. |
| 48 | BFP BP (BEARING) INSPECTION:<br>TD/MD BP Bearing Inspection/ Replacement.<br>Inspection/ replacement of journal bearing / thrust bearing of DE or NDE side of Booster pump of TD/MD:<br>1. Loosen the fasteners of the coupling and remove coupling spacer/ hub etc. as per requirement.<br>2. Remove the necessary pipe connections as per requirement.<br>3. Open bearing cover, remove bearing from shaft.<br>4. Removal of thrust collar from position as per requirement<br>5. Thoroughly clean the parts and replace/ repair damaged parts, if any.<br>6. Checking of bearing clearances as per requirement and carry out necessary corrections if any.<br>7. Assemble the bearing/ bearing housing into the shaft.<br>8. Normalize the pipe connection. Alignment of pump to GB/HC as per recommendation of OEM manual and EIC.<br>9. Fit the coupling spacer/ hub and tighten the fasteners as per torque requirement etc. Area cleaning and debris removal.<br>10. Take trail run and attend defects, if any. As per SOW. |
| 49 | BFP BEARING REPLACEMENT:<br>TD/MDBFP Bearing Inspection/Replacement.<br>Inspection/ replacement of journal /thrust bearing of DE or NDE of BFP of TD/MD<br>1. Removal of coupling cover, Loosen the fasteners of the coupling and remove coupling spacer etc. as per requirement.<br>2. Remove the necessary pipe connections as per requirement.<br>3. Open bearing cover, remove bearing from shaft.<br>4. Removal of thrust collar from position as per requirement<br>5. Thoroughly clean the parts and replace/ repair damaged parts, if any.<br>6. Checking of bearing clearances as per requirement and carry out necessary corrections if any.<br>7. Assemble the bearing/ bearing housing into the shaft.<br>8. Normalize the pipe connection. Alignment of pump to HC/Turbine as per recommendation of OEM Manual and EIC.<br>9. Fit the coupling spacer and tighten the fasteners as per torque requirement etc. Area cleaning and removal of debris<br>10.Take trail run and attend defects, if any. |
| 50 | BFP BP DECOUPLING/COUPLING/ALIGNMENT<br>Alignment of Booster pump (MDBFP/TDBFP) with Gear box/ Motor<br>1. Loosen the fasteners of coupling and remove coupling spacer/ hub. Loosening of foundation bolts. Removal of necessary<br>keys & bushes from position.<br>2. Align pump with gear box/ motor, after matching if required as per EIC / OEM manual.<br>3. Fitting of keys & bushes after alignment & carry out necessary correction in keys & bushes by grinding etc.<br>4. Fit the coupling spacer/ hub and tighten the fasteners as per requirement etc.<br>5. Take trail run and attend defects, if any. |

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| 51 | GEAR BOXES - DECOUPLING/COUPLING/ALIGNMENT<br>Alignment of Gear box with TDBFP drive turbine<br>1. Loosen the fasteners of coupling (DE & NDE) side and remove coupling spacer/ hub. Loosening of foundation bolts. Removal of necessary keys etc from position.<br>2. Align gear box with drive turbine, after matching if required as per EIC / OEM manual.<br>3. Fitting of keys etc after alignment & carry out necessary correction in keys by grinding etc.<br>4. Fit the coupling spacer/ hub and tighten the fasteners as per requirement etc.<br>5. Take trail run and attend defects, if any. |
| 52 | BFP (600MW) DECOUPLING/COUPLING/ALIGNMENT<br>TD/MDBFP Main Pump with Turbine/ Hydraulic coupling Decoupling/Coupling/Alignment.<br>1. Loosen the fasteners of coupling and remove coupling spacer/ hub. Loosening of foundation bolts. Removal of necessary keys & bushes from position.<br>2. Align pump with Turbine / Hydraulic coupling, after matching if required as per EIC / OEM manual.<br>3. Fitting of keys & bushes after alignment & carry out necessary correction in keys & bushes by grinding etc.<br>4. Fit the coupling spacer/ hub and tighten the fasteners as per requirement etc.<br>5. Take trail run and attend defects, if any. |
| 53 | HYD COUPLING - DECOUPLING/COUPLING/ALIGNMENT<br>Alignment of BFP Hydraulic coupling to Motor<br>1. Loosen the fasteners of coupling (DE & NDE) side and remove coupling spacer/ hub. Loosening of foundation bolts.<br>Removal of necessary keys etc from position.<br>2. Align hydraulic coupling with motor, after matching if required as per EIC / OEM manual.<br>3. Fitting of keys etc after alignment & carry out necessary correction in keys by grinding etc.<br>4. Fit the coupling spacer/ hub and tighten the fasteners as per requirement etc.<br>5. Take trail run and attend defects, if any. |
| 54 | BFP CARTRIDGE REPLACEMENT<br>Replacement of BFP (MDBFP/TDBFP) cartridge including minor repairs in barrel & lapping.<br>1. Disconnection/Removal of spray pipes, oil pipes etc attached to the Boiler Feed Pump cartridge and any other items such<br>as cable trays, supports etc obstructing the cartridge removal shall also be removed by the party. .<br>2. Disconnection of coupling, & removal of coupling housing between turbine & pump.<br>3. Loosening /Removal of discharge cover nuts with the help of stud tensioner/suitable tools .<br>4. Fixing of cartridge withdrawal arrangement for removal of cartridge.<br>5. Locking of rotor assembly & withdrawal of cartridge from barrel by using cartridge withdrawal tools.<br>6. Cleaning of barrel internals, measurement of control dimensions,<br>7. Through Checking of barrel & pump cartridge for damages, erosion inside the pump barrel / cartridges.<br>8. Minor repair of barrel / cartridge erosions as per requirements by welding (TIG or ARC welding as per requirement).<br>Preheating of barrel by using heating machine is to be done during weld repair work as per requirement.<br>9. Lapping / scrapping of repair area by using lapping fixture or by the help of glass.<br>10. Insertion of new/repaired cartridge into the barrel with new gasket & O-Rings.<br>11. Tightening of discharge cover with the help of stud tensioner/suitable tool.<br>12. Removal of cartridge withdrawal arrangement.<br>13. Fixing of coupling housing, coupling hubs.<br>14. Align pump with Turbine, after matching if required as per EIC / OEM manual.<br>15. Fitting of keys & bushes after alignment & carry out necessary correction in keys & bushes by grinding etc.<br>16. Fit the coupling spacer/ hub and tighten the fasteners as per requirement etc.<br>17. Installation of power pack arrangement/ Flexible coupling & connection of coupling.<br>18. Fixing of water/oil pipes or any other items removed earlier etc with new O-rings / gaskets as per requirement.<br>19. Charging of the system, trial run of the pump, & attending defects if any. |

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| 55 | BFP BOOSTER PUMP -OVERHAULING/SERVICING<br>Servicing /overhauling of Boiler Feed Booster Pump (MDBFP/TDBFP)<br>1. Decouple pump from motor/ gear box & remove coupling hub from pump as per requirement.<br>2. Remove oil/water pipes attached to the bearings/seals etc.<br>3. Loosen / Remove parting plane bolts/jacket cooler bolts of the pump.<br>4. Remove top half casing/cartridge from barrel in case of TDBFP. Remove pump shaft along with mechanical seals etc.<br>5. Through Checking of casings for damages, erosion inside the pump casing.<br>6. Build up by welding & grinding in both the casings as per requirement.<br>7. Cleaning / grinding of welded casing surface to remove loose metal chips & to get the desired surface.<br>8. Blue matching of top half casing with bottom half & carry out necessary welding /scrapping / lapping to get the matching<br>surface. Blue checking of mechanical seal jacket with casing & carry out necessary correction.<br>9. Remove mechanical seal from rotor.<br>10. Clean the components carry out minor repair & install new/repaired seal on the rotor assembly.<br>11. Cut new gaskets as per requirement.<br>12. Install the rotor assy. on the bottom casing /bearing.<br>13. Put the top half casing on the bottom half & tighten the parting plane bolts.<br>14. Fix the seal cooling jackets, bearings, oil / water pipes, etc.<br>15. Align pump with gear box, after matching if required as per EIC / OEM manual.<br>16. Fitting of keys & bushes after alignment & carry out necessary correction in keys & bushes by grinding etc.<br>17. Fit the coupling spacer/ hub and tighten the fasteners as per requirement etc.<br>18. Couple the pump, charge it, take trial & attend defects if any |
| 56 | TD BFP TURBINE (SERVICINGOMOTORS) SERVICING<br>TDBFP MSV/MCV servomotor servicing:<br>1. Removal of all Oil piping.<br>2. Removal of servomotor along with pre-control pilot valve<br>3. Dismantling of servomotor & pre-control valve internals<br>4. Repair / replacement of internals if required<br>5. Cleaning the internals & box up the servomotor and pre control valve internals with new O-Rings / Gasket / sealing<br>element etc. as per requirement<br>6. Charging the system and attend if any defects<br>7. Carrying the necessary adjustments as per requirement. |
| 57 | MAL DRAIN VALVES - SERVICING/OVERHAULING<br>High pressure Drain Valve Servicing (MS/CRH/HRH/HPBP/LPBP/HP extraction/Turbine Drain and other High pressure drain valves)<br>1. De-couple and remove the actuator from position.<br>2. Shifting of actuator to OPGC maintenance bay.<br>3. Loosen the bonnet fasteners and remove the same from valve body.<br>4. Remove valve plug along with stem and the cage/ trim from the position.<br>5. Remove the seat and the gaskets etc.<br>6. Clean the dismantled components and lap the plug & seat as per requirement.<br>7. Check the seat & plug area for any erosion and repair the erosion / defects by welding, grinding and lapping & blue matching as per requirement.<br>8. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>9. Shifting of actuator from maintenance bay to valve location<br>10. Install back the actuator and coupled with valve spindle.<br>11. Charge the system and attend defects if any. |
| 58 | HP/LP VALVES (GLAND) ATTENDING DEFECT<br>Valves sizes up to 350 NB - Gland leakages arresting (all types) by online..<br>1. Make suitable approach for the gland adjustment<br>2. Check the leakage and margin available for gland tightening.<br>3. Adjust the gland plate bolt slowly one by one to reduce the gland leakage.<br>4. Tighten the gland nuts uniformly.<br>5. Close/Back seat the valve incase of difficulty in tightenening of gland arrangement to be made to avoid physical contact with steam<br>6. Manpower assistance to online sealing team during valve closing/back seat in case of critical as decided by OPGC EIC. |

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| 59 | LP VALVES (GLAND) REPLACEMENT ≤6"<br>Gland packing replacement of HP/LP Valves up to 150 NB<br>1. Prepartory arrangement for attending defects in HP/LP Valves glands.<br>2. Loosen gland follower bolts and lift gland follower.<br>2. Take out the old packing from stuffing box.<br>3. Clean the stuffing box, repair & rectification of defects if any.<br>4. Installation new gland as suggested by EIC & if required Cut the new gland rope to size or preformed packing and pack the stuffing box uniformly as suggested by EIC.<br>5. Tighten the gland nuts uniformly.<br>6. Check free operation of valve. Charge the system and attend leakage if any. Clean the work location. |
| 60 | HP VALVES (GLAND) REPLACEMENT >6"<br>REPLACEMENT OF GLAND PACKING ABOVE 150<br>Gland packing replacement of HP/LP Valves above 150 NB<br>1. Prepartory arrangement for attending defects in HP/LP Valves glands.<br>2. Loosen gland follower bolts and lift gland follower.<br>2. Take out the old packing from stuffing box.<br>3. Clean the stuffing box, repair & rectification of defects if any.<br>4. Installation new gland as suggested by EIC & if required Cut the new gland rope to size or preformed packing and pack the stuffing box uniformly as suggested by EIC.<br>5. Tighten the gland nuts uniformly.<br>6. Check free operation of valve. Charge the system and attend leakage if any. Clean the work location. |
| 61 | HP VALVES(DIA<=6")-REPLACEMENT<br>Replacement of Valves up to 6"<br>1. Cut the defective valve from position by using hacksaw or grinding machine as per requirement.<br>2. Thoroughly clean the valve by using compressed air etc, prepare edges etc. as per requirement.<br>3. Fit the valve new/ repaired in position and weld it after cleaning Butt/socket ends as per requirement.<br>4. Charge the system and attend defects if any.<br>5. NDT requirement will be in contractors scope |
| 62 | HP VALVES(DIA>6"-12")-REPLACEMENT<br>Replacement of Valves sizes 6-12"<br>1. Cut the defective valve from position by using hacksaw etc as per requirement.<br>2. Thoroughly clean the valve by using compressed air etc, prepare edges etc. as per requirement.<br>3. Fit the valve new/ repaired in position and weld it after cleaning Butt/socket ends as per requirement.<br>4. Charge the system and attend defects if any.<br>5. NDT requirement will be in contractors scope |
| 63 | HP VALVES(DIA>12")-REPLACEMENT<br>Replacement of Valves sizes above 12"<br>1. Cut the defective valve from position by using hacksaw etc as per requirement.<br>2. Thoroughly clean the valve by using compressed air etc, prepare edges etc. as per requirement.<br>3. Fit the valve new/ repaired in position and weld it after cleaning Butt/socket ends as per requirement.<br>4. Charge the system and attend defects if any.<br>5. NDT requirement will be in contractors scope |
| 64 | CONTROL VALVE (<=6") SERVICING<br>Servicing of Control valve up to 6" size<br>1. De-couple and remove the actuator from position.<br>2. Shifting of actuator to OPGC maintenance bay.<br>3. Loosen the bonnet fasteners and remove the same from valve body.<br>4. Remove valve plug along with stem and the cage/ trim from the position.<br>5. Remove the seat and the gaskets etc.<br>6. Clean the dismantled components and lap the plug & seat as per requirement.<br>7. Check the seat & plug area for any erosion and repair the erosion / defects by welding, grinding and lapping & blue<br>matching as per requirement.<br>8. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>9. Shifting of actuator from maintenance bay to valve location<br>10. Install back the actuator and coupled with valve spindle.<br>11. Charge the system and attend defects if any. |

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| 65 | CONTROL VALVE (6-12") SERVICING<br>Servicing of Control valve 6-12" size<br>1. De-couple and remove the actuator from position.<br>2. Shifting of actuator to OPGC maintenance bay.<br>3. Loosen the bonnet fasteners and remove the same from valve body.<br>4. Remove valve plug along with stem and the cage/ trim from the position.<br>5. Remove the seat and the gaskets etc.<br>6. Clean the dismantled components and lap the plug & seat as per requirement.<br>7. Check the seat & plug area for any erosion and repair the erosion / defects by welding, grinding and lapping & blue<br>matching as per requirement.<br>8. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>9. Shifting of actuator from maintenance bay to valve location<br>10. Install back the actuator and coupled with valve spindle.<br>11. Charge the system and attend defects if any. |
| 66 | CONTROL VALVE (>12") OVERHAULING<br>Servicing of Control valve above 12" size<br>1. De-couple and remove the actuator from position.<br>2. Shifting of actuator to OPGC maintenance bay.<br>3. Loosen the bonnet fasteners and remove the same from valve body.<br>4. Remove valve plug along with stem and the cage/ trim from the position.<br>5. Remove the seat and the gaskets etc.<br>6. Clean the dismantled components and lap the plug & seat as per requirement.<br>7. Check the seat & plug area for any erosion and repair the erosion / defects by welding, grinding and lapping & blue<br>matching as per requirement.<br>8. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>9. Shifting of actuator from maintenance bay to valve location<br>10. Install back the actuator and coupled with valve spindle.<br>11. Charge the system and attend defects if any. |
| 67 | BUTTERFLY VALVE (DIA<=6") SERVICING<br>Servicing / Replacement of Butterfly valve up to 150 NB<br>1. Loosening of butterfly valve flange bolts.<br>2. Removing of butterfly valve from position.<br>3. Removal of foreign material from valve disc.<br>4. Inspection & cleaning of rubber seat, disc etc<br>5. Replacement of defective parts i.e. valve rubber seat etc as per requirement.<br>6. Repair of seating area if required.<br>7. Adjust proper travel of Disc to insure full closing and full open condition.<br>8. Putting the butterfly valve in position with new gaskets, tightening of flange bolts.<br>9. Charging of system and attending of defects if any. |
| 68 | BUTTERFLY VALVE (DIA 6"-12") SERVICING<br>Servicing/Replacement of Butterfly valve of size above 150NB and below 300NB<br>1. Make necessary lifting arrangements as per requirement.<br>2. Removal of valve / connection piece from position as per requirement by loosening bolts<br>3. Removal of retaining ring / damaged rubber seal<br>4. Fixation of new rubber seal & tightening of retaining ring up to required torque etc.<br>5. Adjustment of flap for ensuring correct position of flap in valve housing<br>6. Adjustment of mechanical stopper arrangement in actuator gear box / welding of mechanical stopper inside valve for<br>ensuring full closing of valve as per requirement<br>7. Cutting of new gasket from sheet as per requirement.<br>8. Fixation of valve / connection piece in position & tightening of connecting bolts using new gasket as per requirement<br>9. Charging of system & attending of defects if any |

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| 69 | BUTTERFLY VALVE (DIA>=12") SERVICING<br>Replacement of Butterfly valve seals of size 300NB to 900NB<br>1. Opening of manhole covers.<br>2. Dismantling of retaining ring & removal of damaged seal.<br>3. Fixation of new seal.<br>4. Installation of retaining ring & tightening of nuts as per required torque etc.<br>5. Adjustment of flap in housing as per requirement.<br>6. Adjustment of mechanical stopper arrangement in AUMA make gear box as per requirement for ensuring full closing.<br>7. Taking trial operation & making necessary adjustment as per requirement.<br>8. Boxing up, charging & attending defects if any |
| 70 | BUTTERFLY VALVE (2400NB) SERVICING<br>Servicing/Replacement of Butterfly valve of size above 2200NB and below 2700NB<br>1. Opening of manhole covers.<br>2. Dismantling of retaining ring & removal of damaged seal.<br>3. Fixation of new seal.<br>4. Installation of retaining ring & tightening of nuts as per required torque etc.<br>5. Adjustment of flap in housing as per requirement.<br>6. Adjustment of mechanical stopper arrangement in AUMA make gear box as per requirement for ensuring full closing.<br>7. Taking trial operation & making necessary adjustment as per requirement.<br>8. Boxing up, charging & attending defects if any. |
| 71 | HP VALVES (DIA<=6") SERVICING<br>Servicing of valve with pressure seal gasket up to 6" size<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet/ yoke bolts and remove the same from valve body.<br>5. Loosen the disc containing the pressure seal gasket, remove keys and retaining ring.<br>6. Remove the disc containing the pressure seal gasket from the valve body.<br>7. Remove the spindle along with disc etc.<br>8. Clean the components and lap the disc, seat, back seat etc as per requirement.<br>9. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>10. Inspect gland bush area and rectify if any high point or marking found over it<br>11. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>12. Locking of bonnet by welding.<br>13. Install the actuator and coupled, after necessary greasing etc.<br>14. Charge the system and attend defects if any |
| 72 | HP VALVES (DIA>6"-12") SERVICING<br>Servicing of valve with pressure seal gasket sizes 6-12"<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet/ yoke bolts and remove the same from valve body.<br>5. Loosen the disc containing the pressure seal gasket, remove keys and retaining ring.<br>6. Remove the disc containing the pressure seal gasket from the valve body.<br>7. Remove the spindle along with disc etc.<br>8. Clean the components and lap the disc, seat, back seat etc as per requirement.<br>9. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>10. Inspect gland bush area and rectify if any high point or marking found over it.<br>11. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>12. Locking of bonnet by welding.<br>13. Install the actuator and coupled, after necessary greasing etc.<br>14. Charge the system and attend defects if any. |

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| 73 | HP VALVES (DIA>12") SERVICING<br>Servicing of valve with pressure seal gasket sizes above 12"<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet/ yoke bolts and remove the same from valve body.<br>5. Loosen the disc containing the pressure seal gasket, remove keys and retaining ring.<br>6. Remove the disc containing the pressure seal gasket from the valve body.<br>7. Remove the spindle along with disc etc.<br>8. Clean the components and lap the disc, seat, back seat etc as per requirement.<br>9. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue matching as per requirement.<br>10. Inspect gland bush area and rectify if any high point or marking found over it.<br>11. Assemble the valve with new/ repaired components, packing, gaskets etc.<br>12. Locking of bonnet by welding.<br>13. Install the actuator and coupled, after necessary greasing etc. Area Cleaning & Removal of Debris.<br>14. Charge the system and attend defects if any. |
| 74 | LP VALVES (DIA<=6") SERVICING<br>Servicing of valve without pressure seal gasket up to 6" size<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet bolts and remove the yoke/ bonnet etc from valve body.<br>5. Remove spindle with disc from valve body.<br>6. Clean the components, lap disc, seat, back seat etc as per requirement.<br>7. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>8. Inspect gland bush area and rectify if any high point or marking found over it.<br>9. Assemble the components with new / repaired items, packing, gaskets etc as per requirement.<br>10. Locking of bonnet by welding.<br>11. Install the actuator and coupled with valve shaft.<br>12. Check freeness, charge the system and attend defects if any. |
| 75 | LP VALVES (DIA>6"-12") SERVICING<br>Servicing of valve without pressure seal gasket sizes 6-12"<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet bolts and remove the yoke/ bonnet etc from valve body.<br>5. Remove spindle with disc from valve body.<br>6. Clean the components, lap disc, seat, back seat etc as per requirement.<br>7. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>8. Inspect gland bush area and rectify if any high point or marking found over it.<br>9. Assemble the components with new / repaired items, packing, gaskets etc as per requirement.<br>10. Locking of bonnet by welding.<br>11. Install the actuator and coupled with valve shaft.<br>12. Check freeness, charge the system and attend defects if any. |

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| 76 | LP VALVES (DIA>12") SERVICING<br>Servicing of valve without pressure seal gasket above 12"<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet bolts and remove the yoke/ bonnet etc from valve body.<br>5. Remove spindle with disc from valve body.<br>6. Clean the components, lap disc, seat, back seat etc as per requirement.<br>7. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>8. Inspect gland bush area and rectify if any high point or marking found over it.<br>9. Assemble the components with new / repaired items, packing, gaskets etc as per requirement.<br>10. Locking of bonnet by welding.<br>11. Install the actuator and coupled with valve shaft. Area Cleaning & Removal of Debris.<br>12. Check freeness, charge the system and attend defects if any. |
| 77 | NRV (DIA<=6") SERVICING<br>Servicing of NRV of size up to 6"<br>1. Removal of top cover of NRV by loosening cover bolts<br>2. Removal of NRV flap from position & carrying out necessary repair in flap, arm, etc. by welding, grinding, lapping etc. as<br>per requirement<br>3. Cutting of new gasket from sheet / new pressure seal as per requirement<br>4. Fixation of flap / arm in housing<br>5. Tightening of cover bolts with new gasket / pressure seal<br>6. Charging of system & attending defects if any. |
| 78 | NRV (DIA 6"-12") SERVICING<br>Servicing of NRV of size above 6" and up to 12"<br>1. Removal of top cover of NRV by loosening cover bolts<br>2. Removal of NRV flap from position & carrying out necessary repair in flap, arm, etc. by welding, grinding, lapping etc. as<br>per requirement.<br>3. Cleaning of inside area by wire brush to remove any rust.<br>4. Cutting of new gasket from sheet / new pressure seal as per requirement<br>5. Fixation of flap / arm in housing<br>6. Tightening of cover bolts with new gasket / pressure seal<br>7. Charging of system & attending defects if any. |
| 79 | NRV (DIA>=12") SERVICING<br>Servicing of NRV of size above 12" size / Turbine Extraction FCNRV/ CRH NRV<br>1. Removal of top cover of NRV by loosening cover bolts<br>2. Removal of NRV flap from position & carrying out necessary repair in flap, arm, etc. by welding, grinding, lapping etc. as<br>per requirement<br>3. Cutting of new gasket from sheet / new pressure seal as per requirement<br>4. Fixation of flap / arm in housing<br>5. Tightening of cover bolts with new gasket / pressure seal. Area Cleaning & Removal of Debris.<br>6. Charging of system & attending defects if any. |
| 80 | VALVE GEAR.BOX (<=6") SERVICING<br>Servicing of gear box of valves up to 150NB<br>1. Making the necessary arrangement for removing the gear box from valve shaft.<br>2. Remove actuators from valve gearbox mountings in case of motorized valve.<br>3. Removal of gear box from valve.<br>4. Dismantling of gear box internals.<br>5. Replacing & repairing the defective parts.<br>6. Box up of gear box with new grease.<br>7. Mounting the gear box on the valve shaft. Adjustment of mechanical stopped arrangement for full open and close of the<br>valve.<br>8. Fixing of actuators from valve gearbox mountings in case of motorized valve. Area Cleaning & Removal of Debris.<br>9. Charging the system and attending of defects if any. |

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| 81 | VALVE GEAR.BOX (6-12") SERVICING<br>Servicing of gear box for valve sizes 150 NB to 300 NB<br>1. Making the necessary arrangement for removing the gear box from valve shaft.<br>2. Remove actuators from valve gearbox mountings in case of motorized valve.<br>3. Removal of gear box from valve.<br>4. Dismantling of gear box internals.<br>5. Replacing & repairing the defective parts.<br>6. Box up of gear box with new grease.<br>7. Mounting the gear box on the valve shaft. Adjustment of mechanical stopped arrangement for full open and close of the<br>valve.<br>8. Fixing of actuators from valve gearbox mountings in case of motorized valve.<br>9. Charging the system and attending of defects if any |
| 82 | VALVE GEAR.BOX (>12") SERVICING<br>Servicing of gear box for valve sizes above 300 NB<br>1. Making the necessary arrangement for removing the gear box from valve shaft.<br>2. Remove actuators from valve gearbox mountings in case of motorized valve.<br>3. Removal of gear box from valve.<br>4. Dismantling of gear box internals.<br>5. Replacing & repairing the defective parts.<br>6. Box up of gear box with new grease.<br>7. Mounting the gear box on the valve shaft. Adjustment of mechanical stopped arrangement for full open and close of the<br>valve.<br>8. Fixing of actuators from valve gearbox mountings in case of motorized valve. Area Cleaning & Removal of Debris.<br>9. Charging the system and attending of defects if any. |
| 83 | SAFETY VALVE (1-4") SERVICING<br>Servicing of Safety relief valve up to 4" size<br>1. Make necessary lifting arrangement / platform as per requirement<br>2. Disconnect the flanges & Removal of safety valve from position.<br>3. Dismantling of safety valve internals.<br>4. Inspection & cleaning of internals. Replacement of defective parts if any.<br>5. Repair / replace damaged / eroded components welding, grinding, lapping and blue-matching and as per requirement<br>6. Lapping of valve seat as per requirement.<br>7. Assembly of. Safety valve internals.<br>8. Hydro test of safety valve as per requirement<br>9. Putting of safety valve in position, charging of the system & attending of defects if any. |
| 84 | SAFETY VALVE (4-8") SERVICING<br>Servicing of safety / relief valve above 4" up to 8" size<br>1. Make necessary lifting arrangement / platform as per requirement<br>2. Disconnect the flanges and remove the safety / relief valve from location as per requirement<br>3. Dismantle the valve and clean all the components<br>4. Repair / replace damaged / eroded components by welding, grinding, lapping and blue-matching and as per requirement.<br>5. Lapping of valve seat as per requirement.<br>6. Assemble the valve with new gaskets / gaskets cut from sheet.<br>7. Hydro test of safety valve as per requirement<br>8. Locate valve in location and connect the flanges<br>9. Charge the system and set the safety valve and attend for any leakage / passing. |

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| 85 | SAFETY VALVE (8-16") SERVICING<br>Servicing of Safety relief valve above 8" up to 16" size<br>1. Make necessary lifting arrangement / platform as per requirement<br>2. Disconnect the flanges & Removal of safety valve from position.<br>3. Dismantling of safety valve internals.<br>4. Inspection & cleaning of internals. Replacement of defective parts if any.<br>5. Repair / replace damaged / eroded components by welding, grinding, lapping and blue-matching and as per requirement<br>6. Lapping of valve seat as per requirement.<br>7. Assembly of. Safety valve internals.<br>8. Hydro test of safety valve as per requirement<br>9. Putting of safety valve in position, charging of the system & attending of defects if any. |
| 86 | MISCELLENEOUS WORKS - WELDING ARC<br>Arc Welding per one inch of welding (1unit=1 inch dia pipe welding. Proportionate payment shall be done for other sizes)<br>1. Make approach and platform to the area of welding to be carried out.<br>2. Preparation of edges for welding joints as per EIC Instruction to authorized representative of the agency.<br>3. Fit up the job in position and ensure that there is no residual stress on the pipe line.<br>4. Weld it after cleaning Butt/socket ends as per requirement with HP welder / OPGC certified welder. NDT test to be performed if any as required by the job to be in vendors scope.<br>5. Remove the support structure and approach.<br>6. Charge the system and attend defects if any. |
| 87 | STEAM PIPING - WELDING HP TIG<br>High pressure TIG Welding per one inch of welding (1unit=1 inch dia pipe welding. Proportionate payment shall be done for other sizes)<br>1. Identification of the job and understanding the required WPS & Welding schedule, base materails, electrode & feeler requirement.<br>2. Arrangement of proper approach at job location.<br>3. Removal/Re Installation of insulation in contractor scope.<br>4. Edge Preperation and joint readines by Cleaning, griding and required gap of welding joint as per EIC Instructions.<br>5. Fit up and readiness of welding joint/job based on standard practices and approved WPS. Inspection & checking of fitup and clearance for welding.<br>6. Welding of joint and ensure root pass is ok and if required DP test for root pass to be done based on approved procedure.<br>7. Final welding and cleaning of joint for inspection and NDT testing as recomended by approved procedure & WPS.<br>8. Rectification of defects if any during testing and acceptance of welding joint.<br>9. Charge the system and application of insulation as instructed by EIC.<br>10. Removal of debris and cleaning of job location & removal of scafolding from work location. |
| 88 | STEAM PIPING (DIA<=6") STRESS RELEIVING<br>Stress relieving of joint of size up to & including 6" (SR equipment & accessories in contractor's scope):<br>1. Shifting of SR equipment to work spot.<br>2. Fixing of thermocouples, wrapping of heating coils and insulation mats as per requirement.<br>3. Connecting all cables & providing electrical supply.<br>4. Supply of experienced manpower for round the clock monitoring of SR cycle and attending to defects during cycle.<br>5. If cycle gets interrupted, the entire cycle shall be repeated till completion.<br>6. The recorder plot shall be submitted to EIC after successful completion of SR cycle.<br>7. A cycle consisting of pre-heat, post-heat, SR shall be counted as one operation for payment.<br>8. Dismantling and removal of SR equipment for site. |

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| 89 | STEAM PIPING (DIA>6"-12") STRESS RELEIVING<br>Stress relieving of joint of size above 6" (SR equipment & accessories in contractors scope):<br>1. Shifting of SR equipment to work spot.<br>2. Fixing of thermocouples, wrapping of heating coils and insulation mats as per requirement.<br>3. Connecting all cables & providing electrical supply.<br>4. Supply of experienced manpower for round the clock monitoring of SR cycle and attending to defects during cycle.<br>5. If cycle gets interrupted, the entire cycle shall be repeated till completion.<br>6. The recorder plot shall be submitted to EIC after successful completion of SR cycle.<br>7. A cycle consisting of pre-heat, post-heat, SR shall be counted as one operation for payment.<br>8. Dismantling and removal of SR equipment from site. |
| 90 | FLANGE (DN350) ATTENDING DEFECT ONLINE :<br>Online Sealing assistance & Attend Leakages up to 350 NB size through online team or site manpower.<br>1. Make proper approach and platform for attending the defects in flange/gland/leakages in line. Removal & Refixing of Insulation.<br>2. Arangement for tightening of flange studs from distance in case of flange leakages<br>3. Shifting of tools at location & support for online team to attend the leakages in valves and other location as instructed by EIC.<br>4. Arrangemet for steam suits/compressor air and required PPE for executing team to attend the defects.<br>5. Attend the flange defects as instructed by EIC & Adjust flange studs equally one by one with proper tools till the leakage subsided or stopped.<br>6. Uniform tightening of gland pusher bolts for arresting the leakage & back seating/closing of valve.<br>7. Support for online team during leakages attending in valves by closing/back seating as per EIC instructions.<br>8. Support for online sealing team during clamp fixing and pinning to arrest leakages.<br>9. Removal of materials, tools from work location and dismantling of scaffolding and area cleaning.<br>Note: **Online team support shall be arranged by OPGC based criticality & requirement.**<br>**Defects attended by contrator shall be paid 1 BOQ & Online sealing team assistance shall be paid by 0.5 BOQ or as decided by OPGC EIC.** |
| 91 | FLANGE (GASKET) ATTENDING DEFECT ONLINE<br>Online Sealing assistance & Attend Leakages above 350 NB size through online team or site manpower.<br>1. Make proper approach and platform for attending the defects in flange/gland/leakages in line.<br>2. Arangement for tightening of flange studs from distance in case of flange leakages<br>3. Shifting of tools at location & support for online team to attend the leakages in valves and other location as instructed by EIC.<br>4. Arrangemet for steam suits/compressor air and required PPE for executing team to attend the defects.<br>5. Attend the flange defects as instructed by EIC & Adjust flange studs equally one by one with proper tools till the leakage subsided or stopped.<br>6. Uniform tightening of gland pusher bolts for arresting the leakage & back seating/closing of valve.<br>7. Support for online team during leakages attending in valves by closing/back seating as per EIC instructions.<br>8. Support for online sealing team during clamp fixing and pinning to arrest leakages.<br>9. Removal of materials, tools from work location and dismantling of scaffolding and area cleaning.<br>**Note: Online team support shall be arranged by OPGC based criticality & requirement.**<br>**Defects attended by contrator shall be paid 1 BOQ & Online sealing team assistance shall be paid by 0.5 BOQ or as decided by OPGC EIC.** |
| 92 | FLANGE GASKET (≤6") REPLACEMENT<br>REPLACEMENT OF GASKETS IN FLANGES UPTO 6"<br>1. Remove flange bolts.<br>2. Remove old gasket & clean the flange surfaces.<br>3. Check the surface area for any cut, build up the cut area by welding and then finish by grinding when ever required.<br>4. Replace new gasket by cutting from gasket sheet.<br>5. Tighten the flanges with new gasket.<br>6. Arrangement of any rigging activity if required and normalization<br>7. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job<br>8. Charge the system and check for leaks and rectify if any. |

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| 93 | FLANGE GASKET (>6"-12") REPLACEMENT<br>REPLACEMENT OF GASKETS IN FLANGES 6"-12"<br>1. Remove flange bolts.<br>2. Remove old gasket & clean the flange surfaces.<br>3. Check the surface area for any cut, build up the cut area by welding and then finish by grinding when ever required.<br>4. Replace new gasket by cutting from gasket sheet.<br>5. Tighten the flanges with new gasket.<br>6. Arrangement of any rigging activity if required and normalization<br>7. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job<br>8. Charge the system and check for leaks and rectify if any. |
| 94 | FLANGE GASKET (>12") REPLACEMENT<br>REPLACEMENT OF GSKTS IN FLANGES ABOVE12"<br>1. Remove flange bolts.<br>2. Remove old gasket & clean the flange surfaces.<br>3. Check the surface area for any cut, build up the cut area by welding and then finish by grinding when ever required.<br>4. Replace new gasket by cutting from gasket sheet.<br>5. Tighten the flanges with new gasket.<br>6. Arrangement of any rigging activity if required and normalization<br>7. General cleaning & housekeeping of the equipment & surrounding areas to be ensured after completion of job<br>8. Charge the system and check for leaks and rectify if any. |
| 95 | HP/LP WATER PUMP - 12WEEK CHECKS:<br>Preventive Maintenance of HP/LP Water Pumps - 12 Week Checks.<br>1. Checking of coupling pins & bushes healthiness and replacement as per requirement.<br>2. Checking of gland packing healthiness and tightening the same.<br>3. Checking of Mechanical seal leakage and recording of the same<br>4. Tightness checking of foundation bolts.<br>5. Greasing /checking of oil levels/ oil top up for bearings as per requirement.<br>6. Tightening of deflector plates as per requirement<br>7. Cleaning of the equipment |
| 96 | HP/ LP WATER PUMP - 04WEEK CHECKS: Preventive Maintenance of HP/LP Water Pumps-4 weeks Check<br>1. Checking of coupling pins & bushes healthiness and replacement as per requirement.<br>2. Checking of gland packing healthiness and tightening the same<br>3. Checking of Mechanical seal leakage and recording of the same<br>4. Tightness checking of foundation bolts.<br>5. Greasing /checking of oil level/ oil top up for bearings as per requirement.<br>6. Tightening of deflector plates as per requirement<br>7. Cleaning of the equipment |
| 97 | CEP 12WEEK CHECKS :<br>Preventive Maintenace of CEP- 12 Weeks Checks of CEP<br>1. Checking of coupling pins & bushes healthiness and replacement as per requirement.<br>2. Checking of gland packing healthiness and tightening the same<br>3. Checking of Mechanical seal leakage and recording of the same<br>4. Tightness checking of foundation bolts.<br>5. Oil level checking/Flushing/ Fresh Oil filling/oil top up for bearings as per requirement & EIC instructions.<br>6. Tightening of deflector plates as per requirement<br>7. Cleaning of the equipment |
| 98 | HP WATER PUMP - 12WEEK CHECKS MD/TDBFP<br>12 Weekly check of BP/MP of TDBFP & MDBFP<br>1. Normal inspection and recording of defects while equipment is in running condition.<br>2. Checking of leakage of oil and water and recording the same.<br>3. Recording of abnormal sound and vibration.<br>4. Checking of Mechanical seal leakage and recording of the same<br>5. Cleaning of surrounding area of the equipment. |

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| 99 | LUB OIL SYSTEM (PUMP) 24WEEK CHECKS<br>24 Weekly PM of TG AOP/EOP/TDBFP AOP/EOP<br>1. Tightness checking of foundation / base bolts.<br>2. Tightness checking of coupling bolts, if required.<br>3. Attending leakages if any.<br>4. Oil top up if applicable<br>5. Cleaning of the equipment |
| 100 | LUB OIL SYSTEM (PUMP) 08WEEK CHECKS<br>08 Weekly PM of Seal oil Pump (AC/DC)/Jacking Oil Pump (AC/DC)/MDBFP AOP<br>1. Tightness checking of foundation / base bolts.<br>2. Tightness checking of coupling bolts, if required.<br>3. Attending leakages if any.<br>4. Oil top up if applicable<br>5. Cleaning of the equipment. |
| 101 | LUB OIL SYSTEM (PUMP) 04WEEK CHECKS<br>04 Weekly PM of HPLP BP oil pump/CF pump/CF recirculation Pump/Lub oil transfer Pump(MOT/COT)<br>1. Tightness checking of foundation / base bolts.<br>2. Tightness checking of coupling bolts, if required.<br>3. Attending leakages if any.<br>4. Oil top up if applicable<br>5. Cleaning of the equipment. |
| 102 | BLOWER/FAN - 04WEEK CHECKS -Preventive Maintenance of Blower/Fans.<br>1. Tightness checking of foundation / base bolts.<br>2. Tightness checking of fan casing body<br>3. Insure draining of accumulated oil from casing if any.<br>1. Check the freeness of impeller in the casing<br>4. Attending leakages if any.<br>5. Cleaning of the equipment |
| 103 | HP VALVES (150NB) ATTENDING DEFECT ONLINE<br>Checking of passing of valves and attending the same.<br>1. Check open/close position of the valve.<br>2. Check the downstream temperature of the valve.<br>3. Check for any abnormality in the gear box assembly and attend the same.<br>4. Close the valve manually if not fully closed as per instruction of EIC.<br>5. Record the defect if any for future maintenance. |
| 104 | MISC WORKS - LUBRICATION/TOPUP<br>Lubrication / oil top up / greasing of valve gear box/Pump bearing/Pump gearbox<br>1. Cleaning of dirt, oil grease (Out side bearing house) / valve gear box etc. to be done.<br>2. New grease/oil is to be topped/filled up to normal level as per EIC Instructions given to authorized representative of the agency.<br>3. Type of oil and amount will be instructed by EIC.<br>4. Cleaning of extra grease/oil spilled out of housing.<br>5. Attending the oil leakage from gauge glass/oil level indicator/ constant level indicator.<br>Note: **Fresh oil filling activity shall be paid as 1 BOQ. Other top up and greasing activities shall be reviewed and paid based assesment/actaul site conditions by EIC . Top up activity already covered in Shift asistance. However EIC may release the qty 0.1 BOQ to 0.2 BOQ for each instance.** |
| 105 | MOT/TDBFP CENTRIFUGE - CLEANING<br>Bowl cleaning of TDBFP/ TG MOT centrifuge<br>1. Removal of Top cover of Bowl assembly.<br>2. Loosing of locking rings & Removal of Bowl assembly.<br>3. Dismantling of bowl assembly, Removal of bowl discs one by one & through cleaning of Bowl discs & bowl body.<br>4. Inspection of all parts & all O-rings, Replacement of defective parts if any.<br>5. Charging of system & attending of defects if any. |

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| 106 | MOT/TDBFP CENTRIFUGE - OVERHAULING<br>Complete servicing of TDBFP/MDBFP Centrifuge. Servicing of Bowl assembly, gear box and drive system<br>1. Drain the gear box oil<br>2. Remove the motor from location<br>3. Remove the bowl components<br>4. Remove the integral pump from location and remove the horizontal shaft and vertical shaft<br>5. Replace the defective components like bearings, worm wheel, buffers etc.<br>6. Clean the gear box and all the components<br>7. Assemble the horizontal shaft and vertical shaft with new bearings as per requirement<br>8. Assemble the bowl components with new O-rings as per requirement<br>9. Check wobble of the bowl and correct as per requirement<br>10. Fill fresh oil in gear box after placing motor and integral pump<br>11. Run and check for leakage and vibration and attend for defects if any. |
| 107 | LUB OIL SYSTEM - FILTRATION (EXTERNAL UNIT)<br>Operation of External Centrifuge/Purifier on Lub oil/Control fluid/ HP LP Bypass/MDBFP systems and other Auxillaries in TG&BOP<br>1. Making necessary arrangement for power supply and draining system for centrifuge / purifier.<br>2. Transportation of Centrifuge/Purifier to the position.<br>3. Temporary connection of Hose pipe for oil inlet and outlet.<br>4. Starting of the Centrifuge/Purifier after priming and venting.<br>5. Monitoring the operation and performance on continuous basis.<br>6. Regular cleaning of filter as per requirement.<br>7. Stopping the system and clearance of the area after achieving desired parameter is achieved. |
| 108 | EOT/CRANES (>90MT) 12WEEK CHECKS TG HALL<br>12 weekly check of EOT Crane maintenance in TG. Hall.<br>1. Cleaning of the crane totally including operator’s cabin, using brush and compressed air.<br>2. Checking the tightness of coupling bolts and tightening / replacement as required.<br>3. Check and top up / replace oil in all electro hydraulic thrusters.<br>4. Checking the operation of all LT/CT/Aux & Main Hoist limit switch availability.<br>5. Check and top up oil in all gear boxes, Replacement of Oil if required as advised by EIC.<br>6. Greasing of bearings, wheels.<br>7. Inspection of rails, rail clamps & re-fixing of clamps if found loose..<br>8. Inspection of wire rope, clamping arrangements & lubrication of wire rope (Application of cadmium compound) |
| 109 | HOIST/CRANES - CHECKING TG AREA<br>12 weekly check of EOT Crane maintenance of TDBFP/MDBFP/and other equipment hoist in TG&BOP Area.<br>1. Cleaning of the crane totally including operator’s cabin, using brush and compressed air.<br>2. Checking the tightness of coupling bolts and tightening / replacement as required.<br>3. Check and top up / replace oil in all electro hydraulic thrusters.<br>4. Check and top up oil in all gear boxes. Replacement of oil if required.<br>5. Greasing of bearings, wheels and rotating parts whenever required.<br>6. Inspection of wire rope, clamping arrangement & lubrication of wire rope, application of cadmium compound |
| 110 | STEAM TUR (LPT DIAPHRAGM) REPLACEMENT<br>Diaphragm replacement for LP Turbine<br>1. Arrangement of safe working platform and required lifeline arrangement.<br>2. Loosen mounting bolts of diaphragm assembly & remove complete assembly.<br>3. Dismantle the diaphragm assembly and clean all the components.<br>4. Repair/Replace components as per requirement.<br>5. Cut new lead / diaphragm & gasket from sheet as per requirement<br>6. Fix new diaphragm and assemble it.<br>7. Place complete assembly & tightened the mounting bolts using new gasket.<br>8. Charge the system & attend defects if any. |

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| 111 | HANGER & SUPPORTS - CHECKING/RECTIFICATION<br>04 weekly checking of hangers and supports on TG Building i.e. Power cycle piping, TG Integral Piping & LP Piping.<br>1. Make necessary approach for recoding the reading of the hanger.<br>2. Record any abnormality and defects<br>3. Compare present records with previous records.<br>4. Report in case of any discrepancy/abnormality found<br>Note: **Inspection & Identification and defects 0.25 BOQ & Rectification (Repair,welding, fabrication) of Defects 01 BOQ.** |
| 112 | HANGER & SUPPORTS - ATTENDING DEFECTS<br>Repair and adjustment for piping hangers and supports<br>1. Make necessary platform for approach to the hanger.<br>2. Fix the hinges or support by welding if required.<br>3. Fix the tie rod in case of any defects<br>4. Do necessary adjustment of Hanger as per EIC.<br>5. Remove all the scaffoldings used for platform.<br>Note: **Hanger & Supports defect rectification includes fabrication, repair, machnening, welding and DPT - 01 BOQ** |
| 113 | MOT OIL FILLING/TOP UP<br>Oil top up for the TG equipment's (in Drums)<br>1. Drawl of lubricants from OPGC store and transportation to site store.<br>2. Draining of old oil from the equipment and collection as per EIC Instruction to authorized representative of the agency.<br>3. Filling of fresh oil as required.<br>4. Transportation of old oil to OPGC Store or suitable location as per EIC Instruction to authorized representative of the<br>agency.<br>Note: **Oil top up - from availble stock at site 0.1 BOQ & Oil Filling - 1 BOQ** |
| 114 | HPBP VALVES - SERVICING<br>Overhauling / Servicing of HP BP control valve<br>1. Decoupling & removal of actuator from position, Removal of all oil lines and connections.<br>2. Loosening of bottom flange bolts & removal of Jet Cage, Pressure seal plug, etc. from housing.<br>3. Fixing of lapping fixture/valve spindle for lapping as per requirement.<br>4. Lapping/Blue matching of seat with disc.<br>5. Check the disc & seat areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue matching<br>as per requirement.<br>6. Repair / Replacement of any component as per requirement.<br>7. Assembly of valve spindle, jet cage etc. in position & tightening of flange bolts with new packing / gland packing etc.<br>8. Fit up & welding of spray water pipe.<br>9. Coupling of valve with actuator. Normalisation of all piping connections, area cleaning and removal of debris.<br>10. Trial operation of the valve.<br>11. Charging of the system & attending defects if any. |
| 115 | LPBP VALVES - SERVICING<br>Overhauling / Servicing of LP BP Stop valve / control valve<br>1. Decoupling & removal of actuator from position. Removal of all oil lines and piping connections.<br>2. Loosening of bottom flange bolts & removal of Jet Cage, Pressure seal plug, etc. from housing.<br>3. Fixing of lapping fixture/valve spindle for lapping as per requirement.<br>4. Lapping/Blue matching of seat with disc.<br>5. Check the disc & seat areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue matching<br>as per requirement.<br>6. Repair / Replacement of any component as per requirement.<br>7. Assembly of valve spindle, jet cage etc. in position & tightening of flange bolts with new packing / gland packing etc.<br>8. Fit up & welding of spray water pipe.<br>9. Coupling of valve with actuator. Normalisation of all piping connections.<br>10. Trial operation of the valve.<br>11. Charging of the system & attending defects if any. |

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| 116 | CONDENSER - WATERBOX DOOR OPEN/CLOSE<br>Condenser water box door open/close (one manhole)<br>1. Prepartory arrangements for removal of bolts.<br>2. Loosening of all bolts and cleaning of mating flange area and free from blurrs.<br>3. Opening the manhole as per requirement & installation of scaffolding inside the water box for inspection.<br>4. Removal of gasket/ Installtion of new gasket if damaged and again boxed up.<br>5. Removal of scaffoldings/ Fixing of manhole doors, checking for any leakage.<br>6. Cleaning of area and removal of unwated materails. |
| 117 | DEARATOR (GAUGEGLASS) SERVICING/REPLACEMENT<br>Servicing/replacement of gauge glass in TG&BOP area including FST/LP Heater/HP Heater/Hot-Well//Clean Oil Tank/ECW tank other gauge glasses<br>1 Loosening of bolts and Opening of flanges<br>2 Repair/Replacement of gauge glass<br>3 Replacement of gasket if required, cleaning of gasket location repair if required by filling and grinding.<br>4 Tightening of flanges.<br>**Note: If minor leakages & seepage defects 0.25 BOQ & complete removal and rectification works 1 BOQ** |
| 118 | CONDENSER - FLOOD TEST<br>TG Condenser flood test for checking of tube leakages<br>1. Making necessary scaffolding required, locking of condenser fixed support before flood test.<br>2. Removal of all Condenser Manholes and arrangement for checking of inside the water box.<br>3. Filling the water in the condenser asper direction of EIC. Manpower support to operation during flood test.<br>4. Making the arrangement for air blowing and the lighting inside the water box.<br>5. Checking of leakages of the condenser tubes, If found any leakages then plugging of that tubes.<br>6. Rectification of defects during condenser flood test.<br>7. Removal of all man and material after completion of job.<br>8. Box up of Condenser Manholes with New gaskets and Tightness of all flanges.<br>9. Bringing the water level to the normal. |
| 119 | BLOWER/FAN - RPL-BRG<br>VEF (MOT/ GSC/SO/TDBFP LO) Bearing replacement<br>1. Dismantling the fan.<br>2. Opening the bearing housing and removal of damaged bearing.<br>3. Cleaning of housing and bearing mounting area. Repairing of shaft location and welding and matching, machenening if required to be done by contractor.<br>4. Fixing of new bearing.<br>5. Assembly of fan/ blower.<br>6. Checking of noise and vibration of fan after trial.Assistance during insitu balancing for CBM team during trail. |
| 120 | EXPANSION JOINTS (UPTO 1000MM) REPLACEMENT<br>Replacement of Expansion Bellow<br>1. Locking of expansion bellow and record the clerances and gap.<br>2. Preparoty arrangements for bellow removal and arrangement of any plot form if required as per EIC instructions.<br>3. Losening and removal of flange bolts of both side flange bolts.<br>4. Removal of damaged expansion joints, cleaning of joint surfaces and removal of any high points and repairing of any ovality etc..<br>5. Installation of new expansion bellow & Tightening of both side flange bolts.<br>6. Checking for leakage after charging . Releasing of locking arrangement. |

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| 121 | LUB OIL COOLER - SERVICING/CLEANING<br>BFPs oil coolers / TG/ Vacuum Pump etc<br>1. Prepartory arrangements and scaffolding arrangements for cooler removal..<br>2. Marking and identification of flages & Dismantle of cooler outlet/inlet pipe, vent line.<br>3. Dismantle & Removal of cooler water box cover.<br>4. Dismantle & Removal of cooler tube nest, Inner/Outer shell as per instruction of Engr. -In-Charge.<br>5. Cleaning of all components by water jet, pressurized air and Nylon Brush.<br>6. Steam washing of tube external surface and cleaning it with diesel & water jet.<br>7. Hydro test of cooler assembly as advised by EIC, plugging of tubes if found defective during HT,Repair internals if required.<br>8. Boxing up of Inner shell, tube nest, outer shell with proper fitting of 'O' ring and gasket.<br>9. Fitting of water box cover, inlet/ outlet pipe.<br>10. Charging of cooler attending defects if any after disposing off the waste generated. |
| 122 | HYDRAULIC COUPLING - OVERHAULING<br>O/H of VOITH Hydraulic coupling of BFP ( As per OEM Recommended Procedure)<br>1. Draining of oil from the tank in the barrel<br>2. Removal of all piping connections, Loosening of all bolts and removal of top cover.<br>3. Removal of bearings, internals as suggested by OEM recommended manual.<br>4. Lifting of input and output shaft.<br>5. Cleaning of all bearings, gears and shaft.<br>6. Taking dimensions of all parts as directed by EIC and replacement if required.<br>7. Cleaning of tank, all internal parts, and fasteners.<br>8. Placement of shafts and bearings in its position and necessary measurement is to be done.<br>9. Putting the top cover and boxed up, Normalisation of piping connections.<br>10. Oil filling and checking of leakages if any..<br>11. Checking of Hydraulic coupling as per OEM/EIC Instructions.<br>12. Area cleaning removal of debris. |
| 123 | ACCUMULATOR (BLADDER) REPLACEMENT<br>Accumulator bladder checking and replacement in TG,TDBFP,HP/LPBP & EHC system and other TG&BOP Locations.<br>1) Arrangement for removal accumulator assembly, Loosen necessary flanges and take out the accumulator from position.<br>2) Remove the end connections and take out the bladder of the accumulator<br>3) Clean the accumulator housing and insert the new bladder<br>4) Assemble the end connections and place the accumulator in location with new O-rings, Replace seal kit if found damaged.<br>5) Cut new gasket / O-ring and tighten the flange<br>6) Charge the accumulator with N2 gas using charging kit.<br>7) Test the accumulator for N2 gas pressure and recharge if required<br>8) Charge the oil side and check for leakage and attend if any |

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| 124 | ROUND THE CLOCK SHIFT ASSISTANCE TG BOP<br>**A Gang consist of 1-Supervisor,1-Skilled fitter, 1-Rigger and 1-Helper (total 4 Persons) shall be present in every shift i.e.A,B,C -Shifts (365 Days) including Sundays and Holidays.**<br>1. Filter cleaning/replacement in TDBFP lube Oil, TG lube Oil, TG Control oil, Gen Seal oil, MDBFP hydraulic coupling, HP/LP bypass/LP bypass oil unit, TG control oil unit etc..<br>2. Filter cleaning/replacement at primary water system, Generator Gas System, Main Plant Compressors and other Locations, Filter Cleaning of Exhaust & supply air fan filters various Building of TG&BOP area. Any other Filter/Strainer cleanings in TG&BOP equipment which was not mentioned above and as instructed by OPGC EIC.<br>3. Oil top up- TDBFP lube. Oil tank, TG lube. Oil tank, seal oil vacuum pump, MDBFP hydraulic coupling, HP bypass/LP bypass oil unit, primary water pump, dosing pump, TG control oil unit, centrifuge gear box-MOT & TDBFP,CEP, Other Turbine Auxiliaries, all Equipments of BOP area as instructed by OPGC EIC etc.<br>4. Removal of leakage oil from respective collection pots, Oil draining from pots, cleaning of oil skid or floor, equipment cleaning as instructed by OPGC EIC.<br>5. Round the clock shift assistance to operation or other inter departments on needs basis as OPGC instructed EIC.<br>6. Removal of unwanted materials at various site locations in TG & BOP area and shifting of material to maintain housekeeping inTG & BOP Area.<br>7. Segregation and keeping the OPGC materials at respective TG & BOP site store locations and proper tagging/marking for easy identification and re-usage. Record to be maintained in respective locations as instructed by OPGC EIC. Monthly basis record submisstion to OPGC EIC related to Oil Stock at site, Special T&P Issued condition, Ladder Condition.<br>8.Any other misc. works which was not mentioned above, but required for smooth running of plant to be done as per EIC instructions.<br>9.Attending of gland leakages, oil leakages, valve jamming issues, assistance to operation for operating the valves in non approchable and critical locations as per EIC instructions.<br>10. Recording shift maintenance work and maintain log books.<br>11.Emergency Handling of in shift unit operation like unit trip/blackout/fire incident etc.. Immedite intimation communication to respective EIC.<br>12.Usage of common mobile for all shifts with shift engineer for ensuring trouble free operation & ensuring no communication gap. |
| 125 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT ≤ 2MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |
| 126 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >2-5MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are |

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| | not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |
| 127 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >5-10MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |
| 128 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >10-15MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |

| **Balance of plant** | |
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| 1 | CW PUMP 04 WEEK CHECKS : 4 Week PM of CW Pumps.<br>1. First Obtain suitable permit to work.<br>2. This work involves Cleaning of equipment’s inside the pump house, lube. Water filters, maintenance of ARV's.<br>3. Check and repair of all abnormalities& leakages while in running conditions or as guided by EICs.<br>4. Tightening of all nuts & bolts, Gland nuts & coupling bolts.<br>5. Replacement/repair of ratchet pins and glands.<br>6. Bearing oil/ Grease top up. |
| 2 | CW PUMP 24 WEEK CHECKS : PM of CW Pumps.<br>1. First Obtain suitable permit to work.<br>2. This work involves Cleaning of equipment’s inside the pump house, lube. Water filters, maintenance of ARV's.<br>3. Check and repair of all abnormalities& leakages while in running conditions or as guided by EICs<br>4. Tightening of all nuts & bolts, Gland nuts &coupling bolts.<br>5. Replacement/repair of NRR Pins and glands.<br>6. NRR Bearing oil Oil top up/replacement.<br>7. Servicing of lube/ water lines, valves, flow indicators etc.<br>8. Inspection of any leakages in HPSU Unit and attending the defects.<br>8. Any cutting, grinding and welding if required, is in Contractor's scope. |

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| 3 | LP WATER PUMP(DIA>6"-12")-04WEEK CHECKS OR DIESEL ENGINES/EOT CRANE 04 WEEKS CHECK<br>LP Water Pump (Dia>6"-12")-04W Chks & 4 Weeks PM of Diesel Engine & EOT Crane and Hoist<br>Checklist for LP Water Pumps - PM of LP Water Pumps -4 Week Checks<br>1. First Obtain suitable permit to work.<br>2. General cleaning of equipment.<br>3. Tightening of all nuts & bolts.<br>4. Cleaning of filter, checking of oil level and top up if required.<br>5. Gland adjustment/replacement, if required.<br>6. Replacement/repair of ratchet pins & Gland<br>7. Greasing of bearings if required.<br>8. Check coupling gap & adjustment if required.<br>9. Check rubber spider and replace if required.<br><br>Check list for Diesel Engine (Fire Fighting Pump house) -PM of Diesel Engines 4 Weeks checks<br><br>1. First Obtain suitable permit to work.<br>2. Clean Air oil bath filter.<br>3. Check & arrest leakages in pipes hoses & joints.<br>4. Check & release air lock in fuel line.<br>5. Check coolant level in radiator.<br>6. Hand crank & Check freeness, coupling pad & gear.<br>7. Run & check water & oil pressure, temp., noise vibration & other abnormality.<br>8. Check oil level in crank case, governor & fuel tank and top up, if required.<br><br>Check list for EOT CRANE & GANTRY CRANE : PM of EOT & Gantry Cranes -4 Week Checks<br><br>1. First Obtain suitable permit to work.<br>2. Clean the crane, run it & check noise/any other abnormal sound.<br>3. Check oil level in gear boxes and top up, if required.<br>4. Check condition of wire rope and its clamp.<br>5. Check the functioning of brakes.<br>6. Check & tighten all nuts and bolts & check lubrication of wire rope.<br>7. Ensure greasing of all greasing points.<br>8. Check cable trolley and cable clamp fixing. |

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| 4 | LP WATER PUMP (DIA>12") 24WEEK CHECKS OR 24 WEEK CHECKS OF CRANES & HOIST OR CW BUTTERFLY VALVES<br>LP Water Pump (Dia>12") 24W Chks and 24 Week PM of Crane and Hoist and Butterfly valves.<br><br>Checklist for LP Water Pumps - 24 Weeks Checks Preventive Maintenance of LP Water Pumps<br><br>1. First Obtain suitable permit to work.<br>2. General cleaning of equipment.<br>3. Tightening of all nuts & bolts.<br>4. Cleaning of filter, checking of oil level and top up if required.<br>5. Gland adjustment/replacement, if required.<br>6. Replacement/repair of ratchet pins & Glands.<br>7. Replacement of Lube oil.<br>8. Inspect the coupling bushes and replace if required.<br>9. Check coupling gap & adjustment if required.<br>10. Check rubber spider and replace if required.<br><br>Check list for EOT Crane & Hoist -24 Weeks Checks Preventive Maintenance of EOT Cranes & Hoist<br><br>1. First Obtain suitable permit to work.<br>2. Clean the crane, run it & check noise/any other abnormal sound.<br>3. Check oil level in gear boxes and top up, if required.<br>4. Check condition of wire rope and its clamp.<br>5. Check the functioning of brakes.<br>6. Check & tighten all nuts and bolts & check lubrication of wire rope.<br>7. Ensure greasing of all greasing points.<br>8. Check cable trolley and cable clamp fixing.<br>9. Check foundation of main hoist/aux. hoist.<br>10. Check bearings for free movement & clearance etc.<br>11. Check condition of traveling wheels.<br><br>Check list for BUTTERFLY VALVE - 24 Weeks Checks<br><br>1. First Obtain suitable permit to work.<br>2. Gen. Cleaning & check the lube. in the V/V gear box.<br>3. Tightening of all nuts & bolts.<br>4. Check the mounting of V/V.<br>5. Inspect all gears of gear box and replacement of parts if required.<br>6. Replace grease of gear box.<br><br>NOTE: All activities in one type of weekly preventive maintenance schedule shall follow the sequence of all the activities in preceding type of weekly schedule. |
| 5 | LP WATER PUMP(DIA ≤ 6")-OVERHAULING<br>LP Water Pump (Dia ≤ 6")-Overhauling (Vertical and Horizontal pumps)<br>1. First Obtain suitable permit to work.<br>2. Ensure Electrical and C&I Connection are removed, power isolation done.<br>3. Decoupling and removal of motor safely.<br>4. Dismantling of all connection to the pump units.<br>5. Removal of thrust/radial bearing and packing box/gland box.<br>6. Dismantling the pump unit and all its internal parts.<br>7. Dismantling of pipe lines, valves, motor, motor skirt from the assembly & removal of pump internals Repairing and replacement of pump internal like line shafts, impeller shaft, impeller, bearings, sleeves coupling etc.<br>8. Inspection and rectification/replacement of all worn out parts.<br>9. Reassemble each part of the pumps one by one with precision, checking of pump internal clearance.<br>10. Setting of pump float and/or alignment of pump & motor (in case of horizontal pump) as per instruction of Engineer in-charge, and coupling of motor. Rotate the pump manually to check the freeness of impeller.<br>11. Trial run and commissioning of pump.<br>12. Painting of equipment including discharge pipe inside the wall etc.<br>13. Any other job not mentioned above but required to complete pump's overhauling will be in the scope of contractor. |

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| 6 | LP WATER PUMP (DIA>12") DECOUPLING/COUPLING/ALIGNMENT<br>LP Water Pump (Dia>12") Decpl/Cpl/Algn: (Other than CW Pump) size ≥12" : **Vertical & Harizontal Pumps.**<br>1. First Obtain suitable permit to work.<br>2. Decoupling and coupling of Pump & Motor as per instruction of EIC.<br>3. Removal of motor and placement as guided by EIC<br>4. Float setting as per instruction of EIC for Vertical Pumps.<br>5. Installation of Motor<br>5. Alignment of Pump& Motor.<br>6. Couple the pump and motor. Trails run of the pump and rectify defects, if any. As per EIC instructions. |
| 7 | LP WATER PUMP(DIA ≤ 6")-OIL FILLING/TOP UP<br>LUB. OIL TOPPING UP OR REPLACEMENT OF COMPLETE OIL:<br>1. First Obtain suitable permit to work.<br>2. Transportation of oil to work location<br>3. Topping up of oil to the required level.<br>4. Returning of empty drums to store.<br>5. Draining of oil in case of replacement.<br>6. Mech. cleaning of empty chamber for mechanical impurities.<br>7. Flushing of chamber.<br>8. Filling up of oil to the required level.<br>9. Arresting of any oil leakages from the chamber.<br>10. Clean all the oil spillage in and around area.<br>**Note: Oil top up shall be paid 0.25 BOQ & Oil Replacement Shall be paid 1 BOQ.** |
| 8 | LP WATER PUMP (GLAND) ATTENDING DEFECT<br>1. First Obtain suitable permit to work.<br>2. Tightening of gland nut to arrest the leakage.<br>3. Rechecking & Re-tightening of gland nut during pump running.<br>4. Gland Replacement:<br>5. Removal of complete old gland packing.<br>6. Cleaning of surface, grinding and removal of high points and machenening in contractor scope.<br>7. Tightening during pump running.<br>**Note: Gland Tightening will be paid 0.25 BOQ, Gland Replacement will be paid 1 BOQ** |
| 9 | LP VALVES/NRV(DIA ≤ 6")-REPLACEMENT<br>Replacement of V/V & NRV: (UPTO 150 MM DIA)<br>1. First Obtain suitable permit to work.<br>2. Helping OPGC Operation dept. during isolation and normalization of pipe lines as per site requirement.<br>3. Dismantling of valves/NRV and its internals.<br>4. Inspection & replacement of parts & gaskets etc.<br>5. Replacement of complete valve/NRV with gasket.<br>6. Isolation & normalization of lines, valves NRV as required.<br>7. Cutting, Welding & Grinding if required. |
| 10 | LP VALVES/NRV(DIA>6"-12")-REPLACEMENT<br>1. First Obtain suitable permit to work.<br>2. Helping OPGC Operation dept. during isolation and normalization of pipe lines as per site requirement.<br>3. Dismantling of valves/NRV and its internals.<br>4. Inspection & replacement of parts & gaskets etc.<br>5. Replacement of complete valve/NRV with gasket.<br>6. Isolation & normalization of lines, valves NRV as required.<br>7. Cutting, Welding & Grinding if required. |
| 11 | LP VALVES/NRV(DIA ≤ 6")-SERVICING<br>SERVICING/REPAIR OF GATE/BUTTERFLY/ GLOBE / BALL / HYDRANT VALVE.<br>1. Removal of actuators (in case of mot. operated valves.)<br>2. Removal of old gland packing, diaphragm, dismantling the bonnet/spindle/disc/seat is to be done as per requirement.<br>3. Complete servicing of the above components including blue matching.<br>4. Reassembly including replacement of new gasket/gland packing/diaphragm/rubber rings etc.<br>5. Checking for freeness of valve.<br>6. In case, the rectified valves do not work properly or hold pressure, contractor has to rectify the same free of cost. In case seat leak is not rectified, no payment will be made.<br>7. Spares, gasket, gland packing etc. will be provided by OPGC. |

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| 12 | LP VALVES(DIA>6"-12")-ATTENDING DEFECT<br>LP Valves (Dia>6"-12")-Attend Defect/FLANGE/VALVE GASKET REPLACEMENT.<br>1. First Obtain suitable permit to work.<br>2. Scope of work includes replacement of gasket, glands, studs, bolts<br>3. Dismantling of valve for any internal defects rectification<br>4. Helping OPGC Operation dept. during isolation and normalization of pipe lines as per site requirement.<br>OR<br>1. Servicing /repairing of GATE/BUTTERFLY/ GLOBE / BALL (Dia>6"-12")<br>2. Replacement of seal kits and reinstallation and checking of leakages after normalization. |
| 13 | LP VALVES (DELUGE VALVE) OPERATION/MAINTENANCE<br>1. First Obtain suitable permit to work.<br>2. Scope of work includes maintenance of Deluge valve and replacement of gasket and spares of the detection line, and resetting of the same.<br>3. Helping OPGC Operation dept. during isolation and normalization of pipe lines as per site requirement.<br>4. Cleaning of 'Y' strainer, replacement of new strainer & gasket if required as instructed by EIC.<br>5. Normalisation and attending any defects during the same. |
| 14 | FIRE FIGHTING SYSTEM (QBD FIRE SPRINKLER)<br>REPLACEMENT<br>1. First Obtain suitable permit to work.<br>2. Scope of work includes replacement of Spray nozzles, gasket less than 2" along with cutting, grinding and welding work as per instructions of Engineer-In-charge.<br>3. Helping OPGC Operation dept. during isolation and normalization of pipe lines as per site requirement.<br>Note: R**eplacement of QBD/ Gasket without cutting & welding will be measure as 0.5 qty. of BOQ** |
| 15 | UNDERGROUND LINES (DIA>6"-12") WELDING<br>1. First Obtain suitable permit to work.<br>2. Excavation/ Removal of concrete/ earth to attend the damage/defective pipe as per site condition.<br>3. Dewatering of leaked water by means of pump and/or manually.<br>4. Preparation of parent pipe, like removal of wrapping coating and mechanical cleaning.<br>5. Repair of leakages by welding and/or clamp fixing as per instruction of Engineer In charge<br>6. Welding of joints will be done by qualified and experienced welder.<br>7. After repair provide single coat of Pypkot Primer and single wrap of Pypkot corrosion resistant tape (To be supplied by contractor & is in Contractor's scope) around the replaced/repaired pipe. The removal of damage/defect wrapping & coating up to any length (As per site requirement) near leaked portion in excavated area will be in the contractor's scope.<br>8. Initial back filling by coarse sand up to approx. 300mm all around the replaced/repaired pipe.<br>9. Back filling by earth/ash available and or arrange extra earth/ash from the nearby area as indicated by OPGC EIC, transportation cost of extra earth shall be borne by the contractor.<br>10. Excess soil, if required, has to be shifted to other areas as per instruction of OPGC EIC.<br>11. Transportation of T&Ps & materials.<br>12. Helping OPGC Operation dept. during isolation and normalization of affected pipe lines as per site requirement.<br>13. Supply of coarse sand for back filling as per specification is in contractor's scope.<br>Note: **Priemer Paint, Corrosion resistance tape & wrapping coating materials up to required qty are included contractor scope. if the same to be arranged by OPGC actaul cost shall be recovered from contractor with by adding owner expenses plus material cost.** |

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| 16 | UNDERGROUND LINES (DIA>12") REPLACEMENT<br>1. First Obtain suitable permit to work.<br>2. Excavation work of earth work will be done by agency to attend the defect pipe as per site condition.<br>3. Preparation of parent pipe, like removal of wrapping coating and mechanical cleaning.<br>4. Repair of leakage by cutting, welding, and replacement of all sizes up to 350 NB pipeline. Inspection of welding joint and if required NDT to be performed as per instructions given by OPGC EIC.<br>5. Dewatering of leaked water by means of pump and/or manually.<br>6. Welding of joints will be done by qualified and experienced welder.<br>7. After repair provide single coat of Primer and single wrap of corrosion resistant tape (To be supplied by contractor & is in Contractor's scope) around the replaced/repaired pipe. The removal of wrapping & coating up to any length (As per site requirement) near leaked portion in excavated area will be in the contractor's scope.<br>8. Initial back filling by coarse sand up to approx. 300mm all around the replaced/repaired pipe.<br>9. Back filling by earth/ash available and or arrange extra earth/ash from the nearby area as indicated by OPGCs representative, transportation cost of extra earth shall be borne by the contractor.<br>10. Excess soil, if required, has to be shifted to other areas as per instruction of OPGC's representative.<br>11. Transportation of T&Ps & materials.<br>12. Helping OPGC Operation dept. during isolation and normalization of affected pipe lines as per site requirement.<br>13. Supply of coarse sand for back filling as per specification is in contractor's scope. |
| 17 | MILD STEEL PIPING (DIA≥6"-12") WELDING<br>A/G PIPE LINE LEAKAGE REPAIR BY WELDING ON THE EXISTING PIPE<br>1. First Obtain suitable permit to work.<br>2. Helping OPGC Operation dept. during isolation and normalization of pipe lines as per site requirement.<br>3. Identification, shifting of materails at job location, removal of damaged pipe by grinding/cutting.<br>4. Joint preperation, fitup and inspection of fitup joints & Welding of joints as per WPS and approved procedures.<br>5. Cleaning of weld joint and NDT testing if required as per EIC instructions & checking of leakages after charging.<br>6. Clamp preperation & clamp fixing for leakages by online and arresting leakages at various sizes as instructed by EIC.<br>Note:<br>**1. Welding below 6" of pipe will be counted as 0.5 qty of BOQ above 6 Inch**<br>**2. Clamp fixing for below 6 Inch counted as 0.25 BOQ and above 6 Inch to be counted as 0.5 BOQ.** |
| 18 | MILD STEEL PIPING (DIA≤ 6") LAYING<br>LAYING OF PIPE LINE (ABOVE GROUND): (UPTO 150 MM DIA)<br>1. First Obtain suitable permit to work.<br>2. Shifting of pipe of required size from store to site.<br>3. Laying of pipe line, welding of pipe/flanges & gaskets, nuts & bolts tightening etc after proper alignment of pipes.<br>4. Any cutting, welding & grinding work.<br>5. Fabrication and erection of pipe bends and supports, if required, will be in the scope of this BOQ. The contractor will be paid @ per meter length of pipe only. |
| 19 | MILD STEEL PIPING (DIA>6"-12") LAYING<br>LAYING OF PIPE LINE (ABOVE GROUND): (Above 150-300 MM DIA)<br>1. First Obtain suitable permit to work.<br>2. Shifting of pipe of required size from store to site.<br>3. Laying of pipe line, welding of pipe/flanges & gaskets, nuts & bolts tightening etc after proper alignment of pipes.<br>4. Any cutting, welding & grinding work.<br>5. Fabrication and erection of pipe bends and supports, if required, will be in the scope of this BOQ. The contractor will be paid @ per meter length of pipe only. |

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| 20 | BUTTERFLY VALVE VALVE G/B SER 800-1600NB<br>Replacement & servicing of Gear Box (B.F. Valve)Size 800mm - 1600mm :<br>1. First Obtain suitable permit to work. Disconnecting of gear box from the B.F valve.<br>2. Complete servicing of gear box & repair/replacement of gear box internals as per instruction of Engineer-In-charge.<br>3. Replacement of gear box on the B.F valve, if required.<br>4. Repairing of damaged gear box and internal replacement, checking and readiness for usage.<br>5. Removal of damaged parts from location and cleaning and stacking at designated location as per EIC.<br>**Note: Gear Box work excecuted below 800mm sizes will be counted as 0.5 qty of BOQ** |
| 21 | BUTTERFLY VALVE VALVE G/B SER 2200-2700NB<br>Replacement & servicing of Gear Box 1800 to 2700 NB<br>1. First Obtain suitable permit to work. Disconnecting of gear box from the B.F valve.<br>2. Complete servicing of gear box & repair/replacement of gear box internals as per instruction of Engineer-In-charge.<br>3. Replacement of gear box on the B.F valve, if required.<br>4. Repairing of damaged gear box and internal replacement, checking and readiness for usage.<br>5. Removal of damaged parts from location and cleaning and stacking at designated location as per EIC. |
| 22 | BUTTERFLY VALVE SEAL REPLACEMENT 450-1000MM<br>1. First Obtain suitable permit to work.Opening of manholes or dismantling of valve as required<br>2. Inspection, removal of existing damaged seal ring, cleaning and replacement of new sealing ring.<br>3. Preperatotory arrangements for removal of valve & if required any cutting of pipe, duct and welding of duct is included in the scope of work.<br>4. Required testing and inspection of welding joints also to be done as per EIC instructions.<br>5. Check for passing after duct charging and adjustment of seal ring if required.<br>Note: **Seal replacement of less than 450mm valve will be counted as 0.5qty of BOQ. Quantities related to Cutting of pipe/duct & fitup and welding are paid as per piping BOQ or as decidided by OPGC EIC.** |
| 23 | AIR RELEASE VALVE - ATTEND DEFECT<br>1. Preperatory arrangements and required scaffolding installation, dismantling of valves.<br>2. Replacement of damage/defec parts.<br>3. Removal of debris and cleaning of mating parts and removal of high points & blurrs, fixing of new gaskets.<br>4. Installation valve assembly and release for normal operation. check and attend the defects if any after charging.<br>**Note: ARV sizes up to 50 NB to be paid as 0.5 BOQ & above 100 NB, quantity will paid as 1 BOQ..** |
| 24 | CW/RW COARSE SCREEN CLEANING/INSPECTION<br>1. Preperatory arrangements for lifting of sceen, Obtain suitable permit to work.<br>2. Installation of Gate & Lifting of complete trash racks from location by Gantry crane.<br>3. Cleaning of coarse screen with high pressure water and repair of any damged mesh and readiness for fixing.<br>4. In case of non-availability of Gantry crane Contractor has to make their own arrangement.<br>5. Disposal of extracted materials to a suitable dumping location as per instruction of EIC. |
| 25 | DUCT (CW SYSTEM) CLEANING/INSPECTION<br>1. First Obtain suitable permit to work.transportation of pump from store to site.<br>2. Opening of manholes/inspection window of inlet & outlet ducts including intermediate manholes.<br>3. Installation of de-watering pumps in C.W. duct manhole and de-watering the duct.<br>4. Cleaning & removal of debris from inside the pipe and transportation of debris to designated location.<br>4. Internal inspection, fixing of manholes cover with new gaskets, nuts, bolts, etc.<br>5. Re shifting of pump from one manhole to other manhole for de-watering.<br>6. Person to be detained for night long de-watering of ducts.<br>7. Transportation of pump from site to store.<br>8. Cleaning of work location and disposal of scrap/debris. |

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| 26 | HT MOTORS INSTALLATION & REMOVAL (CW Motor & other HT Motors)<br>1. First Obtain suitable permit to work. Preperatory arrangement for lifting of motor from base.<br>2. Removal of top cover, removal of Lub. water lines, removal of lockining nut, decoupling of motor, marking & record any control dimensions during decoupling.<br>3. Decoupling of motor from the pump and shifting as per instruction of EIC.<br>4. Inspection coupling faces and rectification of any defects in coupling,Placing of motor on the pump base/ motor stool.<br>5. Alignment of Pump with motor and checking of DOR, obtain the clerance for Coupling.<br>6. Float setting and Coupling assembly fixing . Installation of top cover and check the gasket condition and replace if required. Removal & mounting of motor coupling half, if required.<br>7. Normalisation of Lube & water lines, cleaning of mating surfaces, repair if any abnormalities and installation of piping with new gaskets. Fixing of jholy at NRR location.<br>8. Checking of NRR Pins & tightness checking, Oil top up if required in NRR.<br>9. Trail operation and if found and attend any defects during trail.<br>10. Area cleaning and removal of unwanted materils. |
| 27 | FIRE SYSTEM (ALARM GANG BELL) REPAIR<br>1. First Obtain suitable permit to work.<br>2. Open the bell cover and completely dismantle all components and clean. Open the line and flush the system. Normalization and checking<br>3. Inspection of strainer in the line clean and repair/replacement if required. |
| 28 | STRAINER CLEANING UP TO 2"<br>Inspection/Cleaning/Repair/Replacement of Filter & Strainer up to 2 Inch<br>1. First Obtain suitable permit to work.<br>2. Ensure the isolation of strainer/ filter, drain the filler from the system.<br>3. Removal of cover and checking of strainer/ filter condition, repair, clean, rectification defects.<br>4. Cleaning of mating area and repair and rectification if any high points and ensure smoothness.<br>5. Replacement of new/ repaired strainer/filter and closing of cover with new gasket and bolts.<br>6. Normalisation of the system and charging of line, attend any defects after charging. |
| 29 | STRAINER CLEANING ABOVE 2"-4"<br>Inspection/Cleaning/Repair/Replacement of Filter & Strainer 2" to 4"<br>1. First Obtain suitable permit to work.<br>2. Ensure the isolation of strainer/ filter, drain the filler from the system.<br>3. Removal of cover and checking of strainer/ filter condition, repair, clean, rectification defects.<br>4. Cleaning of mating area and repair and rectification if any high points and ensure smoothness.<br>5. Replacement of new/ repaired strainer/filter and closing of cover with new gasket and bolts.<br>6. Normalisation of the system and charging of line, attend any defects after charging. |
| 30 | STRAINER CLEANING ABOVE4"-10"<br>Inspection/Cleaning/Repair/Replacement of Filter & Strainer 4" to 10"<br>1. First Obtain suitable permit to work.<br>2. Ensure the isolation of strainer/ filter, drain the filler from the system.<br>3. Removal of cover and checking of strainer/ filter condition, repair, clean, rectification defects.<br>4. Cleaning of mating area and repair and rectification if any high points and ensure smoothness.<br>5. Replacement of new/ repaired strainer/filter and closing of cover with new gasket and bolts.<br>6. Normalisation of the system and charging of line, attend any defects after charging.<br>7. If the strainer is in built in the equipment/system, clean the filter in position as per EIC instructions. |
| 31 | STRAINER CLEANING ABOVE 10"DIA<br>Inspection/Cleaning/Repair/Replacement of Filter & Strainer above 10"<br>1. First Obtain suitable permit to work.<br>2. Ensure the isolation of strainer/ filter, drain the filler from the system.<br>3. Removal of cover and checking of strainer/ filter condition, repair, clean, rectification defects.<br>4. Cleaning of mating area and repair and rectification if any high points and ensure smoothness.<br>5. Replacement of new/ repaired strainer/filter and closing of cover with new gasket and bolts.<br>6. Normalisation of the system and charging of line, attend any defects after charging.<br>7. If the strainer is in built in the equipment/system, clean the filter in position as per EIC instructions. |

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| 32 | COUPLING INSPECTION FOR VERTICAL PUMP<br>1. First Obtain suitable permit to work.<br>2. Decouple the pump and motor & measure the control dimensions during dismantling.<br>3. Inspection of all parts of couplings including coupling faces and fasteners and rectification/replacement of defective parts if any as per EIC instructions.<br>4 . Alignment after placing of motor. Couple the pump and motor. Trails run of the pump and rectify defects, if any. As per EIC instructions |
| 33 | LP WATER PUMP ALINGMENT/COUPLING/DECOUPLING INSP DIA≤12"<br>1. First Obtain suitable permit to work.<br>2. Decoupling and coupling of Pump & Motor as per instruction of EIC.<br>3. Removal of motor and placement as guided by EIC<br>4. Measure & setting of control dimensions as per instruction of EIC incase of Vertical Pumps.<br>5. Alignment of Pump & Motor<br>6. Couple the pump and motor. Cleaning of equipments and clearnace for trail operation.<br>7. Trails run of the pump and rectify defects, if any. As per EIC instructions. |
| 34 | EXPANSION JOINT REPLACEMENT CW/RW PUMPS<br>1. Locking of expansion bellow and record the clerances and gap.<br>2. Preparoty arrangements for rubber expansion bellow removal and arrangement of any plotform if required as per EIC instructions.<br>3. Losening and removal of flange bolts of both side flange bolts.<br>4. Removal of damaged rubber expansion bellow, cleaning of joint surfaces and removal of any high points and repairing of any ovality etc..<br>5. Installation of new expansion bellow & Tightening of both side flange bolts.<br>6. Checking for leakage after charging . Releasing of locking arrangement.<br>**Note: For RW and other pump BOQ qty. will be measured 0.5 of the BOQ qty.** |
| 35 | LP WATER PUMP (DIA>12") 12WEEK CHECKS<br>LP Water Pumps Preventive Maintenance Checks -12 Weeks .<br>1. Check the condition of Gland/mechanical seal, adjustment replace/repack seal & arrest all leakages<br>2. Clean suction/discharge filter, lubricant bearings & oil top up.<br>3. Tighten foundation bolts, inspection of coupling condition & coupling bolts, replacement of bolts, spider, coupling if required as per EIC instructions.<br>4. General cleaning of equipments, check freeness, alignment of couplings.<br>5. Any other defects /observation shall be rectified as per manual or as guided by EICs |
| 36 | LP WATER PUMP (DIA>12") 24WEEK CHECKS<br>LP Water Pumps Preventive Maintenance Checks -24 Weeks .<br>1. Obtain the permit, check the abnormalities of pumps.<br>2. Check the condition of gland and mechanical seal gland adjustment, replace/repack seal & arrest all leakages.<br>3. Clean suction/discharge filter,lubricant bearings & oil top up.<br>4. Tighten foundation bolts, inspection of coupling condition & coupling bolts, replacement of bolts, spider, coupling if required as per EIC instructions.<br>5. General cleaning of equipments, check freeness, alignment of couplings.<br>6. Any other defects /observation shall be rectified as per manual or as guided by EICs |
| 37 | HP WATER PUMP (DIA>6"-12") 12WEEK CHECKS<br>1. Obtain the permit, check the abnormalities of Pumps.<br>2. Check the condition of gland and mechanical seal gland adjustment, replace/repack seal & arrest all leakages.<br>3. Clean suction/discharge filter,lubricant bearings & oil top up.<br>4. Tighten foundation bolts, inspection of coupling condition & coupling bolts, replacement of bolts, spider, coupling if required as per EIC instructions.<br>5. General cleaning of equipments, check freeness, alignment of couplings.<br>6. Any other defects /observation shall be rectified as per manual or as guided by EICs |

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| 38 | HP WATER PUMP (DIA>6"-12") 24WEEK CHECKS<br>1. All activities of 12 week checks<br>2. Attending defects of all associated piping/ NRVs and valves. |
| 39 | LP WATER PUMP (DIA>6"-12") 12WEEK CHECKS<br>LP Water Pumps Preventive Maintenance Checks -12 Weeks .<br>1. Check the condition of Gland/mechanical seal, adjustment replace/repack seal & arrest all leakages<br>2. Clean suction/discharge filter, lubricant bearings & oil top up.<br>3. Tighten foundation bolts, inspection of coupling condition & coupling bolts, replacement of bolts, spider, coupling if required as per EIC instructions.<br>4. General cleaning of equipments, check freeness, alignment of couplings.<br>5. Any other defects /observation shall be rectified as per manual or as guided by EICs |
| 40 | LP WATER PUMP (DIA>6"-12") 24WEEK CHECKS<br>LP Water Pumps Preventive Maintenance Checks -24 Weeks .<br>1. Check the condition of Gland/mechanical seal, adjustment replace/repack seal & arrest all leakages<br>2. Clean suction/discharge filter, lubricant bearings & oil top up.<br>3. Tighten foundation bolts, inspection of coupling condition & coupling bolts, replacement of bolts, spider, coupling if required as per EIC instructions.<br>4. General cleaning of equipments, check freeness, alignment of couplings.<br>5. Any other defects /observation shall be rectified as per manual or as guided by EICs<br>6. Attending defects of all associated piping/ NRVs and valves. |
| 41 | WTP/ETP/PTP AGITATORS 12WEEK CHECKS<br>Preventive Maintenance Checks of Agitators -12 Week Checks<br>1. Preventive maintenance checks as per approved list given by OEM of respective Agitator<br>2. Check / arrest leakage in gear box and top up oil if required.<br>2. Tighten coupling bolts and other fasteners. |
| 42 | WTP/ETP/PTP AGITATORS 24WEEK CHECKS<br>Preventive & Corrective Maintenance Checks of Agitators -24 Week Checks<br>1. Activities of 12 weekly P.M. as per OPGC standard Check list.<br>2. Inspect blades, rectify damage and tighten the holding bolts.<br>3. Check lower bush if agitators in line tank.<br>4. Check and attend plumber block in flash mixer. |
| 43 | BLOWER/FAN (≤25KW) 12WEEK CHECKS<br>Preventive Maintenace checks of Blower/Fans- 12 week Checks<br>1. Inspection of physical condition blower, check belt tightness, pulley mounting etc.<br>2. Attending defects of loosness and any abnormalities in Blower/Fans.<br>3. General cleaning, Bearings lubrication, and check for material failure.<br>4. Removal of Fan hood bolts and high pressure air/water jet cleaning of Fiters. |
| 44 | BLOWER/FAN (≤25KW) 24WEEK CHECKS<br>1. Activities of 12 weekly P.M.<br>2. Inspection of impeller, fasteners, foundation bolts & alignment.<br>3. Suction filters cleaning. |
| 45 | CLARIFIER RAKE ARM/TURBINE DRIVE 12 week checks<br>1. First Obtain suitable permit to work.<br>2. Check all gear box and motors are properly covered and rectify.<br>3. Check noise, vibration and oil level in gear box and rectify.<br>4. Check chain tightness & sprocket and rectify.<br>5. Check cleaning, bearing temperature, material failure etc and rectify. |

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| 46 | CLARIFIER RAKE ARM/TURBINE DRIVE 24 week checks<br>1. Activities of 12 weekly P.M.<br>2. Operational check and alignment of agitators.<br>3. Check for freeness & service all sluice gates in the system and painting of gates as per requirement.<br>4. Tighten all foundation bolts and other fasteners. |
| 47 | INSPECTION OF EOT/HOIST UP TO 55 TONS<br>1. First Obtain suitable permit to work.<br>2. Checking & tightening of all nuts & bolts and replacement if required.<br>3. Checking, reporting and repair of structure, beam/column.<br>4. Oil/grease checking & replacement.Checking of rope condition and application of cadmium compound.<br>5. Checking and maintenance of all gear boxes, pulleys, chain mountings and chains.<br>6. Checking and tightening of brakes as per requirement, replacement of brake shoe if required.<br>7. Checking and maintenance of coupling, coupling bolts, bush, shaft etc.<br>8. Checking and maintenance of all wheels and its bearing/bushes.<br>9. Checking and maintenance of rail on which EOT crane travel.<br>10.Checking and maintenance of cable guide and tray.<br>11.Repair and replacement of any part, if required.<br>12.Checking, maintenance and replacement of rope, hook and other allied lifting parts of the EOT crane. |
| 48 | ATTENDING DEFECTS/LEAKS IN CL2 PLANTS<br>1. Obtain Permit to work. Inspection system for proper isolation and removal chlorine gas.<br>2. Inspection and attending the defects in chlorinator, gas line,water line flange leakages<br>3. Servicing and replacement of chlorine Ejectors<br>4. Repair and servicing of Vaporisers/ Evaporators<br>5. Replacement of lead Gaskets/Orings and diaphragms etc.. as instructed by EIC.<br>6. Repair and rectification of defects in chlorination system valves/nrvs and replacement if required.<br>7. Repair & rectification of chlorination defects which are not mentioned and as instructed by OPGC EIC. |
| 49 | PIT/ SUMP/TANK CLEANING<br>1. First Obtain suitable permit to work.<br>2. Work includes removal of pump from pit, cleaning /removal of debris from pit & P/P inside & outside<br>3. Putting back pump in pit and fixing of Guide wire rope, discharge flange coupling D-Shackle replacement of rubber<br>gasket, oil etc. and reinstallation of pump set with discharge pipe.<br>4. Also removal of sludge from pit & disposal from site. or<br>5. Servicing of pit/sump pumps |
| 50 | MSRL PIPE (100NB) REPLACEMENT<br>1. First Obtain suitable permit to work.<br>2. Marking of system, checking of availability of materils, measurement of piping length.<br>3. Opening/cutting of bolts from flanges if found rusted and replacement of pipes and fittings by new one and reassemble the system.<br>3. Inspection of system after replacement and defects if any during charging.<br>4. Assistance for rubber lining team at site during repair.<br>5. Painting of pipe with one coat of primer and enamel/epoxy paint as per requirement. |
| 51 | MS PIPING (DIA>6"-12") REPLACEMENT<br>1. First Obtain suitable permit to work.<br>2. Marking cutting and preperation of piping as per site requirement.<br>3. Removal of existing damaged piping or as per EIC instruction, piping to be removed by grinding and approved procedure.<br>4. Work includes opening/cutting of bolts from flanges/replacement of pipes and fittings by new one and reassemble the system.<br>5. Pipe fitup/Inspection and welding and required NDT testing.<br>6. Inspection of system after charging and attend defects if any.<br>7. Painting of pipe with one coat of primer and enamel/epoxy paint as per requirement. |

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| 52 | VESSEL OVERHAULING MB/SAC/SBA/CRU/CPU<br>1. First Obtain suitable permit to work.<br>2. Job to be carried out as per the instructions of Engineer-in-charge.<br>3. Manholes of vessel to be removed.<br>4. Removal of resin from vessel.<br>5. Internal inspection, damage/defec nozzles, grommets and other internals to be replaced.<br>6. If any modification required inside the vessel during inspection shall be done as per instructions of EIC<br>7. Refilling of resin and normalisation of the system. Area cleaning & removal all materails from work location.<br>8. Job will be considered complete if at the time of back washing of ion exchanger, resin done not come out. |
| 53 | LP VALVES (DIA≤6") REPAIR<br>Servicing/Repair of valve up to 6" size<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet bolts and remove the yoke/ bonnet etc from valve body.<br>5. Remove spindle with disc from valve body.<br>6. Clean the components, lap disc, seat, back seat etc as per requirement.<br>7. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>8. Inspect gland bush area and rectify if any high point or marking found over it.<br>9. Assemble the components with new / repaired items, packing, gaskets etc as per requirement.<br>10. Locking of bonnet by welding.<br>11. Install the actuator and coupled with valve shaft.<br>12. Check freeness, charge the system and attend defects if any. |
| 54 | LP VALVES (DIA>6"-12") REPAIR<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet bolts and remove the yoke/ bonnet etc from valve body.<br>5. Remove spindle with disc from valve body.<br>6. Clean the components, lap disc, seat, back seat etc as per requirement.<br>7. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>8. Inspect gland bush area and rectify if any high point or marking found over it.<br>9. Assemble the components with new / repaired items, packing, gaskets etc as per requirement.<br>10. Locking of bonnet by welding.<br>11. Install the actuator and coupled with valve shaft.<br>12. Check freeness, charge the system and attend defects if any. |
| 55 | LP VALVES (DIA>12") REPAIR<br>1. Remove electrical/ manual actuator from position as per requirement.<br>2. Remove working nut bearing, loosen working nut etc as per requirement.<br>3. Cutting of welding lock of bonnet by grinder if required.<br>4. Loosen bonnet bolts and remove the yoke/ bonnet etc from valve body.<br>5. Remove spindle with disc from valve body.<br>6. Clean the components, lap disc, seat, back seat etc as per requirement.<br>7. Check the disc, seat & plug areas for erosion and repair the erosion / defects by welding & grinding, lapping & blue<br>matching as per requirement.<br>8. Inspect gland bush area and rectify if any high point or marking found over it.<br>9. Assemble the components with new / repaired items, packing, gaskets etc as per requirement.<br>10. Locking of bonnet by welding.<br>11. Install the actuator and coupled with valve shaft.<br>12. Check freeness, charge the system and attend defects if any. |

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| 56 | LP VALVES (DIA≤6") REPLACEMENT<br>Replacement of Valves up to 6"<br>1. Cut the defective valve from position by using hacksaw or grinding machine as per requirement.<br>2. Thoroughly clean the valve by using compressed air etc, prepare edges etc. as per requirement.<br>3. Fit the valve new/ repaired in position and weld it after cleaning Butt/socket ends as per requirement.<br>4. Charge the system and attend defects if any.<br>5. NDT requirement if any will be in contractors scope |
| 57 | LP VALVES (DIA>6"-12") REPLACEMENT<br>Replacement of Valves from 6" to 12"<br>1. Cut the defective valve from position by using hacksaw or grinding machine as per requirement.<br>2. Thoroughly clean the valve by using compressed air etc, prepare edges etc. as per requirement.<br>3. Fit the valve new/ repaired in position and weld it after cleaning Butt/socket ends as per requirement.<br>4. Charge the system and attend defects if any.<br>5. NDT requirement if any will be in contractors scope |
| 58 | LP VALVES(DIA>12")-REPLACEMENT<br>1. Cut the defective valve from position by using hacksaw or grinding machine as per requirement.<br>2. Thoroughly clean the valve by using compressed air etc, prepare edges etc. as per requirement.<br>3. Fit the valve new/ repaired in position and weld it after cleaning Butt/socket ends as per requirement.<br>4. Charge the system and attend defects if any.<br>5. NDT requirement if any will be in contractors scope |
| 59 | LP WATER PUMP (DIA>6"-12") DECOUPLING/COUPLING/ALINGMENT<br>1. De-couple motor from pump, remove coupling bolts, bushes etc.<br>2. Align motor with pump up to design value or specified by EIC or site engineer.<br>3. Couple motor with pump after necessary replacement of worn out parts of coupling bolts, spider, bush etc and torque tighten coupling bolts as per requirement.<br>4. Take trail and attend defects, if any. |
| 60 | PAINTING OF PIPE/VALVES/TANK WTP<br>1. First Obtain suitable permit to work.<br>2. Painting of pipe lines, valves, vessels and tanks, pump/ pump body and all other equipments wherever necessary in water treatment plant includes thorough cleaning of surface to be painted, shifting of paints and other material from store to site applying one coat of paints and one coat of primer wherever necessary. |
| 61 | LP WATER PUMP(DIA>12")-OVERHAULING<br>Servicing of Vertical Turbine/Centrifugal/Horizontal pumps<br>1. Ensure PTW<br>2. Ensure Electrical & C&I Connection are removed, power isolation done<br>3. Decoupling and removal of motor safely.<br>4. Dismantling of all connection to the pump units.<br>5.Removal of thrust/radial bearing and packing box/gland box.<br>6. Dismantling the pump unit and all its internal parts.<br>7. Cleaning of all Internal parts and mating surfaces.<br>8. Measuring and recording of all required clearances and preparation of protocols.<br>9. Inspection and rectification/replacement of all worn out parts.<br>10. Any fixture for executing the job shall be made by contractor<br>11. Assembly of pump unit, coupling and alignment as per O&M manual or as directed by EIC |
| 62 | HP WATER PUMP (DIA>6"-12") OVERHAULING<br>Servicing of Vertical Turbine/Centrifugal/Horizontal pumps<br>1. Ensure PTW<br>2. Ensure Electrical & C&I Connection are removed, power isolation done<br>3. Decoupling and removal of motor safely.<br>4. Dismantling of all connection to the pump units.<br>5.Removal of thrust/radial bearing and packing box/gland box.<br>6. Dismantling the pump unit and all its internal parts.<br>7. Cleaning of all Internal parts and mating surfaces.<br>8. Measuring and recording of all required clearances and preparation of protocols.<br>9. Inspection and rectification/replacement of all worn out parts.<br>10. Any fixture for executing the job shall be made by contractor<br>11. Assembly of pump unit, coupling and alignment as per O&M manual or as directed by EIC |

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| 63 | LP WATER PUMP(DIA>6"-12")-OVERHAULING<br>Servicing of Vertical Turbine/Centrifugal/Horizontal pumps<br>1. Ensure PTW<br>2. Ensure Electrical & C&I Connection are removed, power isolation done<br>3. Decoupling and removal of motor safely.<br>4. Dismantling of all connection to the pump units.<br>5.Removal of thrust/radial bearing and packing box/gland box.<br>6. Dismantling the pump unit and all its internal parts.<br>7. Cleaning of all Internal parts and mating surfaces.<br>8. Measuring and recording of all required clearances and preparation of protocols.<br>9. Inspection and rectification/replacement of all worn out parts.<br>10. Any fixture for executing the job shall be made by contractor<br>11. Assembly of pump unit, coupling and alignment as per O&M manual or as directed by EIC |
| 64 | AGITATORS WTP/ETP/PTP OVERHAULING<br>1. Dismantling of gear box assembly. Repairing and replacement of internal like bearings, gear & shaft.<br>2. Re-assemble each part of gear box one by one with precision, checking of internal clearances. Rotate the gear box shaft manually to check the freeness of gears.<br>3. Check and rectify the defects in supporting structure<br>4. Inspect bearings and change .<br>5. Trial run of agitator.<br>6. Painting of equipment and accessories. |
| 65 | BLOWER/FAN (<=25KW) OVERHAULING<br>1. Dismantling of casing, removal of impeller assembly. Repairing and replacement of blower internals like impeller shaft, impeller, bearings, and sleeves. Servicing/replacement of valves, NRV.<br>2. Re-assemble each part of the blower one by one with precision, checking of blower internal clearances, setting of pressure relieve valve as per instruction of manufacturer and coupling of motor.<br>3. Rotate the blower manually to check the freeness of impeller.<br>4. Support during insitu balancing if required at site.<br>4. Trial run and commissioning of blower. |
| 66 | HIGH RATE SOLID CONTACT CLARIFIER DMPT OVERHAULING<br>1. Inspect of central pivot bearing<br>2. Complete overhaul of gear boxes.<br>3. Dewater and clean sludge from floor, arm drives<br>4. Anti rust coating & touch up painting.<br>5. Trial run and commissioning of clarifier<br>6. Transportation of dewatering pumps, lowering of pumps in CCF, dewatering of water from basin, removal of mud<br>etc., scrapping of metal parts and walls inside the CCF. Mud / Sludge to be disposed at a specified area.<br>7. Overhauling of all equipment, gear boxes and painting of structures with epoxy paint as per requirement. |
| 67 | HIGH RATE SOLID CONTACT CLARIFIER CTBD OVERHAULING<br>1. Inspect of central pivot bearing<br>2. Complete overhaul of gear boxes.<br>3. Dewater and clean sludge from floor, arm drives<br>4. Anti rust coating & touch up painting.<br>5. Trial run and commissioning of clarifier<br>6. Transportation of dewatering pumps, lowering of pumps in CCF, dewatering of water from basin, removal of mud<br>etc., scrapping of metal parts and walls inside the CCF. Mud / Sludge to be disposed at a specified area.<br>7. Overhauling of all equipment, gear boxes and painting of structures with epoxy paint as per requirement. |
| 68 | MILD STEEL PIPING (DIA≤6") LAYING<br>1. First Obtain suitable permit to work.<br>2. Work includes shifting of pipe from store, ERW pipe line cleaning, gasket making, fabrication of bends, fittings, flange, welding and laying of pipe, fitup and and welding as per drawings and after completion, NDT testing if required, Hydro test of pipe as suggested by EIC.<br>3. Painting of pipe with one coat of primer and enamel /epoxy paint.<br>4. Shifting of old scrape pipeline to scrape yard. |

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| 69 | MILD STEEL PIPING (DIA>6"-12") LAYING<br>1. First Obtain suitable permit to work.<br>2. Work includes shifting of pipe from store, ERW pipe line cleaning, gasket making, fabrication of bends, fittings, flange, welding and laying of pipe, fitup and and welding as per drawings and after completion, NDT testing if required, Hydro test of pipe as suggested by EIC.<br>3. Painting of pipe with one coat of primer and enamel /epoxy paint.<br>4. Shifting of old scrape pipeline to scrape yard. |
| 70 | MILD STEEL PIPING (DIA>12") LAYING<br>1. First Obtain suitable permit to work.<br>2. Work includes shifting of pipe from store, ERW pipe line cleaning, gasket making, fabrication of bends, fittings, flange, welding and laying of pipe, fitup and and welding as per drawings and after completion, NDT testing if required, Hydro test of pipe as suggested by EIC.<br>3. Painting of pipe with one coat of primer and enamel /epoxy paint.<br>4. Shifting of old scrape pipeline to scrape yard. |
| 71 | STAINLESS STEEL LINE (≤ 6") LAYING<br>1. First Obtain suitable permit to work.<br>2. Work includes shifting of pipe from store, SS pipe line cutting by grinding, gasket making, fabrication of bends, fittings,flange, joint fitup, welding of piping by recomended procedure with approved electrodes and approved procedure. Proper purging to be ensured during welding, Root Welding to be done by TIG process.<br>3. NDT testing, Hydro test and laying of pipe and welding as per drawings and after completion.<br>4. Shifting of old scrape piping and unwanted debris from site to designated scrap yard locations and stores.<br>5. Painting of the system as per EIC instructions and recomendation. |
| 72 | STAINLESS STEEL LINE DIA>6"-12"LAYING<br>1. First Obtain suitable permit to work.<br>2. Work includes shifting of pipe from store, SS pipe line cutting by grinding, gasket making, fabrication of bends, fittings,flange, joint fitup, welding of piping by recomended procedure with approved electrodes and approved procedure. Proper purging to be ensured during welding, Root Welding to be done by TIG process.<br>3. NDT testing, Hydro test and laying of pipe and welding as per drawings and after completion.<br>4. Shifting of old scrape piping and unwanted debris from site to designated scrap yard locations and stores.<br>5. Painting of the system as per EIC instructions and recomendation. |
| 73 | TPI/API SERVICING/OVERHAULING<br>1. Obtain PTW<br>2. Arrangement for deawterung if required<br>3. Cleaning and thoroughly inspection of TPI/API and repair/rectification if required as per OEM manual or as guided by EIC.<br>4. Trial run and assistance |
| 74 | HYDRANT VALVE REPAIRING<br>1. Dismantle the hydrant valve, check and replace the diaphragm and other internal parts as required and assy as per manual and as guided by EIC<br>2. Repair and rectification of mating parts by grinding if required.<br>3. New seal kit installation and stacking of valves with proper identification and marking at designated location.<br>4. Area cleaning removal of debris from site. |
| 75 | BLOWER/FAN - BEARING REPLACEMENT<br>1. Loosen the fasteners of fan support and connecting flanges .<br>2. Decouple motor from fan, decoupling and dismantling of blower/compressors and bearings.<br>3. Inspect and replace all worn out bearings and check the freeness after replacement.<br>4. Alignment and final assembly if any.<br>5. Normalize the connection with the connecting flanges.<br>6. Take trail and attend defects, if any. |

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| 76 | BLOWER/FAN (DRIVE BELT) REPLACEMENT<br>1. Work is to be carried out as per the instructions of Engineer-in-charge.<br>2. Removing of V-belt and other accessories like suction filter, pressure gauge etc, as first step towards total dismantling.<br>3. Replacement of damage belts by new one.<br>4. Check the condition of Pulley hub and do the rectification if required.<br>5. Job will be considered completed after successful trial run. |
| 77 | PVCU/CPVC PIPE - FABRICATION<br>1. Job to be carried out as per the instruction of Engineer-in-in charge.<br>2. Work is to be completed within given period of time.<br>3. All damaged water/chemical/air line, as asked by Engineer-in-charge has to be replaced by new line.<br>4. All pipes and fittings like reducer, tee, elbow, plug etc. will be provided free of cost.<br>5. Threading machine and thread sealing compound has to be arranged by the contractor at his own expenses.<br>6. Payment will be made on the actual number of joints.<br>7. It is be ensured that there should be no leakage through the joints.<br>8. Job will be considered complete only after the successful trial operation of the lines.<br>Note:<br>1. **Executing above jobs for one pipe/ flange of diameter up to 80 NB only & will be measured as 01 unit.**<br>**2. Executing above jobs for one pipe/ flange of diameter above 80 to 200 NB will be measured 1.5 qty. of BOQ.**<br>**3.Executing above jobs for one pipe/ flange of diameter above 200 NB will be measured 2 qty. of BOQ.** |
| 78 | LP PUMP DIA>6"-12"MECH SEAL/BRG/COUPLING INSPECTION<br>1. After handing over PTW by EIC remove coupling guard and decouple pump from motor.<br>2. Take out bearing/ mechanical seal/ oil seal.<br>3. Clean and inspect bearing housing/ mechanical seal housing/ oil seal housing.<br>4. Replace bearing/ mechanical seal/ oil seal.<br>5. Assemble the dismantled components.<br>6. Couple the pump shaft/ gear shaft with motor after doing alignment radially and axially with the help of dial gauge.<br>7. Re-fix coupling guard, take satisfactory trial run and inform area engineer.<br>Note:<br>**1. Replacement work of all required mechanical seals of one equipment will be measured as one unit. Up to size of 100 NB shaft size pump 01 qty will be measured & for above 100 NB shaft dia. 02 qty will be paid.**<br>**3. Coupling Inspection and rectification defects in coupling/ replacement of spider/coupling & alignment will be paid as 0.5 BOQ.** |
| 79 | RECIPROCATING PUMP - OVERHAULING<br>1. Proper protective equipment should be worn to prevent contact with the fluid in the pump or pipeline.<br>2. Decoupling and dismantling of pump liquid and drive end parts, gear box, NRVs etc.<br>3. Inspect and replace all worn out parts, diaphragm, oil seal eccentric, worm shaft & gears etc. if required.<br>4. Assembly and assist in trial run. |
| 80 | LP PUMP DIA ≤ 6"MECHSEAL/BRG/CPLNG INSP<br>Vertical Turbine/Centrifugal/Horizontal pumps<br>1. Ensure PTW<br>2. Ensure Electrical & C&I Connection are removed, power isolation done<br>3. Decoupling and removal of motor safely.<br>4. Dismantling of all connection to the pump units.<br>5.Removal of thrust/radial bearing and packing box/gland box/Mech seal.<br>6. Carry out inspection and replacement of Bearing/coupling/mech seal.<br>7. Cleaning of all Internal parts and mating surfaces.<br>8. Any fixture for executing the job shall be made by contractor<br>9. Assembly of pump unit, coupling and alignment as per O&M manual or as directed by EIC<br>Note:<br>**Coupling Inspection and rectification defects in coupling/ replacement of spider/coupling & alignment will be paid as 0.5 BOQ.** |

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| 81 | RECIPROCATING PUMP - SERVICING/OH<br>1. After handing over PTW by EIC decouple the pump.<br>2. Drain oil from oil chamber.<br>3. Clean and inspect the chamber.<br>4. Repair/ replace damaged components if any.<br>5. Fill up fresh oil in oil chamber.<br>6. After handing over PTW by EIC decouple the pump.<br>7. Dismantle the suction and discharge NRV.<br>8. Clean and inspect all parts. Repair/ replace damaged components.<br>9. Assemble suction and discharge NRV.<br>10. Ensure satisfactory trial run and inform area engineer.<br>11. Ensure satisfactory trial and inform area engineer. |
| 82 | SUCTION/DISCHARGE NRV INSPECTION RECIPROCATING PUMP<br>1. After handing over PTW by EIC decouple the pump.<br>2. Dismantle the suction and discharge NRV.<br>3. Clean and inspect all parts. Repair/ replace damaged components.<br>4. Assemble suction and discharge NRV.<br>5. Ensure satisfactory trial run and inform area engineer. |
| 83 | SCREW COMPRESSOR ASSISTANCE IN OVERHAULING<br>Man Plant Compressors & Driers Defects Rectification.<br>1. Inspection and removal of internal/damaged parts s advsied by OEM or EIC.<br>2. Cleaning of Internal and repair/ rectification as suggested by OEM/EIC.<br>3. Providing manpower and tools and tackles assistance to service engineer during assembly and dismantling of critical parts of screw compressors.<br>4. Jobs which are not specified and instructed by OPGC EIC to be carried out for screw compressors.<br>5. Repairing of Valves and blowdown kits to be done as per EIC instructions.<br>6. Regular inspections and identification of defects in compressores to be done as per EIC instructions.<br>7. Preventive Maintenance of Compressors as per EIC Instrctions.<br>Note:<br>1. Manpower assistance to OEM to be considered as 0.5 BOQ.<br>2. Attending & servicing of compressors considered as 1 BOQ. |
| 84 | SCREW COMPRESSOR ASSISTANCE IN SERVICING:<br>Man Plant Compressors & Driers Defects Preventive & Corrective Maintenance.<br>1. Inspection and removal of internal/damaged parts s advsied by OEM or EIC.<br>2. Cleaning of Internal and repair/ rectification as suggested by OEM/EIC.<br>3. Providing manpower and tools and tackles assistance to service engineer during assembly and dismantling of critical parts of screw compressors.<br>4. Jobs which are not specified and instructed by OPGC EIC to be carried out for screw compressors.<br>5. Repairing of Valves and blowdown kits to be done as per EIC instructions.<br>6. Regular inspections and identification of defects in compressores to be done as per EIC instructions.<br>7. Preventive Maintenance of Compressors as per EIC Instrctions.<br>8. Corrective maintenance and emergency handling & attend defects of compressors & driers.<br>9. Identification defects in Compressor driers and inspection of valves, replacement of seal kits.<br>10. Decicant replacement of Compressor driers.<br>Note:<br>1. Manpower assistance to OEM to be considered as 0.5 BOQ.<br>2. Attending & servicing of compressors considered as 1 BOQ<br>3. Replacemet of Decicant in Driers considered as 1.5 BOQ.<br>4. Preventive Inspection of Compressors & Driers considered as 1 BOQ<br>5. Defects attending in Driers and seal kits replacement & valves replacement as 1 BOQ. |

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| 85 | EQUIPMENT/PIPELINES & VALVES INTERNAL CLEANING<br>1. After handing over PTW by EIC start the work.<br>2. Remove the pipe supports and dismantle the pipe line.<br>3. Clean the individual pipe lengths by water and wire brush.<br>4. Assemble the PVC/MSRL pipe line by providing socket and flanges.<br>5. Cleaning of equipment/pumps internals and flushing with water<br>6. Check the line for no leakage after charging water.<br>7. One unit is to be measured as execution of above jobs from pump discharge to clarifier. |
| 86 | DECHOCKING OF PIPELINES<br>1. Take appropriate safety measure before working in acid line<br>2. Keep sufficient cold water ready for dilution of acid in cade of chemical pipes.<br>3. Dismantle the chocked lines & flush with water.<br>4. Replace the acid/MSRLline with new pipe or do necessary maintenance.<br>5. Erection of scaffolding wherever required to perform the job shall be done by contractor |
| 87 | GLAND LEAKAGES OF PUMPS & VALVES<br>1. Ensure pump is completely isolated from water side, electrical connection is made off and PTW is issued for gland replacement.<br>2. Dismantle the gland plate and take out all the old glands one by one.<br>3. Thoroughly clean the gland sleeve area and insert new gland.<br>4. New gland packing has to be inserted after preparation of gland ropes<br>5. Gland system has to be boxed up<br>6. Suitable adjustment may have to be done in the running system also after taking suitable safety precaution to ensure minimal leakage<br>7. Necessary tightening and adjustment of the glands to be done. |
| 88 | FLANGE - ATTENDING DEFECT<br>1. After handing over PTW by EIC start the work.<br>2. Make scaffolding if joint is above ground level and approach.<br>3. Dismantle joint by cutting/ opening by hacksaw only as per requirement.<br>4. Fix new bend/ tee/ reducer/ any other pipe fittings as applicable.<br>5. Gasket should be replaced by new gasket in flange joint leakage.<br>6. Leakage should be checked by charging the system after completion observe.<br>7. Execution of above jobs for one joint will be measured as one unit.<br>Note:<br>**Replacement of gasket between flange or leakage arresting will be measured as 0.5 qty. of BOQ.**<br>**Up to 150 NB BOQ qty. will be measured 01 & above 150 NB will be measured 02 in all cases.** |
| 89 | RW/CW EVAPORATOR/CHLORINATOR SERVICING<br>1. Obtain PTW and ensure proper isolation and residual chlorine inside the line.<br>2. Removal of connected piping and proper marking. Shifting of materails at site location.<br>3. Servicing of evaporator and chlorinator as per OEM guidelines or as instructed by EIC.<br>4. Any modification and upgradation in the system to done as per EIC instructions.<br>5. System charging and rectification defects if any.<br>6. System scuessful charging and charging of the unit is only considered as work completion.<br>7. Damaged internals shall be serviced and system made ready with proper tagging and identification.<br>8. Removal of unwanted materails and area cleaning and stacking and shifted to designated stores. |
| 90 | WATER CHANNEL GATE - LIFTING<br>1. After handing over PTW by EIC start the work.<br>2. Fix the stop-log gate in pit to isolate from fore bay.<br>3. Dewater the pit by submersible pump. Submersible pump will be provided by OPGC free of cost.<br>4. Clean the pit to remove debris, silt and any other foreign material.<br>5. Remove the stop-log gate after cleaning the pit.<br>6. Repair damage gate & reinstalled the gate in drain/pit. |

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| 91 | MISCELLENEOU WORKS - WELDING/GRINDING/CUTTING<br>1. After handing over PTW by EIC start the work.<br>2. Do edge Preparation in pipe before welding.<br>3. Add/ remove spool piece for welding joint.<br>4. Welding should be done by qualified welder.<br>5. Pressure test of line should be done after welding.<br>6. Charge the line for any leakage after attending welding joint leakage.<br>7. Execution of above jobs for one joint will be measured as one unit.<br>8. Cutting work (patch, clit, support, angle, channel, cutting etc.)<br>9. Up to 150 NB, 01 qty. of BOQ will be measured & above 150 NB to 300 NB, 02 qty. of BOQ will be measured, above 300 NB 03 qty . will be measured. |
| 92 | CHLORINATOR CLEANING & ATTENDING DEFECTS:<br>1. Obtain PTW and ensure proper isolation and residual chlorine inside the line.<br>2. Removal of connected piping and proper marking. Shifting of materails at site location.<br>3. Checking of chlorinator lines and system as per OEM guidelines or as instructed by EIC.<br>4. Any modification and upgradation in the system to done as per EIC instructions.<br>5. System charging and rectification defects if any.<br>6. System scuessful charging and charging of the unit is only considered as work completion.<br>7. Damaged internals shall be serviced and system made ready with proper tagging and identification.<br>8. Removal of unwanted materails and area cleaning and stacking and shifted to designated stores. |
| 93 | ATTENDING CHLORINE LEAKAGES<br>1. Take PTW and ensure isolation from chlorine gas and water side.<br>2. Take out the leaked/ damage pipe wherever required.<br>3. Replace the damage pipe by new pipe piece.<br>4. After attending the leakage, charge the pipe line. Attend leakages, if any, found during charging the line.<br>7. One unit will be measured as execution of above jobs for one joint of any pipe size.<br>8. Transportation of new pipe/fittings and other accessories from stores is to be done by contractor free of cost. |
| 94 | RO UF MCF FILTER CLEANING & REPLACEMENT<br>1. Removing the Cartridge filter housing top cover, after dismantling the air vent line flange connections<br>2. Removal of the exhausted cartridge filter elements, after dismantling the top plate<br>3. Inserting the fresh cartridge filter elements in position<br>4. Fixing of the top plate and Cartridge filter housing top cover<br>5. If any leakage is observed after charging, the housing top cover shall be tightened<br>Note:<br>01 QTY will be measured for one complete assembly |
| 95 | ETP RO/UF MEMBRANE REPLACEMENT<br>1. Removal of the PVC fittings and valves<br>2. Removing the End Cap assembly<br>3. Removal of the Membranes with Interconnectors from the Pressure vessel<br>4. Inspection of the O-rings and seals of the End Cap assembly and the Membranes. Replacing the same, if it is found to be damaged<br>5. Cleaning of the Interconnectors, End Cap assembly and the Membranes with Glycerine solution<br>6. Replacing the Membranes with Interconnectors, as instructed by the EIC<br>7. Fixing of the End Cap assembly and the PVC valves and fittings<br>Note:<br>1. Each Pressure vessel and its Membranes inspected/replaced is considered as one operation.<br>2. For 01 qty. will be paid for attending the defect of 01 pressure vessel including dismantling & assembling. |

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| 96 | CTBD/ETP RO/UF MEMBRANE REPLACEMENT<br>1. Removal of the PVC fittings and valves<br>2. Removing the End Cap assembly<br>3. Removal of the Membranes with Interconnectors from the Pressure vessel<br>4. Inspection of the O-rings and seals of the End Cap assembly and the Membranes. Replacing the same, if it is found to be damaged<br>5. Cleaning of the Interconnectors, End Cap assembly and the Membranes with Glycerine solution<br>6. Replacing the Membranes with Interconnectors, as instructed by the EIC<br>7. Fixing of the End Cap assembly and the PVC valves and fittings<br>Note:<br>1. Each Pressure vessel and its Membranes inspected/replaced is considered as one operation.<br>2. For 01 qty. will be paid for attending the defect of 01 pressure vessel including dismantling & assembling. |
| 97 | VICTAULIC COUPLING/VALVES AND PIPING DEFECTS<br>1. Dismantling of the CPVC Valves and fittings<br>2. Removal of the Victaulic couplings and replacing the damaged/worn out components.<br>3. Removal of the Strap Assembly of the Pressure vessel<br>4. Lifting of the Pressure vessel from the mounting frame<br>5. Placing the new Pressure vessel in position.<br>6. Fixing of the Strap assembly, Victaulic couplings, CPVC valves and fittings. |
| 98 | CTBD/ETP RO VESSEL INSPECTION AND SERVICING<br>1. Removal of the fasteners from the Manhole cover<br>2. If the fasteners are severely corroded, it shall be removed by gas cutting and replaced with new fasteners<br>3. Lifting the Manhole cover and placing it on the Maintenance bay<br>4. Internal inspection and rectification, any modification and rectification and repair to be done at site.<br>5. Replace the Gasket, if it is found damaged<br>6. Fixing of the Manhole cover, after clearance from the EIC. |
| 99 | VALVE GEAR BOX (6-12") SERVICING<br>1. Making the necessary arrangement for removing the gear box from valve shaft.<br>2. Remove actuators from valve gearbox mountings in case of motorized valve.<br>3. Removal of gear box from valve & dismantling of gear box internals.<br>4. Replacing & repairing the defective parts.<br>5. Box up of gear box with new grease.<br>6. Mounting the gear box on the valve shaft. Adjustment of mechanical stopped arrangement for full open and close of the valve.<br>7. Fixing of actuators from valve gearbox mountings in case of motorized valve. Area Cleaning & Removal of Debris.<br>8. Charging the system and attending of defects if any. |
| 100 | WATER TANK - CLEANING/INSPECTION<br>1. CLEANING OF RO, UF, DM WATER & CST WATER TANKS<br>2. Required platform arrangements out side & inside to made as per standard approved procedure.<br>3. Removal of debris and area cleaning after completion of cleaning work<br>4. Inspection and checking of gasket contact surfaces and cleaning/repair and new gasket fixing.<br>5. Fasteners inspection if required replace with new one.<br>Note:<br>1. CLEANING OF TANK OF VOLUME UP TO 200 M3 CONSIDERED AS 0.5 BOQ. FOR TANK OF MORE THAN 200 M3 TO 500 M3 ,1 QTY , FOR THE TANK SIZE OF 500 M 3 TO 1000 M3, THE BOQ QTY WILL BE 1.5. FOR TANK SIZE ABOVE 1000 M3, BOQ QTY. WILL BE MEASURE 02 NOS |

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| 101 | COOLING TOWER FAN (DRIVE SHAFT) ALIGNINGMENT<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Close the riser water valves if instructed under the supervision of operation team & EIC instructions.<br>3. Arrange a safe approach platform inside the cell & fabricate the platform if not available. Installation of safe working platform if available at site.<br>4. Check any abnormalities and damages in drive shaft, fan blades and coupling.<br>5. Check blade angle, the drive shaft alignment etc.carryout the alignment.<br>6. Decoupling of motor for any work on motor; shifting of motor, enlarging the bolt holes, Blue-matching and any other activity required for bringing the alignment within the acceptable limits is in contractor's scope.<br>7. Remove all men & materials, safe erected platforms and close the doors and open the water valves to their original position if instructed.<br>8. Take trial run and attain defects./or/works as per EIC instructions. |
| 102 | COOLING TOWER FAN - 12WEEK CHECKS<br>Preventive Maintenance of Cooling Tower -12 Weeks Checks<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Close the water valves if instructed.<br>3. Open the cell door and arrange a safe approach platform inside the cell to the satisfaction of EIC & fabricate the platform if not available. Install the safe working platform if available at site.<br>4. Check the tightness of all fasteners of couplings, gear box, fan blade clamps and others, and tighten wherever required. Wherever necessary, bolts/nuts are to be cut with hacksaw blade and are to be replaced.<br>5. Check gear box oil for condensation & sludge by draining some amount of oil at the drain plug below the sight glass till moisture is drained. Check the oil level of gear box & match it with the outside gauge glass. Top up oil to 10 mm above max level mark in stop condition. Check for oil leakage from seals and report if there is any leakage.<br>6. Check the condition of hub cover, grommet etc & report to EIC<br>7. Clean the breather and refixing of breather.<br>8. Inspect the couplings, bushes and pins one by one and replace if found damage/defective<br>9. Check the condition of blades & repair if required.<br>10. Clean the gear box, fan blades, shafts, couplings & surrounding area.<br>11. Remove all men & materials, installed platform, close the doors and open the water valves to their original position if instructed.<br>12. Take trial run and attain defects /or/works as per EIC instructions. |
| 103 | COOLING TOWER FAN (HUB/HUB COVER) REPLACEMENT<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Close the water valves if instructed.<br>3. Open the cell door and arrange a safe approach platform inside the cell to the satisfaction of EIC & fabricate the platform if not available. Install the platform if available at site.<br>5. Remove the fan hub cover and shift it out of the shell.<br>6. Mark blades & the clamps, measure the blade angles, loosen the bolts and remove the blades.<br>7. Replace the hub/hub cover, checking of blue matching with drive shaft to hub and clamps of all blades.<br>8. Fix the blade in the respective clamps taking care of the reference/ identification marks.<br>9. Pitch the blades to the required angle and tighten all the bolts.<br>10. Replace or repair the hub cover as per instruction of EIC. For new hub covers holes are to be drilled and assembled. required blue contact with drive shaft to be ensured.<br>11. Remove all men and materials, safe platform, close the doors and open the water valves if instructed.<br>12. Take the trial run of the fan and rectify if any abnormality is observed. |

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| 104 | COOLING TOWER FAN - 48WEEK CHECKS<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Close the water valves if instructed.<br>3. Open the cell door and arrange a safe approach platform inside the cell to the satisfaction of EIC & fabricate the platform if not available.Install the platform if available at site.<br>4. Oil samples to be taken from the gear box & to be given to chemistry for testing.<br>5. CT gear box internal inspection/gear clearance to be measured by filler gauge & recorded.<br>6. Oil seals replacement of gear box.<br>7. Check the level of oil at gauge glass & conform that it is the exact reflection of gear box oil level. This to be checked by water level.<br>8. Flush the oil filling line & gauge glass line.<br>9. Drive shaft alignment to be checked (after decoupling, inspecting the coupling) & recorded.<br>10. Check the tightness of all fasteners of couplings, gear box, taper bush, fan blade clamps and others, and tighten wherever required. Wherever necessary, bolts/nuts are to be cut with hacksaw blade and are to be replaced.<br>11. Open the support bearing, clean thoroughly and inspect for damage and rectify. Replace grease seal, if required and fill fresh grease & box up the bearing.<br>12. Inspect the couplings, bushes and pins one by one and replace.<br>13. Decoupling of the motor to be done if required for motor no load trial& coupling of the same after EIC instruction.<br>14. Clean the gear box, fan blades, shafts, couplings & surrounding area. Repair & Paint all fan blades and paint the gear box.<br>15. Fan blade tip clearance to be measured & recorded and rectified if necessary.<br>16. Total vertical tip track variation to be measured & recorded.<br>17. Check blade angle with help of bevel protractor by angle setting piece near tip of the blade & record it.<br>18. Check/repair door hinges.<br>19. Check the coupling guard & repair if required.<br>20. Remove all men & materials,safe working platform close the doors and open the water valves to their original position if instructed.<br>21. Take trial run and attain defects if any.<br>Defect liability:3(three)month from the date of successful commissioning of the equipment/or/works as per EIC instructions.C236 |
| 105 | COOLING TOWER FAN (BLADES) SETTING<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Close the water valves if instructed.<br>3. Open the cell door and arrange a safe approach platform inside the cell to the satisfaction of EIC & fabricate the platform if not available. Install the platform if available at site.<br>4. Check the blade angle & elevation at the tip (Tip track variation); tip clearance and adjust as per the direction of EIC.<br>5. Adjust the blade angle after loosening the centre bolt and clamp bolts and tighten the bolts after adjustment of blade angle. Wherever necessary, bolts/nuts are to be cut with Hacksaw blade and are to be replaced. Repair blade surfaces if necessary.<br>6. Recheck the pitch of each blade as pitch might change while tightening nuts.<br>7. Remove all men & materials, safe working platform close the doors and open the water valves to their original position if instructed and take trial run and attain defects if any.<br>(Setting one set of blade (6 Nos) of a CT fan will be considered as one unit) |

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| 106 | COOLING TOWER DIST PIPE/NOZZLES - CLEANING<br>**Inspection of distribution pipe & CT Nozzle Inspection/ Rectification of defective nozzeles & Cleaning CT Fan Nozzles:**<br>1. This is for distribution nozzles of CT, Arrangements for proper safe working and fixing of safety nets and lifelines.<br>2. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>3. Remove drift eliminators carefully at one end.<br>4. Arrange wooden ply on the fill to stand. Do not stand on the PVC fill material.<br>5. Remove the nozzles from A.C. pipes.<br>6. Clean the nozzles and distribution pipes of the entire cell properly. Debris should be collected in bags and disposed off outside at a place identified by EIC.<br>7. Replace or repair the nozzles if found damage/defective<br>8. Refit the nozzles and pipes.<br>9. Repair of any pipe found damaged.<br>10. Charge water and check the nozzles for flow. Chokeage if found shall be cleared till smooth and unobstructed flow is established.<br>11. Fit the drift eliminators.<br>12. Take trial run and attain defects if any.<br>**(Cleaning of all nozzles of a CT cell is to be counted as one unit)**<br>**CT Dist Pipe/Nozzles (<>) Cleaning/replacement**<br>Ensure Closing of riser valves of individual Fan.<br>1. Make proper safe approach and safety nets if required inside the system.<br>2. Remove required eliminator packs to make access to the spray chamber of one CT Cell one by one.<br>3. Provide top surface protection of Fills before walking on the fill as per instruction of EIC.<br>4. Make the eliminators, piping, nozzles and fills clean and free from dirt, algae and scale. Clean the walkway of individual cells.<br>5. Remove the clogged / dismantled nozzles and fix back after cleaning. Replace with new nozzles or/works as per EIC instructions. |
| 107 | COOLING TOWER FAN(G.BOX) (OIL) REPLACEMENT<br>CT Fan(G.box) (OIL) Repl<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Shift the required oil from stores to the site. Arrange empty oil barrel, hose, pump and other pipes & fittings required for the draining of oil from gearbox.<br>3. Arrange a safe approach platform inside the cell to them satisfaction of EIC & fabricate the platform if not available. Install safe working platform if available at site.<br>4. Close the water valves.<br>5. Open gearbox oil drain plug and fit the hose. Drain the oil into an empty barrel. Check whether oil level indicator pipe is also drained.<br>6. Open the inspection cover and check whether all the oil is drained.<br>7. Flush the gearbox with new oil/lube flush, if required.<br>8. Inspect oil seals and report if defects. Remove the hose and other fittings and put back the Gearbox drain plug.<br>9. Fill the gear box with correct grade of new oil up to the required level.<br>10. Check and remove any chokage in the Gear box vent pipe & oil level indicator pipe. Clean the breathing hole in vent line plug.<br>11. Arrest oil leaks, if any.<br>12. Return the scrap oil to OPGC store.<br>13. Remove all men & materials, safe working platform close the doors and open the water valves to their original position.<br>14. Take trial run and attain defects or/works as per EIC instructions. |

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| 108 | COOLING TOWER FAN(G.BOX) - OVERHAULING<br>1. Take the necessary PTW from the Engineer-in-charge. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Shift all the tools & tackles, spares, consumables etc. required from stores to the site.<br>3. Close the water valves if instructed.<br>4. Arrange a safe approach platform inside the cell to the satisfaction of EIC & fabricate the platform if not available. Install the safe working platform if available at site.<br>5. Position the material handling equipment, i.e. fabricated lifting structure and chain pulley block of required capacity.<br>6. Decouple the motor & inform OPGC representative for motor no load vibration.<br>7. Mark blades & the clamps, measure the blade angles, loosen the bolts and remove the blades.<br>8. Remove the fan hub and shift it out of the shell.<br>9. Drain the gearbox oil and remove the oil pipes, if needed.<br>10. Loosen the cover bolts, arrange the slings and lift the gear box top cover/bearing housing along with gear wheel, its shaft and bearings.<br>11. Shift the gear box internals outside the shell.<br>12. Dismantle the gearbox internals by following the step by step procedure. Metal built up of worn out worm and wheel shafts is in contractor's scope.<br>13. Clean all the parts and gearbox & blades. Inspect all the components (including fan hub, blades etc.,) for wear & tear and replace/repair as necessary. If any repair is to be done at central work shop same is to be shifted to work shop. In oil seal position of both shafts & upper bearing housing, built up to be done as required. Machining will be done by OPGC at workshop.<br>14. After assembly of gear box check the gear box setting by blue matching.<br>15. Repair the blades as required.<br>16. Assemble the parts as per the given procedure following all the precautions and noting the clearances between various mating parts.<br>17. Shift the assembled gear box internals inside the shell, place it in position and tighten the cover bolts. Check and adjust the axial float of the shafts.<br>18.Fill new oil in the gearbox and check the oil supply to the top bearing by manually rotating drive shaft. Rectify any defect.<br>19. Check the level of oil at gauge glass & conform that it is the exact reflection of gear box oil level. This is to be checked by water level.<br>20. Inspect the couplings, bushes and pins one by one and replace if found damage/defective<br>21. After OPGC representative clearance for motors no load vibration acceptance: Couple and align the shafts, take no-load trial and record vibrations. Rectify defects, if any.<br>22. Shift and fix the fan hub on the gearbox. Fix the blade in the respective clamps taking care of the reference/ identification marks. Pitch the blades to the required angle and tighten all the bolts. Check the 'total vertical tip track variation' and adjust it to the required level.<br>23. Check the drive shaft alignment up to accuracy level 0.05 mm and tighten all the fasteners to the specified torque levels. Chip off concrete pedestal, level base plate and re-grout as required. Check the coupling guard & repair if required.<br>24. Remove all men and materials, safe working platform close the doors and open the water valves if instructed. Return back the unused spares & scrap oil to OPGC store. |

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| 109 | COOLING TOWER FAN(G.BOX) (OILSEAL) REPLACEMENT<br>1. Take the necessary PTW from the EIC. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Mobilize men and materials to the site. Close the water valves if instructed.<br>3. Arrange a safe approach platform in the shell to the satisfaction of EIC & fabricate the platform if not available. Install the platform if available at site.<br>4. Decouple the full floating shaft and place it in a safe location along with the fasteners.<br>5. Remove the coupling flange from the pinion shaft taking due care not to ghatage any part.<br>6. Drain the gear box oil completely.<br>7. Loosen the bolts and remove the cowl and fan. Measure the axial float.<br>8. Remove DE & NDE bearing covers and take out the damage/defec oil seals carefully.<br>9. Clean the shaft and the housing thoroughly.<br>10. Adjust the axial float by adding or removing shims as required and mount the new oil seals on the shaft carefully. Fit the bearing covers.<br>11. Fill new oil in the gearbox to the required level and observe for any leakage. Rotate the shaft by hand and inspect for leaks & rectify.<br>12. Put back the coupling flange and full-floating shaft.<br>13. Check the alignment and correct as required.<br>14. Remove all men & materials, safe working platform close the doors and open water valves if instructed.<br>15. Take the trial run and attend to the oil seal leaks, if any.<br>(Replacement of oil seals as part of Replacement of Gear box oil is not counted under this job. If the oil seals are changed separately, the same will be counted as one unit.)/or/works as per EIC instructions. |
| 110 | COOLING TOWER FAN (DRIVE SHAFT) REPLACEMENT<br>1. Take the necessary PTW from the EIC. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Move the men and materials to the site. Close water valves if instructed.<br>3. Arrange a safe approach platform inside the shell to the satisfaction of EIC & fabricate the platform if not available.<br>4. Support the shafts properly and decouple them.<br>5. Remove the damage/defective shaft along with coupling if required.<br>6. Dismantle all the components, clean and inspect for any damage, Replace/repair the defective/worn-out parts.<br>7. Shift the new shaft after assembling the couplings , locate and couple the shafts.In case of replacement of modified shafts, vendor to break the mid bearing foundation.<br>8. Remove the supports, check & carry out the alignment and tighten all bolts to the specified torque.<br>9. Remove all men & materials, close the doors and open the water valves if instructed.<br>10. Take the trial run of the fan & rectify the defects, if any.<br>11. Transport the defective/damage shaft to the store/workshop as per the instructions of Engineer-in-charge.<br>(Performance of each of the above jobs is counted as one unit)/or/works as per EIC instructions. |

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| 111 | COOLING TOWER FAN (BLADES) REPLACEMENT<br>1. Take the necessary PTW from the EIC. Ensure, by physically checking that the power is made off on panel and EPB is pressed.<br>2. Shift the man and materials to the site.<br>3. Close the water valves if instructed.<br>4. Arrange a safe approach platform inside the shell to the satisfaction of EIC & fabricate the platform if not available. Installation safe working platform if available at site<br>5. Remove the damage/defective fan blade and the blade diametrically opposite to it (even if it is not damage/defec) from the hub & shift them outside.<br>6. Shift the new pair of matched fan blades and fix them in the hub one by one.<br>7. Pitch the blades to the specified angle as instructed and tighten the clamp bolts.<br>8. Check the total vertical tip track variation and adjust as required.<br>9. Remove all men & materials, platforms close doors and open the water valves if instructed.<br>10. Run the fan & rectify the defects if any.<br>11. Repair the old blades, if possible & paint them and transport to the store for reuse /or/works as per EIC instructions. |
| 112 | COOLING TOWER FAN(G.BOX) (OIL) TOP UP<br>Cooling Tower GB Oil Replacement/ Oil top up<br>1. First Obtain suitable permit to work.Take the necessary instructions from the EIC.<br>2. Open the oil filling pipe plug.<br>3. Fill the oil to the required level. See that the Gear box vent line is clear.<br>4. Clean the breathing holes in the plug and fit it to the pipe.<br>/or/<br>works as per EIC instructions.<br>**Note:**<br>**Oil top up up to 10 lts considered as 0.5 BOQ**<br>**Oil top up above 15 Lts considered as 1 BOQ** |
| 113 | COOLING TOWER BASIN--CLEANING<br>1. First Obtain suitable permit to work. Shift and install dewatering / submersible pump at site.<br>2. Service isolating gate and chain pulley block.<br>3. Repair and replace rubber seal of gate door if required.<br>4. Completely dewater the basin and arrange to shift the water to CW canal<br>5. Carry out subsequent manual cleaning. Clean the basin civil and metallic structures, columns, beams, pathway, railings etc. Remove algae, sludge, mud and other foreign materials collected inside the basin and sludge pit.<br>6. Service the sludge pit isolating gate.<br>7. Clean the column and basin from algae and dry out the algae affected area after applying bleaching agent.<br>8. Transport sludge, algae and foreign materials to a nearby identified place inside the plant premises, as decided<br>9. Normalize system again by filling the basin and lifting the gate.<br>10. Shift of pump back to Off-site Stores.<br>11. Because of some unavoidable reasons, if cleaning could not be done, then for dewatering work payment will be made for 10% of this item rate.<br>12. Cleaning of cold water basin is to be completed within stipulated time or as decided by EIC. Manpower is to be deployed accordingly./or/as per instructions of EIC. |

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| 114 | COOLING TOWER CELLS - 08WEEK CHECKS<br>Preventive Maintenance of CT - 8 Weeks Checks.<br>1. First Obtain suitable permit to work.<br>2. Drain/flush/ replace oil of gear box.<br>3. Check oil seal and oil leakages<br>4. Check coupling bush replace as per requirement<br>5. Check / tighten fasteners for mechanical supports, fan, gear box, coupling etc.<br>6. Check and tighten gear box weldments bolts<br>7. Rotate fan by hand for free rotational checking. Check tip clearance and correct if required by minor trimming. Check GB sway with dial gauge by moving blades up and down.<br>8. Attend gland leakages of associated valves.<br>9. Check and clean nozzles from debris. Also check by water charging.<br>10. Check any ghatage to water distribution system<br>11. Check for any organic growth / algae<br>12. Inspect plenum areas above the eliminator.<br>13. Take out one packer (fill) from the cell for inspection, weigh and record it. Insert back the same pack.<br>14. Clean the fan blades from dust.<br>15. General cleaning of pack fills & drift eliminator with water jet.<br>16. Replace damage/defec pack fills as per requirement (maximum up to 6 assly.)<br>17. Check blade angle at random<br>18.Replace / repair the doors locking bolts. |
| 115 | COOLING TOWER FILL PACKS - CLEANING(ONLINE)<br>Cleaning of CT fills using jet on line as per EIC instruction<br>Cleaning of CT fills during out of service as per EIC instructions<br>CT Fill Packs Cleaning (Online)<br>1. First Obtain suitable permit to work.<br>2. Ensure Closing of water distribution riser valves of the cell.<br>3. Remove required eliminator packs to make access to the spray chambers of the cell for lifting the water hoses.<br>4. Provide top surface protection of Fills before walking on the fill as per instruction of EIC.<br>5. Clean the fill packs by water jet from top / bottom as instructed of EIC.<br>6. Fill packs at random to be lifted in place for measurement of weight.<br>7. Repair / replace the defective SS channels / Supports as per the standard practice.<br>8. Transport and install pump / water hoses to site to take water from suitable source as instructed by EIC and return the same after job is over.<br>9.If for any reason valves are found to be inoperative then the valves are to be made operative for which no extra<br>payment will be made.<br>10. After completion of cleaning job the tower floor to be cleaned completely.<br>11. Trial charging and rectification of any defect noticed.<br>12. The above activities for one cell will be counted as one unit operation. |
| 116 | LP WATER PUMP (DIA<=6") SERVICING<br>Servicing of Vertical Turbine/Centrifugal/Horizontal pumps<br>1. Ensure PTW<br>2. Ensure Electrical & C&I Connection are removed, power isolation done<br>3. Decoupling and removal of motor safely.<br>4. Dismantling of all connection to the pump units.<br>5.Removal of thrust/radial bearing and packing box/gland box.<br>6. Dismantling the pump unit and all its internal parts.<br>7. Cleaning of all Internal parts and mating surfaces.<br>8. Measuring and recording of all required clearances and preparation of protocols.<br>9. Inspection and rectification/replacement of all worn out parts.<br>10. Any fixture for executing the job shall be made by contractor<br>11. Assembly of pump unit, coupling and alignment as per O&M manual or as directed by EIC |

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| 117 | STRUCTURAL FABRICATION<br>1. First Obtain suitable permit to work.<br>2. Transportation of steel from store to site.<br>3. Fabrication includes cutting, welding, joining as per drawing/dimensions.<br>4. Miscellaneous fabrication works in all offsite areas, whenever requirement arises for attending safety related/ any other points.<br>5. Transportation of scrap from site after work.<br>6. Painting of structure with one coat of primer. |
| 118 | BUTTERFLY VALVE SEAL REPLACEMENT 500-800MM<br>1. First Obtain suitable permit to work.<br>2. Opening of manholes/cutting of pipe, fasteners, fit up & welding of pipe and dismantling of valve if required.<br>3. Replacement of sealing ring by cleaning of mating surfaces and removal of any high points.<br>4. Cleaning and replacement of fasteners if required , check for passing and adjustment of seal ring if required.<br>5. Adjustment of gear box for Mechanical stopper.<br>6. Normalisation of system and house keeping. |
| 119 | BUTTERFLY VALVE GEAR BOX INSPECTION 2200-2700MM<br>Door seal replacement job<br>Replacement of rubber sealing Ring (Door Seal ) of B/F valve >2000NB:<br>1. First Obtain suitable permit to work.<br>2. Opening of manholes.<br>3. Replacement of sealing ring.<br>4. Check for passing after duct charging and adjustment of seal ring if required.<br>5. Adjustment of gear box for Mechanical stopper. |
| 120 | HT MOTORS (>1000-1500KW)INSTALLATION/REMOVAL<br>1. First Obtain suitable permit to work<br>2. Removal of Lub. Water lines, decoupling of motor.<br>3. Decoupling of motor from the pump and shifting as per instruction of EIC.<br>4. Placing of motor on the pump base/ motor stool. Coupling after float adjustment. Removal & mounting of motor coupling half, if required. Alignment of Pump & Motor after EMD work.<br>5. Refitting of Lube Water lines.<br>6. System trail after normalisation if any defects shall be done by re-alignment if required. |
| 121 | HT MOTORS (>2000-4000KW) INSTALLATION/REMOVAL<br>1. First Obtain suitable permit to work<br>2. Removal of Lub. Water lines, decoupling of motor.<br>3. Decoupling of motor from the pump and shifting as per instruction of EIC.<br>4. Placing of motor on the pump base/ motor stool. Coupling after float adjustment. Removal & mounting of motor coupling half, if required. Alignment of Pump & Motor<br>5. Refitting of Lube Water lines.<br>6. Normalisation of system if any abnormalities in alignment to be corrected. |

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| 122 | COOLING WATER PUMP - OVERHAULING<br>1. Preparatory arrangements for installation of STOP Log gates fixing, de-watering of CW Forebay and removal of water from duct.<br>2. De coupling the pump from drive and remove the Motor. Measurement of control dimensions and removal of Motor from its base and placement at designated location<br>3. Collection of old Lube oil in containers and shifting it to specified drums.<br>4. Removal operating platform and proper marking to facilitate pump internals removal.<br>5. Removal of internal as per OEM instructions manual, Removal of coupling, NRR assembly,stuffing box, Motor stools, Dischage pipe, Column pipes along with shafts etc.<br>6. Dismantling and removing of all the components like Bearing, shaft, impeller, wear rings, sleeves, bush, shaft enclosing tube, column pipe, coupling halves and other components of the pump. Necessary heating/cooling arrangements for shaft sleeves removal & fixing required to be arranged.<br>7. Cleaning, servicing, repair or replacement of components as required and as per instruction of EIC.<br>8. Blue matching as per requirement and instruction of EIC. Blue matching area should be >80% and above. contractor has to mobilize his man power to carry out the blue matching work round the clock till the result is achieved. Control dimensions of dismantled parts like ID,OD & Runout etc to be recorded and measured.<br>9. Black Bitumen painting of pump body column and guide pipes, bowl, base frame, casing and other parts of the pump as per instruction of EIC.<br>10. Pre assembly dimension of all the components / spares to be checked and confirm the fitment. Uniform and torq tightening of column pipes and various flanges as recomended by OEM<br>11. Assembly of the pumps and installation in position.<br>12. Alignment of the pump with respect to drive Axial and radial alignment should be within the permissible limit.<br>13. Float setting, coupling of pump with drive and fitting of coupling guard.<br>14. Lub oil filling/top up in the pump.<br>15. Trial run of pump and adjustment of gland packing etc. to obtain the smooth operation of the pumps.<br>16. Checking of vibration by condition monitoring group. Suppose vibration not comes down to permissible limit then rectification of fault to be carried out again. No extra payment will be made for this rectification work.<br>17. Painting of equipment including discharge pipe inside the pump house.<br>18. Re-installation of Operating platform and normalisation like before dismantled condition. Modification of the same if required to done as suggested by OPGC EIC.<br>18. Any other job not mentioned above but required to complete pump's overhauling will be in the scope of contractor. |
| 123 | COOLING WATER PUMP - COUPLING INSP & ALIGNINGMENT<br>1. Inspection of Coupling by removal of top cover of motor<br>2. This schedule is for checking the alignment both radial and axial of the CW w.r.t the motor coupling.<br>3. Decoupling of Mortor assembly with pump by checking control dimensions.<br>4. If misalignment is found to then same to be aligned with the permissible limits, even blue matching to be done as per requirement and instruction of EIC.<br>5. As per requirement coupling bushes, gland packing will have to be checked and replaced based on their condition.<br>6. Alignment of Pump with Motor , Coupling & trail operation to be done. |

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| 124 | RAW WATER PUMP OVERHAULING<br>1. Preparatory arrangements for installation of STOP Log gates fixing, de-watering of CW Forebay and removal of water from duct.<br>2. De coupling the pump from drive and remove the Motor. Measurement of control dimensions and removal of Motor from its base and placement at designated location<br>3. Collection of old Lube oil in containers and shifting it to specified drums.<br>4. Removal of internal as per OEM instructions manual, Removal of coupling, NRR assembly, Stuffing Box, Motor stools, Dischage pipe, Column pipes along with shafts etc.<br>5. Dismantling and removing of all the components like Bearing, shaft, impeller, wear rings, sleeves, bush, shaft enclosing tube, column pipe, coupling halves and other components of the pump. Necessary heating/cooling arrangements for shaft sleeves removal & fixing required to be arranged.<br>6. Cleaning, servicing, repair or replacement of all the components as required and as per instruction of EIC.<br>7. Blue matching as per requirement and instruction of EIC. Blue matching area should be >80% and above. contractor has to mobilized his man power to carry out the blue matching work round the clock till the result is achieved.<br>8. Black Bitumen painting of pump body column and guide pipes, bowl, base frame, casing and other parts of the pump as per instruction of EIC.<br>9. Pre assembly dimension of all the components / spares to be checked and confirm the fitment.<br>10. Assembly of the pumps and installation in position.<br>11. Alignment of the pump with respect to drive Axial and radial alignment should be within the permissible limit.<br>12. Coupling of pump with drive and fitting of coupling guard.<br>13.Lub oil filling/top up in the pump.<br>14. Trial run of pump and adjustment of gland packing etc. to obtain the smooth operation of the pumps.<br>15. Checking of vibration by condition monitoring group. Suppose vibration not comes down to permissible limit then rectification of fault to be carried out again. No extra payment will be made for this rectification work.<br>16. Painting of equipment including discharge pipe inside the pump house.<br>17.Any other job not mentioned above but required to complete pump's overhauling will be in the scope of contractor. |
| 125 | DEPLOYEMENT OF MANPOWER-SKILLED WORKER<br>1. Supply of manpower for various job for which the quantity has exhausted or unpredictable jobs<br>2. Contractors have to mobilize the manpower within 24 hours of verbal communication.<br>3. The amount will be paid for the same as per agreed manpower rate.<br>Note: Payment shall be calculated based on working hours and as decided by EIC |
| 126 | DEPLOYEMENT OF MANPOWER-UNSKILLED WORKER<br>1. Supply of manpower for various job for which the quantity has exhausted or unpredictable jobs<br>2. Contractors have to mobilize the manpower within 24 hours of verbal communication.<br>3. The amount will be paid for the same as per agreed manpower rate<br>Note: Payment shall be calculated based on working hours and as decided by EIC |
| 127 | DEPLOYEMENT OF MANPOWER-SEMI SKILLED WORKER<br>1. Supply of manpower for various job for which the quantity has exhausted or unpredictable jobs<br>2. Contractors have to mobilize the manpower within 24 hours of verbal communication.<br>3. The amount will be paid for the same as per agreed manpower rate<br>Note: Payment shall be calculated based on working hours and as decided by EIC |
| 128 | DEPLOYEMENT OF MANPOWER-HIGHLY SKILLED WORKER<br>1. Supply of manpower for various job for which the quantity has exhausted or unpredictable jobs<br>2. Contractors have to mobilize the manpower within 24 hours of verbal communication.<br>3. The amount will be paid for the same as per agreed manpower rate<br>Note: Payment shall be calculated based on working hours and as decided by EIC |

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| 129 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT ≤ 2MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |
| 130 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >2-5MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |
| 131 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >5-10MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |

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| 132 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >10-15MTR<br>1. Erection of scaffolding is to be done as per OPGC standard practice to facilitate inspection & other job to be carried out by OPGC.<br>2. The scaffolding to be made as per best industrial practices, they can be made out of MS tubes / pipes / planks/base plates, clamps of standard size. Pipe clamps to be used for fixing of scaffolding & Beam clamps to be used for whenever required.<br>3. The material used for scaffolding are duly inspected by OPGC respective authorities, scaffolding procedure to be reviewed and certified by OPGC EIC. Sufficient quantity of pipes, steel planks, skirt borads,clamps to be ensured for safe erection of platform.<br>4. The scaffolding shall be firm and rigid, which can withstand a minimum of 4 people of about 300 kg. Load. The personal engaged for the job to be certified by OPGC statutory authorities, Only Authorised personal are allowed to make platform.<br>5.All materials required for executing the above job should be arranged by the contractor at his cost. While erecting the scaffolding, the contractor should exercise utmost caution, so that instruments, pipelines etc. are not damaged.<br>6. Scaffolding outside the pipes / equipment shall be two meters length & two meters in width. If it is required to cover a large area, scaffolding has to be erected by the contractor. |

| **Category wise manpower qualification requirement** | | |
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| **SL.NO.** | **DESCRIPTION** | **QUALIFICATION(EDUCATION/WORK EXPERIENCE)** |
| 1 | Site-in-charge | BE with minimum 8 yrs /Diploma with minimum 12 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 | BE/Diploma with minimum 3-6 years experience in relevant mechanical work |
| 3 | Safety Officer | Graduate with Certfication course from a repuated institute with 3-6 Yr of industrial experience |
| 4 | Storekeeper | Any Graduate with 1-3 yrs. Work Ex. In relevant work |
| 5 | HR/Admin Officer | Any Graduate with 1-3 yrs. Work Ex. In relevant work |
| 6 | MW Fitter | ITI with minimum 10-15 years relevant experience in relevant mechanical work |
| 7 | Welder (IBR) | ITI/IBR Welder Certification with 10-15 Yr of experience in relavent mech works |
| 8 | Fitter | ITI with minimum 3-6 years of experience in relevant mechanical work |
| 9 | Cutter/Grinder | ITI with minimum 3-6 years relevant experience |
| 10 | Welder | ITI with minimum 3-6 years relevant experience |
| 11 | Valve Technician | ITI with minimum 6-10 years of experience in relevant mechanical work |
| 12 | EOT/Sky Climber/Hydra /Boom Lift operator | ITI with minimum 6-10 years of experience in relevant mechanical work having valid licesnse |
| 14 | Electrician | ITI with minimum 1-3 years of experience in relevant work |
| 15 | Rigger | Non ITI with minimum 3-6 Yr of experience in relavent mech works |
| 16 | Helper | Non ITI with minimum 1-3 Yr of experience in relavent mech works |

## DEPLOYMENT OF MINIMUM MANPOWER AT SITE - TGBOP AMC

**A) Minimum Manpower required on Normal working days (NWD) for TGBOP.**

| SL.NO. | MANPOWER CATEGORIES | Qty |
|---|---|---|
| **a)** | **CRITICAL MANPOWER** | |
| 1 | SITE IN CHARGE | 1 |
| 2 | SAFETY OFFICER | 1 |
| 3 | SUPERVISOR | 5 |
| 4 | MWF | 3 |
| 5 | SKILLED FITTER | 5 |
| 6 | PIPE FITTER | 1 |
| 7 | VALVE TECHNICIAN | 1 |
| 8 | RIGGER | 8 |
| 9 | HELPER | 9 |
| 10 | WELDER SKILLED | 1 |
| 11 | CRANE OPERARTOR | 1 |
| 12 | GAS CUTTER | 1 |
| 13 | GRINDER | 1 |
| | **SUB-TOTAL (CRITICAL)** | **38** |
| **b)** | **NON-CRITICAL MANPOWER** | |
| 1 | STORE KEEPER | 1 |
| 2 | SUPERVISOR | 2 |
| 3 | MW FITTER | 2 |
| 4 | SKILLED FITTER | 2 |
| 5 | GAS CUTTER | 1 |
| 6 | WELDER SKILLED | 1 |
| 7 | GRINDER | 1 |
| 8 | WELDER IBR | 1 |
| 9 | RIGGER | 8 |
| 10 | HELPER | 8 |
| 11 | ELECTRICIAN | 1 |
| | **SUB-TOTAL (NON-CRITICAL)** | **28** |
| | **TOTAL** | **66** |

**B) Minimum Manpower Requirement on Sundays & Holidays for TGBOP**

| | **CRITICAL** | |
|---|---|---|
| 1 | SUPERVISOR | 3 |
| 2 | MWF | 1 |
| 4 | WELDER | 1 |
| 5 | FITTER | 4 |
| 6 | GAS CUTTER | 1 |
| 7 | GRINDER | 1 |
| 8 | RIGGER | 4 |
| 9 | HELPER | 4 |
| | **TOTAL** | **19** |

**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.**

| Consumables TG & BOP | | | | |
|---|---|---|---|---|
| List of Minimum Consumables to be maintained at site by the Contractor per month | | | | |
| Sr. No. | Details of consumables | UoM | Consumption | |
| | | | Monthly | Yearly |
| 1 | Cutoff Wheels - 100 X 3 X 16 | Nos. | 25 | 300 |
| 2 | Cutoff Wheels - 230 X 3 X 22 | Nos. | 15 | 180 |
| 3 | Welding Electrode, 7018, 2.5mm | Kg | 5 | 60 |
| 4 | Welding Electrode, MS, 6013, 4MM | Kg | 5 | 60 |
| 5 | Welding Electrode, E6013, 2.5MM | Kg | 10 | 120 |
| 6 | Welding Electrode, MS, 6013, 3.15MM | Kg | 10 | 120 |
| 7 | Welding Electrode, 7018, 3.15mm | Kg | 5 | 60 |
| 8 | Welding Electrode, 7018, 4mm | Kg | 5 | 60 |
| 9 | Cutting Electrode, 802 | Kg | 5 | 60 |
| 10 | Coir Rope 8mm Dia. | Kg | 20 | 240 |
| 11 | Grinding Wheel - AG4 | Nos. | 25 | 300 |
| 12 | Grinding Wheel - AG5 | Nos. | 15 | 180 |
| 13 | Grinding Wheel - AG7 | Nos. | 10 | 120 |
| 14 | Oil Stones - Grindwel Norton | Nos | 2 | 24 |
| 15 | Rustoline in 500ML Can | Nos. | 10 | 120 |
| 16 | WD 40 | Nos. | 25 | 300 |
| 17 | Petrol | Liter | 5 | 60 |
| 18 | Diesel | Liter | 30 | 360 |
| 51 | Kerosene | Liter | 5 | 60 |
| 19 | Acetone | Liter | 2 | 24 |
| 20 | Holdtite | Kg | 1 | 12 |
| 21 | Gasket Shellac Coumpound - Tubes Victor Brand | Nos | 1 | 12 |
| 22 | Prussian Blue Tubes - Tubes Camel | Nos. | 10 | 120 |
| 23 | M-Seal Wetset - Pidilite | Kg | 2 | 24 |
| 24 | Asbestos Putty - Dum Dum make | Kg | 0.5 | 6 |
| 26 | Gas Cutting Nozzle 1/16In | Nos. | 4 | 48 |
| 27 | Cutoff Wheels - 350 X 3 X 25.4 | Nos. | 5 | 60 |
| 28 | Painting Brush 4 Inch | Nos. | 5 | 60 |
| 29 | Teflon Tape 1/2lN | Nos. | 20 | 240 |
| 30 | Hacksaw Blade (1/2In X 12In) | Nos. | 10 | 120 |
| 31 | Thermal Chalk up to 350 Deg C | Nos. | 2 | 24 |
| 32 | Painting Brush up to 3 Inch | Nos. | 5 | 60 |
| 33 | Emery Water Proof Paper No 80. | Nos. | 5 | 60 |
| 48 | Cotton Waste | Kg | 60 | 720 |

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| 34 | Baniyan Waste | Kg | 25 | 300 |
| 35 | Baniyan Cloth | Kg | 15 | 180 |
| 36 | Gas Cutting Nozzle 3/64 In | Nos. | 4 | 48 |
| 37 | Painting Brush 1/2 Inch | Nos. | 2 | 24 |
| 39 | Painting Brush 1 1/2 inch | Nos. | 2 | 24 |
| 40 | Emery Cloth, smooth 50MM X 50M (100 Grit) | ROL | 2 | 24 |
| 41 | Emery Cloth, smooth 50MM X 50M (220 Grit) | ROL | 2 | 24 |
| 42 | Emery Cloth, Medium 50MM X 50M (60 Grit) | ROL | 2 | 24 |
| 43 | Buffing Wheel, AG5 | Nos. | 10 | 120 |
| 44 | Buffing Wheel, AG4 | Nos. | 10 | 120 |
| 45 | FF2 Grinding Wheel -conical, oval, cylindrical | Nos, | 4 | 48 |
| 46 | Heating Coil & Insulation Wool | Set | 1 | 12 |
| 47 | Purging Paper | Bundle | 1 | 12 |
| 49 | Torch with Cell | Nos. | 10 | 120 |
| 50 | Hand lamp 24V with Transformer | Nos. | 10 | 120 |
| 38 | Hand lamps with Bulbs | Nos. | 15 | 180 |
| 25 | Hand lamp Pin type Holder Brass ISI Mark | Nos. | 10 | 120 |
| 52 | DA | Nos. | 10 | 120 |
| 53 | Oxygen Gas | Nos. | 10 | 120 |
| 54 | Argon Gas | Nos. | 5 | 60 |
| 55 | Burner Nozzle ( Flame Nozzle) | Nos. | 2 | 24 |
| 56 | Graphite powder | Kg | 1 | 12 |
| 57 | Teflon Spray | Bottle | 2 | 24 |
| 58 | Hylomer 80 ML tube | nos | 10 | 120 |
| 59 | Valve servicing - Lapping paste Coarse,Medium,Fine | Set | 1 | 12 |
| 60 | DP Kit Set | Set | 4 | 48 |
| 61 | Araldite Tubes | Nos | 1 | 12 |
| 62 | RTV 732 Tubes | Nos | 2 | 24 |
| 63 | Anabond - 202, 610, 595, 666 | Nos | 2 | 24 |
| 64 | Gasket Cleaners | Nos | 1 | 12 |
| 65 | Wire Brush, Nylon Brush for Cooler Cleaning | Nos | 4 | 48 |
| 66 | Fire blankets. | Nos | | 10 |
| 67 | Air Hoses 1/2" , 3/4" & 1" each size | Mtr | | 50 |
| 69 | Lead Wire - 1,2,4,6 mm each size | Mtr | | 10 |
| 70 | Medical Tape -0.25 mm | ROL | | 6 |
| 71 | Piono Wire | Mtr | | 50 |
| 72 | Scaping Tools, Parting tool baldes | Nos | | 4 |
| 73 | Brown Tape | ROL | 1 | 12 |
| 74 | Safety Ribbons | ROL | 2 | 24 |
| 75 | Oil Trays for Oil Collection | Nos | | 6 |

**Note:**

The above mentioned minimum quantity of Consumables 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 extra cost to owner

| Tools & Plants TG & BOP | | | | | | |
|---|---|---|---|---|---|---|
| List of Minimum Tools & Tackles and Equipment to be maintained at site by the Contractor per month | | | | | | |
| Sr. No. | Details of Tools & Plants | UoM | Qty | | | Remarks |
| | | | TG | BOP | Total | |
| 1 | Welding Generator | Nos | 2 | 2 | 4 | |
| 2 | Diesel operated welding generator | Set | 0 | 1 | 1 | |
| 3 | TIG welding set | Set | 2 | 1 | 3 | |
| 4 | Portable welding machine set (Single Phase) | Set | 2 | 2 | 4 | |
| 5 | Portable welding machine set (Three Phase) | Set | 1 | 1 | 2 | |
| 6 | Welding cable with requisite holder | Set | 3 | 3 | 6 | |
| 7 | Argon cylinder with regulator | Set | 2 | 2 | 4 | Extra Qty. to be provided as &when required at Site. |
| 8 | Oxygen - DA set with regulators | Set | 4 | 3 | 7 | |
| 9 | Cutting sets | Nos | 2 | 2 | 4 | |
| 10 | Torch (Heavy duty) | Nos | 8 | 4 | 12 | |
| 11 | Halogen sets | Set | 10 | 4 | 14 | |
| 12 | Hand lamps | Set | 10 | 6 | 16 | Hand lamps with adequate qty of extenstion boards and sufficient length of cable. |
| 13 | 24V DC lamp | Set | 10 | 8 | 18 | |
| 14 | Extension Boards with Extra Cable with RCCB protection | Nos | 4 | 4 | 8 | Extra Qty. to be provided as &when required at Site. |
| 15 | Tested Chain pulley blocks, 5T, 3T, 2T, 7.5 T, 1T,10T | Set | 05 Each | 05 Each | | If more nos required shall be arranged by agency at the time of work |
| 16 | Lifting Slings of different types & sizes from 1 ton to 50 ton | Sets | 2 sets Each | 2 Sets Each | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17 | Lifting Belts diffirent Sizes and Capacity up to 50 ton | Sets | 2 Sets Each | 1 Set Each | | |
| 18 | D-Shakles Various Capacities from 1 ton to 50 Ton | Sets | 4 Sets Each | 2 Sets Each | | |
| 19 | Eye Bolts Various Sizes up to 36 mm | Sets | 4 sets Each | 2 Sets Each | | |
| 20 | Rachet Pullers | Nos | 2 | 1 | 3 | |
| 21 | Angle Grinding Machine AG-4 | Nos | 4 | 2 | 6 | |
| 22 | Angle Grinding Machine AG-5 | Nos | 3 | 3 | 6 | |
| 23 | Angle Grinding Machine AG-7 | Nos | 2 | 1 | 3 | |
| 24 | Straight Grinding with short nose | Nos | 1 | 1 | 2 | |
| 25 | Straight Grinding with Long nose | Nos | 2 | 1 | 3 | |
| 26 | Flexible Grinding Machine(FF2) With Diffirent Bits | Nos | 2 | 1 | 3 | |
| 27 | Heavy Duty Drilling Machine up to 3/4 " Drill Bit Size | Nos | 2 | 1 | 3 | |
| 28 | Drill Bilts & Rotary Burr Cutter of Various Sizes | Sets | 2 | 1 | 3 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 29 | Crow Bars | Nos | 1 | 0 | 1 | |
| 30 | Utility vehicle- Mahindra Pickup or equivalent | Nos | 1 | 0 | 1 | 24 Hrs. basis, |
| 31 | Hydra (Extended boom telescopic) Escorts F15 or Equivalent with Operator | Nos | 1 | 0 | 1 | |
| 32 | Trailer- 30 Tons | Nos | 1 | 0 | 1 | |
| 33 | Hydraulic jack 2T, 5T,10T, 20T | Nos | 04 each | 04 each | | |
| 34 | Hydraulic jack- 25 tons | Nos | 2 (Low height) | 2 | | |
| 35 | Hydraulic jack- 50 tons | Nos | 2 | 2 | 4 | |
| 36 | Pull lifts 2 T, 4 T | Nos | 2 | 2 | 4 | |
| 37 | Tube cutting machine | Nos | 1 | 0 | 1 | |
| 38 | Tube/Pipe bending machine heavy duty with Die | Nos | 1 | 0 | 1 | |
| 39 | Hammer -1 pound, 2 pound, 3 pound, 10 pound | Set | 6 each | 4 each | | OPGC EHS Approved Hammers to be used at site. |
| 40 | Spanner set (8 to 32 mm). D-spanner, Ring spanner, | Set | 04 set each | 04 set each | | If more nos required shall be arranged by agency at the time of work |

| | | | | | | |
|---|---|---|---|---|---|---|
| 41 | 36 to 75 mm Ring & Open end Slogging Spanners<br>36, 42, 45, 46, 50, 55, 60, 65 , | Nos | 03 Each | 01 Each | | If more nos required shall be arranged by agency at the time of work |
| 42 | 70-130 mm ring and open hammering spanners | Nos | 2 Each | 1 Each | | If more nos required shall be arranged by agency at the time of work |
| 43 | Adjustable Spanners | Nos | 6 | 4 | | |
| 44 | Pipe Wrenches 12", 18", 24" | Nos | 2 Each | 1 Each | | |
| 45 | Box spanners up to 32 mm with ½” drive with ratchet handle | Set | 4 | 2 | 6 | |
| 46 | Box spanners from 32-75 with 1” drive. | Set | 2 | 1 | 3 | |
| 47 | Tap set fine, medium and coarse up to 41 mm Each sizes | Set | 1 | 1 | 2 | |
| 48 | Tool box for distribution to Fitters | Nos | 1/each fitter | 1/each fitter | | Dedicated Tools Box with all required tools for one set for each fitter with lock & key. |
| 49 | Surface plate 450X450 mm & 1mtrx1mtr Each type | Set | 1 | 0 | 1 | |
| 50 | V-Blocks | Set | 1 | 1 | 2 | |
| 51 | Straight edge length 2 mtrs | Nos | 1 | 0 | 1 | |
| 52 | Allen keys mm & inches up to 10 mm & 1/2” | Nos | 1/each fitter | 1/each fitter | | |
| 53 | Allen keys mm & inches up to 12- 36 mm & ½ to 1½” | Set | 4 Each | 4 Each | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 54 | Bearing pullers set (Up to 350 mm) | Set | 2 | 2 | 4 | |
| 55 | Dial gauge 0-5mm (Calibrated) including magnetic base | Set | 6 | 4 | 10 | |
| 56 | Dial gauge 0-2mm (Calibrated) including magnetic base | Set | 4 | 2 | 6 | |
| 57 | Bore Dial Gauge, Slip gauge Box | Set | 1 | 0 | | |
| 58 | Filler Gauge, Depth Gauge | Nos | 1/each fitter | 1/each fitter | | 02 setsof Filler Gauge more than 3 mtr length |
| 59 | Measuring scales 1", ½ mtr .Each type | Each | 2 | 2 | 4 | |
| 60 | Measuring tape up to 5 mtr, 10 mtr,15 meter | Each | 10 | 10 | 20 | |
| 61 | Dial gauges with magnetic stand dial (0-10 mm) | Set | 10 | 4 | 14 | |
| 62 | Dial gauges with magnetic stand dial (0-5 mm) | Set | 4 | 2 | 6 | |
| 63 | Needle dial gauges with magnetic stand 0-2mm | Set | 1 | 1 | 2 | |
| 64 | Bore Dial Gauge with complete accessories (25-75mm & 50-100mm ) | Set | 2 | 0 | 2 | |
| 65 | Master level of length 150 mm accuracy 0.02mm. | Set | 1 | 1 | 2 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 66 | Telescopic Gauge,Taper Gauge | Set | 1 | 1 | 2 | |
| 67 | Bevel Protactor/Bevel Gauge | Set | 1 | 1 | 2 | |
| 68 | Slip Gauge Box-Mitutoyo make | Set | 1 | 0 | 1 | |
| 69 | Filler Gauge- 150 mm & 300 mm Length Each Type | Each | 6 | 4 | 10 | 02 setsof Filler Gauge more than 3 mtr length |
| 70 | Depth Micrometer 0-150mm -Mitutoyo make | Nos | 2 | 1 | 3 | |
| 71 | Verinier Cailpers150 mm & 300 mm (Plain & Digital)- Mitutoyo make Each type | Each | 6 | 4 | 10 | |
| 72 | inside micrometers (13-50,50-150, 50 - 500, 50-1000) -Mitutoyo make Each type | Set | 1 | 1 | 2 | |
| 73 | Outside Micrometer 0-25 mm Mitutoyo make | Nos | 2 | 1 | 3 | |
| 74 | Outside Micrometer 0-50 mm Mitutoyo make | Nos | 1 | 1 | 2 | |
| 75 | Outside Micrometer 50-150 mm Mitutoyo make | Nos | 2 | 1 | 3 | |
| 76 | Outside Micrometer 150 - 300 mm Mitutoyo make | Nos | 1 | 0 | 1 | |
| 77 | Outside Micrometer 300 -400 mm Mitutoyo make | Nos | 1 | 0 | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 78 | Outside Micrometer 400-500 mm Mitutoyo make | Nos | 1 | 0 | 1 | |
| 79 | Outside Micrometer 500-600 mm Mitutoyo make | Nos | 1 | 0 | 1 | |
| 80 | Bench Grinding Machine | Nos | 1 | 1 | 2 | |
| 81 | Magnetic base Drill machine with drill bits (sizes up to 32 mm) | Nos | 1 | 1 | 2 | |
| 82 | Induction heaters | Each | 1 | 1 | 2 | |
| 83 | Torque wrenches (up to 3000 NM capacity) | Each | 2 | 1 | 3 | |
| 84 | Various files (flat, round, half round etc.) | Set | 6 | 4 | 10 | |
| 85 | Bearing Scrappers (Flat, Traingular,Half Round) | Set | 2 | 1 | 3 | |
| 86 | Bearing pullers set (Up to 350 mm) | Set | 4 | 2 | 6 | |
| 87 | Screw drivers (medium & heavy duty) 6” 12” & 18” | Each | 8 | 4 | 12 | |
| 88 | Screw spanners 6” 12” & 18” | Each | 2 | 1 | 3 | |
| 89 | Center punches/Letter Punch/Number Punch | Set | 1 Each/Fitter | 1 Each/Fitter | | |
| 90 | Circlip pliers- Internal and external each | Set | 1/each fitter | 1/each fitter | | |
| 91 | Copper Rods - 150 mm & 300 mm | Nos | 4 | 2 | 6 | |
| 92 | Brass rods -150 mm & 300 mm | Set | 3 | 2 | 5 | |
| 93 | Nylon Hammers | Set | 2 | 0 | 2 | |
| 94 | Valve servicing - Lapping tools | Set | 2 | 0 | 2 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 95 | Lapping tool kits 50 to 450 mm dia valve | Set | 1 | 1 | 2 | |
| 96 | Grease gun (2kg and 5kg) | Nos | 2 | 2 | 4 | |
| 97 | Painting Spray Gun | Nos | 1 | 0 | 1 | |
| 98 | Lube Oil filling pump (Motorized type / Hand tool) | Set | 2 | 2 | 4 | 2 Nos Motorised type & 2 nos of hand filling |
| 99 | Non sparking tools | Set | 1 | 1 | 2 | Complete set of non sparking tools with slide wrench and spanners |
| 100 | Aluminum ladder (3 Mtr, 5 Mtr, 10 mtr) | Nos | 02 each | 02 each | | |
| 101 | A-Type Ladder (3 Mtr) | Nos | 02 each | 02 each | | |
| 102 | Scaffolding material- Pipes, Clamps, Ropes, Steel Jolley's, planks & Skirt Boards, Base Plates -Beam Clamps | | 800 pipes/1500 clamps/250 metal planks | | | Additional requirement of scaffolding shall be arranged as and when needed at site |
| 103 | Safety Wire Rope Life line (8 mm,10 mm, 16mm) | Mtrs | 100 Mtr each | 100 Mtr each | | |
| 104 | Manila, Nylon Ropes for material handling | Set | 10 | 8 | 18 | |
| 105 | Safety net | Nos | 5 | 5 | 10 | |
| 106 | Tarpaulin (20 m x 20 m) | Nos | 5 | 5 | 10 | |
| 107 | Wooden slipper for supporting different component. | Nos | 40 | 20 | 60 | |
| **Notes:** | | | | | | |
| 1 | The above mentioned minimum quantity of Tools & Tackles 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 mark and of industrial grade from standard manufacturer. | | | | | |
| 3 | Tools, Tackles & Equipment deployed by the contractor shall be suitable for safe & quality work. | | | | | |
| 4 | Lifting tools should have valid test certificate from competent authority. | | | | | |
| 5 | Measurement instrument should carry valid calibration certificate from approved third party lab. | | | | | |

**BLANK PRICE BID**

**Name of the work: "Annual Maintenance Contract of TG Auxiliaries and BOP, OPGC-II, ITPS."**

| Turbine and Auxilary | | | | | | |
|---|---|---|---|---|---|---|
| **S.No** | **Job Desription** | **Activity Description** | **Qty for 1st Yr** | **UOM** | **Rate/Unit** | **Amount** |
| 1 | CEP/BP SUCTION STRAINER CLEANING/INSPECTION | CEP/BP (SUC STRNR) Cleaning | 30 | NO | | |
| 2 | MD/TDBFP MAIN PUMP SUCTION STRAINER CLEANING/INSP | MD/TDBFP MP (SUC STRNR) Cleaning | 40 | NO | | |
| 3 | MOT (DUPLEX STRAINER/FILTER) CLEANING/REPLACEMENT | MOT (DUPLEX STRNR) Cleaning/Rep | 12 | NO | | |
| 4 | LUB OIL SYSTEM (FILTER) CLEANING/INSPECTION | Lub Oil System (FILTER) Cleaning | 120 | NO | | |
| 5 | BFP (MAGNECTIC FILTER) CLEANING/INSP | BFP (MAG FILTER) Cleaning | 120 | NO | | |
| 6 | STRAINER/FILTER CLEANING AND ATTENDING DEFECT ≤100NB | STRAINER/FILTER Clean Attend Defect ≤100NB | 400 | NO | | |
| 7 | ACW STRAINER/FILTER (800NB) CLEANING/INSPECTION | ACW STRAINER/FILTER (800NB) Cleaning | 8 | NO | | |
| 8 | SG/TGDMCW PHE CLEANING/ LEAKAGE INSPECTION | SG/TGDMCW PHE cleaning/ Leakage Insp | 4 | NO | | |
| 9 | PHE PRIMARY WATER/SEAL OIL (PLATE) INSP/ CLEANING | PHE PW/SO (PLATE) Insp/ Cleaning | 16 | NO | | |
| 10 | CONDENSER (HOTWELL) CLEANING/INSPECTION | CONDENSER (HOTWELL) Cleaning | 4 | NO | | |
| 11 | DEARATOR/FST INSP/OVERHAULING/SERVICING | Dearator/FST Insp/OH | 2 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | DEARATOR/FST CLEANING/ATTENDING DEFECTS | Dearator/FST cleaning/attending defects | 4 | NO | | |
| 13 | CPU VESSEL NOZZLE INSPECTION /OVERHAULING/SERVICING | CPU Vessel Nozzle Inspection /OH | 20 | NO | | |
| 14 | MOT/COT/DOT CLEANING/INSPECTION | MOT/COT/DOT Cleaning | 4 | NO | | |
| 15 | BFP (LUB OIL TANK) CLEANING/INSPECTION | BFP (LUBOIL TANK) Cleaning | 4 | NO | | |
| 16 | CONTROL FLUID/HPLP BYPASS TANK CLEANING | Cont Fluid/HPLP BP Tank cleaning | 2 | NO | | |
| 17 | CONDENSER (WATERBOX) CLEANING/INSPECTION | CONDENSER (WATERBOX) Cleaning | 4 | NO | | |
| 18 | CONDENSER (COLTCS) SCREEN/SYSTEM INSPECTION | CONDENSER (COLTCS) INSPECTION | 6 | NO | | |
| 19 | HP/LP HEATER INSPECTION/ ATTNDENDING TUBE LEAKAGE | HP/LP HEATER INSPECTION/ ATTND TUBE LK | 8 | NO | | |
| 20 | HP HEATER (GASKET) INSTALLATION/REMOVAL | HP HEATER (GASKET) Instal/Remove | 20 | NO | | |
| 21 | HP WATER PUMP (BEARING) REPLACEMENT | HP Water Pump (BEARING) Repl | 20 | NO | | |
| 22 | LP WATER PUMP (BEARING) REPLACEMENT | LP Water Pump (BEARING) Repl | 30 | NO | | |
| 23 | VACCUME PUMP/ BLOWER (BEARING) ATTENDING DEFECT | Vac Pp/ Blwr (BEARING) Attend Defect | 8 | NO | | |
| 24 | LP WATER PUMP - REPLACEMENT OF MECH-SEAL | LP Water Pump (<>) RPL-M-SEAL | 12 | NO | | |
| 25 | LP WATER PUMP (DIA<=6") REPLACEMENTACEMENT OF MECH-SEAL | LP Water Pump (Dia<=6") RPL-M-SEAL | 10 | NO | | |
| 26 | LP WATER PUMP (GLAND) REPLACEMENT | LP Water Pump (GLAND) Repl | 40 | NO | | |
| 27 | HP/LP WATER PUMP - DECOUPLING/COUPLING/ALIGNMENT | HP/LP Water Pump (<>) Decpl/Cpl/Algn | 60 | NO | | |
| 28 | HP/LP PUMP - COUPLING INSP/REPLACEMENT | HP/LP Pump (<>) cplng insp/rep | 60 | NO | | |
| 29 | HP WATER PUMP - SERVICING/OVERHAULING | HP Water Pump (<>) Serv | 10 | NO | | |
| 30 | CHEM DOSING PUMP - SERVICINGICING/OVERHAULING | Chem Dosing Pump (<>) Serv | 24 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 31 | LP WATER PUMP - SERVICING/OVERHAULING | LP Water Pump (<>) Serv | 24 | NO | | |
| 32 | TG OIL PUMP - OVERHAULING/SERVICING | TG OIL PP (<>) OH | 4 | NO | | |
| 33 | MD/TDBFP (LUB OIL PUMP) OVERHAULING/SERVICING | MD/TDBFP (LUBOIL PUMP) OH | 6 | NO | | |
| 34 | TURBINE AOP 660MW-OVERHAULING/SERVICING | Turbine AOP 660MW-OH | 2 | NO | | |
| 35 | TURBINE JOP--OVERHAULING/SERVICING | Turbine JOP(<>)-OH | 1 | NO | | |
| 36 | HP/LP WATER PUMP (DIA<=6") OVERHAULING/SERVICING | HP/LP Water Pump (Dia<=6") OH | 4 | NO | | |
| 37 | VACUUM PUMP TG OVERHAULING/SERVICING | Vacuum pump OH | 2 | NO | | |
| 38 | PIT SUMP PUMP SERVICING/OVERHAULING | Pit sump pump serv | 8 | NO | | |
| 39 | OVEF BLOWER/FAN - SERVICING/OVERHAULING | OVEF BLWR/FAN (<>) Serv | 6 | NO | | |
| 40 | CEP THURST/JOURNAL BEARING REPLACEMENT | CEP RPL-BRG | 4 | NO | | |
| 41 | CEP MECHANICAL SEAL REPLACEMENT | CEP RPL-M-SEAL | 4 | NO | | |
| 42 | CEP DECOUPLING/COUPLING/ALIGNMENT | CEP Decpl/Cpl/Algn | 6 | NO | | |
| 43 | CEP-OVERHAULING/SERVICING | CEP-OH | 2 | NO | | |
| 44 | BFP BP (DE MECH SEAL) REPLACEMENT | BFP BP (DE MECH SEAL) Repl | 4 | NO | | |
| 45 | BFP BP (NDE MECH SEAL) REPLACEMENT | BFP BP (NDE MECH SEAL) Repl | 4 | NO | | |
| 46 | BFP (DE MECH SEAL) REPLACEMENT | BFP (DE MECH SEAL) Repl | 6 | NO | | |
| 47 | BFP (NDE MECH SEAL) REPLACEMENT | BFP (NDE MECH SEAL) Repl | 6 | NO | | |
| 48 | BFP BP (BEARING) INSPECTION | BFP BP (BRG) INSPECTION | 4 | NO | | |
| 49 | BFP BEARING REPLACEMENT | BFP RPL-BRG | 4 | NO | | |
| 50 | BFP BP DECOUPLING/COUPLING/ALIGNMENT | BFP BP Decpl/Cpl/Algn | 6 | NO | | |
| 51 | GEAR BOXES - DECOUPLING/COUPLING/ALIGNMENT | Gear Boxes (<>) Decpl/Cpl/Algn | 6 | NO | | |
| 52 | BFP (600MW) DECOUPLING/COUPLING/ALIGNMENT | BFP (600MW) Decpl/Cpl/Algn | 6 | NO | | |
| 53 | HYD COUPLING - DECOUPLING/COUPLING/ALIGNMENT | HYD CPLG (<>) Decpl/Cpl/Algn | 4 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 54 | BFP CARTRIDGE REPLACEMENT | BFP Cartridge Repl | 2 | NO | | |
| 55 | BFP BOOSTER PUMP - OVERHAULING/SERVICING | BFP BP –OH | 2 | NO | | |
| 56 | TD BFP TURBINE (SERVICINGOMOTORS) SERVICING | TD BFP Turbine (SERVOMOTORS) Serv | 10 | NO | | |
| 57 | MAL DRAIN VALVES - SERVICING/OVERHAULING | MAL V/V (<>) Serv | 20 | NO | | |
| 58 | HP/LP VALVES (GLAND) ATTENDING DEFECT | HP/LP Valves (GLAND) Attend Defect | 240 | NO | | |
| 59 | LP VALVES (GLAND) REPLACEMENT ≤6" | LP Valves (GLAND) Repl ≤6" | 160 | NO | | |
| 60 | HP VALVES (GLAND) REPLACEMENT >6" | HP Valves (GLAND) Repl >6" | 100 | NO | | |
| 61 | HP VALVES(DIA<=6")-REPLACEMENT | HP Valves(Dia<=6")-Repl | 60 | NO | | |
| 62 | HP VALVES(DIA>6"-12")-REPLACEMENT | HP Valves(Dia>6"-12")-Repl | 30 | NO | | |
| 63 | HP VALVES(DIA>12")-REPLACEMENT | HP Valves(Dia>12")-Repl | 10 | NO | | |
| 64 | CONTROL VALVE (<=6") SERVICING | CONT VV (<=6") Serv | 12 | NO | | |
| 65 | CONTROL VALVE (6-12") SERVICING | CONT VV (6-12") Serv | 16 | NO | | |
| 66 | CONTROL VALVE (>12") OVERHAULING | CONT VV (>12") OH | 10 | NO | | |
| 67 | BUTTERFLY VALVE (DIA<=6") SERVICING | BFV (DIA<=6") Serv | 20 | NO | | |
| 68 | BUTTERFLY VALVE (DIA 6"-12") SERVICING | BFV (DIA 6"-12") Serv | 12 | NO | | |
| 69 | BUTTERFLY VALVE (DIA>=12") SERVICING | BFV (DIA>=12") Serv | 10 | NO | | |
| 70 | BUTTERFLY VALVE (2400NB) SERVICING | BFV (2400NB) Serv | 4 | NO | | |
| 71 | HP VALVES (DIA<=6") SERVICING | HP Valves (Dia<=6") Serv | 20 | NO | | |
| 72 | HP VALVES (DIA>6"-12") SERVICING | HP Valves (Dia>6"-12") Serv | 16 | NO | | |
| 73 | HP VALVES (DIA>12") SERVICING | HP Valves (Dia>12") Serv | 10 | NO | | |
| 74 | LP VALVES (DIA<=6") SERVICING | LP Valves (Dia<=6") Serv | 46 | NO | | |
| 75 | LP VALVES (DIA>6"-12") SERVICING | LP Valves (Dia>6"-12") Serv | 24 | NO | | |
| 76 | LP VALVES (DIA>12") SERVICING | LP Valves (Dia>12") Serv | 16 | NO | | |
| 77 | NRV (DIA<=6") SERVICING | NRV (DIA<=6") Serv | 20 | NO | | |
| 78 | NRV (DIA 6"-12") SERVICING | NRV (DIA 6"-12") Serv | 16 | NO | | |
| 79 | NRV (DIA>=12") SERVICING | NRV (DIA>=12") Serv | 6 | NO | | |
| 80 | VALVE GEAR.BOX (<=6") SERVICING | V/V G.BOX (<=6") Serv | 26 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 81 | VALVE GEAR.BOX (6-12") SERVICING | V/V G.BOX (6-12") Serv | 24 | NO | | |
| 82 | VALVE GEAR.BOX (>12") SERVICING | V/V G.BOX (>12") Serv | 22 | NO | | |
| 83 | SAFETY VALVE (1-4") SERVICING | Safety Valve (1-4") Serv | 8 | NO | | |
| 84 | SAFETY VALVE (4-8") SERVICING | Safety Valve (4-8") Serv | 4 | NO | | |
| 85 | SAFETY VALVE (8-16") SERVICING | Safety Valve (8-16") Serv | 2 | NO | | |
| 86 | MISCELLENEOUS WORKS - WELDING ARC | Misc Works (<>) WELDING ARC | 300 | NO | | |
| 87 | STEAM PIPING - WELDING HP TIG | STEAM PIPING (<>) WELDING HP TIG | 100 | NO | | |
| 88 | STEAM PIPING (DIA<=6") STRESS RELEIVING | STEAM PIPING (DIA<=6") STRESS RELEIVING | 10 | NO | | |
| 89 | STEAM PIPING (DIA>6"-12") STRESS RELEIVING | STEAM PIPING (DIA>6"-12") STRESS RELEIVI | 10 | NO | | |
| 90 | FLANGE (DN350) ATTENDING DEFECT ONLINE | FLANGE (DN350) Attend Defect online | 160 | NO | | |
| 91 | FLANGE (GASKET) ATTENDING DEFECT ONLINE | FLANGE (GASKET) Attend Defect online | 140 | NO | | |
| 92 | FLANGE GASKET (≤6") REPLACEMENT | FLANGE GASKET (≤6") Repl | 120 | NO | | |
| 93 | FLANGE GASKET (>6"-12") REPLACEMENT | FLANGE GASKET (>6"-12") Repl | 150 | NO | | |
| 94 | FLANGE GASKET (>12") REPLACEMENT | FLANGE GASKET (>12") Repl | 100 | NO | | |
| 95 | HP/LP WATER PUMP - 12WEEK CHECKS | HP/LP Water Pump (<>) 12W Chks | 200 | NO | | |
| 96 | HPLP WATER PUMP - 04WEEK CHECKS | HPLP Water Pump (<>) 04W Chks | 200 | NO | | |
| 97 | CEP 12WEEK CHECKS | CEP 12W Chks | 24 | NO | | |
| 98 | HP WATER PUMP - 12WEEK CHECKS MD/TDBFP | HP Water Pump (<>) 12W Chks MD/TDBFP | 24 | NO | | |
| 99 | LUB OIL SYSTEM (PUMP) 24WEEK CHECKS | Lub Oil System (PUMP) 24W Chks | 60 | NO | | |
| 100 | LUB OIL SYSTEM (PUMP) 08WEEK CHECKS | Lub Oil System (PUMP) 08W CHKS | 40 | NO | | |
| 101 | LUB OIL SYSTEM (PUMP) 04WEEK CHECKS | Lub Oil System (PUMP) 04W Chks | 140 | NO | | |
| 102 | BLOWER/FAN - 04WEEK CHECKS | BLWR/FAN (<>) 04W Chks | 120 | NO | | |
| 103 | HP VALVES (150NB) ATTENDING DEFECT ONLINE | HP Valves (150NB) ATTEND DEFECT ONLINE | 200 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 104 | MISC WORKS - LUBRICATION/TOPUP | MISC WORKS (<>) LUBRICATION | 300 | NO | | |
| 105 | MOT/TDBFP CENTRIFUGE - CLEANING | MOT/TDBFP CENTRIFUGE (<>) Cleaning | 50 | NO | | |
| 106 | MOT/TDBFP CENTRIFUGE - OVERHAULING | MOT/TDBFP CENTRIFUGE (<>) OH | 10 | NO | | |
| 107 | LUB OIL SYSTEM - FILTRATION (EXTERNAL UNIT) | Lub Oil System (<>) FILTRATION (External unit) | 40 | NO | | |
| 108 | EOT/CRANES (>90MT) 12WEEK CHECKS TG HALL | EOT/Cranes (>90MT) 12W Chks TG Hall | 4 | NO | | |
| 109 | HOIST/CRANES - CHECKING TG AREA | Hoist/Cranes (<>) Checking TG Area | 20 | NO | | |
| 110 | STEAM TUR (LPT DIAPHRAGM) REPLACEMENT | STEAM TUR (LPT DIAPHRAGM) Repl | 8 | NO | | |
| 111 | HANGER & SUPPORTS - CHECKING/RECTIFICATION | HANGER (<>) Checking | 14 | NO | | |
| 112 | HANGER & SUPPORTS - ATTENDING DEFECTS | HANGER (<>) Attend Defect | 14 | NO | | |
| 113 | MOT OIL FILLING/TOP UP | MOT OIL FILLING | 60 | NO | | |
| 114 | HPBP VALVES - SERVICING | HPBP Valves (<>) Serv | 1 | NO | | |
| 115 | LPBP VALVES - SERVICING | LPBP Valves (<>) Serv | 1 | NO | | |
| 116 | CONDENSER - WATERBOX DOOR OPEN/CLOSE | Condenser (<>) W/B DOOR OPEN/CLOSE | 24 | NO | | |
| 117 | DEARATOR (GAUGEGLASS) SERVICING/REPLACEMENT | Dearator (GAGEGLASS) Serv | 20 | NO | | |
| 118 | CONDENSER - FLOOD TEST | CONDENSER (<>) FLOOD TEST | 6 | NO | | |
| 119 | BLOWER/FAN - RPL-BRG | BLWR/FAN (<>) RPL-BRG | 12 | NO | | |
| 120 | EXPANSION JOINTS (UPTO 1000MM) REPLACEMENT | Expansion Joints (UPTO 1000MM) Repl | 6 | NO | | |
| 121 | LUB OIL COOLER - SERVICING/CLEANING | Lub Oil Cooler (<>) Serv | 8 | NO | | |
| 122 | HYDRAULIC COUPLING - OVERHAULING | HYD CPLG (<>) OH | 1 | NO | | |
| 123 | ACCUMULATOR (BLADDER) REPLACEMENT | ACCUMULATOR (BLADDER) Repl | 12 | NO | | |
| 124 | ROUND THE CLOCK SHIFT ASSISTANCE TGBOP | Round the clock shift assistance TGBOP | 365 | Days | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 125 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT ≤ 2MTR | Erec/Dis Scaffolding upto height ≤ 2mtr | 80 | No | | |
| 126 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >2-5MTR | Erec/Dis Scaffolding upto height >2-5mtr | 80 | No | | |
| 127 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >5-10MTR | Erec/Dis Scaffolding upto height >5-10mtr | 80 | No | | |
| 128 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >10-15MTR | Erec/Dis Scaffolding upto height >10-15mtr | 30 | No | | |
| Balance of plant | | | | | | |
| 1 | CW PUMP 04 WEEK CHECKS | CW Pump 04 Week chks | 30 | NO | | |
| 2 | CW PUMP 24 WEEK CHECKS | CW Pump 24 Week chks | 10 | NO | | |
| 3 | LP WATER PUMP(DIA>6"-12")-04WEEK CHECKS | LP Water Pump(Dia>6"-12")-04W Chks | 189 | NO | | |
| 4 | LP WATER PUMP (DIA>12") 24WEEK CHECKS | LP Water Pump (Dia>12") 24W Chks | 21 | NO | | |
| 5 | LP WATER PUMP(DIA ≤ 6")-OVERHAULING | LP Water Pump(Dia ≤ 6")-OH | 25 | NO | | |
| 6 | LP WATER PUMP (DIA>12") DECOUPLING/COUPLING/ALIGNMENT | LP Water Pump (Dia>12") Decpl/Cpl/Algn | 15 | NO | | |
| 7 | LP WATER PUMP(DIA ≤ 6")-OIL FILLING/TOP UP | LP Water Pump(Dia ≤ 6")-Oil filling | 100 | NO | | |
| 8 | LP WATER PUMP (GLAND) ATTENDING DEFECT | LP Water Pump (GLAND) Attend Defect | 120 | NO | | |
| 9 | LP VALVES/NRV(DIA ≤ 6")-REPLACEMENT | LP Valves/NRV(Dia ≤ 6")-Repl | 35 | NO | | |
| 10 | LP VALVES/NRV(DIA>6"-12")-REPLACEMENT | LP Valves/NRV(Dia>6"-12")-Repl | 20 | NO | | |
| 11 | LP VALVES/NRV(DIA ≤ 6")-SERVICING | LP Valves/NRV(Dia ≤ 6")-Serv | 150 | NO | | |
| 12 | LP VALVES(DIA>6"-12")-ATTENDING DEFECT | LP Valves(Dia>6"-12")-Attend Defect | 50 | NO | | |
| 13 | LP VALVES (DELUGE VALVE) OPERATION/MAINTENANCE | LP Valves (DELUGE VV) OPN/MTC | 50 | NO | | |
| 14 | FIRE FIGHTING SYSTEM (QBD FIRE SPRINKLER) REPLACEMENT | FIR FIGHT SYS (QBD FIRE SPRINKLR) | 120 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Repl | | | | |
| 15 | UNDERGROUND LINES (DIA>6"-12") WELDING | U/ground Lines (Dia>6"-12") WELDING | 30 | NO | | |
| 16 | UNDERGROUND LINES (DIA>12") REPLACEMENT | U/ground Lines (Dia>12") Repl | 100 | M | | |
| 17 | MILD STEEL PIPING (DIA≥6"-12") WELDING | MS Piping (Dia≥6"-12") WELDING | 200 | NO | | |
| 18 | MILD STEEL PIPING (DIA≤ 6") LAYING | MS Piping (Dia≤ 6") Laying | 300 | M | | |
| 19 | MILD STEEL PIPING (DIA>6"-12") LAYING | MS Piping (Dia>6"-12") Laying | 100 | M | | |
| 20 | BUTTERFLY VALVE VALVE G/B SER 800-1600NB | BFV Valve G/B Ser 800-1600NB | 10 | NO | | |
| 21 | BUTTERFLY VALVE VALVE G/B SER 2200-2700NB | BFV Valve G/B Ser 2200-2700NB | 6 | NO | | |
| 22 | BUTTERFLY VALVE SEAL REPLACEMENT 450-1000MM | BFV Seal Repl 450-1000MM | 18 | NO | | |
| 23 | AIR RELEASE VALVE - ATTEND DEFECT | AIR RELEASE V/V (<>) Attend Defect | 50 | NO | | |
| 24 | CW/RW COARSE SCREEN CLEANING/INSPECTION | CW/RW Coarsescreen cleaning | 24 | NO | | |
| 25 | DUCT (CW SYSTEM) CLEANING/INSPECTION | Duct (CW SYS) Cleaning | 5 | NO | | |
| 26 | HT MOTORS INSTALLATION & REMOVAL | HT Motors installation & removal | 10 | NO | | |
| 27 | FIRE SYSTEM (ALARM GANG BELL) REPAIR | FIRE SYS (ALARM GANG BELL) Repair | 20 | NO | | |
| 28 | STRAINER CLEANING UP TO 2" | Strainer cleaning up to 2" | 300 | NO | | |
| 29 | STRAINER CLEANING ABOVE 2"-4" | Strainer cleaning above 2"-4" | 120 | NO | | |
| 30 | STRAINER CLEANING ABOVE4"-10" | Strainer cleaning above4"-10" | 60 | NO | | |
| 31 | STRAINER CLEANING ABOVE 10"DIA | Strainer cleaning above 10" | 12 | NO | | |
| 32 | COUPLING INSPECTION FOR VERTICAL PUMP | Coupling insp for vertical pp | 30 | NO | | |
| 33 | LP WATER PUMP ALINGMENT/COUPLING/DECOUPLING INSP DIA≤12" | LP Water Pump aling/cpln insp dia≤12" | 60 | NO | | |

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|---|---|---|---|---|---|---|
| 34 | EXPANSION JOINT REPLACEMENT CW/RW PUMPS | Expansion Joint RepCW/RW Pumps | 4 | NO | | |
| 35 | LP WATER PUMP (DIA>12") 12WEEK CHECKS | LP Water Pump (Dia>12") 12W Chks | 40 | NO | | |
| 36 | LP WATER PUMP (DIA>12") 24WEEK CHECKS | LP Water Pump (Dia>12") 24W Chks | 20 | NO | | |
| 37 | HP WATER PUMP (DIA>6"-12") 12WEEK CHECKS | HP Water Pump (Dia>6"-12") 12W Chks | 18 | NO | | |
| 38 | HP WATER PUMP (DIA>6"-12") 24WEEK CHECKS | HP Water Pump (Dia>6"-12") 24W Chks | 10 | NO | | |
| 39 | LP WATER PUMP (DIA>6"-12") 12WEEK CHECKS | LP Water Pump (Dia>6"-12") 12W Chks | 291 | NO | | |
| 40 | LP WATER PUMP (DIA>6"-12") 24WEEK CHECKS | LP Water Pump (Dia>6"-12") 24W Chks | 105 | NO | | |
| 41 | WTP/ETP/PTP AGITATORS 12WEEK CHECKS | WTP/ETP/PTP Agitators 12W Chks | 64 | NO | | |
| 42 | WTP/ETP/PTP AGITATORS 24WEEK CHECKS | WTP/ETP/PTP Agitators 24W Chks | 30 | NO | | |
| 43 | BLOWER/FAN (≤25KW) 12WEEK CHECKS | BLWR/FAN (≤25KW) 12W Chks | 35 | NO | | |
| 44 | BLOWER/FAN (≤25KW) 24WEEK CHECKS | BLWR/FAN (≤25KW) 24W Chks | 15 | NO | | |
| 45 | CLARIFIER RAKE ARM/TURBINE DRIVE | Clarifier Rake arm/turbine drv | 32 | NO | | |
| 46 | CLARIFIER RAKE ARM/TURBINE DRIVE | Clarifier Rake arm/turbine drv | 16 | NO | | |
| 47 | INSPECTION OF EOT/HOIST UP TO 55 TONS | EOT/Hoist up to 55 Tons | 50 | NO | | |
| 48 | ATTENDING DEFECTS/LEAKS IN CL2 PLANTS | Attending defects/leaks in Cl2 plants | 50 | NO | | |
| 49 | PIT/ SUMP/TANK CLEANING | Pit/ Sump/Tank Cleaning | 20 | NO | | |
| 50 | MSRL PIPE (100NB) REPLACEMENT | MSRL PIPE (100NB) Repl | 100 | NO | | |
| 51 | MS PIPING (DIA>6"-12") REPLACEMENT | MS Piping (Dia>6"-12") Repl | 100 | NO | | |
| 52 | VESSEL OVERHAULING MB/SAC/SBA/CRU/CPU | Vessel OH MB/SAC/SBA/CRU/CPU | 50 | NO | | |
| 53 | LP VALVES (DIA≤6") REPAIR | LP Valves (Dia≤6") Repair | 150 | NO | | |
| 54 | LP VALVES (DIA>6"-12") REPAIR | LP Valves (Dia>6"-12") Repair | 80 | NO | | |
| 55 | LP VALVES (DIA>12") REPAIR | LP Valves (Dia>12") Repair | 50 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 56 | LP VALVES (DIA≤6") REPLACEMENT | LP Valves (Dia≤6") Repl | 100 | NO | | |
| 57 | LP VALVES (DIA>6"-12") REPLACEMENT | LP Valves (Dia>6"-12") Repl | 80 | NO | | |
| 58 | LP VALVES(DIA>12")-REPLACEMENT | LP Valves(Dia>12")-Repl | 30 | NO | | |
| 59 | LP WATER PUMP (DIA>6"-12") DECOUPLING/COUPLING/ALINGMENT | LP Water Pump (Dia>6"-12") Decpl/Cpl/Alg | 40 | NO | | |
| 60 | PAINTING OF PIPE/VALVES/TANK WTP | Painting of pipe/valves/tank WTP | 1000 | M2 | | |
| 61 | LP WATER PUMP(DIA>12")-OVERHAULING | LP Water Pump(Dia>12")-OH | 20 | NO | | |
| 62 | HP WATER PUMP (DIA>6"-12") OVERHAULING | HP Water Pump (Dia>6"-12") OH | 10 | NO | | |
| 63 | LP WATER PUMP(DIA>6"-12")-OVERHAULING | LP Water Pump(Dia>6"-12")-OH | 50 | NO | | |
| 64 | AGITATORS WTP/ETP/PTP OVERHAULING | Agitators WTP/ETP/PTP | 10 | NO | | |
| 65 | BLOWER/FAN (<=25KW) OVERHAULING | BLWR/FAN (<=25KW) OH | 10 | NO | | |
| 66 | HIGH RATE SOLID CONTACT CLARIFIER DMPT OVERHAULING | HRSCC DMPT OH | 2 | NO | | |
| 67 | HIGH RATE SOLID CONTACT CLARIFIER CTBD OVERHAULING | HRSCC CTBD OH | 1 | NO | | |
| 68 | MILD STEEL PIPING (DIA≤6") LAYING | MS Piping (Dia≤6") Laying | 200 | M | | |
| 69 | MILD STEEL PIPING (DIA>6"-12") LAYING | MS Piping (Dia>6"-12") Laying | 150 | M | | |
| 70 | MILD STEEL PIPING (DIA>12") LAYING | MS Piping (Dia>12") Laying | 50 | M | | |
| 71 | STAINLESS STEEL LINE (≤ 6") LAYING | SSLINE (≤ 6") Laying | 40 | M | | |
| 72 | STAINLESS STEEL LINE DIA>6"-12"LAYING | SSLINE Dia>6"-12"Laying | 20 | NO | | |
| 73 | TPI/API SERVICING/OVERHAULING | TPI/API Servicing | 4 | NO | | |
| 74 | HYDRANT VALVE REPAIRING | Hydrant Valve repairing | 50 | NO | | |
| 75 | BLOWER/FAN - BEARING REPLACEMENT | BLWR/FAN (<>) RPL-BRG | 12 | NO | | |
| 76 | BLOWER/FAN (DRIVE BELT) REPLACEMENT | BLWR/FAN (DRIVE BELT) Repl | 12 | NO | | |
| 77 | PVCU/CPVC PIPE - FABRICATION | PVC PIPE (<>) Fabrication | 200 | NO | | |
| 78 | LP PUMP DIA>6"-12"MECH SEAL/BRG/COUPLING INSPECTION | LP Pump Dia>6"-12"M-seal/brg/cplng insp | 80 | NO | | |
| 79 | RECIPROCATING PUMP - OVERHAULING | RECIPROCATING PP (<>) OH | 20 | NO | | |
| 80 | LP PUMP DIA ≤ 6"MECHSEAL/BRG/CPLNG INSP | LP Pump Dia ≤ 6"M-seal/brg/cplng insp | 100 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 81 | RECIPROCATING PUMP - SERVICING/OH | RECIPROCATING PP (<>) Serv | 150 | NO | | |
| 82 | SUCTION/DISCHARGE NRV INSPECTION RECIPROCATING PUMP | SUC/DISC NRV RECIPROCATING PP | 35 | NO | | |
| 83 | SCREW COMPRESSOR ASSISTANCE IN OVERHAULING | Screw Comp Assistance in OH | 4 | NO | | |
| 84 | SCREW COMPRESSOR ASSISTANCE IN SERVICING | Screw Comp Assistance in Serv | 15 | NO | | |
| 85 | EQUIPMENT/PIPELINES & VALVES INTERNAL CLEANING | Equip/pipelines & valves internal cleaning | 12 | NO | | |
| 86 | DECHOCKING OF PIPELINES | Dechocking of pipelines | 40 | NO | | |
| 87 | GLAND LEAKAGES OF PUMPS & VALVES | Gland leakages of pumps & valves | 300 | NO | | |
| 88 | FLANGE - ATTENDING DEFECT | FLANGE (<>) Attend Defect | 500 | NO | | |
| 89 | RW/CW EVAPORATOR/CHLORINATOR SERVICING | RW/CW Evap/Chlorinator Serv | 12 | NO | | |
| 90 | WATER CHANNEL GATE - LIFTING | Wtr Chnnl Gate (<>) LIFTING | 2 | NO | | |
| 91 | MISCELLENEOU WORKS - WELDING/GRINDING/CUTTING | Misc Works (<>) WELDING | 500 | NO | | |
| 92 | CHLORINATOR CLEANING & ATTENDING DEFECTS | Chlorinator cleaning & attending defects | 80 | NO | | |
| 93 | ATTENDING CHLORINE LEAKAGES | Attending chlorine leakage | 100 | NO | | |
| 94 | RO UF MCF FILTER CLEANING & REPLACEMENT | RO UF MCF Filter cleaning & repl | 20 | NO | | |
| 95 | ETP RO/UF MEMBRANE REPLACEMENT | ETP RO/UF Membrane replacemt | 35 | NO | | |
| 96 | CTBD/ETP RO/UF MEMBRANE REPLACEMENT | CTBD/ETP RO/UF Membrane replacemt | 5 | NO | | |
| 97 | VICTAULIC COUPLING/VALVES AND PIPING DEFECTS | Victaulic cplng/valves and piping defects | 100 | NO | | |
| 98 | CTBD/ETP RO VESSEL INSPECTION AND SERVICING | CTBD/ETP RO Vessel Insp | 20 | NO | | |
| 99 | VALVE GEAR BOX (6-12") SERVICING | V/V G.BOX (6-12") Serv | 100 | NO | | |
| 100 | WATER TANK - CLEANING/INSPECTION | TANK (<>) Cleaning | 4 | NO | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 101 | COOLING TOWER FAN (DRIVE SHAFT) ALIGNINGMENT | CT Fan (DRIVE SHAFT) ALIGNING | 20 | NO | | |
| 102 | COOLING TOWER FAN - 12WEEK CHECKS | CT Fan (<>) 12W Chks | 192 | NO | | |
| 103 | COOLING TOWER FAN (HUB/HUB COVER) REPLACEMENT | CT Fan (HUB/HUB COVER) Repl | 12 | NO | | |
| 104 | COOLING TOWER FAN - 48WEEK CHECKS | CT Fan (<>) 48W Chks | 48 | NO | | |
| 105 | COOLING TOWER FAN (BLADES) SETTING | CT Fan (BLADES) SETTING | 50 | NO | | |
| 106 | COOLING TOWER DIST PIPE/NOZZLES - CLEANING | CT Dist Pipe/Nozzles (<>) Cleaning | 250 | NO | | |
| 107 | COOLING TOWER FAN(G.BOX) (OIL) REPLACEMENT | CT Fan(G.box) (OIL) Repl | 50 | NO | | |
| 108 | COOLING TOWER FAN(G.BOX) - OVERHAULING | CT Fan(G.box) (<>) OH | 12 | NO | | |
| 109 | COOLING TOWER FAN(G.BOX) (OILSEAL) REPLACEMENT | CT Fan(G.box) (OILSEAL) Repl | 15 | NO | | |
| 110 | COOLING TOWER FAN (DRIVE SHAFT) REPLACEMENT | CT Fan (DRIVE SHAFT) Repl | 10 | NO | | |
| 111 | COOLING TOWER FAN (BLADES) REPLACEMENT | CT Fan (BLADES) Repl | 10 | NO | | |
| 112 | COOLING TOWER FAN(G.BOX) (OIL) TOP UP | CT Fan(G.box) (OIL) TOP UP | 250 | NO | | |
| 113 | COOLING TOWER BASIN--CLEANING | CT Basin(<>)-Cleaning | 2 | NO | | |
| 114 | COOLING TOWER CELLS - 08WEEK CHECKS | CT Cells (<>) 08W CHKS | 96 | NO | | |
| 115 | COOLING TOWER FILL PACKS - CLEANING(ONLINE) | CT Fill Packs (<>) Cleaning(Online) | 24 | NO | | |
| 116 | LP WATER PUMP (DIA<=6") SERVICING | LP Water Pump (Dia<=6") Serv | 40 | NO | | |
| 117 | STRUCTURAL FABRICATION | Structural Fabrication | 30 | T | | |
| 118 | BUTTERFLY VALVE SEAL REPLACEMENT 500-800MM | BFV Seal Repl 500-800MM | 2 | NO | | |
| 119 | BUTTERFLY VALVE GEAR BOX INSPECTION 2200-2700MM | BFV G/B 2200-2700MM | 2 | NO | | |

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|---|---|---|---|---|---|---|
| 120 | HT MOTORS (>1000-1500KW) INSTALLATION/REMOVAL | HT MOTORS (>1000-1500KW) Instal/Remove | 4 | NO | | |
| 121 | HT MOTORS (>2000-4000KW) INSTALLATION/REMOVAL | HT MOTORS (>2000-4000KW) Instal/Remove | 2 | NO | | |
| 122 | COOLING WATER PUMP - OVERHAULING | CW PUMP (<>) OH | 2 | NO | | |
| 123 | COOLING WATER PUMP - COUPLING INSP & ALIGNINGMENT | CW PUMP (<>) ALIGNING | 4 | NO | | |
| 124 | RAW WATER PUMP OVERHAULING | RW pump OH | 2 | NO | | |
| 125 | DEPLOYEMENT OF MANPOWER-SKILLED WORKER | DEPTT <> MAN.DEP-SW | 240 | MND | | |
| 126 | DEPLOYEMENT OF MANPOWER-UNSKILLED WORKER | DEPTT <> MAN.DEP-USW | 480 | MND | | |
| 127 | DEPLOYEMENT OF MANPOWER-SEMI SKILLED WORKER | DEPTT <> MAN.DEP-SSW | 480 | MND | | |
| 128 | DEPLOYEMENT OF MANPOWER-HIGHLY SKILLED WORKER | DEPTT <> MAN.DEP-HSW | 120 | MND | | |
| 129 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT ≤ 2MTR | Erec/Dis Scaffolding upto height ≤ 2mtr | 80 | NO | | |
| 130 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >2-5MTR | Erec/Dis Scaffolding upto height >2-5mtr | 100 | NO | | |
| 131 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >5-10MTR | Erec/Dis Scaffolding upto height >5-10mtr | 120 | NO | | |
| 132 | ERECTION/DISMANTLING SCAFFOLDING UPTO HEIGHT >10-15MTR | Erec/Dis Scaffolding upto height >10-15mtr | 40 | NO | | |
| | | | | | **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 same as 1st year quantity stipulated in blank price bid format.**