

Rev 01
1st Jun
2012

NOTICE INVITING TENDER

(Document No PS:MSX:NIT)

Bharat Heavy Electricals Limited



Ref: BHEL/NR/SCT/RAPP KOTA/STG/UNIT 7/1064

NOTICE INVITING E-TENDER (NIT)
BIDDER TO SUBMIT OFFERS ON PORTAL

<https://bheleps.buyjunction.in>

To

Dear Sir/Madam

Sub : NOTICE INVITING E-TENDER

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

1. Salient Features of NIT

SL NO	ISSUE	DESCRIPTION
i	TENDER NUMBER	BHEL/NR/SCT/RAPP KOTA/STG/UNIT 7/1064
ii	Broad Scope of job	E/T/C, trial operation, performance testing and handing over of steam turbine, generator, MSR, condenser, static and rotating equipment, piping and auxiliaries of the system including receipt, handling of materials from BHEL/ client's stores/ yard, transportation to site and final painting of Unit no. 7 of 2X700 MW, RAPP-7&8 of NPCIL, at Rawatbhata, Kota, Rajasthan.
iii	DETAILS OF TENDER DOCUMENT	
a	Volume-IA	<i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i> Applicable
b	Volume-IB	<i>Special Conditions of Contract (SCC)</i> Applicable
c	Volume-IC	<i>General Conditions of Contract (GCC)</i> Applicable
d	Volume-ID	<i>Forms and Procedures</i> Applicable
e	Volume-II	<i>Price Schedule (Absolute value).</i> Applicable
iv	Issue of Tender Documents	From BHEL website (www.bhel.com) and <u>https://bheleps.buyjunction.in</u> Tender documents will be available at website till due date of submission Applicable
v	DUE DATE & TIME OF OFFER SUBMISSION	Date : 14/06/2017, Time : 1500 HRS Place : on <u>https://bheleps.buyjunction.in</u> Applicable
vi	OPENING OF TENDER	At due date / time Date : 14/06/2017, Time : 1530 HRS Notes: (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day. Applicable

		(2) Bidder may depute representative to witness the opening of tender. However it being an e-tender it shall be opened online	
vii	EMD AMOUNT	Rs. 20,37,000/-	Applicable
viii	COST OF TENDER	Rs. 2000/-	Applicable
ix	LAST DATE FOR SEEKING CLARIFICATION	Five days before bid submission due date. Along with soft version also, addressing to contact address given below 1) Mr. Satya Kant Sr. Mgr./ SCT Bharat Heavy Electricals Limited Power Sector Northern Region Plot No. 25, Sector-16A, Distt. Gautam Budh Nagar, NOIDA-201301(UP) Tel No. 0120-2416566 Fax- 01202416528 Email – skant@bhel.in 2) Ms. Rashmi Sahu Astt. Engr. / SCT Bharat Heavy Electricals Limited Power Sector Northern Region Plot No. 25, Sector-16A, Distt. Gautam Budh Nagar,, NOIDA-201301(UP) Tel No. 0120-2416449 Fax- 01202416528 Email: rsahu@bhel.in	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)		Not applicable.
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)	Shri V.V.R. Sastry, Ex-CMD/ BEL 957, 9th Main 3 Stage, 3 Block Basaveswaranagar Bangalore- 560079 Email id - sastry@gmail.com	Applicable
xii	Latest updates	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendums) & portal https://bheleps.buyjunction.in and not in the newspapers. Bidders to keep themselves updated with all such information	
xiii	Tender submission	on portal https://bheleps.buyjunction.in	

2. The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**

3. Unless specifically stated otherwise, bidder shall remit cost of tender and courier charges if applicable, in the form of Demand Draft drawn in favour of Bharat Heavy Electricals Ltd, payable at Power Sector Regional HQ at Noida issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against sl no iv of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Noida, Sundays and second/ last Saturdays.

As this tender is an E-Tender and no paper bids will be accepted therefore the scanned copy of the Demand Draft or the Cash Receipt issued by BHEL PSNR should be uploaded in the E procurement portal. Hard Copy of the demand draft should reach BHEL PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.

4. Unless specifically stated otherwise, bidder shall deposit EMD through Cash Deposit (as permissible under the extant Income Tax Act) (before tender opening), Electronic Fund Transfer credited in BHEL account (before Tender Opening) or Banker's Cheque/ Demand Draft/ Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Noida (along with offer).

'One Time EMD' will not be considered for this tender. All the bidders who have 'One Time EMD' with BHEL and want to participate in this tender, would also submit the requisite amount of EMD as mentioned in Clause No. 1, Salient Features of NIT, Sl. No. (vii) above.

However, the One Time EMD can be adjusted against the EMD applicable against this tender on specific request of bidder.

For Electronic Fund Transfer the details are as below:-

a) **Name of the Beneficiary** :- Bharat Heavy Electricals Limited

b) **Bank Particulars**

i).	Bank Name :-	STATE BANK OF INDIA
ii).	Bank Telephone No.(with STD code):-	011-23352180
iii).	Branch Address:-	CAG BRANCH, NEW DELHI
iv).	Bank Fax No. (with STD code) :-	011-23353101
v).	Branch Code :-	SBIN0009996
vi).	9 Digit MICR Code of the Bank Branch :-	110002201
vii).	Bank Account Number :-	10813608647
viii).	Bank Account Type :-	CASH CREDIT
ix).	11 Digit IFSC Code of Beneficiary Branch:-	SBIN0009996

(Note:- In case of E-Tenders, no paper bids shall be accepted, therefore, the scanned copy of the Banker's Cheque/ Demand Draft/ Pay Order/ Details of payment made through Electronic Fund Transfer should be uploaded in the E-Procurement Portal and hard copy of the same should reach BHEL-PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.)

For other details please refer General Conditions of Contract.

5. **Procedure for Submission of Tenders**: This is an E-tender floated online through our E-Procurement Site <https://bheleps.buyjunction.in>. The bidder should respond by submitting their offer online only in our e-Procurement platform at <https://bheleps.buyjunction.in>. Offers are invited in two-parts only.

Documents Comprising the e-Tender

The tender shall be submitted online ONLY EXCEPT TENDER FEE & EMD (in physical form) as mentioned below:

a. **Technical Tender (UN priced Tender)**

All Technical details (eg. Eligibility Criteria requested (as mentioned below)) should be attached in e-tendering module, failing which the tender stands invalid & may be REJECTED. Bidders shall furnish the following information along with technical tender (preferably in pdf format):

- i. Tender Cost and Earnest money Deposit (EMD) furnished in accordance with NIT Clause 3.0 & 4.0. Alternatively, documentary evidence for claiming exemption as per clause 29 of NIT
- ii. Technical Bid (without indicating any prices).

b. Price Bid:

- i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
- ii. The price should be quoted for the accounting unit indicated in the e-tender document.
- iii. Note: It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- iv. A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.
- v. A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.
- vi. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, same shall not be considered.

DO NOT'S

Bidders are requested NOT to submit the hard copy of the Bid. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, the same shall not be considered. **Also, uploading of the price bid in prequalification bid or technical bid may RESULT IN REJECTION of the tender.**

Digital Signing of e-Tender

Tenders shall be uploaded with all relevant PDF/zip format. The relevant tender documents should be uploaded by an authorized person having Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION digital signature certificate (DSC).

The Requirement:

1. A PC with Internet connectivity &
2. DSC (Digital Signature Certificate)(**Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION**)

BHEL has finalized the e-procurement service Provider:-

M/s M Junction services Limited, Kolkata

Godrej Water Side, 3rd Floor, Tower-1, Plot-V, Block - DP
Sector - V, Salt Lake, Kolkata-700091, West Bengal, INDIA

The contact details of the service provider are given below:

1. First level:

- MJ Helpdesk : 033-66011717, eps.customercare@mjunction.in

2. Second Level:

- Bhaskar Chakraborty: 8584008205, bhaskar.chakraborty@mjunction.in, eps.customercare@mjunction.in
- Santosh Kumar: 9717149600, santosh.kumar@mjunction.in

3. Third Level:

- Rimi Ghosh: 9650044156, rimi.ghosh@mjunction.in
- 1. Customer care Help Desk of M/s MJUNCTION SERVICES LIMITED, Kolkata:
Tel ~ 033 - 66011717 (From 9.30 am to 5.30 pm),
Mob - 91633 48283 - 86/ 85840 08116 (From 5.30 pm to 8.30 pm)
HELPDESK email: eps.customer@mjunction.in,
The process of utilizing e-procurement necessitates usage of **DSC (Digital Signature Certificate)(Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION)** and you are requested to procure the same immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.
- 2. The contact details of the DSC Certifying Authority as given below

1	GNFC	www.ncodesolutions.com
2	e-Mudhra	http://www.e-Mudhra.com
3	Safescrypt	www.safescrypt.com

Vendors are also requested to go through seller manual available on www.bheleps.buyjunction.in

6. Not Used

- 7. Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.
- 8. BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).
- 9. **Assessment of Capacity of Bidders:**

Bidder's capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise as per the following:

- I. **LOAD:** Load takes into consideration **ALL** the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The cut off month for reckoning 'Load' shall be the 3rd Month preceding the month corresponding to the 'latest date of bid submission', in the following manner -
(**Note:** For example, if latest bid submission is in Jan 2017, then the 'load' shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

Where 'P' is the sum of all unit wise identified packages (refer table-1) under execution with BHEL Regions as on the cut off month defined above, including packages yet to be commenced, excepting packages which are on Long Hold.

- II. **PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all Power Sector Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding and including the cut off

month. The cut off month for reckoning 'Period of Assessment' shall be the 3rd Month preceding the month corresponding to 'latest date of bid submission', in the following manner:

(**Note:** For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 6 months' period up to and inclusive of Oct 2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table -1))

i). Calculation of Overall 'Performance Rating' for 'Similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

- $P_1, P_2, P_3, P_4, P_5, \dots, P_N$ etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (i.e. $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- Number of Months ' T_1 ' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P_1 . Similarly T_2 for package P_2, T_3 for package P_3 , etc. for the tendered scope. Now calculate cumulative total months ' T_T ' for total similar Packages ' P_T ' for all Regions (i.e. $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$)
- Sum ' S_1 ' of 'Monthly Performance Evaluation' Scores ($S_{1-1}, S_{1-2}, S_{1-3}, S_{1-4}, S_{1-5}, \dots, S_{1-T_1}$) for similar package P_1 , for the 'period of assessment' ' T_1 ' (i.e. $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-T_1}$). Similarly, S_2 for package P_2 for period T_2 , S_3 for package P_3 for period T_3 etc. for the tendered scope for all Regions. Now calculate cumulative sum ' S_T ' of 'Monthly Performance Evaluation' Scores for total similar Packages ' P_T ' for all Regions (i.e. ' $S_T = S_1 + S_2 + S_3 + S_4 + S_5 + \dots + S_N$ ')
- Overall Performance Rating ' R_{BHEL} ' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

$$= \frac{\text{Aggregate of Performance scores for all similar packages in all the Regions}}{\text{Aggregate of months for each of the similar packages for which performance should have been evaluated in all the Regions}}$$

$$= \frac{S_T}{T_T}$$

- Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.**

f) Table showing methodology for calculating 'a', 'b' and 'c' above

Sl. No.	Item Description	Details for all Regions							Total
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P_1	P_2	P_3	P_4	P_5	...	P_N	Total No. of similar packages for all Regions = P_T i.e. Sum (Σ) of columns (iii) to (ix)

2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment' for corresponding Similar Packages (as in row 1)	T_1	T_2	T_3	T_4	T_5	...	T_N	Sum (Σ) of columns (iii) to (ix) $= T_T$
3	Monthly performance scores for the corresponding period (as in Row 2)	$S_{1-1},$ $S_{1-2},$ $S_{1-3},$ $S_{1-4},$... S_{1-T1}	$S_{2-1},$ $S_{2-2},$ $S_{2-3},$ $S_{2-4},$... S_{2-T2}	$S_{3-1},$ $S_{3-2},$ $S_{3-3},$ $S_{3-4},$... S_{3-T3}	$S_{4-1},$ $S_{4-2},$ $S_{4-3},$ $S_{4-4},$... S_{4-T4}	$S_{5-1},$ $S_{5-2},$ $S_{5-3},$ $S_{5-4},$... S_{5-T5}$	.. .. .. .. .. ..	S_{N-1},$ $S_{N-2},$ $S_{N-3},$ $S_{N-4},$... S_{N-TN}	-----
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S_1	S_2	S_3	S_4	S_5	...	S_N	Sum (Σ) of columns (iii) to (ix) $= S_T$

- ii). Calculation of Overall 'Performance Rating' (R_{BHEL}) in case at least 6 evaluation scores for 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which evaluation should have been done. ' R_{BHEL} ' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

- 'Period of Assessment' i.e. 6 months preceding and including the cut-off month
- 12 months preceding and including the cut-off month
- 24 months preceding and including the cut-off month
- 36 months preceding and including the cut-off month

In case, R_{BHEL} cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'.

- iii). Factor "L" assigned based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions:

Sl. no.	Overall Performance Rating (R_{BHEL})	Corresponding value of 'L'
1	=60	NA
2	> 60 and ≤ 65	0.4
3	> 65 and ≤ 70	0.35
4	> 70 and ≤ 75	0.25
5	> 75 and < 80	0.2
6	≥ 80	NA

III. 'Assessment of Capacity of Bidder':

'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages $P_{Max} = (R_{BHEL} - 60)$ divided by corresponding value of 'L', i.e. $(R_{BHEL} - 60)/L$

Note:

- i). In case the value of P_{Max} results in a fraction, the value of P_{Max} is to be rounded off to next whole number
- ii). For $R_{BHEL} = 60$, $P_{Max} = '1'$
- iii). For $R_{BHEL} \geq 80$, there will be no upper limit on P_{Max}

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if $P \leq P_{Max}$
(Where P is calculated as per clause 'I' above)

IV. **Explanatory note:**

- i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages (i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.
- ii). Identified Packages (Unit wise)

Table-1

Civil	Electrical and C&I	Mechanical
i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)	i). Electrical ii). C&I iii). Others (Elect. and C&I)	i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). ESP iv). LP Piping v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Management x). Others (Mechanical)

- iii). Bidders who have not been evaluated for at least six package months in the last 36 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered "NEW VENDOR".

A 'NEW VENDOR' shall be considered qualified subject to satisfying all other tender conditions.

A 'NEW VENDOR' if awarded a job (of package/packages identified under this clause) shall be tagged as "FIRST TIMER" on the date of first LOI from BHEL.

The "FIRST TIMER" tag shall remain till execution of work for a period of not less than 09 months from the commencement of work of first package or completion of contract or availability of 6 evaluation scores including the previous scores (if any).

A Bidder shall not be eligible for the next job as long as the Bidder is tagged as "FIRST TIMER" excepting for the Tenders which have been opened on or before the date of the bidder being tagged as 'FIRST TIMER'.

After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to satisfying all other tender conditions including 'Assessment of Capacity of Bidders'.

- iv). In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on 'Assessment of Capacity of Bidders' detailed above, OR leads to a single tender response on applying the criteria of 'Assessment of Capacity of Bidders' OR due to non-approval by Customer, then BHEL at its discretion reserves the right to consider the further processing of the Tender based on the **Overall Performance Rating 'R_{BHEL}'** only, starting from the upper band.
- v). 'Under execution' shall mean works in progress as per the following:
 - a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
 - b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages
 - c. Up to Synchronization in all Balance Packages

Note: BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (a), (b) and (c) above, depending upon the balance scope of work to be completed.
- vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.
- vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 25th of Evaluation Month or 3 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.
- viii). Project on Hold due to reasons not attributable to bidder -
 - a. **Short hold:** Evaluation shall not be applicable for this period, however Loading will be considered.
 - b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation as well as Loading shall not be considered for this period.
- ix). Performance evaluation in CL 9 above is applicable to prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work.
- 10. Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.
- 11. For any clarification on the tender document, the bidder may seek the same over e-procurement portal as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.
- 12. BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date

and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

13. In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
14. Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
15. Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at Clause No. 1, Salient Features of NIT, Sl. No. (xi) above.**

15a. **Integrity Pact (IP)**

- i) IP is a tool to ensure that activities and transactions between the Company and its Bidders / Contractors are handled in a fair, transparent and corruption free manner. A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification. Details of IEM for this tender is given at point 1 (xi) above.

- ii) Please refer Section-8 of the IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

No routine correspondence shall be addressed to the IEM (phone / post / email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification / issues shall be addressed directly to the tender issuing (procurement) department.

For all clarifications/issues related to the tender, contact details are as per **Clause No. 1, Salient Features of NIT, Sl. No. (ix) above.**

16. The Bidder has to satisfy the Pre Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.
17. In case BHEL decides on a 'Public Opening', the date & time of opening of the PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
18. Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise

19. (a) BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.
- (b) Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).
- (c) The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**
- (d) If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).
- (e) If reverse auction process is unsuccessful, sealed envelope price bids of all the techno-commercially qualified bidders shall be opened and the tender shall be processed accordingly. However, the envelope sealed bid(s) of techno-commercially acceptable bidder(s) who had agreed to participate in the RA and had failed to submit the online sealed bid shall not be opened.
20. On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
21. In case the bidder is an "Indian Agent of Foreign Principals", 'Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.
22. The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
23. **Consortium Bidding – Not Applicable**
24. The bidder shall upload documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
25. The bidder may have to produce original document for verification if so decided by BHEL.
26. The offers of the bidders who are on the banned/ hold list as also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site www.bhel.com.
- 27.0 It may please be noted that **guidelines/rules** in respect of Suspension of Business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', milestone/ completion certificate, etc may **undergo change** from time to time and the latest one shall be followed. The abridge version of

extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on “**supplier registration page**”.

The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website (www.bhel.com).

27.1 Integrity commitment, performance of the contract and punitive action thereof:

27.1.1 Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender Process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

27.1.2 Commitment by Bidder/ Supplier/ Contractor:

- (i) The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.
- (ii) The bidder/ supplier/ contractor 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 and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.
- (iii) The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extent guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

28.0 Micro and Small Enterprises (MSE)

Any Bidder falling under MSE category, shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer

Type under MSE	SC/ST owned	Others
Micro		
Small		

Note: - If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.

- a) MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either Udyog Aadhaar or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with attested copy of a CA certificate (format enclosed as Annexure – 3) where deemed validity of EM-II certificate of five years has expired applicable for the last audited financial year. Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted

before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal.

- b) MSEs shall be exempted from payment of tender fee.
- c) MSEs shall be exempted from payment of earnest money at the time of tender deposit. However, there is no exemption of security deposit submission.
- d) Participating MSEs quoting price within price band of L1+15 % shall be considered for award of complete scope of work by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE. In case of more than one such MSE, MSE with lowest price shall be given the first option to match the L1 price. However, MSEs owned by the Scheduled Caste or the Scheduled Tribe entrepreneurs shall be given the preference for matching the L1 price irrespective of their standing in comparative statement of MSE bidders within price band of L1+15 %.

29.0 The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

30.0 Order of Precedence

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

- a. Amendments/Clarifications/Corrigenda/Errata etc issued in respect of the tender documents by BHEL
- b. Notice Inviting Tender (NIT)
- c. Price Bid
- d. Technical Conditions of Contract (TCC)—Volume-1A
- e. Special Conditions of Contract (SCC) —Volume-1B
- f. General Conditions of Contract (GCC) —Volume-1C
- g. Forms and Procedures —Volume-1D

for BHARAT HEAVY ELECTRICALS LTD
(SCT)

Enclosure:-

- (i) Annexure-1: Pre Qualifying criteria.
- (ii) Annexure-2: Check List.
- (iii) Annexure-3: Chartered Accountant certificate for MSMED
- (iv) Annexure-4: Authorization of representative who will participate in the online Reverse Auction Process
- (v) Annexure-5: Feedback form
- (vi) Annexure-6: Integrity Pact
- (vii) Other Tender documents as per this NIT.

ANNEXURE - 1**PRE QUALIFYING REQUIREMENTS**

Job	E/T/C, Trial operation, Performance testing and Handing Over of Steam Turbine, Generator, MSR, Condenser, Static and Rotating Equipment, Piping and Auxiliaries of the system including Receipt, Handling of Materials from BHEL/ client's stores/ yard, Transportation to site and Final painting of Unit no. 7 of 2X700 MW, RAPP-7&8 of NPCIL, at Rawatbhata, Kota, Rajasthan.
Tender No.	BHEL/ NR/SCT/RAPP KOTA/STG/UNIT 7/1064

SL. NO.	NAME AND DESCRIPTION OF PRE QUALIFICATION CRITERIA	
A	Submission of Integrity Pact	Applicable
B	Assessment of Capacity of bidder to execute the work as per clause 9.0 of NIT	Applicable – by BHEL
C	<u>Technical</u> Bidder who wish to participate should have executed works for One STG job of ≥ 400 MW in the last 7 years from latest date of bid submission.	Applicable
D D-1 D-2 D-3	<u>Financial</u> <u>TURNOVER:</u> Bidders must have achieved an average annual financial turnover (Audited) of Rs. 305.55 Lakhs or more over last three Financial Years (FY) i.e. (2013-2014, 2014-2015, 2015-2016). Bidder shall submit audited accounts (balance sheets and profit & loss account) in support of this. In case audited financial statements have not been submitted for all the three years as indicated above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e. total divided by three <u>Net worth:</u> Net worth of the Bidder based on the latest Audited Accounts as furnished for 'D-1' above should be positive. Net Worth = Paid up share capital + Reserves. (Net worth is required to be evaluated in case of companies) <u>Profit:</u> Bidder should have earned cash profit in any one of the three financial years as applicable in the last three financial years defined in 'D-1' above based on latest Audited accounts. Note:- PROFIT shall be PBT earned during any one year of last three financial years as in 'D-1' above	Applicable
E	Approval of Customer	Applicable
F	Consortium Criteria	Not Applicable

Explanatory Notes for QR 'C'

1. For evaluation of PQR, the credentials of the Bidder alone, and not that of the Group Company shall be considered.
2. Time period for achievement of the Qualification Requirements is in the last 7 years ending on the 'latest date of Bid Submission' of Tender.
3. For criteria 'C', 'Executed' means "SYNCHRONISATION".
The bidder should have achieved the above criteria, even if the total contract has not been completed or closed.
4. In case audited financial statements have not been submitted for all the three years as indicated at D-1) above, then the applicable audited statements submitted by the bidders against the requisite 3 years, will be averaged by three.

BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT INCLUSIVE OF WORK ORDER AND WORK COMPLETION CERTIFICATE ETC IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

ANNEXURE - 2**CHECK LIST****NOTE:- Tenderers are required to fill in the following details and no column should be left blank**

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount:	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Audited profit and Loss Account for the last three years	Applicable/ ~~Not Applicable~~	YES/NO
8	Copy of PAN Card	Applicable/ ~~Not Applicable~~	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable/ ~~Not Applicable~~	YES/NO
10	Integrity Pact	Applicable/ ~~Not Applicable~~	YES/NO
11	Declaration by Authorised Signatory	Applicable/ ~~Not Applicable~~	YES/NO
12	No Deviation Certificate	Applicable/ ~~Not Applicable~~	YES/NO
13	Declaration confirming knowledge about Site Conditions	Applicable/ ~~Not Applicable~~	YES/NO
14	Declaration for relation in BHEL	Applicable/ ~~Not Applicable~~	YES/NO
15	Non-Disclosure Certificate	Applicable/ ~~Not Applicable~~	YES/NO
16	Bank Account Details for E-Payment	Applicable/ ~~Not Applicable~~	YES/NO
17	Capacity Evaluation of Bidder for current Tender	Applicable/ ~~Not Applicable~~	YES/NO
18	Tie Ups/Consortium Agreement are submitted as per format	Applicable/ ~~Not Applicable~~	YES/NO
19	Power of Attorney for Submission of Tender/Signing Contract Agreement	Applicable/ ~~Not Applicable~~	YES/NO
20	Analysis of Unit rates	Applicable/ ~~Not Applicable~~	YES/NO

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

DATE :
SIGNATORY

AUTHORISED

(With Name, Designation and Company seal)

ANNEXURE - 3**Certificate by Chartered Accountant on letter head**

This is to Certify that M/S ,
 (Hereinafter referred to as 'company') having its registered office at

 is registered under MSMED Act 2006, (Entrepreneur
 Memorandum No (Part—II) dtd: ,
 Category: (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as
 per the latest audited financial year..... as per MSMED Act 2006 is as
 follows:

1. For Manufacturing Enterprises: Investment in plant and machinery (i.e. original
 cost excluding land and building and the items specified by the Ministry of Small Scale
 Industries vide its notification No. S.O.1722(E) dated October 5, 2006:
 Rs..... Lacs

2. For Service Enterprises: Investment in equipment (original cost excluding land and
 building and furniture, fittings and other items not directly related to the service rendered or as may
 be notified under the **MSMED** Act, 2006:
 Rs..... Lacs

(Strike off which is not applicable)

The above investment of Rs Lacs is within permissible limit of
 Rs..... Lacs for Micro / Small **(Strike off which is not applicable)**
 Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/Small) (Strike off which is not
 applicable) and the date of graduation of such enterprise from its original category is
 (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from
 its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette
 notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership Number –

Seal of Chartered Accountant

ANNEXURE - 4**Authorization of representative who will participate in the on line Reverse Auction Process;**

1	NAME & DESIGNATION OF OFFICIAL	
2	POSTAL ADDRESS (COMPLETE)	
3	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
4	FAX NO.	
5	E-MAIL ADDRESS	
6	NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

ANNEXURE – 5**Feedback Form: From where did you get information reg. this tender**

1	NEWSPAPER ADVERTISEMENT (NAME)	
2	BHEL WEBISTE (TENDER NOTIFICATION)	
3	CENTRAL PUBLIC PROCUREMENT PORTAL OF GOVERNMENT OF INDIA (CPP PORTAL)	
4	EMAIL COMMUNICATION FROM BHEL	
5	ANY OTHER SOURCE	

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at “BHEL House”, Siri Fort, New Delhi – 110049 (India) hereinafter referred to as “The 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 “The Bidder/ Contractor” which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

_____. 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 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 of the Principal, personally or through family members, will in connection with the tender 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) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees 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 Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his 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 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; 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.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidders(s)/ Contractor(s) from the tender process or take action as per the separate “Guidelines for Suspension of Business Dealings with Suppliers/ Contractors” framed by the Principal.

Section 4 – Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

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 agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

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.

Section 8 –Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or

take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

- 9.1 This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective 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 CMD, BHEL.

Section 10 – Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.
- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must 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 bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

 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) _____

Rev 01

1st June

2012

TECHNICAL CONDITIONS OF CONTRACT (TCC)

(Document No. PS: MSX: TCC)

BHARAT HEAVY
ELECTRICALS LIMITED



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TECHINICAL CONDITIONS OF CONTRACT (TCC)

TENDER NO. BHEL/NR/SCT/RAPP/STG/UNIT 7

FOR THE

“WORK OF ERECTION, TESTING, COMMISSIONING, TRIAL OPERATION, PERFORMANCE TESTING AND HANDING OVER OF STEAM TURBINE, GENERATOR, MSR, CONDENSER, STATIC AND ROTATING EQUIPMENT, PIPING AND AUXILIARIES OF THE SYSTEM INCLUDING RECEIPT, HANDLING OF MATERIALS FROM BHEL/CLIENT'S STORES/YARD, TRANSPORTATION TO SITE AND FINAL PAINTING OF UNIT NO. 7 OF 2X700 MW, RAPP-7&8 OF NPCIL, AT RAWATBHATA, KOTA, RAJASTHAN”

PART-1 of TCC



Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northren Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)

Technical Conditions of Contract (TCC) Part-1

Contents

Contents (Part-I of TCC: Contract specific details)

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Technical Conditions of Contract (TCC) Part-1
Chapter-I: Project Information

1. Project Information

Sl. No.	Title	Description
1.1	Owner	Nuclear Power Corporation of India Ltd.(NPCIL)
1.2	Project Title	2 x 700 MWe Rajasthan Atomic Power Projects Unit-7 & 8
1.3	Type of Project	Mega, Domestic, Negotiated basis, Consortium with Alstom
1.4	Location	Rawatbhata, via KOTA, Rajasthan, 323303
1.5	Nearest road head	13 km from town of Rawatbhata
1.6	Nearest railway station	70km from Kota Railway Station (Western Railway)
1.7	Ambient Temperature	Maximum dry bulb temperature with corresponding RH: +48.7 deg C, 96% Minimum dry bulb temperature with corresponding relative humidity: +6.7 deg C, 33% Design temperature for electrical equipment/devices: +50 deg C
1.8	Relative Humidity	Maximum during monsoon: 100% Minimum (Design): 2%

Technical Conditions of Contract (TCC) Part-1

Chapter-II: Scope of Work

2.0	<u>Scope of Work:</u> BHEL has been awarded the work of Design, Engineering, Manufacture, Supply, Erection, Testing & Commissioning, Trial operation, PG test & Handing over of TG Plant package comprising of Turbine, Generator, MSR, Condenser and auxiliaries at RAPP-7 and 8 of 2X700 MWe, NPCIL, at Rawatbhata, Kota, Rajasthan.
2.1	The scope of work under this tender for Erection ,Testing, Commissioning & Handing over of STG and auxiliaries of Unit no. 7 of 2x700 MWe RAPP NPCIL broadly consists of:
2.1.1	The scope of work under this tender consists of handling and receipt of material from BHEL/client's stores, storage yard and other places of unloading in project premises, transportation to site, inspection and preparation of foundation, erection, levelling, centering, alignment, grouting & final alignment of Steam turbine, Turbo generator, vacuum pumps and auxiliaries including BOI's, preassembly, erection, welding, NDT of water cooled Condensers and Moisture Separator Re-heater etc., steam piping, integral piping, oil piping and H₂, N₂, CO₂, Water cooling system including fixing of hangers & supports, Chemical cleaning, oil flushing, Mass/alkali flushing, hydro testing & steam blowing of piping. Supply and application of primer & finish paints / Anti corrosive / steam wash paints including labelling on equipment's & piping, pre-commissioning, commissioning, trial operation (operational acceptance) & handing over of Steam Turbine, Generator and Auxiliaries of Unit-7 of 2x700 MWe sets at RAPP Rawatbhata site.
2.1.2	Identification and development of handling, loading-unloading, pre-assembly, assembly and erection procedures for all equipment, structures and systems of this package as specified therein. The contractor has to prepare procedure in line with the safety and quality standards, drawings, QAP's, FQP of BHEL/NPCIL and get these approved from BHEL/NPCIL before starting erection/shifting/loading of each equipment.
2.1.3	Assembly, Erection, commissioning and Testing of HP, LP Turbines, Valves, Generator-exciter, MSR, Tanks and other associated piping. The works such as disassembly, cleaning, box-up and reassembly of equipment as per requirement are in the scope of contractor.
2.1.4	Supply of all grouting materials including ready mix special grouting materials, Grouting of foundation bolts, base plates, preparation of foundation including breaking the lean mortar cover, chipping, as

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	required before placing base plate and final grouting of foundation bolts. Concrete/cement mortar cubes / briquettes, etc., shall be tested for their strength by the Contractor. Grouting permits will have to be cleared by BHEL/ NPCIL only, after which the contractor shall undertake grouting work. Secondary grouting of Equipment's & Structures with related Aux., Rotating machines etc. including the associated form works like shuttering and related facilities & process for grout mixing. The supply and filling of the bolt pipe sleeves with Pea-gravel or requisite filler material as per drawing / NPCIL requirement is in the scope of this contract.
2.1.5	The piping includes HP Loop Piping, HP turbine to MSR, MSR to LP turbine piping, turbine by pass valves piping, LP Heater extraction piping (inside condenser upto dome walls), Condenser air evacuation piping, lube oil piping, lube oil treatment piping, turbine governing system piping, Jacking oil and seal oil system piping, Gland Steam Sealing piping, Generator integral piping, drain lines from turbine, MSR and GSC up to drain valves, exhaust hood spray System & all other associated piping needed to complete this work scope.
2.1.6	The contractor shall carry out necessary repairs/modifications on erected plant/equipment which are due to the contractor's own defects/faults.
2.1.7	Testing, Pre-commissioning, Commissioning& Hydraulic Testing of systems of this contract scope.
2.1.8	Cold pulling, adjusting, heat treatment, hydraulic test, chemical pickling, passivation, steam blowing, oil flushing, mass water/alkali flushing, air blasting, pre-commissioning tests, trial run of auxiliaries. Erection, Laying, Welding, NDE/Radiography of temporary/permanent Piping, Valves, Tanks, Supports etc. for Air Blowing, Steam Blowing, Chemical Cleaning/ Flushing, Thermal shocks etc. and their subsequent dismantling after completion of work, disposal of effluent after flushing.
2.1.9	Handling and filling of Chemicals, Lubricants/gas/ preservatives during, erection, preservation, chemical cleaning / flushing / blowing, pre-commissioning, Commissioning and subsequent topping up till Trial operation completion.
2.1.10	Insulation of temporary piping erected for commissioning work will have to be completed by the TG contractor. Further refer chapter V (Application of Insulation) of Part –II of TCC for further details. The insulation of BHEL Bhopal supplied equipment (e.g. Turbine, MSR, interconnected piping, valves etc.) and integral piping is not in the

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	scope of this contract. Though assistance/coordination at site with the insulation party required for carrying out insulation work shall be part of this contract. The contractor has to facilitate the other party to complete insulation by giving area clearance after removal of all temporary supports, fixtures and NDT and painting of joints etc.
2.1.11	ETC of Condensers with extraction steam piping emerging from LP turbine up to the dome wall of condenser including expansion bellows with protective cover and air evacuation/ extraction piping.
2.1.12	Erection, Commissioning & load testing of Condenser water box handling arrangement including fabrication, if any. Erection and commissioning of water box priming pumps etc. ETC of Handling devices for steam turbines components, maintenance ,lifting beam for rotors etc.
2.1.13	Surface preparation, application of primer and Final painting and labelling of all equipment's, Aux., Systems, Structures, Piping with valves, fittings, supports of this contract scope etc. as per NPCIL painting schedule. Supply of paints as per the painting schedule requirement is in the scope of the contract.
2.1.14	Arrangement of fixing of steam blowing and hydro-test blanks and restoration in Valves/strainers including removal/restoration in HP Main Steam Valves (stop & control) & LP Valves (interceptor and control) etc. The assembly and dis-assembly of strainers is also in the scope.
2.1.15	Condenser Evacuation system for the 03 condensers of each Unit i.e. 04 x100% Vacuum pumps for 01 Unit, with associated integral piping for each condenser such as Vacuum Breaker line with Valves, evacuation piping etc.
2.1.16	Erection and commissioning of electrical motors of the equipment's and auxiliaries, inclusive of CT mounting, testing etc. The greasing of these motors is in the scope of this contract. Complete Field Testing as per requirement of these motors is also in the scope of this contract including supply of the test kits and reqd. equipment.
2.1.17	Erection and commissioning of governing system (control fluid skids, piping etc.) of Main Turbine & control systems of associated auxiliaries of this contract scope.
2.1.18	Assistance during Guarantee/PG(Performance Guarantee) testing of main equipment along with all auxiliaries. Supply of Manpower during PG Test for installing of Temp and Pressure Sensors, Mounting of thermo-wells, installation of power transducers & power meter etc. Erection and welding of Tapping Points for taking performance test measurements shall be carried out by the contractor as part of this work for the equipment covered under this tender specification under the guidance of BHEL engineer.

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2.1.19	The erection, commissioning and testing of actuators of valves erected in the TG and auxiliaries are also under this contract scope.
2.1.20	Completion of all punch points and assistance in handing over of unit to customer. Execution of all Mechanical jobs identified during OWNER Technical audits, check list of pre-commissioning and commissioning.
2.1.21	Unit trial operation and operational acceptance of equipment's, systems, of 700 MWe Unit (s) as a whole, resolving any deficiencies observed and handing over of Unit No. 7 of 2X700 MWe, NPCIL RAPP KOTA
2.1.22	Following of safety norms for working at site and requisite documentation as per AERB guidelines. The AERB guidelines for safety may be downloaded from Atomic Energy Regulation Board website or from the following link: <u>www.bhel.com/dynamic_files/tender_files/pdf/SAFETY%20AERB.pdf</u>
2.1.23	Quality in the executed works is non-negotiable and of utmost importance to BHEL. To maintain high standards of quality the workmen, consumables and erection methods/processes shall be in line with BHEL FQP/QAP/Welding manuals and drawings etc. and NPCIL guidelines. Only welders approved by BHEL and NPCIL in the test as per the welder test process followed in NPCIL Rawatbhata plant will be allowed to work in the TG package.
2.1.24	ADDITIONAL PLATFORM / STRUCTURES Erection of equipment handling systems including those supplied by MU's/ Vendors & additional platforms and approaches wherever required by the engineer/ Customer to facilitate operation are to be fabricated and installed at site. Erection of permanent Platforms (with grating, railing, toe-guards and stairs) for safe approach and operation of equipment, auxiliaries and valves of this contract scope as per BHEL and customer requirement for safe operation is part of this lump sum contract. Supply of structural materials for these platforms shall be provided by BHEL.
2.1.25	Contractor shall arrange scaffolding pipes for temporary platform required for erection & commissioning works of equipment. All Scaffolding pipes shall be painted with brown colour (or as per NPCIL req.) before use at site. The TG hall is of concrete structure, therefore for temporary support for assistance in erection of the equipment's/system, auxiliaries and piping may require securing of temporary steel structures, plates to the floors, concrete columns using anchor fastening. The anchor fasteners and required installation machinery for the fasteners is to be arranged by

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	the contractor at no extra cost to BHEL. All these arrangements for facilitating and expediting erection are in the scope of the contractor.
2.1.26	The Information furnished in the Chapter-XII, Annexure-A (For item no. 1 of rate schedule) is only a description regarding the item to be erected by the contractor. BHEL reserves the right of adding or excluding any components/ items / systems according to the site requirements/ customer requirements to complete various systems in all respects. Any other systems / components which are integral to the equipment and whose details may have been missed in this tender (including chapter XI) but are supplied by the manufacturing units/PEM/BOI shall also be erected and commissioned by the contractor within the quoted/accepted Lump sum rate. No additional payment shall be made towards any variation in weights and quantities.
2.1.27	The customer M/s. NPCIL and / or their Consultant may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works, without any cost implications to the BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as if pointed out by the BHEL Engineer, without any cost implication to BHEL.
2.1.28	The contractor shall carryout testing as per site quality plans. Any temporary piping hangers and supports , fittings, strainers, valves and blanks for hydro testing of the pipelines, valves and equipment's of the TG Package shall be erected by the contractor . It is the Contractors responsibility to erect and commission all pumps, tanks, instruments and other accessories of the TG Package that would be required for testing operations.
2.1.29	The contractor under this contract shall also provide services of following manpower exclusively for use by BHEL:
2.1.29.1	Qualified computer operators(Highly Skilled worker)- capable of operating the material management software package/ other packages available at site or for BHEL Office work for total 30 man months .
2.1.29.2	Skilled workers for 60 man months , for working at BHEL office and site or as per BHEL discretion.
2.1.29.3	Unskilled workers for 90 man months , for working at BHEL office and site or as per BHEL discretion.
2.1.29.4	Even after 30 months or actual completion date of contract (but before final billing), BHEL reserves its rights to consume these manpower up to the extent as mentioned in clause no. 2.1.29.1, 2.1.29.2, 2.1.29.3.
2.1.29.5	Persons so deployed may have to work in extended hours whenever required at no additional cost to BHEL. Workmen provided as per the above provisions shall be fully trained and experienced in the nature of

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	work for which they are deployed. The person so employed shall solely be in the contractor roll only and all the legal/ statutory issue regarding these deployment shall be in contractor`s scope.												
2.1.29.6	In case contractor fails to provide above-mentioned manpower as desired by BHEL, the latter shall have the right to hire such services from other agencies at the risk and cost of the contractor.												
2.1.29.7	In case these services are not utilized for any reason whatsoever, fully or partly, the charges for unutilised man-months shall be recovered from contractor`s final bill at the following rates. These rates for recovery in case of non-utilisation of man-months of different category workers are inclusive of all BHEL and statutory overheads : <table><tr><td><u>Sl. No.</u> <u>month</u></td><td><u>Manpower Type</u></td><td><u>Recovery/man-</u></td></tr><tr><td>1.</td><td>Highly Skilled worker</td><td>Rs.30,000/-</td></tr><tr><td>2.</td><td>Skilled worker</td><td>Rs.25,000/-</td></tr><tr><td>3.</td><td>UnSkilled worker</td><td>Rs.20,000/-</td></tr></table>	<u>Sl. No.</u> <u>month</u>	<u>Manpower Type</u>	<u>Recovery/man-</u>	1.	Highly Skilled worker	Rs.30,000/-	2.	Skilled worker	Rs.25,000/-	3.	UnSkilled worker	Rs.20,000/-
<u>Sl. No.</u> <u>month</u>	<u>Manpower Type</u>	<u>Recovery/man-</u>											
1.	Highly Skilled worker	Rs.30,000/-											
2.	Skilled worker	Rs.25,000/-											
3.	UnSkilled worker	Rs.20,000/-											
2.2	Final Painting of the finished Works												
2.2.1	Procurement/Supply of Paints Contractor has to supply all paints, primers and other consumables for painting of relevant area of STG of Unit No.7 as per the NPCIL/BHEL painting schedule. Contractor has to supply paints required for painting the total scope of work as envisaged in this contract.												
2.2.2	The contractor has to obtain BHEL prior approval for procurement of paints, primers etc. These shall be procured from BHEL approved suppliers, with prior approval from BHEL site.												
2.2.3	Contractor shall produce manufacturer`s test certificate. BHEL reserves the right to reject any material not found satisfactory.												
2.2.4	Material will be supplied by contractor within the lump sum price quoted by the contractor in the rate schedule.												
2.2.5	Application of paints for final painting includes surface preparation, cleaning, marking of identification marks, colour bands, direction of rotation / flow marks, legends etc.is to be completed as per NPCIL/ BHEL site requirement.												
2.3	Tentative Detailed Scope for ETC of Equipment/Systems covered under this specification of Work for Unit no.7 is described hereafter: However, changes in design may occur as is usual in any such large scale work for which no compensation will be payable and contractor												

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	shall complete the entire work as detailed in tender specifications within finally accepted rates / prices. Below mentioned details are general and some sub-systems may have been left out. Omission of any system/process/work will not absolve contractor from erection, testing and commissioning work of such systems or carrying out the work, which are required for the completion and smooth running of the TG package as per customer contract of the TG scope.
2.3.1	Steam Turbines (1 HP and 3 LP turbines)
2.3.1.1	Erection and site assembly of High Pressure(01 HP), and Low pressure (03 LP's) steam turbine complete with sole plates, foundation bolts, holding down bolts, casings, bearings, bearing pedestals, rotors, couplings, steam gland seals, electric/hydraulic turning gear etc.
2.3.1.2	LP exhaust hoods with rupture disks. Pressure control valves, filters and isolating valves, LP spray valves and piping etc.
2.3.1.3	Erection & commissioning of Turbine acoustic enclosure for Turbine, steam chests, valves, all bearings etc. as per BHEL supervision. This covers all electrical and mechanical works including fabrication works, if any.
2.3.1.4	Steel structures with platforms, walkways, supports, handrails, for structural items chequered plates for access between the LP turbines, HP and LP valves and for access to other valves, tanks and other auxiliaries etc.
2.3.1.5	Foundation parts of pedestals, shaft driven MOP etc.
2.3.1.6	HP & LP turbine casing & rotor, diffusers, diaphragms, pins and bolts shall be supplied separately and will be assembled at site by the contractor.
2.3.1.7	HP stop and control valves (04 no.'s each for 04 HP inlet valve assembly) and LP Reheat steam interceptor and control valves (06 no.'s valve each for 04 LP Inlet assembly), along with respective servo motors and supports.
2.3.2	Turbine steam and drains piping
2.3.2.1	HP turbine loop pipes (main steam from inlet valves to HPT) along with all fittings, supports etc.
2.3.2.2	Cold reheat steam piping from turbine HP casing to MSR with supports and fittings.

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2.3.2.3	Hot reheat steam piping from MSR to LP turbine including valves and bellows with supports, platform, fittings etc.
2.3.2.4	Necessary fittings like stand pipe, isolation valves, vent, drains, safety diaphragms, level gauges, thermo wells etc.
2.3.2.5	Pressure control valve, filters and Isolating valves, nozzles on LP spray, pressure breakdown orifice, pressure control instrumentation etc.
2.3.2.6	Drain piping from turbine, heat insulation, valves, and pipe support standard items.
2.3.2.7	LP exhaust spray valves and piping.
2.3.2.8	Gland seal steam condenser and exhaust fans and piping
2.3.2.9	Piping, valves, pipe supports up to turbine.
2.3.3	Lube oil system & accessories
2.3.3.1	Lube oil tank skid, lube oil vapour extraction fans, filters, oil pumps, jacking pumps and system piping, calibrated orifices and check valves etc.
2.3.3.2	Oil tank drain valves, three way temperature control valves, Oil coolers
2.3.3.3	Turning gear, clutch, auxiliary turning gear, lube oil cubicle
2.3.3.4	Oil tank level gauges and switches
2.3.3.5	Inter-connecting pipe work between oil tank, oil coolers, thermostatic three-way valves, oil duplex filters
2.3.3.6	Oil supply and return piping, valves, pipe support up to Turbine pedestals
2.3.3.7	Oil supply and return piping, valves, pipe support up to Generator & Exciter pedestals
2.3.3.8	Fixed oil purifier skid local to main oil tank piping
2.3.3.9	All interconnecting pipe work between oil purifier, lube oil tank, valves & pipe supports ,coolers and pumps etc.
2.3.4	Turbine governing & other systems
2.3.4.1	Turbine governing control fluid cubicle and piping
2.3.4.2	Vacuum breaker valves, complete trip block
2.3.5	Turbine control oil system
2.3.5.1	HP Control fluid skid including control panel
2.3.5.2	Erection, welding, NDT of Stainless steel/carbon steel piping, valves, fittings supporting steel structures, pipe support standard items.

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2.3.6	Generator, Exciter & Auxiliaries
2.3.6.1	Erection and placement of Generator Stator on foundation and Rotor threading.
2.3.6.2	Generator pedestals, end-shields (Lower and upper) and bearing assemblies, terminal box and bushings.
2.3.6.3	Generator base plate and anchoring bolts, generator foundation pit closing plates
2.3.6.4	Generator Oil catchers, baffles ring, air catcher rings
2.3.6.5	Acoustic enclosure of exciter including its electrical and mechanical equipment's erection and commissioning, fabrication and insulation.
2.3.6.6	All erection commissioning works of exciter. Exciter with base frame, coolers and other accessories.
2.3.6.7	Generator excitation and voltage regulation cubicle
2.3.6.8	Seal oil skid , SOST and piping, Vent pipe seal oil tank to outside turbine building
2.3.6.9	Pipe work between skid, generator and turbine lubrication circuit and other generators sub-systems, valves, support steel structures, pipe support standard items including extraction fans.
2.3.6.10	Vacuum Pumping system , Dry air blowers, etc.
2.3.6.11	Generator front & rear seal oil racks
2.3.6.12	GHE terminals cubicle, GRV terminal cubicles
2.3.6.13	Hydrogen coolers & control valves for hydrogen control temperature
2.3.6.14	Generator Hydrogen cooling piping and support for hydrogen temperature control valve
2.3.6.15	First H ₂ expansion skid, CO ₂ expansion and distribution skid, N ₂ distribution, generator gas skid, gas dryers, LLD racks etc.
2.3.6.16	Interconnecting pipe work between gas skids, valves, support steel structures, pipe support.
2.3.6.17	Waste fluid system, waste gas system piping.
2.3.6.18	Piping and valves from gas storage (H ₂ and CO ₂) to first gas expansion skids, support steel structures, pipe support.
2.3.6.19	Piping and valves from first gas expansion skids to Turbine building, support steel structures, pipe support
2.3.6.20	Piping and valves from Turbine building to generator gas skids, support steel structures, pipe support
2.3.6.21	Vent pipes from gas unit from TP to outside turbine building
2.3.6.22	Stator primary water cooling skid with frame and platforms, stator primary water tank with Alkaliser Unit/Demineraliser Unit (Ion Exchange

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	Unit), PW pumps and Filter Units and all associated piping and auxiliaries.
2.3.6.23	Vent piping to atmosphere and drain to sewer downstream of water cooling skid
2.3.7	Condenser – 3 No.'s & Moisture Separator Re-heater (MSR) – 2 No.'s
2.3.7.1	Condenser: Assembly mainly comprises of the following parts: For further details regarding items and weight etc. of condenser, refer chapter XI.
2.3.7.1.1	Bottom Plate (in 4 parts– to be assembled at site), Spring supports etc.
2.3.7.1.2	Hot Well – to be assembled at site
2.3.7.1.3	Turbine & Generator End side Wall
2.3.7.1.4	Dome Walls – Lower and upper
2.3.7.1.5	Front & Rear Water Boxes with Tube Plates
2.3.7.1.6	Tube Support Plates
2.3.7.1.7	All extraction NRV's and drain system
2.3.7.1.8	Steam Dump/Throw devices and piping for dumping bypassed steam
2.3.7.1.9	Air Extraction Pipe, evacuation piping, vacuum breaker valves and piping
2.3.7.1.10	Stiffening/Support Pipes/Rods, Bars etc.,
2.3.7.1.11	The Bottom plates, hot-well ,end walls, dome-walls and stiffening structure etc. will be supplied in parts and has to be assembled, erected, welded and Tested(NDT) for erection of the condenser. Cutting, edge preparation, preassembly, fitting is required and form part of this contract.
2.3.7.1.12	Condenser Water removal system for maintenance/ withdrawal of tubes and structures, steel columns, beam, bracing, foundation bolts etc.
2.3.7.1.13	Condenser, special supports and its stand pipes.
2.3.7.1.14	All extraction piping emerging from LPT up to dome walls of condenser, including expansion bellows, sheathing in the extraction lines
2.3.7.1.15	LP1 necked heaters inside the condenser neck, Bled steam pipe work inside the condenser neck (LP1 heater)
2.3.7.1.16	Misc. Fittings & Loose items as isolation valves ,water expansion release valves, liquid level gauge, vacuum gauge, thermostat, vent orifice plates etc.

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2.3.7.1.17	Local Instrumentation and Fittings for LP Heater No. 1.
2.3.7.2	MSR consists of-
2.3.7.2.1	Moisture separator re-heater upper half and lower half with supports (assembly, fit-up, welding , NDT & Hydro test is covered in the scope of this contract)
2.3.7.2.2	MSR 1'st and 2'nd stage condensate re-heater drain tanks, separator drain recovery tanks
2.3.7.2.3	MSR safety valves and / or bursting diaphragms
2.3.7.2.4	MSR associated piping and fittings
2.4	Important Notes:
2.4.1	a.) The Generator Stator weighing about 312 MT (approx.) is unloaded in the vicinity of the TG building of Unit 7 on hard stand. Suitable capacity crane for erection of Generator stator from hard stand to the TG deck will be provided free of charge to the contractor. Arrangement of all required slings and devices for lifting & placement of stator on TG deck is in the scope of this contract. b.) Suitable capacity crane for erection of MSR on its foundation will be provided free of charge to the contractor. Arrangement of all required slings and devices for lifting & placement of MSR on TG deck is in the scope of this contract. Loading and transportation of MSR (supplied in 02 pieces) from place of unloading (hard stand and in yard) to the area from where it will be erected by crane is in the scope of contractor. Location from where erection by crane will be done shall be finalised by BHEL and contractor will have to arrange for transportation of MSR pieces to this location at its own cost.
2.4.2	The contractor scope of work includes handling, shifting and placement of the generator stator from the location of unloading to the TG Deck. The contractor will have to carry out blue matching of mating surfaces of generator foundation plate, before shifting the same to its foundation on TG deck and before lowering the stator on foundation base plates. NPCIL will provide their mobile heavy duty crane for erection of Generator Stator. Any help / assistance as required for movement / handling of this crane shall be rendered by contractor as a part of scope of work.

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2.4.3	Contractor shall take specific note of the aspect and shall arrange all required T&P and lifting/ handling/loading/ transportation arrangements (of higher capacity other than what is being provided as per chapter-V of TCC Part1) for transportation from stores/yard, loading on trailer etc.
2.4.4	For the initial period of the contract, the EOT crane may not be available for erection of equipment in TG hall. The contractor has to make arrangement for pre-assembly of condenser components inside or outside TG hall as per space provided by BHEL and carry on erection works of condensers on foundation, in absence of the TG hall EOT crane. Up to the time of availability of the EOT crane in TG Hall, BHEL shall provide crane (135MT or suitable capacity) for condenser/equipment erection on sharing basis free of charge as per availability as per chapter V (TCC Part-1) and in line with following: 2.4.4.1 Contractor shall be assisted with BHEL/NPCIL cranes, till the EOT is made available, only for erection of large assemblies and heavy weight components of condenser which are beyond capacity of the contractor's cranes. 2.4.4.2 Erection/placement of equipment/auxiliaries on required foundation where the foundation will be out of approach/inaccessible of the safe working limit of EOT crane (Floors at elevation below TG floor etc.) contractor has to arrange the crane/lifting arrangement/winches etc. for erection on its own. 2.4.4.3 The fuel for BHEL/NPCIL cranes for the erection as covered under clause 2.4.4 has to be provided/arranged by the contractor.
2.5.0	<u>SITE VISIT</u> – The bidder must visit site, to acquaint themselves with the working conditions prevailing at site and in & around the plant premises, together with all statutory, obligatory and mandatory requirements of various authorities and NPCIL before submission of bid.
2.6.0	SITE ORGANISATION

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2.6.1	The contractor shall provide adequate staff in the following areas in addition to the staffing requirements of execution as instructed/informed by BHEL: 1. Overall planning, monitoring & control. 2. Quality control and quality assurance. 3. Materials management. 4. Safety, fire & security as per AERB guidelines. 5. Industrial relations and fulfilment of labour laws and other statutory obligations.
2.6.2	The contractor shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all times for smooth execution of the contract. This organization shall be reinforced from time to time, as required to make up for slippage from the schedule without any commercial implication to BHEL. The site organization shall be headed by a competent construction manager having sufficient authority to take decisions at site.
2.6.3	On award of contract, the contractor shall submit to BHEL site organization chart indicating the various levels of experts to be deployed on the job. BHEL reserves the right to reject or approve the list of personnel proposed by the Contractor. The persons, whose bio-data/deputation have been approved by BHEL, are to be posted at site and deviations in this regard will not be permitted.
2.6.4	The contractor should also submit to BHEL for approval a list of construction equipment, erection tools, tackle etc. prior to commencement of site activities. These tools & tackles shall have valid calibration certificates/load test certificates etc. and shall not be removed from site without written permission of BHEL.
2.6.5	The organization chart for site should indicate the various levels of experts to be posted for supervision in the various fields in erection, commissioning etc. as applicable.

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2.6.6	Deployment of Skilled/Semi Skilled Tradesmen by the contractor at site in line with Pradhan Mantri Kaushal Vikas Yojna: The contractor shall ,at all stages of work shall deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/Industrial Training Institute/National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/certified by State/Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesmen per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.
2.7	ERECTION SCHEDULE
2.7.1	Contractor shall submit within 30 days of LOI date, detailed program (L2 schedule) of construction / erection / commissioning, for approval to Site In-Charge/Project Manager-Noida. L2 schedule shall be the working level document demonstrating contractor's ability and methods of completing the work within the key milestones identified in the tender specification. These program would be amplified showing start of erection and subsequent activities and shall form the basis for site execution and detailed monitoring. The quarterly rolling program with the first month's program being tentative based on the site conditions would be prepared based on these program. The Contractor shall also be involved along with the Customer/BHEL to tie up detailed resource mobilization plan over the period of time of the contract matching with the performance targets. Other requirements are as per Clause No. 2.9 of GCC.
2.8	WATCH AND WARD SERVICES:
2.8.1	Contractor shall deploy suitably qualified and separate staff for Watch and Ward services. Watch and Ward staff will be responsible for various

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	security related activities of equipment / materials/ tools and tackles deployed by BHEL and Contractor in the area where regular work is being carried-out and also where equipment are already erected and further activities are in progress/pending
2.8.2	Contractor to ensure that sufficient no. of manpower is deployed to carryout above mentioned activities on round the clock basis (24x7x365 days). All the arrangements including any logistics, safety and appropriate lighting in work place for safe working at nights etc. is responsibility of the contractor and has to be taken care by the contractor. Any contingency requirement due to any unforeseen reason, shall also be taken care by contractor by arranging additional suitable man power.
2.8.3	Contractor shall ensure that at no point of time work area in plant as well as office/stores are left unattended. Contractor to ensure that at any given point of time minimum one watch and ward staff is present at Office/Stores area and one person at the plant.
2.8.4	It will be required for Watch and Ward staff to continuously move from one work spot to other while discharging their assigned duties. These work spot may be spread over to various floors and also buildings. Contactor to take note of this while planning for manpower deployment.

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S. No.	Description	Scope of / To be taken care by		Remarks
		BHEL	Contractor	
3	ESTABLISHMENT			
3.1	For Construction Purpose			Refer clause no. 3.9
3.1.1	Open space for office (as per availability)	YES		As and where made available by customer M/s NPCIL /BHEL.
3.1.2	Open space for storage	YES		As and where made available by customer M/s NPCIL /BHEL.
3.2	FOR LABOUR ACCOMODATION			
3.2.1	House		YES	As per clause No. 3.9.3
3.3	ELECTRICITY			
3.3.1	a-Electricity for construction purposes	YES		Chargeable. (As per clause 3.9.6)
	b-Electricity for EOT crane in TG Hall	YES		Free of cost
	c-Electricity for Commissioning	YES		Free of cost
3.3.2	Single point source for construction	YES		Chargeable. (As per clause 3.9.6)
3.3.3	Further distribution for the work.		YES	Contractor shall install calibrated energy meter and maximum demand meter for metering of electricity consumption.

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3.3.4	Electricity for the office, stores, canteen etc. of the bidder which include:	YES	YES	Chargeable As per clause 3.9.6 ,3.9.7
3.3.5	Distribution from single point.		YES	For distribution and installation for use of electricity for construction and accommodation, the contractor has to follow directions of M/s NPCIL
3.3.6	Supply, Installation & connection of energy meter including operation & maintenance		YES	
3.3.7	Duties & deposits including statutory clearances for above		YES	
3.3.8	Demobilization of the facilities after completion of works		YES	
3.3.9	Electricity for living accommodation of the bidder's Staff, engineers, supervisors etc. on the above lines		YES	Chargeable (As per clause 3.9.7)
3.4	WATER SUPPLY			
3.4.1	FOR CONSTRUCTION:			
3.4.1.1	Making the Service water available at single point		YES	Chargeable, As per clause no. 3.10
3.4.1.2	Potable water for the workers at site		Yes	To be arranged by Contractor
3.4.1.3	Further distribution as per the requirement of work including supply of materials & Execution		Y ES	As per clause no. 3.10
3.4.2	LABOUR ACCOMODATION:			
3.4.2.1	Making the SERVICE/POTABLE water Available.		YES	As per clause No. 3.10
3.4.2.2	Further distribution as per the requirement of work including supply of materials & execution		YES	
3.5	LIGHTING			

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3.5.1	For construction work (supply, erection and arrangement of all materials) 1. At office storage area 2. At preassembly area 3. At construction site/area		YES	Related NPCIL instruction and norms to be followed
3.5.2	Providing the necessary consumables like bulbs, Switches etc. during the course of construction		YES	Related NPCIL instruction and norms to be followed
3.6	Communications facilities for site Operations of the bidder			
	Telephone, fax, internet, intranet, email etc.		YES	
3.7	Compressed Air for Construction work			
3.7.1	Supply of compressor and all other equipment required for compressor & compressed air system including pipes, valves, storage system etc.		YES	
3.7.2	Installation of the above system and operation & maintenance of the same		YES	
3.7.3	Supply of all the consumables for the above system during the contract period.		YES	
3.8	ERECTION FACILITIES			
3.8.1	Providing erection drawings for all the Equipment's covered under this scope	YES	YES	
3.8.2	Drawings for construction method	YES	YES	

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3.8.3	As-built-drawings-where ever deviations Observed & executed and also based on Decisions taken at site	YES	YES	Inputs to be provided by Contractor
3.8.4	Shipping lists etc. for reference & planning the activities	YES		In consultation with BHEL
3.8.5	Preparation of site erection schedules/ procedures and other input requirements	YES	YES	Do
3.8.6	Review of performance & revision of site erection schedules in order to achieve the end dates & commitments	YES	YES	Do
3.8.7	Weekly erection schedule		YES	Do
3.8.8	Daily erection/work plan		YES	Do
3.8.9	Periodic visit of senior official of bidder to site to review the progress so that works are completed as per schedule.		YES	Do
3.8.10	Preparation of facilities for preassembly		YES	Do
3.9	Land and Site Mobilization			
3.9.1	In respect of any land allotted to the Contractor for purposes of or in connection with the Contract as provided herein below, the Contractor shall be a licensee subject to the following and such other terms and conditions as may be imposed by licensor/Engineer-in-charge:			
3.9.1.1	That contractor shall pay a nominal license fee of Rs.5/Hectare for plant site and Rs.200/Hectare for colony per year/ part of a year for use and occupation, in respect of each and every separate area of land allotted to him.			
3.9.1.2	That such use or occupation shall not confer any right of tenancy of the Land to the Contractor			
3.9.1.3	That the Contractor shall be liable to vacate the land on demand by the Engineer-in-charge. The issue of vacation of land and the time period			

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	permitted for it shall be mutually discussed and agreed upon by both Purchaser and Contractor provided such vacation does not affect the performance of the Contract by the Contractor
3.9.1.4	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.
3.9.1.5	On completion of work, the Contractor shall handover the land duly cleaned(made vacant after demolition of any establishment, leveling and clearing of debris) to the Purchaser. Until and unless the Contractor has handed over the vacant land allotted to him for the above purposes, the payment of his final bill shall not be made.
3.9.2	Land for Contractor's Office, Stores, workshop at site etc. :
3.9.2.1	The Engineer-in-charge shall, at his discretion and for the duration of the Contract, make available land at Site, for construction of Contractor's field office, workshop, stores, open storage, fabrication and assembly space, magazine for explosives in isolated locations, etc. required for execution of the Contract. Levelling and dressing of site, any construction of temporary roads, offices, workshops etc. as per plan approved by the Engineer-in-charge shall be done by the Contractor at his own cost.
3.9.3	Land for Contractor's Colony
3.9.3.1	Land will be given as available, by the Engineer-in-charge for the Contractor's colony. The Contractor may indicate the requirement of land for the colony along with his tender. Land will be made available for the period of Contract. The Contractor shall make his own arrangement for water supply, electric supply, sanitation, access road and general cleanliness, of his colony. All these amenities shall be got approved by the Engineer-in-charge prior to construction of the camp.
3.9.3.2	The Contractor shall not permit any of his employees to maintain any temporary or permanent living quarters within the project Site premises. No areas inside the Plant and residential area of Purchaser's personnel shall be used as labour colony.
3.9.4	Possession of Site
3.9.4.1	The Contractor shall be permitted to enter on (other than for inspection purposes) or take possession of the site only when instructed to do so

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	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. The Contractor shall provide, if necessary or 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 damage done to the Site.
3.9.5	Site Workshop/fabrication shop by Contractor
3.9.5.1	The Workshop to be set up by the Contractor shall be of sufficient space, with adequate weather protection. The workshop shall consist of general fabrication shop, machining shop etc., wherever applicable/ required.
3.9.5.2	The size and arrangement of the machines, clean shop, and general fabrication shop shall be got approved from Engineer-in-charge. The pre-fabrication of SS pipelines, which are to be cleaned prior to installation, shall be done in clean workshop and this area shall have storage space for prefabricated pipes.
3.9.6	Electricity
3.9.6.1	Construction Power Supply shall be made available on chargeable basis to the contractor of this work scope. All power use by the contractor for construction purpose and for office, store etc. shall be on chargeable basis only. The contractor shall install energy meters for metering their actual use of construction power. The Construction Power requirements shall be provided to contractor on chargeable basis at the prevailing rates of NPCIL (customer). The present rate of power is approx. Rupees 4.74 per kWh. This rate is subject to revision from time to time and subject to minimum chargeable unit@30 kWh per BHP connected load or maximum demand per month whichever is higher. Recovery towards power, utilized by the contractor shall be made from running account bills. The power utilized for the EOT crane in the TG hall for the ETC of this package is free and not chargeable to the contractor. The required power for commissioning of the equipment's of TG package shall be provided free of charge.

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3.9.6.2	Construction Power Supply will be from NPCIL substation and will be made available to the Contractor at a nominal system voltage of 415 volts 3 phase 4 wire 50 cycles.
3.9.6.3	Construction Power Supply to the contractor will be made available subject to the following terms and conditions and other guidelines laid down by NPCIL:
3.9.6.3.1	This power supply shall not be used for any unauthorized purposes.
3.9.6.3.2	The power will be supplied at 01 point for the said contract at 415V 3 Phase 50 cycles or 230 V single phase 50 cycles as the case may be. The contractor shall install his own switch controls, cables etc. of adequate capacity of suitable type complying with all relevant regulations to receive control and distribute the power involved. The exact location and further details about the supply point will be decided by BHEL/NPCIL whose decision in the matter will be final and binding.
3.9.6.3.3	The connected load shall not be less than 75% of the estimated load and the contractor shall have the option to make changes in the connected load on max 6 (six) occasions at each point during the entire period of contact. For the purpose of calculating minimum BHP calculation, loads connected at various points will be taken into consideration.
3.9.6.3.4	The Purchaser shall meter the supply of power to the contractor at the point at which the supply is given. For this purpose, the energy meter will be installed by the contractor on their distribution panel. Contractor shall be required to install actual Maximum Demand Meter on the incoming panel to ensure that demand does not exceed the demand requested by the Contractor and Minimum BHP calculation shall be done on Maximum Demand Meter reading. If any dispute on accuracy of meter, the meter in dispute will be checked in the standard laboratory of the State Government and the meter will be replaced if required. The fees levied by the Standard laboratory for testing the meter shall be charged to the contractor. The Engineer may at his discretion replace any meter installed at the cost of contractor, if found defective/faulty. It would be the contractor's responsibility to ensure the safety of the meter and to ensure protection so that the meter is not tampered with. In case, it is found that the meter has been tampered with, the supply will be disconnected and re-connection charges at State Electricity Board rates per BHP will be charged. In case the meter

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	is found faulty, the charges will be recovered on the basis of average consumption for the preceding 6 months.
3.9.6.3.5	The contractor shall make his own arrangements for the distribution of power to all his works from the points of supply mentioned above.
3.9.6.3.6	It shall be the responsibility of the contractor to provide and maintain complete installation on the load side of the supply with due regard to safety requirements at site. All cabling and installations shall be subject to the approval of the NPCIL Engineer/ Safety Engineer and shall comply in all respects to the appropriate statutory requirements given in the following: - Indian Electricity Act, 1910 (as amended) - Electricity Supply Act, 1910 (as amended) - Indian Electricity Rules 1956 (as amended) - Latest State Electricity Board regulations It is to be clearly understood that disturbance in power supply or non-availability of electricity shall not entitle the Contractor for any claim for compensation either in time or money. The Contractor is advised to make his own arrangements of diesel generators to meet his requirements of electrical power during interruption in power supply and keep electrically operated equipment to the minimum in view of uncertainty of 24 hours power supply. Temporary power supply as arranged by the contractor on his own shall be provided for the bonafide construction purposes limited to the extent required for the job. For this purpose, the contractor shall provide full specifications of the equipment and the layout drawings. Approval of the Engineer-in-charge does not absolve the contractor from complying with any or all other conditions laid down in this section. Contractor shall have to follow all the safety and statutory guidelines regarding electrical installation for construction and domestic supply as per Customer (NPCIL), Electricity Department, AERB (Atomic Energy Regulatory Board) and other related departments. Any decision of BHEL/NPCIL in this regard shall be final and binding on contractor.
3.9.6.3.7	The power supply shall be subject to all such restrictions and regulations as are in existence now and as may be enforced by the BHEL/ Government/ State Electricity Board/NPCIL or by any other competent

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	authority from time to time for which the contractor will not have any claim whatsoever.
3.9.6.3.8	The contractor shall maintain a power factor of not less than 0.9 by installing, if necessary at his own cost suitable corrective devices/capacitor banks etc. The contractor's failure in this regard within a period as stipulated by the Engineer-in-charge shall lead to penalty and may further lead to disconnection of Power Supply. The individual, single-phase loads shall be suitably connected so that the total load at the supply point balances as much as possible.
3.9.6.3.9	BHEL will not be liable for any loss or damage to the contractor's equipment as a result of variations in voltage or frequency or interruptions planned or unplanned in power supply. BHEL will also not be liable for any loss to the contractor arising from any interruption, failure or stoppage of works and any attendant delays consequent on such failure, interruption or stoppage of power supply or variation voltage or frequency. The contractor shall install all safety devices for such purpose as deemed fit by him.
3.9.6.3.10	After completion of the works, the contractor shall at his own cost promptly dismantle the distribution and other facilities he may have erected.
3.9.7	Domestic Power Supply
3.9.7.1	The power for contractors' colony shall be arranged by the contractor itself. Also, NPCIL may provide Domestic low tension power supply required for the contractor's colony at a at a single point, at a location as allotted by the Engineer at a nominal system voltage 415V 3 phase 4 wire 50Hz and 230V single phase 50Hz etc. In this case, the contractor shall make his own arrangements for distribution of power to the occupants of the colony. After completion of works, the contractor shall at his own cost, promptly dismantle the distribution and other facilities he may have erected. As the power for the labour camp/ contractor's colony will be supplied at one point and adequate lighting facilities such as flood lights, hand lights and area lighting will have to be arranged by the contractor at his own cost at contractor's colony/ labour camp.
3.9.7.2	The charges for power supply to contractor's colony shall be recovered at the prevailing rate from the running account bills of the contractor.

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3.9.7.3	The contractor while drawing construction/domestic power supply from Distribution Board should strictly adhere to following points.
3.9.7.3.1	All electrical installations should be as per Indian Electricity rules.
3.9.7.3.2	All distribution Boards installed by the contractor should be constructed with fireproof materials viz. Steel frames, Bakelite sheets etc.
3.9.7.3.3	Connection for single phase should be taken from phase and neutral. Nowhere the connection should be taken with earth as neutral.
3.9.7.3.4	All electrical connections should be made through connectors, nuts and bolts, switches, plug and sockets. Loose connections or hooking up of wires shall not be permitted.
3.9.7.3.5	Contractor has to make their own earthing arrangement for their equipment / DB earthing.
3.9.7.3.6	All electrical equipment / tools and plants should be properly earthed. DBs to be earthed diagonally opposite at two points.
3.9.7.3.7	Contractor should use “MCCB” and “ELCB” either on incoming or outgoing connections to the DB’s.
3.9.7.3.8	Contractor should ensure that all the CBs / TPNs/ Fuses/ MCCB / ELCB cables etc. should be of adequate rating/ capacity.
3.9.7.3.9	For permission of supply connections contractor has to submit a test report of their installations with a single line diagram of connected/ proposed loads. ELCB will be tested on a regular basis or as directed by BHEL by actually simulating the earth leakage for all installations and the same shall be recorded in the logbook to be maintained by the contractor. In case of power cuts / load shedding no compensation for idle labour or extension of time for completion of work will be given to contractor.
3.10	Water
3.10.1	Unfiltered Water Supply/Construction water The contractor shall make his own arrangements for water required for the work and labour camp and nothing extra will be paid for the same. This will be subject to the following conditions:

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3.10.1.1	The contractor shall construct suitable storage tanks to meet at least 7 days requirement of water at work site. To ensure adequate water supply at all levels on the facilities for the purpose of construction, he shall install necessary pumps, for delivery of water at all levels with requisite pressure. To ensure uninterrupted water supply in the event of power failure, contractor is directed to install diesel pumps as a stand by measure. The contractor shall at his own cost arrange to receive and distribute the water and shall lay and maintain water supply lines to his construction site.
3.10.1.2	The water used by the contractor shall be fit for construction purposes to the satisfaction of the Engineer –in –charge.
3.10.1.3	The Engineer in-charge shall make alternative arrangements for supply of water at the risk and cost of the contractor if the arrangements made by the contractor for arrangement of water are in the opinion of the Engineer –in – charge, unsatisfactory.
3.10.1.4	Water if available, may be supplied to the contractor at one point, on chargeable basis. In this case, water requirements can be provided on chargeable basis at the rate of Rs.12.10 per 1000 liters, this rate is subject to revision from time to time.
3.10.1.5	<u>Water Supply to Labour Camp</u> The contractor shall make his own arrangement to receive, treat, test, pump and distribute the water required for the labour camp. He shall construct at his own cost storage tank(s) of adequate capacity to meet 4 days requirement. He shall also lay at his own cost the distribution lines and maintain the same during the currency of the contract.
3.10.1.6	The contractor shall ensure availability of potable quality of water required for all his requirements at all times at site and in labour accommodation. In case, it is arranged from Customer, the charges levied by the customer has to be borne by the contractor.

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

4.0	INDICATIVE LIST OF T&P/MMD TO BE DEPLOYED BY THE CONTRACTOR				
S. No.	EQUIPMENT /T&P	Capacity	Tentative deployment schedule	Indicative Qty.	Remarks for deployment schedule and quantity
4.1	4.1.1) Tyre Mounted Crane	40 MT	Start of Work till Turbine Box-up	01 No.	
	4.1.2) Mobile Hydra crane	15 MT	Start of Work till material reconciliation.	01 No.	
4.2	Trailer with pulling unit	30 MT	From start of work till Synchronisation of TG	1 No.	After synchro., contractor to arrange suitable capacity trailer on APR basis.
4.3*	Low Bed Trailer with pulling Unit and Crane of required capacity	APR of weights to be handled as per Chapter XI	APR	APR	
	*The scope of shifting of material from yard to site is in the scope of Contractor. Contractor has to arrange for the trailer and Cranes (beyond which are provided by BHEL as per chapter V) of appropriate capacity, as per the requirement of shifting of the material from stores/Yard/ place of unloading to site and vice versa (in case of material reconciliation and return to stores). The trailers/cranes are to be arranged as per handling requirement for the equipment detailed in chapter XI (of TCC Part-1).				
4.4	Pallet Trolley	2 MT	APR	01no.	For material fetching from closed shed
4.5	Air compressor (electric or diesel operated)	140/210 CFM	APR	APR	
4.6	Hydraulic Jack (Low Height)	25/50/100T	APR	APR	
4.7	Screw Jacks	5/10/25/50 T	APR	APR	
4.8	Chain Pulley blocks	02 MT-20 MT	APR	APR	
4.9	Slings of various capacity	APR	APR	APR	For handling of equipment of chapter XI

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4.10	Wire Rope, D-Shackles, Belt Slings, Hook Chooks	APR	APR	APR	For handling of equipment of chapter XI
4.11	Electric winch with wire rope 2T/ 3T etc.	APR	APR	APR	
4.12	Concrete Mixer for Grouting	APR	APR	APR	For grouting of the equipment on
4.13	Theodolite of required accuracy	APR	APR	APR	
4.14	Dumpy level	0 to 350 mm(LC-0.01)	APR	APR	
4.15	Condenser tube expander set (Electrical/Pneumatic type)	APR	APR	APR	APR to match the schedule
4.16	Hydraulic Pipe Bending Machine (Manual & Motorized)	APR	APR	APR	
4.17	Weld Gauge, Temperature Gun/chalk, Taper Gauge	APR	APR	APR	
4.18	Welding Generators, Rectifiers & TIG Welding Machine and ovens for welding backing and holding of electrode	APR	APR	APR	
4.19	Orbital welding machine for seal welding of condenser tube	APR	APR	APR	APR to match the schedule
4.20	Plasma cutting m/c (if required for cutting SS piping)	APR	APR	APR	Deployment to be decided by BHEL, APR
4.21	Radiography film viewer	APR	APR	APR	
4.22	NDT test kits (DPT/MPT)	APR	APR	APR	
4.23	Pre heating / stress relieving set (heating control panel, cables, heating elements, thermometers, thermal chinks etc.)	APR	APR	APR	

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4.24	a.) Radiography arrangement with radioactive isotope source b.) UT kit as per requirement	IRIDIUM-192(of adequate strength not less than 10 curie)	APR	APR	NPCIL guidelines to be adhered to
4.25	Chemical circulation pumps to handle solution for chemical cleaning, with drive motors, starter panel, cable, switch fuse unit	Adequate Capacity	APR	APR	To be mobilised only on requirement, after BHEL confirmation.
4.26	Vacuum Cleaner (Industrial type)& Blowers	APR	APR	APR	
4.27	Hand tools, cutting Tools, grinding machines	APR	APR	APR	
4.28	Tube/ Pipe chamfering machine	APR	APR	APR	
4.29	Torque Tension Wrench Up to 4000 NM Range (Hydraulic)	APR	APR	APR	
4.30	Surface Grinder and other Workshop Equipment	APR	APR	APR	
4.31	Ratchet Square insert (MM size and Inch size)	APR	APR	APR	
4.32	Nibbling machine	APR	APR	APR	
4.33	Shearing machine, Profile making M/C	APR	APR	APR	
4.34	Portable grinding m/c	APR	APR	APR	
4.35	Anchor fasteners with anchoring machines	APR	APR	APR	For supports, platforms for erection, preassembly etc.
4.36	Portable drilling m/c	APR	APR	APR	
4.37	Dial Gauges of different ranges and types including lever dial gauges(with LC 0.01mm)	APR	APR	APR	Each with calibration certificates

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

4.38	Self-drilling cum tapping machine for fixing of sheeting work screws	APR	APR	APR	
4.39	Allen Key sets, Tape and die sets	APR	APR	APR	
4.40	Inside - Outside Calipers, Precision Depth Gauges	APR	APR	APR	Valid calibration certificates
4.41	Surface plate(From 1.0 Sq. mtr and above)	(Grade 1,2,3)	APR	APR	Valid calibration certificates
4.42	Straight Edge (Up to 2 mtr. Long)	(Grade 1,2,3)	APR	APR	Valid calibration certificate
4.43	Long and short feeler Gauge set. Special long feeler gauges for radial clearance checking	(of width approx. 5 mm- 10mm)	APR	APR	These are to be arranged APR for assembly of HPT and LPT
4.44	Tools for Reaming and Honing	APR	APR	APR	
4.45	Taper Pin and straight Pin Reamers	APR	APR	APR	
4.46	Double End, Single End, Ring, Box, Hammering spanners	APR	APR	APR	
4.47	Magnetic Base Drilling Machines, Cutting Machines, Argon Sets, Gas Cutting Machines	APR	APR	APR	
4.48	Hand operated Megger (500V/1000V)	Up to 200 MOhms	APR	APR	
4.49	Motorized Megger	5 KV	APR	APR	
4.50	Digital Micro-ohm meter	APR for Generator stator and Rotor	APR	01	Measurement of winding resistance of the Generator stator and Generator Rotor
4.51	Digital Multi-meter (4½ /3½ digit)	APR	APR	APR	

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

	Tong tester (AC and DC)				
4.52	Micro-meter (both inside and outside) Three Pin Micro-meters	Size decided by OD of LP coupling for outside micrometre	APR	APR	(With Calibration certificates and LC-0.01mm)
4.53	6/12 points temperature recorder for 0-1000C with thermocouples / rods and compensating cable	APR	APR	APR	
4.54	Master pressure gauge	0-40 Kg/cm2, 0-600Kg/cm2 etc.	APR	APR	For hydro test, with calibration certificate
4.55	Fire retardant Tarpaulins		APR	APR	
4.56	Fire Extinguisher	APR	APR	APR	
4.57	3-phase distribution board with complete set up for drawl of construction power & fitted with energy meter and Maximum Demand Meter	APR	APR	APR	Energy meters and maximum demand meter shall be calibrated
4.58	Power cable for drawl of construction power	APR	APR	APR	From start of contract
4.59	Scaffolding materials scaffolding pipes with Clamps etc.	APR	APR	APR	APR of the site
4.60	DFT measurement (Alcometer)		APR	APR	
4.61	The arrangement for Hydro Test of low pressure systems like piping, MSR, condenser (Calibrated Master pressure gauges and hydro test pump) has to be arranged by the contractor. For high pressure system testing, the calibrated pressure gauges has to be arranged by the contractor, BHEL will provide high pressure hydro-test pump.				
4.62	<u>“APR” is defined as :-</u> Contractor has to deploy T&P AS PER REQUIREMENT of BHEL site as decided by BHEL Engineer In-charge. The capacity, quantity, duration of deployment shall be decided by Engineer In-charge as per site requirement in view of the front availability and erection program. Decision of BHEL Engineer In-charge in this regard shall be final and binding on the contractor.				

Technical Conditions of Contract (TCC) Part-1

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

4.63	<u>Notes</u> The above list specifies only major T&P/MMD (may not be complete) to be deployed by the contractor for this package This list is only indicative and neither exhaustive nor limiting. All the tools and plants required for this scope of work, except the tools & plants provided by BHEL are to be arranged by contractor within the quoted rates. The list is suggestive in nature. Any additional T&P required to be arranged by the contractor has to be done by the contractor within the quoted rates. In case the progress of work suffers due to non-deployment of above T&Ps, whenever and wherever required, BHEL will deploy required T&P's at the risk and cost of the vendor.
4.63.1	Any special testing kit/ MME/ T&P/ precision equipment, other than supplied by the MU/manufacture (in case of BOI's) as special equipment for erection/testing or provided by BHEL, has to be arranged by the contractor within final accepted rates.
4.63.2	All additional/ other tools and plants which are required for satisfactory & timely completion of work of this package shall also be deployed by the contractor within finally accepted rate/ price. If works gets delayed due to non-availability of T&P and MMD, BHEL reserves the right to procure/hire the equipment/T&P and get work done at the risk & cost of contractor without prejudice to right of BHEL as in GCC.
4.63.3	Contractor has to submit the Calibration certificates of all the precision equipment to BHEL. BHEL may ask for recalibration of the MME's /precision equipment for ensuring quality of work. Contractor must re-asertain/ recheck range and accuracy of each IMTE from BHEL Engineer well in advance before arranging calibration/ deployment.
4.63.4	Other terms and conditions regarding above items shall be as per T&P clause in SCC.
4.63.5	Special T&P or IMTE's requirement for tests like Helium leak detector test for Generator Leak test, Micro-ohmmeter for generator stator and rotor winding resistance measurement , UV lamps for fluorescent dye Test/alternate arrangement for water fill test of condenser etc. shall be arranged by contractor as per site requirement.
4.63.6	Any T&P's, Cranes, Slings, D-shackles and other lifting tackles required for shifting of material from store to site and erection/handling shall be arranged by contractor over and above T&P's/ crane provided by BHEL. The contractor has to arrange for trailers (Low Bed and normal) of required capacity for shifting of the material from stores, yard and any other place of unloading of material/equipment.

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Chapter-V: T&Ps and MMEs to be deployed by BHEL on sharing basis

5: LIST OF T&P TO BE PROVIDED BY BHEL ON SHARING BASIS

S. No	Description and capacity of T&P	Quantity	Remarks
5.1	135 MT Crane	1	Free issue and on sharing basis depending on availability - For loading of material on contractor's trailer at store yard. - For erection (as per requirement in line with clause 2.4.4 of chapter 2, TCC part 1).
5.2	EOT Crane (125/25 MT) in TG Hall	1	For handling and erection in TG Hall on free issue basis. The electricity for EOT shall also be on free of cost basis and will not be charged from the contractor.
5.3	Suitable capacity crane for erection of Generator stator (1350 MT Crane)	1	Free issue basis for erection of Generator stator on TG deck
5.4	Suitable capacity crane for erection of MSR in TG Hall	1	Free issue basis for erection of MSR on MSR foundation in TG hall
5.5	High pressure hydraulic test pump	(APR)	Free issue for hydro-testing of high pressure lines
5.6	Notes governing the provision of the above T&P for use by Contractor		
5.6.1	Cl.4.2.2.16 c. of SCC shall be read as day-to-day upkeep and running maintenance like filling topping up of lubricants, changing filters, etc. including repair of self-starter, batteries and dynamo of these cranes shall be the responsibility of the contractor. If on checking it is found that the same is not followed, BHEL will exercise its right to get the job/works done at the risk and cost of contractor. BHEL may also provide cranes through crane hiring agencies in which case the day-to-day upkeep and running maintenance shall be excluded from scope of contractor.		
5.6.2	Cl.4.2.2.16 e. of SCC shall be read as- The operator and helper for BHEL's 100 MT & above capacity cranes shall be provided by BHEL free of cost.		

Technical Conditions of Contract (TCC) Part-1
Chapter-V: T&Ps and MMEs to be deployed by BHEL on sharing basis

	The operators for cranes, below 100 MT capacity cranes, shall be in contractor's scope. Further, fuel for operation of all BHEL cranes and for cranes arranged by/through BHEL for carrying out work of this contract scope, shall be provided by contractor within the final accepted rates.
5.6.3	The contractor shall make necessary arrangement like laying of steel plates, assembly & dismantling of heavy lift attachment, boom, jib etc. for movement and operation of crane.
5.6.4	Any other special T&P if supplied by the manufacturer and available with the customer will also be provided to the contractor free of hire charges as and when made available. Special tools and tackles are to be used only for the purpose for which these are meant and to be returned in good condition. However low height jack may not be made available and will have to be arranged for by the contractor
5.6.5	For T&P other than cranes, mentioned above and any other provided by BHEL for erection and commissioning purposes, contractor shall transport from BHEL stores, install, operate, carry out maintenance, dismantle after use and return to BHEL stores in working condition.
5.6.6	Other terms and conditions regarding above items shall be as per T&P clause in SCC
5.6.7	EOT crane of capacity 125 MT will be provided by BHEL/NPCIL for erection of TG equipment in TG hall. The power for this EOT in TG hall is free of cost and not chargeable to the contractor. Contractor shall make use of this EOT crane for erection of equipment in TG hall subject to its capacity, accessibility & approachability. Any other lifting device / attachments as required for erection & handling of heavy equipment will be arranged by contractor as part of scope of work.
5.6.8	Though the customer shall operate and maintain the EOT's during construction, the contractor may also be required to arrange for skilled EOT operators for ensuring uninterrupted flow of work ,separately for day and night to meet project schedule, within the quoted rates. The contractor may also be required to extend help during the maintenance/Upkeep of the EOT.
5.6.9	Cranes other than that which are provided by BHEL as per sl. No. 5.1- 5.5 of this chapter and are required for loading, transportation and erection of the equipment under scope of this contract, has to be arranged/brought by the contractor as per the site requirement at no extra cost to BHEL.

Technical Conditions of Contract (TCC) Part-1

Chapter-VI: Time Schedule

6.0	TIME SCHEDULE for Unit#7 of RAPP 7&8																						
6.1	After receipt of LOI, contractor shall discuss with Project Manager/Construction Manager regarding initial mobilization at site and erection work schedule. The erection work shall commence on a mutually agreed date between the bidder and BHEL site construction manager. The decision of BHEL in this regard shall be final and binding on the bidder. The actual date of start of work i.e. zero date of the contract, shall be certified by BHEL Engineer in line with clause no.6.2																						
6.2	Zero Date of the contract: Erection / placement of first major permanent equipment / component covered in the scope of these specifications shall be recognized as start of Contract Period for erection, testing and commissioning portion as defined in the scope of works in the tender specifications. Similar items like packers, plates, shims, anchors, inserts etc. will not be considered as start of contract period.																						
6.3	The various milestones dates to be achieved under this tender for Unit no.7 are as below. The milestone schedule is calculated from the Zero date as reference: <table border="1"> <thead> <tr> <th>MILE STONES</th><th>Months(U#7)</th></tr> </thead> <tbody> <tr> <td>Condenser Erection Start</td><td>Zero</td></tr> <tr> <td>MSR Erection Start</td><td>1st</td></tr> <tr> <td>TG Erection Start</td><td>2nd</td></tr> <tr> <td>Generator Erection Start</td><td>4th</td></tr> <tr> <td>Turbine Box Up</td><td>18th</td></tr> <tr> <td>Oil Flushing Completion</td><td>20th</td></tr> <tr> <td>Commissioning of TG on Barring Gear</td><td>21st</td></tr> <tr> <td>First Synchronization of TG with Nuclear Steam</td><td>24th</td></tr> <tr> <td>Full Loading and Trial Operation of TG</td><td>27th</td></tr> <tr> <td>Guarantee Test and Operational acceptance</td><td>27th</td></tr> </tbody> </table>	MILE STONES	Months(U#7)	Condenser Erection Start	Zero	MSR Erection Start	1st	TG Erection Start	2nd	Generator Erection Start	4th	Turbine Box Up	18th	Oil Flushing Completion	20th	Commissioning of TG on Barring Gear	21st	First Synchronization of TG with Nuclear Steam	24th	Full Loading and Trial Operation of TG	27th	Guarantee Test and Operational acceptance	27th
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Technical Conditions of Contract (TCC) Part-1

Chapter-VI: Time Schedule

	There is a provision for grace period of 03 months after operational acceptance for completion of any pending/punch point, handing over/completion of facilities.
6.4	Entire work of this Package as detailed in the tender specifications shall be completed within 30 months (27 months + 03 months grace period) from the Zero date of the package, as per programme/ milestones indicated by BHEL Engineer.
6.5	The work under the scope of this contract shall be deemed to be complete in all respects, only when the contractor has discharged all the responsibilities laid down in the contract. The decision of BHEL on completion date shall be final and binding on the contractor.
6.6	In order to meet above schedule and other intermediate targets/activities as set by BHEL Engineer in charge at site & to meet customer requirements/project schedule, contractor shall arrange all necessary resources and work force in consultation with BHEL Engineer at site to undertake works concurrently in all possible fronts as made available to contractor.
6.7	<u>COMMENCEMENT OF PERFORMANCE GUARANTEE FOR WORKMANSHIP</u> The performance guarantee period shall be as per clause no. 2.24 (Performance Guarantee for Workmanship) of General Conditions of Contract. The commencement of guarantee period for the quality of the workmanship shall start from the date of operational acceptance of facilities by the customer or handing over of the facilities to the customer, whichever occurs earlier.
6.8	<u>Operational Acceptance-</u> Operational acceptance shall occur in respect of the facilities when: a). The guarantee test has been successfully completed and the functional guarantees are met b). All items relevant to the facilities have been completed. c). Completion of all technical documentation by the contractor and acceptance of the same by NPCIL.

Technical Conditions of Contract (TCC) Part-1

Chapter-VII: Terms of Payment

7.0	TERMS OF PAYMENT
7.1	The 'Engineer' will certify the actual work executed in the measurement books and bills, which shall be accepted by the contractor in measurement book.
7.2	Contractor shall submit bills for the work completed under the specification, once in a month detailing work done during the month. The format for billing shall be approved by BHEL before raising invoices.
7.3	Contractor on certificate of the Engineer at site be entitled for payment for the service and supply portion as explained here under. These payments are subject to any deduction, which BHEL may be authorized to make under the Contract.
7.3.1	Interest bearing recoverable advance: Applicable as per Clause No. 2.13 of GCC.

7.3.2	PROGRESSIVE PAYMENT ON PRORATA BASIS	
	Total lump sum rate, mentioned in rate schedule item no. 12.1, of this package is divided as below-	
	CONDENSER	36% (12% for each condenser)
	HP TURBINE	7%
	LP TURBINE	21 % (7% for each LP turbine)
	GENERATOR and EXCITER	10%
	MSR and AUXILIARIES	10% (5% for each MSR)
	PUMPS AND ROTATING AUXILIARIES	4%
	STATIC AUXILIARIES	4%
	PIPING	8%
	TOTAL	100%
	85% of this lump sum amount for each item will be divided for erection activities and 15% is for milestone activities.	

Technical Conditions of Contract (TCC) Part-1

Chapter-VII: Terms of Payment

7.3.2.1	Broad distribution of 85% of Lump sum price (Item No. 12.1 of Rate Schedule) for Erection Activities	
7.3.2.1.1	CONDENSER (36% = 3 x 12% for each condenser)	Percentage
7.3.2.1.1.1	Preparation of Foundation ,Erection, Placement, Alignment and Final grouting of condenser spring supports	3%
7.3.2.1.1.2	Placement, Alignment, Pre-Assembly and welding of Bottom Plate segments, Hotwell and NDT	6%
7.3.2.1.1.3	Assembly and positioning of water chamber, side walls, , Welding and NDT	6%
7.3.2.1.1.4	Assembly, Erection, alignment, welding and NDT of Tube support plates and condenser internals like Baffle Plates, Air Evacuation pipes etc.	12%
7.3.2.1.1.5	Transportation, Hole cleaning, Insertion of Condenser Tubes	10%
7.3.2.1.1.6	Expansion, Cutting, orbital welding etc. of Condenser Tubes	20%
7.3.2.1.1.7	Assembly, Erection, Welding & NDT of Lower and Upper Dome Walls and Dome Stiffeners, Extraction Piping and Steam Dump Device, Erection of LP heater inside condenser with Supports and all fittings etc.	10%
7.3.2.1.1.8	Hydro Test of Water Side, Water fill Test	6%
7.3.2.1.1.9	Condenser Floating, Welding of Condenser Neck Joint and NDT & Completion of Balance works as erection of stand pipes and vacuum breaker valves, Condenser Water Box Removal device etc.	10%
7.3.2.1.1.10	Completion of misc. erection works and submission of all documentation and protocols of condenser.	2%
	Sub-Total for Condenser	85%
7.3.2.1.2	HP TURBINE (Weightage - 7%)	
7.3.2.1.2.1	Preparation of Foundation, Placement, Alignment and Grouting of bearing pedestals of HP turbine	10%

Technical Conditions of Contract (TCC) Part-1

Chapter-VII: Terms of Payment

7.3.2.1.2.2	Placement and alignment of HP rotor with lower casing, boxing up of inner casing after checking of clearances with diaphragms etc.	10%
7.3.2.1.2.3	Final Boxing up of HP turbines after completing all checks as per FQP	15%
7.3.2.1.2.4	Alignment of HP shaft and LP1 rotor shaft and associated checks	3%
7.3.2.1.2.5	Installation of HP inlet valves (04 no.'s) along with supports ,strainers etc.	10%
7.3.2.1.2.6	Preassembly, Cleaning, Erection, welding and NDT of HP lower and upper Inlet pipes from valves(HP Loop pipes) Erection of supports and hangers	18 %
7.3.2.1.2.7	Preparation and carrying out pre-commissioning activities e.g. assembly of hydro test, steam blowing devices and normalization	2%
7.3.2.1.2.8	Final boxing up of pedestals after oil flushing completion and final key fixing of casing	5%
7.3.2.1.2.9	Assembly, Erection of Acoustic enclosure of Turbine	10%
7.3.2.1.2.10	Completion of misc. erection works and submission of all documentation and protocols of HP Turbine	2%
	Sub- Total for HP Turbine	85%
7.3.2.1.3	LP TURBINE (21%= 3 X 7% for each LP's)	
7.3.2.1.3.1	Preparation of Foundation, Placement, Alignment and Grouting of base plates of LPT and bearing pedestals.	5%
7.3.2.1.3.2	Placement ,alignment and readiness of LP outer casing (exhaust hood) bottom portion and associated works	7%
7.3.2.1.3.3	Placement of LP rotor and alignment with inner casing and checking of blade clearances	10%
7.3.2.1.3.4	Boxing up of LP inner casing after completion of all checks	8%
7.3.2.1.3.5	Assembly, alignment & welding of LP outer casing outer half (Exhaust hood)and final box up of outer casing	12%

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Chapter-VII: Terms of Payment

7.3.2.1.3.6	Alignment of all LP rotors including reaming, honing and fixing of coupling bolts.	7%
7.3.2.1.3.7	Completion of CRO of the rotor train, swing checks etc.at exciter and HP end.	4%
7.3.2.1.3.8	Installation of LP inlet valves assembly (02 each for 01LP) with servomotors.	6%
7.3.2.1.3.9	Erection, alignment, welding and NDT of LP-MSR piping of Left and Right side along with all fittings ,bellows, hanger and supports etc.	10 %
7.3.2.1.3.10	Erection, alignment, welding and NDT of HP – MSR Piping along with safety diaphragms, hangers and fittings	10 %
7.3.2.1.3.11	Pre-commissioning activities etc. as Assembly and preparation of hydro test, steam blowing devices and normalization	1%
7.3.2.1.3.12	Final boxing up of pedestals after oil flushing completion	3%
7.3.2.1.3.13	Completion of misc. erection works and submission of all documentation and protocols of LP Turbine.	2%
	Sub- Total for LP Turbine	85%
7.3.2.1.4	GENERATOR and EXCITER (10%)	
7.3.2.1.4.1	Preparation of Foundation, Levelling, Matching and Grouting of packers, Foundation Plates.	5%
7.3.2.1.4.2	Lifting and erection, Levelling, centering and Alignment of STATOR after completion of preliminary works	12%
7.3.2.1.4.3	Erection of End Shields on the Foundation Beams	5%
7.3.2.1.4.4	Rotor Insertion, Supporting on bearings and air gap checking	8%
7.3.2.1.4.5	Final Boxing up of generator after completion of all checks and assembly of seal ring holder and seal rings , all labyrinths and oil catchers	15%
7.3.2.1.4.6	Alignment of Generator Rotor with LP Turbine Rotor, Run-out checks and Reaming, Honing of Coupling holes and Fixing of Coupling Bolts	7%

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7.3.2.1.4.7	Erection of Excitation Equipment & Alignment of	10%
	Gen-Exciter Rotors including swing check and completion of Balance Works of exciter, including completion of acoustic enclosure.	
7.3.2.1.4.8	Completion of Generator PW system including of erection, of PW tank, PW pump and piping system, hydro test of stator winding system, exciter and generator cooler piping etc.	8%
7.3.2.1.4.9	Final Grouting of generator/ exciter with all auxiliaries and bolt stretching	4%
7.3.2.1.4.10	Assembly of terminal bushing, completion of leak test/ final gas tightness test of stator with complete system, helium leak test etc.	9 %
7.3.2.1.4.11	Completion of misc. erection works and submission of all documentation and protocols of Gen-Exciter	2%
	Sub- Total for Generator	85%
7.3.2.1.5	MOISTURE SEPERATOR REHEATER (2X5% = 10%)	
7.3.2.1.5.1	Assembly and erection of foundation plates/ load bearings	5%
7.3.2.1.5.2	Placement, levelling , alignment of lower half including welding of support frame, separator of MSR	10 %
7.3.2.1.5.3	Placement, fit-up, alignment of MSR upper half and assembly/ welding of condensate pipes, stiffeners, backing strips and other loose items.	16%
7.3.2.1.5.4	Welding, NDT of MSR with protocols	16%
7.3.2.1.5.5	Hydro test of MSR with protocols	16%
7.3.2.1.5.6	Erection and completion of all works of 1 st and 2 nd stage of Re-heater condensate tanks(Total 04 for 01 unit), MS drain recovery tanks, safety vent circuits, safety diaphragm of MSR's and other fittings etc.	15%
7.3.2.1.5.7	Erection, testing and commissioning of gland steam condenser, drain coolers, flash tanks etc.	5%

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7.3.2.1.5.8	Completion of misc. erection works and submission of all documentation and protocols of MSR and associated auxiliaries	2%
	Sub Total for MSR	85%
7.3.2.1.6	PUMPS & AUXILIARIES (4%)	
7.3.2.1.6.1	Erection, testing, commissioning of Main Oil Pump, JOP, EOP, AOP, Oil coolers, oil vapour exhauster, oil MIST filter, strainer, lube oil duplex filter, lube oil skid unit , lube oil centrifuge, Seal Oil Unit- Part 1 & 2, other pumps and filter unit and valves related to oil system and all other rotating auxiliaries	40%
7.3.2.1.6.2	Erection, grouting, testing and commissioning of vacuum pumps. E&C, welding, NDT of Air evacuation piping, drain and vent piping	43%
7.3.2.1.6.3	Completion of misc. erection works and submission of all documentation and protocols of Pumps & auxiliaries	2%
	Sub-Total for Pumps & Auxiliaries	85%
7.3.2.1.7	Static Auxiliaries (4%)	
7.3.2.1.7.1	Erection, testing and commissioning of CO2 vaporiser, H2 distributor, CO2 distributor, drain oil collector, LLD racks, hydrogen dryer, dry air blowers, gas unit ,N2 distributor etc.	20%
7.3.2.1.7.2	Erection, testing and commissioning of main oil tank, seal oil tank with accessories	18%
7.3.2.1.7.3	Erection, testing and commissioning of hydrogen coolers, exciter coolers, cooler housing frames and other loose items of generator and exciter.	10%
7.3.2.1.7.4	Placement and ETC of Governing oil skid and associated equipment's of control system.	15%
7.3.2.1.7.5	Erection of support platforms, walkways, ladders etc. of the packages (supplied by MU's) and also as required for O&M of the equipment's of this scope (not envisaged as per drawing), but required by NPCIL for operation of the plant.	20%

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7.3.2.1.7.6	Completion of misc. erection works and submission of all documentation and protocols of static auxiliaries	2%
	Sub-Total for Static Auxiliaries	85%
7.3.2.1.8	Piping (8 %) Turbine integral piping, generator integral piping consisting of lube oil, jacking oil, seal oil, control oil(governing), steam condensate spray/ exhaust hood spray, turbine water drainage, gas piping, seal steam including all the accessories like valves, hangers and supports, thermo wells, probes, orifices etc.	
7.3.2.1.8.1	Pre-assembly	10%
7.3.2.1.8.2	Placement in position	10%
7.3.2.1.8.3	Alignment	10%
7.3.2.1.8.4	Welding/ Bolting/ Fixing	25%
7.3.2.1.8.5	Completion of non-destructive examination and stress relieving, heat treatment	15%
7.3.2.1.8.6	Hangers and supports wherever applicable as per drawing	5%
7.3.2.1.8.7	Mass Flushing, cardboard blasting, acid prickling, alkali flushing Hydro testing/ pneumatic test wherever applicable for all the piping of TG scope	8%
7.3.2.1.8.8	Completion of all misc. erection works and submission of all documentation and protocols of Piping	2%
	Sub-Total for Piping	85%
7.3.2.1.9	NOTES:	
7.3.2.1.9.1	Further break-up of above terms of payment shall be carried out at site entirely at the discretion of BHEL.	
7.3.2.1.9.2	BHEL Construction Manager, at his discretion, shall further divide the total breakup for the progressive payment of the Lump-sum amount, and the same will be binding to the contractor.	
7.3.2.1.9.3	The above break up is only for payment purposes and does not cover all equipment in the scope of the subject work. The total scope of work shall be as detailed in the tender specification.	

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7.3.2.1.9.4	Pro-rata payments shall be made every month in proportion to the work carried out by the contractor during the month, which shall be measured on the basis of percentages fixed above. The engineer shall carry out the assessment of the work for payment within the above percentages and it shall be final and binding on contractor.

7.3.2.2	Stage/Milestone Payment (15%) (15% of Item No. 12.1 of Rate Schedule-XII)								
Sl. No.	Milestone/ Stage	Condenser	HP Turbine	LP Turbine	Generator	MSR	Pump & Aux.	Static Aux.	Piping
7.3.2.2.1	TG Oil Flushing Completion	1%	1%	1%	1%	1%	1%	1%	1%
7.3.2.2.2	TG Barring Gear	1%	1%	1%	1%	1%	1%	1%	1%
7.3.2.2.3	Rolling & Synchronization	2%	2%	2%	2%	2%	2%	2%	2%
7.3.2.2.4	Full Loading	1%	1%	1%	1%	1%	1%	1%	1%
7.3.2.2.5	Trial Operation	2%	2%	2%	2%	2%	2%	2%	2%
7.3.2.2.6	Operational acceptance of unit and Handing Over to Customer	2%	2%	2%	2%	2%	2%	2%	2%
7.3.2.2.7	Finish Painting(Supply and Application of paints)	2%	2%	2%	2%	2%	2%	2%	2%
7.3.2.2.8	Area cleaning, temp. structure cutting/removal and return of scrap	1%	1%	1%	1%	1%	1%	1%	1%
7.3.2.2.9	Punch list points/ pending points liquidation	1%	1%	1%	1%	1%	1%	1%	1%
7.3.2.2.10	Material Reconciliation	1%	1%	1%	1%	1%	1%	1%	1%
7.3.2.2.11	Completion of contractual obligations	1%	1%	1%	1%	1%	1%	1%	1%
	Total for Milestones / Stage payments (15%)	15%	15%	15%	15%	15%	15%	15%	15%

Technical Conditions of Contract (TCC) Part-1
Chapter-VII: Terms of Payment

7.3.2.3	<u>Notes for Stage/Milestone Payment:</u> If the commissioning activities could not be carried out due to no fault of contractor, BHEL Site in-charge, at his discretion, after recording reasons for exercising such option, can split and release payment up to 50% of milestone payment on completion of work, to the extent possible, required for carrying out that particular milestone/ commissioning activity.
7.3.3	PAYMENT FOR SUPPLY AND APPLICATION OF PAINTS The payment for supply and application of paints shall be released as per the completion of finish painting and labelling of all equipment, systems of this contract scope, as certified by BHEL Engineer. There is no separate provision for release of payments based on supply of paints and primer etc. The supply payment is linked to the payment for finish painting in the milestone payments and shall be released accordingly.
7.3.4	Payment of retention amount and final bill shall be as per clause No. 2.22 and 2.23.2 of GCC.
7.3.5	<u>Recoveries from RA/Final Bills on account of safety lapses during contract execution at RAPP</u> Any recoveries/deduction/penalties effected/levied on BHEL by NPCIL for non- compliance of “NPCIL’s Contract Conditions for Industrial safety”, due to negligence/lapses in safety at project site premises by the contractor of this work scope shall be recovered from the contractor’s monthly RA bills, in line with BHEL rules. These recoveries shall be in addition to the penalties levied on pro-rata basis by BHEL on contractor for non-compliance of the safety protocols at site during working as per the clause no.16 of HSEP-14 document (Part of SCC) for safety non-compliances and respective penalties.

Technical Conditions of Contract (TCC) Part-1

Chapter-VIII: Taxes & Duties

8.0	TAXES & DUTIES
8.1	Goods & Service Tax (GST)
	GST is likely to be implemented in near future (possibly w.e.f 01.07.2017). With the implementation of GST, taxes as applicable under GST shall be payable extra by BHEL. This shall be restricted to the direct transaction between BHEL and its Contractor only. As the execution of work is likely to fall within GST regime, the contractor may quote their price net of Input credit benefits available to them under GST regime after taking note of the applicable provision of tax rates, rules, regulation under GST regime. The contractor has to ensure compliance of all the rules, regulations under GST laws so that benefit of inputs are not denied to BHEL by respective authorities. Any default due to non compliance of GST provisions by Contractor and affecting interest of BHEL shall be to contractor's account. Wherever the GST laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor under GST. <u>However in case of any deferment in GST implementation due to any reason, the provisions regarding Taxes Duties in the transition period shall be applicable as under:</u>
8.2	Taxes Duties (Applicable in pre GST Regime)
	The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

Technical Conditions of Contract (TCC) Part-1

Chapter-VIII: Taxes & Duties

	However, provisions regarding Service Tax on output service shall be as per following clauses.
8.2.1	Service Tax & Swachh Bharat Cess (SBC) & Krishi Kalyaan Cess (KKC)
8.2.1.1	Service Tax, Swachh Bharat Cess (SBC), Krishi Kalyan Cess (KKC) on output Services are excluded from contractor's scope; therefore contractor's price/rates shall be exclusive of Service Tax, Swachh Bharat Cess and Krishi kalyan Cess as applicable.
8.2.1.2	Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. Where the Service Tax Act permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor. Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract.
8.2.1.3	For the purpose of claiming any Service Tax and SBC & KKC from BHEL, the following procedure shall be adopted:
8.2.1.3.1	Contractor shall submit serially numbered Service Tax, SBC & KKC Invoices signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely:
8.2.1.3.2	The name, address and registration number of the contractor
8.2.1.3.3	The name and address of the party receiving taxable service (BHEL)
8.2.1.3.4	Description, classification and value of taxable service provided and
8.2.1.3.5	The Service Tax, Swachh Bharat Cess (SBC) and Krishi Kalyaan Cess (KKC) payable thereon.
8.2.1.3.6	The service invoice for output services provided should show service tax and the SBC & KKC amount separately
8.2.1.3.7	All the five conditions shall be fulfilled in the invoice for payment of Service Tax and SBC & KKC by BHEL. Where more than one nature of Service as per Service Tax act is involved in the execution of contract, the invoice mentioned above shall contain the breakup of values for each nature of Service.
8.2.1.3.8	Name and address of the Contractor should be same in the service tax invoice and monthly bill as it is in the service tax registration certificate. Any change in the name and address should be supported by documentary evidence duly certified by the authorized signatory.
8.2.1.3.9	Purpose of above requirements, inter-alia, is to enable availment of Cenvat credit by BHEL. As per recent amendments, Time restrictions for taking Cenvat credit is one year from date of invoice. Hence subcontractor must submit its invoice within 30 days from the date of completion of service.

Technical Conditions of Contract (TCC) Part-1

Chapter-VIII: Taxes & Duties

	Wherever Cenvat credit could not be availed by BHEL due to delay in submission of invoices or for any other reasons attributable to contractors, Liability towards loss of such Cenvat credit shall be passed on to sub-contractors.
8.2.1.3.10	The documentary evidence of deposition of service tax and SBC& KKC is to be submitted at the earliest opportunity.
8.2.1.3.11	The payment of service tax and SBC& KKC as per clause no 8.2 is restricted to the direct transactions between BHEL & its sub-contractor only.
8.2.2	Modalities of Tax Incidence on BHEL
	Wherever the relevant tax laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor.
8.2.3	New Taxes/Levies (applicable for pre GST period)
8.2.3.1	In case the Government imposes any new levy/tax on the output service/ goods/work after award of the contract, the same shall be reimbursed by BHEL at actual. The reimbursement under this clause is restricted to the direct transaction between BHEL and its subcontractor only.
8.2.3.2	In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of Price Bid. Claim for any such impact after opening the Price Bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.
8.2.3.3	The Vendor has to ensure compliance of all laws and taxes so that benefit of inputs are not denied to BHEL by respective authorities.
8.2.3.4	Payment shall be released against RAB provided proper invoices in conformity with the relevant provisions of new Act/Rules have been issued by sub-contractor/vendor. Later on if it is noticed that input Tax Credit is not available to BHEL due to reasons attributable to sub-contractor /vendor, the same shall be recovered from next bill.
8.3	BUILDING & OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996 (BOCW Act) AND RULES OF 1998 READ WITH BUILDING & OTHER CONSTRUCTION WORKERS CESS Act, 1996 & CESS RULES, 1998.

Technical Conditions of Contract (TCC) Part-1

Chapter-VIII: Taxes & Duties

	In case any portion of work involves execution through building or construction workers, then compliance to the above titled Acts shall be ensured by the contractor and contractor shall obtain license and deposit the cess under the Act. In the circumstances it may be ensured as under:-
8.3.1	It shall be the sole responsibility of the contractor in the capacity of employer to forthwith (within a period of 15 days from the award of work) apply for a licence to the Competent Authority under the BOCW Act and obtain proper certificate thereof by specifying the scope of its work. It shall also be responsibility of the contractor to furnish a copy of such certificate of licence / permission to BHEL within a period of one month from the date of award of contract.
8.3.2	It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under these act and rules including that of payment / deposit of 1% cess on gross payment made for value of work involving building or construction workers engaged by the contractor within a period of one month from the receipt of payment.
8.3.3	It shall be the responsibility of the sub-contractor to furnish the receipts / challans towards deposit of the cess together with the number, name and other details of beneficiaries (building workers) engaged by the sub-contractor during the preceding month.
8.3.4	It shall be the absolute responsibility of the sub-contractor to make payment of all statutory payments & compensations to its workers including that is provided under the Workmen's Compensation Act, 1923.
8.3.5	The contractor shall, however ensure before deposit of any BOCW Cess, that customer is not depositing the same in order to avoid excess deposit of cess.
8.3.6	The contractor shall bear cost of BOCW cess either by way of deposit or through recovery by BHEL in case the same is deposited by the customer.
8.3.7	In case of failure in above mentioned compliances, BOCW Cess @ 1% as well as applicable penalty as specified in BOCW Act/Rules shall be deducted from the contractor.

Technical Conditions of Contract (TCC) Part-1

Chapter-IX: Inclusions and Exclusions to the contract

9.0	The inclusions and exclusions to this contract are listed below. These are general in nature. It may be specifically noted that it should not be construed or claimed by the contractor that with the technical specification and “exclusions and/or inclusions” detailed in this tender specification, BHEL has covered the entire scope of work and/or the details thereof to be executed by the contractor.
9.1	<u>INCLUSIONS</u>
9.1.1	All terminal connections for equipment & piping covered in this specification. The decision of BHEL Engineer with regard to decision on the terminal point shall be final and binding on contractor.
9.1.2	Contractor shall carry out the alignment and welding of terminal points/ interface/ matching & connected flanges joints, pipe joints etc. of other system & other agencies as scope of work. The decision of BHEL Engineer in this regard shall be final and binding on the contractor.
9.1.3	Impulse/ pneumatic piping between customer’s battery limit and equipment.
9.1.4	Servicing and assembly of control valves/regulating valves, fixing of filter elements/strainers etc. is the part of scope of work.
9.1.5	Supply of grouting material as per specifications under scope of Work (chapter 2 of TCC Part -1) and CIVIL Works (chapter 2 of TCC Part -2)
9.1.6	Most of the Misc. Pumps with drive motors, base frame, fittings etc. will be supplied in loose parts/ dismantled condition as skid mount. These pumps along with drive and fittings shall be assembled at site. The delivery of these will be taken from BHEL stores/storage yard and will be assembled/ installed at different locations as per drawing and instruction of BHEL Engineer at site. The work involved is preservation, assembly, installation, erection, alignment, Pockets / base frames / foundations grouting including providing non-shrink free flow grout mix material, fixing of loose items, filling of lubricants, greasing, commissioning, no load/ load trial run of motors & pumps. All the works shall be carried out as part of scope of work.
9.1.7	Consumables: The contractor shall provide all consumables required for carrying out the work covered under these specifications excepting those which are specifically indicated as BHEL scope. TG special consumables like Hylomar / golden Hermetite / stag-b / Molykote/ Anabond compounds / rubber fixing compounds etc. will have to be arranged by the contractor.

Technical Conditions of Contract (TCC) Part-1

Chapter-IX: Inclusions and Exclusions to the contract

9.1.8	<u>WELDING ELECTRODES, FILLER WIRES FOR TIG WELDING AND GASES</u> All welding consumables including welding electrodes, gases, filler wires etc. are in the contractor's scope. The contractor shall provide all consumables required for carrying out the work covered under this scope of work including TIG wires etc. for welding of piping joints. All the required gases/consumables for carrying out welding, stress relieving/pre-heating/PWHT like argon, oxygen, and acetylene etc. shall be arranged by the contractor at his cost.
9.2	<u>EXCLUSIONS</u> The following works are specific exclusions from the scope of work under erection, testing & commissioning of tender specification.
9.2.1	Civil works except to the extent specifically indicated elsewhere in this tender.
9.2.2	Sub-delivery items and electrical components such as push-buttons, junction boxes etc. However, Turbo Generator and all Motors related to the equipment covered under these specifications are specifically included in the scope of contractor under these tender specifications.
9.2.3	E&C work of cable trays, cables and earthing, control panels, EPMS, MCC etc. except to the extent specifically indicated elsewhere in this tender.
9.2.4	Pneumatic copper tubing and fittings thereof. Electrical and C&I items of Variable Frequency Drives as provided elsewhere in these specifications.
9.2.5	Impulse piping and fittings beyond the root wall and nut & tail is excluded from the scope of contractor under these specifications. It is to mention that impulse piping and fitting from tapping point upto nut & tail (including nut & tail) is specifically included under the scope of work of contractor under these tender specifications.
9.2.6	Supply of materials for temporary piping (pipe, valve, structural steel etc.) required for chemical cleaning, flushing or steam/air blowing of the pipelines.
9.2.7	Supply of chemicals and lube oil as required for chemical cleaning and oil flushing operations during pre-commissioning, commissioning and trial operations activities.

Technical Conditions of Contract (TCC) Part-1

Chapter-X: Safety Guidelines

10	Safety guidelines to be followed by contractor at site
10.1	General Note: The contractor shall comply with all provisions of “AERB Safety Guide for Works Contract” Document No. AERB/SG/IS-1 and other safety requirements as applicable to specific site. The Contractor shall meet statutory requirements as well as regulatory requirements applicable to the project, in general and NPCIL in particular, especially the requirements as per Factory Act-1914 (amended in 1987). Atomic Energy Factories Rule-1996 (AEFR-1996 or latest version applicable at the time of work execution), safety guidelines for Job Hazard Analysis (JHA) and AERB notifications on Industrial Fire & Safety. The copies of the same can be obtained from BHEL/NPCIL at the time of mobilization, before execution of work.
10.2	SAFETY GUIDLINES
10.2.1	The contractor shall ensure minimum first aid arrangements available at all times at site and other arrangements in collaboration with local health authorities.
10.2.2	The contractor shall provide and maintain all lights, fencing, guards, warning signs and caution board and similar items as required to ensuring safe working conditions at work site.
10.2.3	The contractor shall comply with the instructions given by departmental safety officer or his representative regarding safety precautions, protection measures and housekeeping etc.
10.2.4	The contractor shall comply with all provisions of AERB Safety Guide for Works Contract Document no. AERB/SG/IS-1 and other safety requirements as applicable to this specific site.
10.2.5	The contractor shall provide proper access and working platforms for all place of work as per laid down standards or as advised by Engineer in-charge or Head-IS&F.
10.2.6	The contractor shall ensure that all floor openings in his work are guarded/barricaded during the course of work and at the end of each day's work.
10.2.7	The contractor shall meet statutory requirements applicable to the project in general and NPCIL in particular especially the requirements as per Factory Act-1948 (amended in 1987), Atomic Energy factories rule-1996 (AEFR-1006 or latest version available at the time of work execution) safety guidelines for Job Hazard Analysis (JHA) & AERB notifications on Industrial & Fire safety. The copies of the same can be obtained from BHEL/NPCIL on request.

Technical Conditions of Contract (TCC) Part-1

Chapter-X: Safety Guidelines

10.2.8	The contractor's safety professionals shall be aware about Acts, Rules connected with Industrial Safety and practices particularly applicable to the project and to threat effect they have to undergo an assessment at the project within 15 days of their placement at the project at the cost of the contractor and then only he/she would be given permanent entry pass and considered in required strength of the safety professionals.
10.2.9	All PPE procured and provided to workers shall conform to relevant Indian Standards and should be maintained in healthy condition by suitable storage, maintenance and inspection.
10.2.10	Contractor working at the height of more than 2.5 meters above stable floor or ground floor must acquire height pass as per procedure including the worker's medical fitness certificate by certifying surgeon (having MBBS qualification) and worker's height qualification etc. If in any height work, the worker is found without having height pass, it will be recorded for regulation of payment. The decision of BHEL engineer with regards to the regulation of payment shall be final and binding.
10.2.11	Contractor shall ensure safe movement of man and material as well as vehicles in site premises as per rules/regulations applicable at or issued by plant. In case of violation of the rules/regulation it will be recorded for regulation of payment. The decision of BHEL engineer with regards to the regulation of payment shall be final and binding.
10.3	SAFETY PLAN
10.3.1	Contractor at his cost shall perform following tasks for the job having high risk as identified by Department Safety Group:
10.3.1.1	Prepare Safe Working Procedures and ensure its implementation in field.
10.3.1.2	Carry out Job Hazard Analysis (JHA) and implement in field.
10.3.1.3	Based on JHA, the safe working procedures should be modified especially to include checklists as necessary checkpoints for job safety supervision.
10.3.1.4	Worker (s) must be trained based on safe working procedure and explained about DOs and DON'Ts prior to assigning him the job.
10.3.1.5	The workers must adhere to the safe working procedure for the job.
10.3.1.6	Contractor shall ensure that all Tools, Appliances, erecting equipment and their safe use by the contractor work force shall be meeting Indian Standards. The contractor must ensure that necessary authorization exist with workmen prior to their deployment on a particular appliance/tool/equipment. The workmen would be

Technical Conditions of Contract (TCC) Part-1

Chapter-X: Safety Guidelines

	required to acquire additional authorization for crane operation, crane signaling, blasting operation, welding and cutting operation, electrical work etc. And then only workmen shall be deployed for such job. He shall maintain all record of tools and equipment for their healthiness and safe use with a copy to departmental safety group.
10.4	Employees Safety & Workmen Compensation
10.4.1	Contractor shall be responsible for safety of all his employees during execution of the contract work. As per Workmen's Compensation Act, 1923 (Amended in 2000), the contractor will ensure the payment of compensation to his employees in case of an accident as early as possible within the time frame permitted by the law of land
10.5	Job Supervision at Site
10.5.1	The contractor must ensure adequate job supervision through educated, qualified and Experienced supervisors - at least one supervisor for each hazardous job activity to ensure safety during work execution. Similarly, there should be adequate on-site engineering support ensuring coverage of at least one experienced engineer for every ten supervisors and part thereof.
10.6	Training requirements
10.6.1	Contractor must build all necessary infrastructure for imparting induction safety training, mock-up trainings and job specific training at plant site at his cost. The required space will be provided free of cost by NPCIL. The Training matters will be guided by Head, IS&F and will be monitored by Training Superintendents. The training evaluation for its effectiveness, will be assessed by nominee of Training Superintendent, QA and/or Head IS&F. The contractor site-in-charge should arrange induction safety training of four hours duration to all workmen prior to engaging them to work and refresher training on monthly basis covering 20% of the workman in a month with 100% coverage within 6 months. This training should be given with necessary Audio, Visual, Posters aids and as per syllabus approved by NPCIL safety group, under the guidance of Training Superintendent or Head IS&F or his representative. The training should be in the language understandable to workmen. This training shall include mock trials of wearing of helmet, use of safety belt and it's hooking up to an independent lifeline etc. The safety-training instructor must certify the workmen for having understood safety aspects and use of PPEs successfully in mock-up trial. To ensure proper understanding of safety instructions and safety training, the contractor shall employ literate (at least able to read safety instructions) workers only. In exceptional cases of not meeting

Technical Conditions of Contract (TCC) Part-1

Chapter-X: Safety Guidelines

	literacy requirement the workers shall be imparted supplementary training.
10.6.2	The job supervisors and the engineers will have to undergo detailed safety training of at least three days duration at the plant in safety supervision and accident prevention techniques. This training would at the cost of the contractor and then only he/she would be given permanent entry pass to plant
10.6.3	Contractor must note that in case the industrial safety induction training as per 10.6.2 is not conducted within 3 days his workmen shall not get plant entry pass.
10.7	Requirements and specification of PPEs Tools and Tackles
10.7.1	Every contractor must keep adequate stock of ISI certified (or of relevant) personal protective equipment (PPE), safe working tools and safe like platforms and access ladders, guard railing etc. and shall ensure these are used during the job for safe execution of the work. These PPE, Tools and Appliances must be inspected quarterly. Contractor on demand by BHEL authorities shall produce the record of such inspections.
10.7.2	All implements being used for height work like scaffold, access stairs/ladders, platform, railings etc. should be of ISI marked material meeting requirements of AEFR-1996 and should be certified by contractor safety professional prior to its safe use and to the effect that each implement should have display showing it can be safely used. If any workman is found using sub-standard or damaged PPE, tools & appliance, or any unsafe condition/practices is observed it will be recorded for regulation of payment. The decision of the Engineer-in-charge, in regards to the regulation of payment shall be final and binding.

Technical Conditions of Contract (TCC) Part-1
Chapter-XI: Equipment's Weight and dimension details
(BHEL Bhopal, Haridwar and other MU's scope)

Equipment's weight, dimension and system details (BHEL Bhopal, Haridwar's and other MU's scope) provided in this Chapter-XI are for 01 unit.

These will be applicable for Unit#7, RAPP, Rawatbhata.

Tentative weight schedule summary for 01 Unit

S.No.	EQUIPMENT / PACKAGE	APPROX.WT. for 01 Unit (in MT)
1.	Condenser (for 3 nos. in one unit)	1155.33
2.	Condenser Tubes (for 3 nos. in one unit)	490.00
3.	MS Drain Tank (for 1 nos. in one unit)	4.83
4.	MSR (for 2 nos. in one unit)	392.64
5.	Vacuum Pump (for 4 nos. in one unit)	32.60
6.	Re-heater Condenser Tank Stage-1(for 2 nos. in one unit)	7.48
7.	Re-heater Condenser Tank Stage-2(for 2 nos. in one unit)	7.48
8.	LP Heater (for 3 nos. in one unit)	54.77
9.	HP Turbine Module including valve	218.50
10.	LP Turbine Module (for 3 nos. in one unit)	579.60
11.	LP Valve (for 6 nos. in one unit)	90.00
12.	Auxiliary Equipment	79.01
13.	Turbine Piping	232.31
14.	Piping Hanger Support, Platforms, governing Oil piping etc.	115
15.	Generator, Exciter and auxiliaries	568.9
16.	Coolers	10.21
	Sub-Total (Approx. Metric Tonnes)	4038.66

Technical Conditions of Contract (TCC) Part-1
Chapter-XI: Equipment's Weight and dimension details
(BHEL Bhopal, Haridwar and other MU's scope)

11.1 BHOPAL SUPPLY

11.1.1 CONDENSER

There are 3 nos. condensers in each unit.

S. No.	Name of package	Box Qty. (Nos.)	Size of packages (tentatively)			Weight (kg)
			L (mm)	B (mm)	H (mm)	
1a	CONDENSER (HOTWELL) FRONT	1	7400	1700	1100	4250
1b	CONDENSER (HOTWELL) REAR	1	7000	2000	1200	3975
2	BOTTOM PLATE (FRONT)	1	7250	3600	750	7085
3	BOTTOM PLATE-(REAR)	1	7250	3600	750	7085
4a	BOTTOM PLATE (MIDDLE) 1	1	7250	4000	750	7510
4b	BOTTOM PLATE (MIDDLE) 2	1	7250	3500	750	5640
5	BOTTOM PLATE: LOOSE ITEMS. (BACKING STRIPS AND STIFF.)	1	2000	500	500	726
6	CONDENSER SPRING SUPPORT ASSY.(8 SET)	1	1800	1700	1000	3088
7	CONDENSER SPRING SUPPORT ASSY.(8 SETS)	1	1800	1700	1000	3088
8	CONDENSER SPRING SUPPORT ASSY.(6 SET)	1	1800	1400	1000	2316
9	CONDENSER SPRING SUPPORT ASSY.(6 SETS)	1	1800	1400	1000	2316
9	CONDENSER SPRING SUPPORT ASSY.(6 SETS)	1	1800	1400	1000	2316
10	CONDENSER SPRING SUPPORT (LOOSE-ITEMS)BASE-PLATES-PACK	1	1000	500	500	16654
11	FRONT WATER CHAMBER : (LHS) GENERATOR SIDE	1	7500	3750	350	7610
12	FRONT WATER BOX (LHS) GENERATOR SIDE	1	7850	3650	2200	21568
13	FRONT WATER CHAMBER(RHS)TURBINE SIDE	1	7500	3750	350	7610
14	FRONT WATER BOX (RHS) : TURBINE SIDE	1	7850	3650	2200	21568
15	REAR WATER CHAMBER(RHS) GENERATOR SIDE	1	7500	3750	350	7610
16	REAR WATER BOX (RHS) : GENERATOR SIDE	1	6900	3650	2100	14210
17	REAR WATER CHAMBER(LHS) TURBINE SIDE	1	7500	3750	350	7610
18	REAR WATER BOX (LHS) :TURBINE SIDE	1	6900	3650	2100	14210
19	SIDE WALL (TURBINE SIDE) : FRONT	1	7600	2800	16	2294
20	SIDE WALL (TURB. SIDE) : MIDDLE	1	7600	2800	16	2328

Technical Conditions of Contract (TCC) Part-1
Chapter-XI: Equipment's Weight and dimension details
(BHEL Bhopal, Haridwar and other MU's scope)

21	SIDE WALL (TURB. SIDE) : MIDDLE	1	7600	2800	16	2328
22	SIDE WALL (TURB. SIDE) MIDDLE	1	7600	2800	16	2328
23	SIDE WALL (TURB. SIDE) REAR	1	7600	1700	16	1429
24	SIDE WALL (TUR SIDE) LOOSE ITEMS (STIFFENERS)	1	500	250	500	267.8
25	SIDE WALL (TURB SIDE) LOOSE ITEMS (STIFFENERS)	1	6000	500	500	664
25a	SIDE WALL (TURB. SIDE) : MIDDLE	1	7600	2800	16	2328
26	SIDE WALL GEN.SIDE FRONT BOX	1	7600	1700	16	1429
27	SIDE WALL GEN. SIDE MIDDLE BOX	1	7600	2800	16	2328
28	SIDE WALL GEN.SIDE MIDDLE BOX	1	7600	2800	16	2328
29	SIDE WALL GEN. SIDE MIDDLE BOX	1	7600	2800	16	2328
30	SIDE WALL GEN. SIDE REAR BOX	1	7600	1700	16	2294
31	SIDE WALL (GEN SIDE) LOOSE ITEMS (STIFFENERS)	1	500	250	500	267.8
32	SIDE WALL (GEN SIDE) LOOSE ITEMS	1	6000	500	500	664
32a	SIDE WALL GEN. SIDE MIDDLE BOX	1	7600	2800	16	2328
33	SHELL INTERNALS: STIFFENING BARS DIA.100 mm	1	4000	500	500	7297
34	SHELL INTERNALS :STIFFENING BAR-DIA.100 MM)	1	4000	500	500	7297
35	SHELL INTERNAL DETAILS (STIFFENING BAR 100 DIA.)	1	4000	500	500	7297
36	SHELL INTERNALS STIFFENING BAR -100 DIA.	1	4000	500	500	7297
37	SHELL INTERNALS: PLATES AND LANDING BARS	1	1000	500	500	140179
38	SHELL INTERNALS: STIFFENING BARS DIA. 28MM	1	4000	500	500	18393
39	AIR EXTRACTION PIPING	1	4200	500	500	4488
40	SHELL INTERNAL:(TUBE SUPPORT PLATES):5 NOS	1	7000	3350	100	7650
41	SHELL INTERNAL:(TUBE SUPPORT PLATES):5 NOS	1	7000	3350	100	7650
42	SHELL INTERNAL:(TUBE SUPPORT PLATES):5 NOS	1	7000	3350	100	7650
43	SHELL INTERNAL:(TUBE SUPPORT PLATES):5 NOS	1	7000	3350	100	7650
44	SHELL INTERNAL:(TUBE SUPPORT PLATES):5 NOS	1	7000	3350	100	7650
45	SHELL INTERNAL:(TUBE SUPPORT PLATES):5 NOS	1	7000	3350	100	7650
46	Shell Internals: Baffle Plate-Landing Bars Flats	1	4000	1000	500	7371
47	SHELL INTERNALS: BAFFLE PLAT ES-JOINING PLATES	1	5000	500	500	7636

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48	SHELL INTERNALS:MAKEUP BARS :DIA.28& 100 mm	1	4000	500	500	1258
49	LOWER DOME WALL (TURB. SIDE) :LOWER PORTION LEFT	1	1350 0	5000	500	9153
49a	LOWER DOME WALL (TURB. SIDE) :LOWER PORTION RIGHT	1	4660	240	300	2028
50	LOWER DOME WALL (TURB. SIDE): UPPER PORTION	1	1074 0	3500	500	6480
51	LOWER DOME WALL (TURB. SIDE): LOOSE ITEMS	1	9350	200	500	350
52	LOWER DOME WALL GENERATOR SIDE) LOWER PORTION	1	1350 0	5000	500	9153
52a	LOWER DOME WALL GENERATOR SIDE) LOWER PORTION RIGHT	1	4660	240	300	2028
53	LOWER DOME WALL (GEN.SIDE):UPPER PORTION	1	1074 0	3500	500	6480
54	LOWER DOME WALL (GEN.SIDE):LOOSE ITEMS	1	9350	200	500	350
55	LOWER DOME WALL(FWB SIDE) :LOWER PORTION	1	7200	5000	1000	6050
56	LOWER DOME WALL(FWB SIDE) :UPPER PORTION	1	6680	4115	1000	5664
57	LOWER DOME WALL(FWB SIDE)LOOSE ITEMS	1	6400	200	500	600
58	LOWER DOME WALL(RWB SIDE) : LOWER PORTION	1	7200	5000	1000	6323
59	LOWER DOME WALL (RWB SIDE); UPPER PORTION	1	6675	4000	1000	6231
60	LOWER DOME WALL (RWB SIDE): LOOSE-ITEMS (STIFF/CATCHMENT/DISPER.	1	6400	200	500	200
61	DOME INTERNAL STIFEENING (Set-1)	1	2000	500	500	7050
62	DOME INTERNAL STIFEENING (Set-2)	1	2000	500	500	3576
63	DOME INTERNAL STIFEENING (Set-3)	1	2000	500	500	2160
64	DOME INTERNAL STIFEENING (Set-4)	1	2000	500	500	1830
65	DOME INTERNAL STIFEENING (Set-5)	1	2000	500	500	2352
66	DOME INTERNAL STIFEENING (Set-6)	1	2000	500	500	1992
67	DOME INTERNAL STIFEENING (Set-7)	1	2000	500	500	2987
68	DOME INTERNAL STIFEENING (Set-8)	1	2500	500	500	2985
69	UPPER DOME WALL (TURB. SIDE)	1	8000	1860	500	3621
70	UPPER DOME WALL (GENERATOR SIDE)	1	8000	1860	500	3621

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71	UPPER DOME WALL (FWB SIDE)	1	6500	1900	500	3280
72	UPPER DOME WALL (RWB SIDE)	1	6500	1900	500	3280
73	UPPER DOME WALL:(LOOSE ITEMES)	1	1500	600	600	412
73 a	UPPER DOME WALL:RWB SIDE (LOOSE ITEMES)	1				23
74	WATER BOX REMOVAL DEVICE:SWIVEL PIPE ASSEMBLY Front	1	2500	1000	500	1298
74 a	WATER BOX REMOVAL DEVICE:SWIVEL PIPE ASSEMBLY Rear	1	2500	1000	500	1298
75	WATER BOX REMOVAL DEVICELOOSE ITEMS-SHORT/LONG BRKT /SUPP. BLOCKS)	1	2000	500	500	4697
76	WATER BOX REMOVAL DEVICE: FRAME ASSEMBLY	1	2000	500	500	1463
77	WATER BOX REMOVAL DEVICE: FRAME ASSEMBLY	1	2000	500	500	1463
78	STEAM THROW DEVICE -U1	1	1800	610	610	1196.9
79	STEAM THROW DEVICE -U2	1	1800	280	280	103.45
80	CONDENSER LOOSE ITEMS : FASTENERS	1	500	500	500	1500
81	CONDENSER LOOSE ITEMS: ASME BASKET, NAME PLATE ETC.	1	500	500	500	200
82	CONDENSER LOOSE ITEMS :LPH-3 EXT. PIPE	1	3000	1000	500	700
83	CONDENSER LOOSE ITEMS : TOOLS & TACKLES	1	1000	500	500	25
84	STAND PIPE - LOOSE ITEMS	1	4000	1000	500	200
	Total for 1 No. Condenser					385111
	Total for 3 nos. condenser of 01 Unit					1155333

11.1.2 CONDENSER TUBES

S.NO.	Name of package	Qty. per condenser	Weight (kg)
1	Condenser Tubes (SS Welded to SA 249 TP 316L)	22864	163000
2	TOTAL (for 1 no. condenser)		163000
3	Total (for 3 nos. Condenser)		490000

Condenser Tube Material: SS welded to SA 249 TP 316L

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Tube OD x Thickness x Qty.:

For top two rows: approx. 28.575 mm x 1.244mm x 464 no.'s/ condenser

Air cooled zone: Approx. 28.575 mm x 0.711mm x 1726 nos. /condenser

Remaining Bundle: Approx. 28.575 mm x 0.711 mm x 20674 nos. /condenser

TOTAL QTY: Approx. 22864 no.'s /condenser

11.1.2.1 Notes for condenser:

1. TTP mock-up for tube to tube-sheet end joint qualification is to be performed by contractor on 2744 nos. mock-up blocks identical to tube sheet material with suitable size each having 5 numbers tube holes along with 13720 numbers tube pieces each of 250mm length.
2. Condenser tubes are to be seal welded at site through orbital welding. For orbital welding BHEL welding schedule/ specification will be followed at site.

11.1.3 MS DRAIN TANK

There is 1 No.MS Drain tank for each unit

S. No.	Name of package	Qty. (Nos.)	Size of packages (Tentative)			Weight (kg)
1	MSR Drain Tank Assy.	1	4000	2500	2600	4000
2	Stand Pipe Assemblies (3 Nos.)	1	3200	700	700	300
3	Bottom Base Plate with fasteners (2 Sets)	1	1600	500	500	125
4	Magnetic Level Indicator	1	2200	400	400	50
5	Set of Root Valves (50NB, 25NB, 15 NB SW) & Safety Relief Valve	1	1000	1000	1000	300
6	Rating Plate	1	500	500	100	2
7	Set of Level Transmitters (5 Nos.)	1	1000	1000	1000	50
TOTAL (1 No. MS Drain Tank)						4827

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11.1.4 MSR

There are 2 No.'s MSRs for each unit

S. No.	Name of package	Box Qty (Nos.)	Size of packages (tentatively)			Weight (kg)
1	MSR (lower half)	1	5300 Dia.	10800 Height	--	59300
2	Base Plate - Lower	1	1300 Dia.	450 Height	--	1350
3	Base Plate - Upper	1	1200 Dia.	100 Height	--	900
4	Bearing Housing Forging - 1	1	950 Dia.	350 Height	--	700
5	Bearing Housing Forging - 2	1	650 Dia.	100 Height	--	170
6	Neopot Bearing	1	600 Dia.	150 Height	--	250
7	Set of Fasteners + NPT Plugs (Lower Half)	1	500 Long	500 Wide	500 Height	50
8	Set of Plate Shims, Fillers & Lugs for Foundation	1	900 Dia.	125 Height	--	300
9	MSR (Upper Half)	1	5300 Dia.	12500 Height	--	125000
10	Rating Plate	1	500 Long	500 Wide	100 Height	10
11	Set of Snubbers (Tie Rods) with Brackets with Fasteners	1	1000 Long	1000 Wide	2000 Height	750
12	Manhole Gaskets (Grooved Metal)	1	700 Long	700 Wide	200 Height	10
13	Set of Fasteners (Upper Half)	1	300 Long	300 Wide	350 Height	30

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14	Table Top Structure for Snubber Support	1	6000 Long	2000 Wide	3000 Height	1000
15	MSR Lifting Beam Assy.(common)	1	5500 Long	3200 Wide	1000 Height	6500
TOTAL (1 No. MSR)						196320
TOTAL (2 No. MSRs for 01 unit)						392640

11.1.5 VACUUM PUMP

There are 4 No. vacuum pumps for each unit

S. No.	Name of package	Box Qty. (Nos.)	Size of packages (tentatively)			Weight (kg)
1	Vacuum Pump	1	6650	2266	3008	8150
TOTAL (1 No. vacuum pump)						8150
TOTAL (4 nos. vacuum pump)						32600

11.1.6 RE-HEATER CONDENSER TANK (STAGE-1)

There are 2 no. Re-heater Condenser Tanks (Stage-1) for each unit

S. No.	Description	Qty.	Size of packages			Weight (kg)
1	Re-heater Cond. Tank Assy. (Stage-I)	1	4500 Height	1400 Dia.	---	3200
2	Stand Pipe Assemblies (2 Nos.)	1	3000 Long	1000 Height	1000 Wide	200
3	Magnetic Level Indicator	1	2200 Long	400 Height	400 Height	50

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4	Set of Root Valves (50NB, 25NB, 15 NB SW)	1	1000 Long	500 Height	500 Height	250
5	Rating Plate	1	500 Long	100 Height	500 Wide	2
6	Set of Level Transmitters (2 Nos.)	1	600 Long	600 Height	600 Wide	20
7	Set of Fasteners (FDN Bolts & Nuts)	1	500 Long	500 Height	300 Wide	20
TOTAL (1 nos. Re-heater Condenser Tank(Stage 1))						3742
TOTAL (2 nos. Re-heater Condenser Tank(Stage 1))						7484

11.1.7 RE-HEATER CONDENSER TANK (STAGE-2)

There are 2 No.'s Re-heater Condenser Tanks (Stage-2) for each unit

S. No.	Description	Qty.	Size of packages			Weight(kg)
1	Reh. Cond. Tank Assy. (Stage-I)	1	4500 Height	1400 Dia.	---	3300
2	Stand Pipe Assemblies (2 Nos.)	1	3000 Long	1000 Height	1000 Wide	200
3	Magnetic Level Indicator	1	2200 Long	400 Height	400 Height	50
4	Set of Root Valves (50NB, 25NB, 15 NB SW)	1	1000 Long	500 Height	500 Height	250
5	Rating Plate	1	500 Long	100 Height	500 Wide	2
6	Set of Level Transmitters (2 Nos.)	1	600 Long	600 Height	600 Wide	20

Technical Conditions of Contract (TCC) Part-1
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7	Set of Fasteners (FDN Bolts & Nuts)	1	500 Long	500 Height	300 Wide	20
TOTAL ((1 nos. Re-heater Condenser Tank(Stage 1))						3842
TOTAL ((2 nos. Re-heater Condenser Tank(Stage 1))						7484

11.1.8 LP HEATERS

There are 3 nos. LP Heater for each unit

S. No.	Name of package	Box Qty (Nos.)	Size of packages (Tentatively)			Weight (kg)
			L (mm)	W (mm)	H (mm)	
1	ASSY. OF LP HEATER NO.1	1	10400	1750	1800	17000
2	LOOSE ITEMS (SHOP FABRICATED)	1	1000	500	500	100
3	LOOSE ITEMS (BOUGHT OUT)	1	500	500	250	20
4	LOOSE ITEMS (FRAGILE)	1	500	250	250	10
5	FOUNDATION ITEMS	1	500	500	500	200
6	RELIEF VALVES	1	500	500	250	100
7	*BUNDLE REMOVAL TROLLEY	1 per unit	1500	1200	350	825
	TOTAL (1 No. LP Heater)					18255
	TOTAL (3 No. LP Heaters / Unit)					54765

11.1.9 HP TURBINE MODULES

No.	Description	Dimensions		
		Unit Weight (MT)	L (mm)	W (mm) H (mm)
1*	HP Main steam valves* (1 complete set)	23.8	4943	3074 2155

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	Total weight for HP Main steam valves* (4 complete assembly of stop and control valves)	95.2			
2	HP Bladed Rotor	22	7416	1735	1735
3	Upper HP Casing	29.7	5770	4240	1635
4	Lower HP Casing	34.6	5195	4240	2110
5	HP1 and HP2 diaphragms (1)	2.7	1694	1694	310
6	HP3 and HP4 diaphragms (1)	3.5	1934	1934	383
7	HP5 and HP6 diaphragms + diffuser (1)	4.4	2100	2100	654
8	HP Gland carrier (1 set)	1.1	1275	1275	685
9	HP Front Pedestal (including journal bearing but w/o main oil pump and turning gear)	10.1	2530	3800	1525
10	HP Rear pedestal (including journal bearing and thrust bearing)	15.2	1295	4590	1540
	Total for HP Turbine(MT)	218.5			

‘1* - There are 04 Main steam HP inlet valve assembly for 01 unit.

11.1.10 LP TURBINE MODULES- 3 Nos

Sl. No.	Description	Dimensions			
		Unit Weight (MT)	L (mm)	W (mm)	H (mm)
1	LP Bladed Rotor	61.2	8528	3720	3720
2	Complete upper Exhaust Hood (including Inlet steam box and closings)	33	7010	8140	3190
3	Complete lower Exhaust Hood (incl. Bolting and pedestal cover)	56	7760	8660	3770
4	Upper inner Casing (including Thermal screen)	12.3	2870	4500	2260

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5	Lower Inner Casing (including Thermal screen)	12.2	3000	4260	2350
6	LP1 and LP2 Diaphragms	2.8	2470	2470	333
7	LP3 Diaphragms	2	2470	2470	233
8	LP4 Diaphragms	3.4	3076	3076	349
9	LP5 Diaphragms + diffuser	8.3	4580	4580	936
10	LP Gland carrier (1 set)	1.1	1490	1700	1030
11	LP Journal bearing	0.9	1000	1000	420
	Total (for One LP Turbine)	193.2			
	Total (for Three LP Turbine)	579.6			

11.1.11 LP Valves- 6 No.'s

Sl. No.	Description	Unit Weight (MT)	Dimensions		
			L (mm)	W (mm)	H(mm)
1	LP Valves		1650	1500	3000
	Weight of 01 Valve	15			
	Total for One Unit (6 No.'s Valves)	90			

11.1.12 AUXILIARIES EQUIPMENT

Sl. No.	EQUIPMENT	QTY	VOL (m3)	TOTAL WT. FOR 1 UNIT (kg)
1	Main Oil Tank and Strainer	1 no	85	24750
2	Auxiliary Oil Pump and motor	1 no	4.6	2375
3	Emergency Oil Pump and motor	2 no's	6.9	1900
4	Jacking Oil Pump and motor and Duplex Filter	2 no's	9.1	2600

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5	Oil Vapour Exhauster, oil mist filter	2 no's	2.9	1645
6	Misc. Equipment (Valve, accessories, Instrument rack)	1 SET	-	2500
7	Duplex filter Lube Oil	1 no.	5.1	1900
8	Lube oil cooler assembly	1 Set	14.6	12075
9	Oil purifier	1 no.	26.5	5200
10	Gland steam control Valve	1 no.	0.9	450
11	MSR line check valve	1 no.	2.7	1700
12	HP heater 5 Check Valve	1 no.	3.5	1750
13	Deaerator check Valve	1 no.	6.3	4810
14	LP heater 3 Check Valve	1 no.	7.2	4810
15	Other gland steam line valves	1 set		300
16	Thermostatic Valve	1 Set	0.1	145
17	Control Oil Skid Unit	1 set		3600
18	Gland Steam Condenser	1 set		2000
19	Gland Steam Condenser Extractor Fan	1 Set	32	4500
	TOTAL			79010

11.1.13 TURBINE PIPING

Sl. No.	SYSTEM	QTY	VOL (m3)	TOTAL WT. FOR 1 UNIT(kg)
1	CRH Piping, Bellows, Support Ring and Hanger and Support and Snubbers	1 set	230	76000

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2	HRH Piping, Bellows, Support Ring and Hanger and Support and Tie Rod and Snubbers	1 set	180	92000
3	HP Loop Pipe	1 set	10	9500
4	Extraction Pipe Inside Condenser (To Heater 1)	1 set	-	5190
5	Extraction Pipe Inside Condenser (To Heater 2)	1 set	-	2100
6	Extraction Pipe Inside Condenser (To Heater 3)	1 set	-	1170
7	Lube Oil and Jacking Oil System	1 set	-	10972
8	Control Oil, Protection and main steam and Drain Piping	1 set	-	4353
9	Gland Steam piping	1 set	-	21025
10	Condenser to Vacuum Pump Pipe	1 Set	-	9000
11	Gland Steam Condenser to Extractor Fan Pipe and Support	1 Set	-	1000
	TOTAL			232310

Note:

CRH piping consists of Stainless Steel material and HRH & HP Loop (MS) piping consists of Carbon Steel material.

11.1.14 PIPING HANGER SUPORTS

Sl. No.	Name of package	Box Qty. (Nos.)	Weight (kg)
1	Bearing Housing Forging - 2	1	45500
2	Neopot Bearing	1	5000
3	Set of Fasteners + NPT Plugs (Lower Half)	1	2100
4	Set of Plate Shims, Fillers & Lugs for Foundation	1	350
5	Aux. for MSR (Upper Half)	1	200
	TOTAL		53150

11.1.15 Stairs, platforms, walkways, etc.

Approx. quantity = 35 MT (supplied by MU's).

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11.1.16 Turbine governing system

Approx. quantity =26.4M

11.2 BHEL-HARIDWAR SUPPLY

11.2.1 GENERATOR

Sl. No	Description	Size of packages/Qty.	Weight(kg)
1	FOUNDATION PLATES	6400X1680X950	11915
2	FOUNDATION BOLTS	2540X655X600	960
3	FOUNDATION ITEMS	5800X1120X520	2170
4	GENERATOR STATOR	9860X4440X4260	312000
5	GENERATOR ROTOR WITH SKID PLATE	14125X1790X1740	85315
6	END SHIELD LOWER HALF (TE)	3800X1500X2240	9883
7	END SHIELD UPPER HALF (TE)	3800X1500X2240	8883
8	END SHIELD LOWER HALF (EE)	3800X1500X2240	9933
9	END SHIELD UPPER HALF (EE) END SHIELD UPPER HALF (EE)	3800X1500X2240	8933
10	GENERATOR BEARING (EE & TE)	1180X1050X1170	1906
11	BAFFLE RING CARRIER & AIR GAP SEAL ASSY.	2035X1885X1200	1315
12	TERMINAL BUSHINGS	2200X1830X610	1523
13	TERMINAL BUSHING BOX	3500X2600X1740	7337
14	SHAFT SEALS (EE & TE) & OIL CATCHER (INNER & OUTER)	2140X1140X965	1435
15	BAFFLE RING ASSY	2070X1870X1080	1218
16	GENERATOR ACCESSORIES	2140X2140X1240	700
17	FLEXIBLE TERMINAL CONNECTIONS	1350X950X400	592
18	GENERATOR ACCESSORIES	950X950X450	550

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19	GENERATOR ACCESSORIES	1000X1000X750	810
20	GENERATOR ACCESSORIES	1700X1200X250	140
21	PRIMARY WATER TANK	10500X2400X1200	2040
22	PW TANK PIPE LINES	4500X1800X500	830
23	PW TANK PIPE LINES	3000X600X500	680
24	PLATFORM FOR PW TANK	5000X1200X600	1190
25	COOLER HOUSING FRAME	4290X4450X1428	21500
26	SEAL RINGS	750X750X200	90
27	CONNECTION PIECE ASSEMBLY	1650X1100X450	858
28	GENERATOR TERMINAL BOXES	2000X1200X600	400
29	DRY AIR BLOWER	1100X1000X700	80
30	ROTOR INSERTION DEVICES	2460X1170X1240	2410
31	ERECTION PEDASTALS	5300X1500X940	5900
32	WIRE ROPES FOR ROTOR	1800X1800X400	330
33	GENERATOR ERECTION DEVICES	3300X1555X1140	1455
34	SPECIAL TOOLS AND TACKLES	800X700X300	145
35	BRUSHLESS EXCITER SET	5750X2350X3400	30400
36	DRY AIR BLOWER AND ACCESSORIES	1800X1500X1100	592
37	EXCITER BED PLATE ACCESSORIES	3900X1250X1150	3000
38	EXCITER ACCESSORIES	2200X1200X1100	1100
39	EXCITER ACCESSORIES (FOUNDATION ITEMS)	1700X1000X800	640
40	RR WHEEL AIR GUIDE COVER	2000X1500X2000	1315
41	SEAL OIL STORAGE TANK	5000X1800X1700	3255
42	PW PUMP AND FILTER UNIT	4000X4000X3000	7065

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43	SINGLE FLOW S.O.U. - PART I	4000X2500X3000	5300
44	SINGLE FLOW S.O.U. -PART II	2500X2500X3400	4525
45	LIQUID DETECTOR RACK	2000X600X2000	660
46	GAS UNIT	1980X1640X2420	1205
47	CO2 VAPORISER	1520X840X840	250
48	H2 DISTRIBUTOR	3480X1540X440	333
49	CO2 DISTRIBUTOR	4860X1240X440	353
50	N2 DISTRIBUTOR	1400X1240X440	143
51	DRAIN OIL COLLECTOR	2000X550X550	139
52	RESINS	1200X600X600	100
53	TG SYSTEM INTEGRAL PIPING (VALVES)	2750X1400X1400	2486
54	TG SYSTEM INTEGRAL PIPING (INSTRUMENTS)	1000X940X900	354
55	FRAME FOR SEAL OIL UNIT(JB)	960X940X1950	200
56	CONSUMABLE	800X400X200	55
	TOTAL for ONE UNIT		568896

11.2.2 Coolers

Sl. No.	Name of package	Weight (kg)
1	HYDROGEN COOLER	2750
2	HYDROGEN COOLER	2750
3	LOOSE ITEMS (HYDROGEN COOLERS)	750
4	EXCITER AIR COOLER	1980
5	EXCITER AIR COOLER	1980
	TOTAL	10210

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11.3 NOTES:

- The list is for **ONE UNIT (applicable for Unit#7)** and tentative and has been given to enable the contractor to study the nature of work to be done in this contract. There may be variation in size, weight etc. and no claim on this account will be applicable.
- Some of the packages may be sent in parts (knocked down position) to suit the site conditions/transportation. The same is to be assembled at site without any extra cost. Likewise, the package may be assembled together and sent as a single assembly. Contractor may have to dismantle and erect as a single assembly as per the instructions of BHEL engineers without any extra cost to BHEL.

Technical Conditions of Contract (TCC) Part-1

Chapter XII- UNPRICED RATE SCHEDULE

“ANNEXURE-A”

UNPRICED RATE SCHEDULE

Sr. No.	Work Description	Quantity	Rate	Total Amount in Rupees
	TG Package of UNIT-7			
12.1	Lumpsum price for complete scope of work for Erection, Testing, Commissioning, Trial operation and handing over of STG Unit No. 7 including integral piping & auxiliaries and Supply of paints/primers at 2X700 MW, RAPP Kota, as per tender specification. (Items as per chapter XI)	1		
	Grand TOTAL in Rupees			

Notes:

12.1.1 Tender shall be evaluated on Grand Total Amount.

12.1.2 Contractor shall fully understand equipment description and scope of work before quoting. The scope of work and responsibility of the contractor as mentioned under these specifications shall be covered within the quoted price. The contractor has to handle / erect / commission all the items indicated by BHEL for achieving the milestones and completion of work.

12.1.3 The contractor while quoting the above rates, categorically confirms having understood the fullest implications of price escalation provisions contained in tender. Accordingly taking into consideration all aspects thereof quoted above rates. Further contractor confirms that he will not come with any other claim/compensation on account of any increase whatsoever during the entire period of execution including extended period if any.

12.1.4 The Total Amount shall consider Taxes and Duties as per chapter VIII of the TCC.

12.1.5 The tenderer shall quote the price as per the rate schedule only, in price bid (Original). Conditional price bids or price bids with any deviation / clarification etc. are liable to be rejected. No cutting / erasing / over writing shall be done.

12.1.6 Evaluation of bids shall be done on the total price of this Package, against this Rate Schedule / BOQ.

TECHINICAL CONDITIONS OF CONTRACT (TCC)

TENDER NO. BHEL/ NR/SCT/RAPP /STG/UNIT 7

FOR

COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD,TRANSPORTATION TO SITE,ERECTION, TESTING, COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF STEAM TURBINE, GENERATOR, MSR, CONDENSER, STATIC AND ROTATING EQUIPMENT, INTEGRAL PIPING AND AUXILIARIES OF THE SYSTEM AND FINAL PAINTING OF UNIT NO.7 INCLUDING SUPPLY OF PAINTS

OF

**2X700 MW RAPP-7 OF NPCIL,
AT RAWATBHATTA, KOTA, RAJASTHAN.**

PART-2 of TCC



**Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northren Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)**

Technical Conditions of Contract (TCC) Part-2

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Chapter- I: GENERAL

1.0	GENERAL REQUIREMENTS
1.1	The Contractor shall prepare and submit procedure for each activity and overall programme within a reasonable period to BHEL/NPCIL for their prior approval before commencement of activity, in such form as may be required by BHEL/NPCIL, the order of procedure in which he proposes to carry out the works as to erection, testing and commissioning activities. The submission to and approval by BHEL/NPCIL of such programme shall not relieve the Contractor of any of his duties or responsibilities under the contract. Detailed procedure for carrying out erection, testing and commissioning, shall be submitted by Contractor for BHEL/NPCIL's approval prior to start of these activities, in a format and contents to be approved by BHEL/NPCIL.
1.2	After submission to and approval by BHEL/NPCIL of such programme the Contractor shall adhere to the order of procedure and method stated therein unless he obtains the written permission of BHEL/NPCIL to vary such method or order.
1.3	The contractor shall submit well in advance his scheme for movement/lifting/handling of heavy equipment/ components also indicating the tools, tackles and equipment with due calibration, testing certificates, which he proposes to employ for the same, for approval by BHEL and NPCIL prior to actual undertaking of such work.
1.4	The contractor shall submit the load test certificate of all the T&P planned to be deployed at site as per BHEL requirement. Load test of cranes are to be carried out minimum at three points. (Maximum load minimum boom, minimum load at maximum boom and any other point as desired by BHEL)
1.5	The contractor shall submit a third party inspection report, fitness certificate etc. for the T&P planned to be used at site. All the T&P should have all the safety requirements like safe load indicator, back horn, back light and test certificates etc.
1.6	The contractor shall complete all the requirements for obtaining gate pass for labour as well as for T&P from NPCIL. Police verification for workmen may be required to be submitted for obtaining gate pass from NPCIL.
1.7	The contractor shall obtain permits for working at height from NPCIL/ BHEL. A safety training will be conducted for workers planned to work at height.
1.8	The workers employed for special jobs like welding etc. will be tested at site as per BHEL/NPCIL requirement before deployment at job.
1.9	During the course of execution of this work, certain rework/ modification/ rectification/ repairs/ fabrication etc. will be necessary on account of feedback from various thermal power stations on units already commissioned and/or units under erection and commissioning and also on account of design discrepancies and manufacturing defects and site operation/maintenance requirements. Contractor shall carryout such rework/ modification/ rectification/ fabrication/ repairs etc. promptly and expeditiously. Daily log sheets indicating the details of work carried out,

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	man hours; consumables used etc., shall be maintained by the Contractor and got signed by BHEL engineer every day. Claims of contractor, if any, for such works will be dealt as per relevant clauses of General Conditions of Contract.
1.10	The contractor shall make adequate security arrangements including employment of security personnel and ensure protection from theft, fire, pilferage, damage and loss of materials/equipment issued to him for the work. Special care will have to be taken to guard against pilferage / theft of copper tubing, brass fittings, brass valves and other costly materials.
1.11	All equipment shall be handled very carefully to prevent any damage or loss. No bare wire ropes, slings etc., shall be used for handling of the equipment without the specific permission of the engineer.
1.12	Contractor shall erect and commission all the equipment's and auxiliaries as per the sequence & methodology prescribed by BHEL depending upon the technical requirements. Availability of materials and fronts will decide this. BHEL Engineer's decision regarding correctness of the work and method of working shall be final and binding on the Contractor. No claims for extra payment from the Contractor will be entertained on the ground of deviation from the methods / sequence adopted in erection of similar sets elsewhere.
1.13	It may so happen that certain components like manhole doors, hanger etc. may be supplied in loose items. They need to be assembled as per relevant drawings or as per advice of BHEL engineer prior to erection. This forms the part of the scope of work.
1.14	All necessary certificates and licenses, permits & clearances required to carry out this work from the respective statutory/ local authorities are to be arranged by the Contractor at his cost in time to ensure smooth progress of work.
1.15	The work shall conform to dimensions and tolerances specified in the various drawings / documents that will be provided during various stages of erection. If any portion of work is found to be defective in workmanship, not conforming to drawings or other stipulations due to Contractor's fault, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by BHEL and recoveries will be effected from the Contractor's bills towards expenditure incurred including cost of materials and departmental overheads of BHEL.
1.16	The Contractor shall perform any services, tests etc., which may not be specified but nevertheless, required for the completion of work within quoted rates.
1.17	The Contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence.
1.18	Contractor shall ensure proper housekeeping and remove all scrap materials periodically from various work area covered in the scope and deposit the same at the place earmarked for this purpose. In case of contractor's failure to do the same, BHEL reserves the right to remove

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	scrap at contractor's cost and risk.
1.19	BHEL reserves right to recover from the Contractor any loss which arises out of undue delay / discrepancy / shortage / damage or any other causes due to Contractor's lapse during any stage of work. Any loss to BHEL due to Contractor's lapse shall have to be made good by the Contractor.
1.20	All cranes, transport equipment, handling equipment, tools, tackles, fixtures, equipment, manpower, supervisors/engineers, consumables etc., except otherwise specified as BHEL scope of free issue, required for this scope of work shall be provided by the Contractor. All expenditure including taxes and incidentals in this connection will have to be borne by Contractor unless otherwise specified in the relevant clauses. The Contractor's quoted rates should be inclusive of all such contingencies.
1.21	The Contractor shall have total responsibility for all equipment and materials in his custody at Contractor's stores, loose, semi-assembled, assembled or erected by him at site. He shall effectively protect the finished works from action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL engineer's instructions. The machine surfaces/finished surfaces should be greased and covered
1.22	All works such as cleaning, levelling, aligning, trial assembly, dismantling of certain equipment's / components for checking and cleaning, surface preparation, fabrication of structures, tubes and pipes as per general engineering practice and as per BHEL Engineer's instructions at site, cutting, gouging, weld depositing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scrapping, lapping, fitting up etc. as may be applicable in such erection works and which are treated incidental to the erection works and necessary to complete the work satisfactorily, shall be carried out by the Contractor as part of the work within the quoted rates.
1.23	The Contractor shall take delivery of the components, equipment's, chemicals, and lubricants etc. from the BHEL stores/ storage area after getting the approval of BHEL Engineer on standard indent forms of BHEL. Complete and detailed account of the materials and equipment's after usage shall be submitted to the BHEL and reconciled periodically.
1.24	For flushing of all primary elements such as orifice plates etc. which can be damaged in the process of cleaning, shall be removed. Orifice plates shall be replaced by suitable dummy plates .For online instruments, bypass lines shall be used for flushing. The on line instruments, which have no bypass, shall be replaced by suitable spool pieces while flushing. All safety and relief valves shall be removed and their stubs blanked. Contractor shall carryout cleaning operations after erection and hydro static test. The piping shall be mass flushed, in addition to specific cleaning operations such as Alkaline flushing operation which shall be carried out for all piping of Turbine cycle as called for.
1.25	Contractor shall plan and transport equipment, components from storage to erection site and erect them in such a manner and sequence that

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	material accumulation at site does not lead to congestion at site of work. Materials shall be stacked neatly, preserved and stored in the Contractor's shed and at work areas in an orderly manner. In case it is necessary to shift and re-stack the materials kept at work areas/ site to enable other agencies to carry out their work or for any other reason, same shall be done by Contractor most expeditiously as req. to work.
1.26	Plant materials should not be used for any temporary supports / scaffolding/ preparing pre-assembly bed etc.
1.27	The details of equipment to be erected under this contract are generally as per the schedule given in relevant appendices. These details are approximate and meant only to give a general idea to the bidder about the magnitude of the work involved. Actual quantum and type of equipment will be based on the relevant erection documents which will be furnished to the Contractor in due course of erection and the weight and quantity as per the relevant engineering documents will only be admissible for the billing purpose.
1.28	Hangers & suspensions, supports etc. for tubes, piping, & ducts etc. will be supplied in running / random lengths / sizes which shall be cut to suitable sizes and adjusted as required. All auxiliary steel brackets required for locating the hangers shall be fabricated and installed by the contractor at no extra cost to BHEL. The material for the same shall be supplied by BHEL
1.29	Spring suspension / constant load hangers may have to be pre-assembled for required load and erection carried out as per instructions of BHEL. Adjustments, removal of temporary arrests/locks, cutting of excess thread length of hanger tie-rod etc. have to be carried out as and when required. Load setting of spring hangers, as per BHEL's documents/instructions, during various stages of erection & testing and after floating of piping/ducting during cold and hot condition will have to be done as part of work. This exercise may have to be repeated till satisfactory results are achieved.
1.30	Contractor shall lay/install the field-routed/small-bore pipelines to suit site condition/ requirement. Before laying/installing such pipelines, the contractor shall prepare necessary sketch for routing these pipe lines and get the same approved by BHEL. Contractor must take care of the location/layout of other systems and equipment before preparing such sketch to avoid interference. There is a possibility of minor changes in routing such pipelines even after completion of erection; contractor shall carry out the same without any extra cost to BHEL.
1.31	Welding of necessary instrumentation tapping points, thermo-well, thermocouple pad, metal temp pad and clamps, root valve upto nut & tail including reducer (to suit Control & Instrumentation Impulse Piping requirements), condensing vessel, flow metering & measurement devices, and control valves to be provided on main equipment & its auxiliaries and

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	piping are covered within the scope of this specification. The installation of all the above items will be Contractor's responsibility even if:
1.31.1	Items are not specifically indicated under the respective product groups as given in the technical specifications.
1.31.2	Items are supplied by an agency other than BHEL.
1.31.3	Pre-heating, NDE, and Post weld heat treatment for above shall be done as per the specifications as part of work.
1.32	Certain instrumentation like pressure switches, air sets, filters, regulators, pressure gauges, junction boxes, power cylinders, dial thermometers, flow meters, valve actuators, flow indicators, centrifugal/speed switches of motors, accumulators etc. are received in assembled condition as integral part of equipment's. Contractor shall dismount such instruments for calibration and hand over the same to BHEL. C&I erection agency may do the storage / re-erection calibration etc.
1.33	Fixing and seal welding of thermo-wells & plugs before Hydro test/ steam blowing of equipment or other piping system is within the scope of work. Contractor shall also remove the seal welded plugs by process of grinding and fix and seal weld thermo-wells after hydro test/steam blowing of lines as part of work.
1.34	Actuators/drives of valves, dampers, gates, powered vanes etc. may be required to be serviced, lubricated, before erection, during pre-commissioning & commissioning, including carrying out minor adjustments required as incidental to the work.
1.35	All electrical motors have to be tested for IR & PI values prior to the trial run. Where required, dry out may have to be carried out by using external heating source. Contractor shall make all arrangements in this regard and complete the work as instructed.
1.36	In installation of various equipment's it may become necessary to install these on temporary supports/ hanger due to various reasons including non-availability of suspension materials. Contractor shall install such temporary suspensions/hangers and later on shift the relevant equipment to their respective permanent hangers/ suspensions/ supports as incidental to work. Requisite materials for such temporary arrangements may be provided by BHEL on free -returnable basis which shall be returned to BHEL after the use.
1.37	The work shall be carried out strictly in accordance to the "Field Quality Plan" approved by BHEL/client. Contractor, jointly with BHEL, shall prepare all necessary records of measurements/readings/ protocols etc.
1.38	Interconnection/ hook-up, if any, with the existing system shall form part of work. Such interconnections, hook-ups may require shut down of running plant and the relevant work have to be completed within such planned shutdowns. This may call for working with enhanced resources and on extended hours.
1.39	PRELIMINARY WORKS

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1.39.1	The contractor shall, as a first field activity check the foundations for turbine, generator and all auxiliaries for the correctness of the same as per the drawings and satisfy himself in all aspects. He should ensure location of foundations, their consolidation, absence of voids, levels, correctness of bolt holes, pockets levels and center lines etc. All measurements should be recorded and submitted to Engineer for approval before erection
1.39.2	Before starting erection job, contractor shall ensure that TG area is sufficiently enclosed against ingress of dust and water, and all debris have been cleared off from the floor to a designated area as per instruction of Engineer. The contractor shall arrange to get the working area and surroundings cleaned daily to ensure a dust free atmosphere for working.
1.39.3	Contractor shall first cover all openings on operating floor and put temporary hand railings on all sides of the floor to avoid any accident to the personal working. Material for above work, if available can be issued by BHEL on returnable basis.
1.39.4	The contractor shall provide his tool stores for special tools and instruments at a convenient location near to the place of working in TG hall. Necessary area shall be provided to contractor by BHEL. This is to be cleared after completion of the work. If so required he will have to shift the same if required to give fronts to other agencies engaged at site.
1.39.5	The contractor shall set up longitudinal and transverse axes and two or more level bench marks accurately on TG floor. BHEL Engineer shall certify these. The certified TG-center lines and datum level shall be the reference for TG and all auxiliaries' erection and alignment work. The contractor shall transfer these axes to all the floors to facilitate further execution.
1.39.6	All matching surfaces of components shall be well cleaned with cleaning agent and burrs shall be removed by filing and blue matched wherever required. Wherever necessary sealing/ lubricating/ anti-seize compounds shall be applied as per recommendation of Engineer. Machining/ grinding/threading required for fitting of keys, pins, packers, bolts & dowels etc. shall be carried out by contractor at his cost. The contractor is expected to have his own arrangements for machining activities.

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1.39.7	The accuracy of all equipment/ instruments and their functioning shall be established before they are permitted for use on the job. If the Engineer doubts the accuracy of the precision tools, any time during erection, the contractor shall arrange the checking/ calibration of tools/ equipment/ instruments at his cost.
1.39.8	The contractor shall provide all consumables for Erection and Testing required for carrying out the work covered under these specifications excepting those which are specifically indicated as BHEL scope. TG special consumables like hylomar / golden hermetite / stag-b / molykote/ anabond compounds / rubber fixing compounds etc. will have to be arranged by the contractor. All consumables to be used for the work shall have prior approval of BHEL engineer with regard to brand and quality specifications. Test reports / certificates in respect of these consumables, wherever applicable, shall be submitted to BHEL engineer.

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Chapter – II : CIVIL WORKS, FOUNDATION, GROUTING

2.0	CIVIL WORKS, FOUNDATION, GROUTING
2.1	BHEL/NPCIL shall provide all equipment foundations. For the correctness of these foundations as per drawings, the contractor shall check the dimensions & locations of the foundations, pockets, anchor-bolt pitch. Further, top elevation of foundations shall be checked with respect to benchmark. All minor adjustments of foundation level, dressing and chipping of foundation surfaces up to 75 mm, enlarging the pockets in foundations etc., as may be required for the erection of equipment / plants shall be carried out by the contractor.
2.2	While on the job, care is essential to avoid too much chipping and resultant lowering of level. In case of excess chipping, contractor has to arrange additional packing plates as per requirements provided BHEL Engineer allows it. When required by manufacturers, the embedded sub-sole plates shall be scraped and checked with Prussian blue to get the required contact with frames.
2.3	The contractor shall ensure perfect matching of packer plates including machining, scraping and blue matching with foundation by dressing the foundation, as well as perfect matching between the packer plates and the base plate of equipment to the satisfaction of BHEL Engineer. If required the packer plates may have to aligned and fixed on the foundations using special high strength, non-shrinking and quick-setting grouts. The minimum thickness below the packer plate should be 20 mm. The material required for this has to be arranged for by the contractor at his cost.
2.4	The Grouting of TG and other equipment will have to be carried out by the Contractor. The contractor has to arrange for all materials required for carrying out grouting including supply of the quick-setting-non-shrink-free-flow special grout mix/cement. Arranging all labour, building materials including cement, fresh Portland cement confirming to IS:269 as well as quick setting – free flow - non-shrink grout mix (e.g. conbextra GP1/GP2), form work, shuttering, and any other requirements is in the Contractor's scope. All the rotating equipment shall have to be necessarily grouted with quick setting-free flow non-shrink grout mix. Contractor shall obtain approval of BHEL/NPCIL for cement (fresh Portland as-well-as quick setting – free flow- non-shrink grout mix) prior to use.
2.5	The contractor has to ensure that all the matching joints which are not to be grouted shall be kept free from the grouting mixture by applying tape or

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Chapter – II : CIVIL WORKS, FOUNDATION, GROUTING

	any other alternative method approved by Engineer. All assistance required has to be provided by the contractor
2.6	The contractor shall check and verify the alignment of equipment, alignment of shafts of rotating machinery, the slopes of all bearing pedestals, centering of rotors with respect to their sealing bores, couplings etc. as applicable and the like items to ensure that no displacement had taken place during grouting. The values recorded prior to grouting shall be used during post grouting check-up and verifications. Such pre and post grout records of alignment details shall be maintained by the contractor in a manner acceptable to the Engineer.
2.7	Besides grouting as above, any civil works required for safe and efficient operation of tools and tackles like grouting / excavation/ casting of foundation / anchor points for derricks, winches, guy ropes fastening etc. / foundations required for chemical cleaning pumps, tanks and any other temporary supports shall also be the contractor's responsibility. For these civil works all materials including cement and required facilities will have to be arranged by contractor at his own cost.
2.8	BHEL will provide free of cost only the shims and packer plates (either machined or plain) which go as permanent part of the equipment. Certain packer plates and shims over and above the quantity received as a part of supplies from manufacturing units of BHEL, will have to be cut out from steel plates / steel sheets at site to meet site requirement. Contractor shall cut and prepare packers and shims by gas cutting / chiseling / grinding and de-burr the same. However, machining of the packers wherever necessary shall be arranged by contractor.
2.9	When the base is to be flow grouted, forms shall be built and securely anchored outside the base plate so as to completely confine and withstand the pressure of liquid grout under working and rodding conditions without leaking and high enough to ensure the grout is in contact with the underside of the base plate, provide a head of minimum 100mm above the underside of the base plate. Provisions of grout holes in base plate, rodding arrangements shall be checked prior to commencement of grouting.

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Chapter- III: ERECTION

3.0	ERECTION
3.1	All normal erection and assembly techniques necessary for completion of works under this specification and magnitude have to be carried out. It is not possible to specifically list out all of them. Absence of any specific reference will not absolve the contractor of his responsibility for the particular operation. These would include:
3.1.1	Scaffolding and rigging operations
3.1.2	Machine / flame / electric/plasma cutting, grinding, welding, radiography, UT,DPT and MPI testing and stress relieving etc.
3.1.3	Fitting, filing, straightening, chamfering, chipping, scrapping, reaming, as cleaning, checking, levelling, blue matching, aligning and assembly.
3.1.4	Machining, surface grinding, doweling, shaping, threading, filling, lapping, shaping, fitting-up, drilling of holes, making dowel pins, minor rectification of foundation bolts etc. are incidental to the erection/commissioning and any other work/activity which is necessary to complete the work satisfactorily, shall be carried out by the contractor as part of the scope.
3.1.5	Temporary erections for alignment, dismantling of certain equipment for checking, cleaning, servicing and site fabrication.
3.2	Any fixtures, scaffolding materials, approach ladder, concrete block supports, anchors steel structures required for temporary supporting, pre-assembly or checking, welding, lifting and handling during pre-assembly and erection shall be arranged by contractor at his cost.
3.3	No members of any ladder / structure / platform should be cut without specific approval of BHEL. In case it is necessary to cut, the contractor shall rectify / repair in a manner acceptable to BHEL / customer without any additional cost.
3.4	The contractor shall erect scaffolding / temporary platforms for erection. These should be of adequate capacity and shall never be over loaded. These should be replaced when not found suitable during erection work and dismantled on work completion & removed from work site.
3.5	Corrections like straightening of ladders, tube support plates adjustment / removal of ovulates in pipes and opening or closing the fabricated bends of piping to suit the layout shall be considered part of the work and the contractor is required to carry out such work within finally accepted price / rate as per instructions of Engineer.
3.6	The contractor shall carry out assembly and erection of condenser components normally on the condenser foundation or some of the preassemblies on platform outside TG building. This includes
3.6.1	Assembly and welding of bottom plate, side plates, hot well, springs and steam throw device.

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Chapter- III: ERECTION

3.6.2	Complete fabrication and welding of shell out of loose side-walls dome walls, and stand pipes.
3.6.3	Assembly and welding of water chambers and water-boxes.
3.6.4	Assembly and welding of support plates, baffles and stiffening structure,
3.6.5	Tubes insertion, expansion and cutting/ trimming and orbital welding. The tubes shall be expanded using an Automatic Electronic Torque Controlled Tube Expanding unit or Pneumatic Tube Expander. Tube expansion shall be checked with dial bore gauge. The total set up including tube expanders and tube cutting tools etc. for carrying out the complete condenser tube expansion works shall be provided by the contractor.
3.6.6	Hydraulic test and water fill test and any other fitting/ assemblies required to complete the assembly.
3.7	The contractor shall carry out the condenser tube insertion and expansion at site after the installation of condenser on its foundation. Condenser tubes shall be handled strictly as per instructions of BHEL Engineer. Before installation of tubes, the contractor shall check for any dents, mechanical damages or any other defects of tubes caused during storage. These should be thoroughly internally and externally cleaned for all extraneous matter as per the directions of the engineer.
3.8	Before insertion of tubes, the contractor shall clean the surface of the holes in the main tube plates and tube support plates for paint, corrosion spots oxide scale etc. as per the instructions of the engineer. Even reaming of support plate holes if required for smooth insertion of tubes, increasing of dia. is to be carried out by contractor at his cost and reaming and its arrangement is to be arranged by contractor.
3.9	The contractor shall carry out the tube insertion & expansion of the condenser strictly in accordance with the instructions issued by the BHEL/NPCIL. Tubes may require adjustment of length on both ends.
3.10	The welding of expanded joint of the tube end shall be done with the help of single pass automatic gas tungsten arc welding process without using filler material for all positions by means of rotating electrode in an automatic Orbital welding machine after completion of expansion. The necessary orbital welding machine and consumables/gases etc. including qualified welder has to be arranged by contractor within the quoted rates.
3.11	LP Heater No. 1 is to be erected inside the condenser in rear side, for which contractor may require to cut open the condenser dome plate already erected. After erection, condenser plates have to be strengthened / stiffened as per the instruction of BHEL Engineer
3.12	The contractor shall carry out the condenser neck welding with casing only after final installation of casing. However the contractor shall adjust the gap between condenser neck and LP exhaust hood uniformly by suitably lifting the condenser as directed by engineer. Also the makeup

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Chapter- III: ERECTION

	pieces required for this purpose shall be fabricated and welded to the dome walls by the contractor.
3.13	Some of the rotating equipment and electrical motors are provided with protective greases only. Contractor shall arrange for cleaning of the same with petrol or some other suitable reagent. If necessary, dismantling some of the parts of the equipment would be necessary. He shall arrange for re-greasing / lubricating them with recommended lubricants and for assembling back the dismantled parts, at quoted rate. Lubricants for the same will, however, be supplied free of cost by BHEL.
3.14	All rotating machines and equipment shall be cleaned, lubricated, checked for their smooth rotation, if necessary by dismantling and refitting before erection. If, in the opinion of Engineer, the equipment is to be checked for clearance, tolerance at any stage of work or during commissioning period, all such works are to be carried out by contractor at his cost.
3.15	All the shafts of rotating equipment shall be properly aligned to those of the matching equipment to as perfect and as accurately as practicable. All bearings, shafts and other rotating parts shall be thoroughly cleaned and suitably lubricated before starting.
3.16	All the motors and equipment shall be suitably doweled after alignment of shafts with tapered/parallel machined dowels. The contractor at his own cost shall arrange for the machining of dowel pins required for the same. However the materials for dowel pins shall be issued by BHEL free of cost.
3.17	The bearings shells will be blue matched at site and checked for bearing clearances. The contractor shall carry out scraping of bearing housing, if required to any extent. No extra claim for blue matching of any two surfaces up to 2mm initial gap will be entertained. The contractor shall also check air gap and adjustment of stator/ rotor to magnetic centre shall be carried out as part of erection.
3.18	The contractor shall fabricate/re-adjust and weld pipes, special bends, as required for installing lube oil systems. The contractor shall also service the lube oil system, carry out the hydraulic test of oil coolers and piping systems as required.
3.19	The contractor as part of the scope of work if required or if directed by BHEL shall carry out the servicing and realignment of skid-mounted equipment. Decoupling and trial of skid mounted motors is to be done as part of the scope of work.
3.20	All electrical panels, control gears, motors and such other devices shall be properly dried by heating to improve IR value, before they are installed and energized. Bearings, slip rings commutators and other exposed parts shall be protected against ingress of moisture and corrosion during storage and periodically inspected.

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Chapter- III: ERECTION

3.21	The contractor shall completely erect and test all the piping systems including their hangers, supports, valves, insulation, and accessories including sampling lines and coolers as per specifications and drawings. The services will include welding, pre-heating, stress relieving, bolting, testing, cleaning insulation and painting. System shall be demonstrated in condition to operate continuously in a manner acceptable to the Engineer. Welding shall be used throughout for joining pipes except where flanged screwed or other type joints are specified or shown on the drawings. All piping shall be erected true to the lines and elevation as indicated in the drawings.
3.22	MSR INSTALLATION
3.22.1	The contractor shall arrange suitable capacity trailer and crane, well in advance, to transport MSR components from storage yard to site. At site, BHEL/NPCIL shall provide suitable capacity crane on chargeable basis for placement/erection of MSR. Contractor to provide necessary support, T&P(slings, d-shackles etc.) and manpower assistance in erection.
3.22.2	MSR installation shall be carried out as per the instruction of BHEL engineer at site. The general procedure involved in installation of MSR shall be as follows:
	A. Upper section
3.22.3	Check as built dimensions of concrete support including embedded plate and level.
3.22.4	Mount the bearing support in position.
3.22.5	Lift lower section of MSR in the loading bay to operating floor horizontally using lifting beam.
3.22.6	Tilt lower section to vertical position as per detail shown for upper section of MSR.
3.22.7	Ensure proper orientation of nozzles and lower the lower section in position and support at concrete base at elevation 2.02m position.
3.22.8	Install and fix the bearing support.
3.22.9	Install the support brackets at 11.0 m floor.
	B. Lower Section
3.22.10	Lift upper section of MSR in loading bay horizontally up to operating floor using lifting beam.
3.22.11	Tilt upper section to vertical position.

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Chapter- III: ERECTION

3.22.12	Ensure nozzles orientation and lower the upper section in position.
3.22.13	Install temporary support brackets at 18.0 m level.
3.22.14	Align both sections of MSR circumferentially and weld approximately 1/3 of the circumference while holding upper section by crane.
3.22.15	Install tie rods and shock absorber at 16.45m and 17.3 m respectively in position as shown in G.A drawing.
3.22.16	Weld the remaining circumferential weld and hydro test shell side as per procedure.
3.23	Most of the pipes shall be supplied un-fabricated in running lengths without beveling. It shall be responsibility of contractor to carry out fabrication by cutting to size, bevel / prepare edges, fabricate support pads, drill holes for drains, vents and other stubs, welding, carryout NDT & SR as per site requirement & as directed by BHEL. Pipes sent in standard length shall be cut to suit the site conditions and the layouts. Tubes or pipes wherever deemed to be convenient will be sent in running lengths with sufficient bends. Bends upto 100 mm NB will be fabricated at site wherever required.
3.24	The connection to the pipes terminal points including edge preparation, fit-up, welding applicable NDE etc. are in the scope of work. Certain adjustments in length may be necessary while erecting pipelines. The contractor should remove the extra lengths/add extra lengths to suit the final layout after preparing edges afresh at no extra cost. Minor adjustment like removal of ovality in pipes is in the scope of work. All drains / vents / relief tubes / escape pipes / air relief valves/ safety valve/ piping to various tanks / sewage / drain canal / flash box / sump / atmosphere etc. from the piping and equipment's erected by the contractor is completely covered in the scope of work.
3.25	Certain adjustments in length may be necessary while erecting high-pressure pipelines. The contractor should remove the extra lengths/ add extra lengths to suit the final layout after preparing edges a fresh by adopting specified heat treatment procedures, at no extra cost.
3.26	It is possible that a few flanges may not be matching. The contractor shall be required to cut and re-weld the same as and when required without any additional cost.
3.27	The contractor shall be responsible for any modifications of shop fabricated pipes prior to installation to accommodate minor site alteration in pipe routing at no extra cost
3.28	All vents and drains for piping equipment covered in the scope whether shown in the drawings or not, shall be terminated outside the TG hall in atmosphere and at sump-pit as directed by the engineer.

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3.29	Wherever piping erected by the contractor is connected to equipment/ piping erected by the other agencies the joint at the connecting point shall be the responsibility of the contractor of this specification.
3.30	Normally the high-pressure valves will have prepared edges for welding. But, if it becomes necessary, the contractor will prepare new edges or recondition the edges by grinding or chamfering to match the corresponding tubes and pipes. All fittings like 'T' pieces, weld neck flanges, reducers etc., shall be suitably matched with pipes/valves for welding.
3.31	The valves will have to be checked, cleaned or overhauled (including lapping of seat) in full or in part before erection and/or after chemical cleaning and during commissioning at no extra cost to BHEL.
3.32	The contractor shall be responsible for correct orientation of all valves so that seats, stems & hand wheels are in desired direction. It is the responsibility of the contractor to obtain the information regarding orientation of valves not fully located on drawings before the same are installed.
3.33	Steel for suspensions for piping, will be supplied in running lengths. These are to be cut to suitable sizes and adjusted as per requirement.
3.34	No temporary supports should be welded on the piping. In case of absolute necessity prior approval should be taken from BHEL Engineer. In such cases heat treatment, if required, shall be carried out by the contractor.
3.35	All hangers, supports and anchors shall be installed as per drawing to obtain safe and reliable and complete pipe installation as per instructions of Engineer. Any additional support as called for by Engineer shall have to be fabricated and erected by the contractor. The raw materials required for fabricating such supports shall be supplied by BHEL free of cost and contractor shall be eligible for payment of such additional supports as per applicable rate for item No 5 of rate schedule.
3.36	Spring suspensions/ constant load hangers may have to be pre-assembled for required load and erection carried out as per instructions of BHEL. Any adjustments, removal of temporary arrestors / lockers etc., have to be carried out as and when required.
3.37	Contractor shall install piping in such a way that no excessive or destructive expansion forces exist either in the cold condition or under conditions of maximum temperature and pressure. All bends, expansion joints and any other special fittings necessary to take care of proper expansion shall be incorporated as per the advice of Engineer. During installation of expansion joints, anchors, care must be taken to see that full design movement is available at all times from maximum and minimum temperature.

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3.38	The contractor shall carry out the tightening of the field bolts on the equipment and piping covered under this specification by using either the calibrated torque wrench method or the turn of part method. The procedure to be followed, the tools and the equipment deployed shall be subject to the approval of Engineer. All the torque wrenches shall be calibrated as per requirement and before they are put in use on any job.
3.39	The contractor shall ensure that all supporting elements, anchors & restraint have been installed and adjusted in accordance with the drawings / sketches & other written instructions of the Engineer. The contractor shall inspect the hangers associated with the piping systems as follows: - a.) After hydraulic test, with the piping in the cold position, with all travel stops removed, with the pipe completely insulated and complete in all respect ready for start-up. - b.) Piping in the hot position with the unit operating at the maximum load. - c.) Piping in the cold position during the first complete shut- down.
3.40	The hanger assemblies shall not be used for attachment of rigging to hoist the pipes into position. Separate temporary supports shall be used to securely hold the pipe in position till pipe supports are completely assembled and attached to the building structure.
3.41	Layout of small bore piping as required shall be done as per site requirement. Necessary sketch for routing these lines should be got approved from BHEL by the contractor. There is a possibility of slight change in routing the above pipelines even after completion of erection or from aesthetic point of view. Contractor at no extra cost should carry this out.
3.42	Erection, testing and commissioning of power cylinders, electrically operated valves and their actuators etc. coming under various groups is covered under the scope of this specification
3.43	All valves, including valves, flap valves, dampers and actuators, shall be serviced and lubricated to the satisfaction of Engineer before erecting the same and during pre-commissioning also. Welding or jointing of extension spindle for valves to suit the site conditions and operational facility shall be part of erection work within the quoted rates
3.44	The contractor shall also grind the valve seat, if required, to ensure satisfactory performance of valves at no extra cost. All parts such as gaskets, gland packing which form the permanent part of equipment shall be supplied by BHEL free of cost.
3.45	Erection and welding of necessary instrumentation tapping points, thermocouple pads, thermo-wells, valves, battery of first root valves, condensing vessels, flow nozzles and control valves to be provided on TG, auxiliaries and pipe lines covered within the scope of this

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	specification, will also be the responsibility of the contractor. The welding of all the above items will be contractor's responsibility even if the: Product groups, under which these items are released, are not covered in the scope of this tender. Items may be supplied by any agency other than BHEL.
NOTE:	Additional thermo-wells as required for conductance of the performance guarantee test are to be installed by the contractor.
3.46	Erection of CO ₂ and H ₂ systems complete in all respects, including cylinders stands, connecting piping, valves, distribution headers, main control panels etc. is in the scope of contractor. The delivery of filled gas cylinders is to be taken from BHEL / its client stores, their handling and filling of gases in the system as and when required, till unit is handed over to the customer, shall be the responsibility of the contractor. The loading/transportation of empty cylinders to be returned to BHEL/its client stores/ for refilling, is in contractor scope.
3.47	Additional platforms and ladders of permanent nature incidental to the job for approaching different equipment / valves as per site requirement, which may not be indicated in drawings, shall be fabricated and installed by the contractor. The materials required will be supplied by BHEL free of cost. Lumpsum rate quoted by the vendor includes the fabrication & installation of these platforms.
3.48	The contractor shall carry out Kerosene oil / dye penetration tests of all the bearing housing of turbine & generator. The Kerosene oil DPT kit for the tests shall also be arranged by the contractor at his cost.
3.49	The contractor is strictly prohibited in using the TG / Aux. Components for any temporary supporting or scaffolding works etc. In case of such misuse a sum determined by Engineer will be recovered from contractor's bills as penalty.
3.50	The calibration of skid mounted instruments shall be arranged by BHEL through other agency engaged for C&I. Contractor will be informed by BHEL engineer about the details of C&I agency. The contractor shall coordinate with the C&I agency for removal, calibration and re-installation of the instruments. Though C&I agency will do the erection of the instruments after calibration, the contractor for this package will maintain the list of all the instruments removed & reinstalled. Instruments prior to removal and after reinstallation shall be considered in custody of the contractor for this package.
3.51	The contractor shall assist BHEL in preparation of as built piping drawing.
3.52	The terminal points decided by BHEL shall be final and binding on the Contractor for deciding the scope of work and effecting payment for the work done.

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3.53	During the course of erection, platforms and floor grills are to be cut at certain places to route steam, oil, water and air piping, cable trays, etc. or for accommodating erection, rigging etc., the cutting of platforms and grills should be minimum and as approved by BHEL engineer. After completion of work, the platform/grills cut shall be made good neatly as instructed by BHEL engineer.
3.54	Adjustment of spring hangers for piping shall be done by the contractor during initial erection. After initial commissioning trials, it is possible that the spring hangers have to be adjusted repeatedly till the correct spring compression is achieved. Contractor shall do the same to the satisfaction of BHEL engineer. The marking of cold and hot positions on the hangers shall be done by the contractor.
3.55	The lubricants and chemicals required for chemical cleaning, oil flushing, and the lubricants, gases etc. for trial runs of the equipment and trial operation of the unit will be supplied by BHEL free of charges.
3.56	The work on various piping systems will include cutting to required length, edge preparation, laying, fixing & welding of the pipes / elbows / fittings/ valves etc. in the pipeline, fixing & adjustment of supports / anchors / shock absorbers and carrying out all other activities / work to complete the erection and also carrying out all pre-commissioning / commissioning operations mentioned in the specification as per BHEL Engineers instructions and / or as per approved drawings / documents. The cutting of such excess length & subsequent edge preparation during erection, pre-commissioning / commissioning & normalization of system shall be part of scope of the work of contractor.
3.57	Aligning, matching and welding of piping to the terminal points (such as stubs, on terminal equipment, stubs on headers, battery limits etc.), even if these terminal equipment/point do not form part of this scope of work / specification, and stress relieving and NDE of joints so made is also within the scope of work / specification. Also, where the piping connection to the terminal points involves flanged joints, mounting and welding of flanges on piping as well as terminal equipment matching of flanges as specified elsewhere herein, fixing of gaskets, bolting and tightening as per BHEL engineer's instruction is also in this scope of work / specifications. Required fasteners and gaskets will be supplied by BHEL free of cost.
3.58	Following items of work shall also form part of piping erection: 1) Installation & removal, as applicable, of isolating devices/ NRVS and removal & re-fixing of internals required for hydraulic testing, pre-commissioning and commissioning activities. Required gaskets will be supplied by BHEL free of cost. 2) Matching of flanges for achieving parallelism and alignment resorting to heat correction or other suitable methods as per instructions of BHEL Engineers.

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	3) To locate the cause of vibrations in pumps or other auxiliaries and to carry out necessary corrections in piping and its supports. This may involve cutting, fresh edge preparation, welding, radiography, stress relieving, etc., of suction, discharge, re-circulating and other connected piping and its supports at number of places. 4) Increase or decrease in length of piping including change in layout to suit site conditions. 5) Erection, welding, NDE and stress relieving of certain equipment, e.g. flow nozzles, control valves etc., after completion of certain activities e.g. chemical cleaning, steam blowing etc. is part of work. This may involve removal of portions from the already erected pipelines in order to introduce these equipment and resultant edge preparation etc. shall be incidental to work. No separate/ additional payment is envisaged for cutting, welding and edge preparation in this regard. The removed pieces of pipes shall be returned to BHEL stores with proper cleaning, dressing and identification marking. 6) Matching of all fittings like tees, bends, flanges, reducers, valves, socket fittings, etc. with pipes for welding. This may involve weld build up, edge preparation, etc. 7) Cleaning of all pipes, pipe fittings etc. The pipes shall be thoroughly cleaned as prescribed, flushing by compressed air etc. before starting erection. 8) Welding of root valves including reducer (to suit Control & Instrumentation Impulse Piping requirements) with small length of piping to the pressure, flow and level tapping points on piping or flow nozzles / orifices / metering elements fixed on piping. 9) Welding of weld blanks with due NDE & PWHT, if required, on a temporary basis. 10) Opening of valve actuators, dismantling of actuators from the valves, refitting and rendering assistance connected with the electrical and mechanical problems. 11) Fixing and welding including due NDE & PWHT etc. of carrier plates on to the pipes.
3.59	Certain pipe lines of oil, air, steam and water will be field routed as per schemes approved at site or as per the instructions of BHEL engineer, and will be supplied in random lengths / running lengths. The contractor shall lay the piping according to instructions at sites, after carrying out the necessary fabrication, edge preparation, routing, supporting etc., in best professional manner and as per instructions. The supports for field-routed piping shall be fabricated and erected as per the requirement of the work. The steel required for the supports will be provided by BHEL free of cost at their stores.

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3.60	All pipelines shall be given proper slope towards the drain points during erection.
3.61	The contractor shall be responsible for correct orientation of all valves so that flow direction, seats, stem and hand wheel are in desired locations. Information regarding orientation of valves, not fully located on drawings, may be obtained from the BHEL engineers.
3.62	It may become necessary to make & install temporary spool pieces for certain process requirements. Contractor's scope shall include preparation, erection, fit-up, welding, NDE etc. and dismantling of such spool pieces at appropriate stage without any additional payment.
3.63	In pipelines like re-heater lines, CRH lines, extraction lines, HP/IP & LP bypass lines etc., the NRVS and valves will also be erected by contractor under this tender specifications. though these NRVS & valves may be supplied from different units / different sources, the erection, alignment, welding, NDE test, heat treatment, radiography, supporting etc. along with their control/ governing oil system piping with tanks, pumps, power cylinders etc. including the oil flushing & commissioning of these valves shall be carried out by contractor as per instruction of BHEL engineer and drawings / documents requirement. Similarly erection / fixing, welding etc. of strainers, dummy devices in various lines, valves and their subsequent removal & re-fixing during pre-commissioning / commissioning stages of steam blowing, flushing etc. shall be carried out by contractor under these tender specifications.
3.64	All temporary lines required for chemical cleaning, hydraulic testing, steam blowing, etc., shall be supplied in 'as is where is' condition. The contractor shall arrange to carry out the required fabrication, dressing, grinding, cleaning, cutting, edge preparation etc., while carrying out erection. No extra claim on this account will be entertained. For human protection, temporary insulation over piping to be applied at no extra cost.
3.65	Before laying the piping on supports, the coordinates and elevations of all supports shall be checked by the contractor for correctness. Discrepancies from the execution drawings, if any, shall be promptly brought to the notice of BHEL engineer in writing and correction shall be carried out as per his instructions.
3.66	Normally, hangers setting in cold condition are done by simulation adding additional temporary weight, which will be roughly equal to the weight of the insulation. Attachment of temporary weights and floating of the joints in the simulation test to be treated as part of job. Hanger settings have to be repeated for achieving free-floating joints. Hanger adjustments to be repeated for steam blowing by resetting hot and cold values if required. This may have to be repeated several times after steam blowing and synchronization. The weights will be supplied by BHEL. Contractor has to transport from BHEL stores and return the same after completion of work. No extra claim on this account will be entertained.

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3.67	The weld grooves of MS line, HRH line, CRH line and other pipes will be as per BHEL standard specifications. Further, the edge preparation shall be done as per instruction of BHEL site engineer and same shall be binding on the contractor.
3.68	For the skid mounted equipment, the checking and realignment required at site is in the scope of work.
3.69	Overhauling, cleaning, servicing of pumps, governing system, equipment, valves etc. During erection and commissioning stages, are in the scope of work. Gaskets/packing for replacement will be provided by BHEL free of cost. All equipment shall be preserved and protected periodically before and after erection as per the advice of BHEL engineer at no extra cost. All motors should be, if necessary, serviced and reassembled before erection as per the advice of BHEL engineer.
3.70	Contractor shall provide the following for STG set and other related equipment with auxiliaries' erection: 1) Temporary bolts of required size for honing of generator and turbine couplings. 2) Spanner & torque wrench/bolt stretching device for stretching / tightening of load and accessories coupling bolts.
3.71	All jack bolts that are required during erection for carrying out roll-check, grouting of packers etc. will have to be arranged by the contractor. No jack bolts will be provided by BHEL.
3.72	The equipment such as rotors, casings, HP module, valve assembly etc. are stored in closed/semi-closed/open sheds. For shifting and loading of these equipment onto trailers from closed/open storage sheds, a portion of shed may be required to be dismantled for providing approach to trailer and crane. The dismantled portion of the stores will be required to be reinstated. Such needful dismantling and reinstating of the closed/open sheds for shifting, loading and transportation of the material is covered in the scope of this contract with no extra cost to BHEL.
3.73	The scope of erection/welding/assembly works in the condenser is enormous. There are 03 no.'s condenser in each unit. The start and progress of LP turbine works is directly linked to completion of the condenser works. Therefore, to meet project schedule and for the sake of uninterrupted works of Turbine, it is recommended that there shall be parallel working in the 03 condensers with requisite no. of gangs, welders, foreman and supervisor deputed individually for each condenser. The contractor has to plan parallel erection of the 03 condensers of this unit and submit erection plan for the same with requisite manpower and T&P deployment details to BHEL site/package In-charge. Any further augmentation in these shall be decided by BHEL site in line with the requirements of the project schedule/rolling plan/customer requirement. The decision of BHEL with regards to augmentation in deployment for

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	achieving progress in line with project requirement, shall be final and binding on contractor.

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Chapter- IV WELDING, HEAT TREATMENT, RADIOGRAPHY AND NDT

4.0	WELDING, HEAT-TREATMENT, RADIOGRAPHY AND NDT
4.1	Contractor shall carry out field welding of piping as per relevant sections under these specifications in conjunction with NPCIL specifications for Field Welding of Piping . In case of any conflict between these two, NPCIL specifications for Field Welding of Piping shall be binding on the contractor. The method of welding (arc, gas, TIG or other method) may be indicated in the detailed drawings / schedules. BHEL Engineer will have the option of changing the method of welding as per site requirements.
4.2	Welding of equipment, piping, high tensile structural steel shall be done by certified high pressure welders who possess valid certificate of CIB of the State in which the equipment is erected as per provision of IBR. The H.P. welder who possesses necessary certificate shall ensure re-validation as per relevant provisions of IBR and keep the certificate valid till the completion of work. The services of such welders, the validity of whose certificates have expired shall not be utilized for any works.
4.3	All welders like structural and high pressure welder shall be tested as per ASME section IX / IBR and approved by BHEL Engineer before they are actually engaged on work even though they may possess a valid IBR certificate. BHEL reserves the right to reject any welder if the welder's performance is not found to be satisfactory. The contractor shall maintain the records of qualification of welders. BHEL Engineer will issue all the welders qualified for the work, an identity card. The welder will keep the same with him at work place at all times. He may be stopped from work if he is not found in possession of the same.
4.4	Engineer may stop any welder from the work if his performance is unsatisfactory for any reason or if there is a high percentage of rejection in the joints welded by him. The welder having passed qualification tests does not absolve the contractor of contractual obligation to continuously check the welder's performance.
4.5	Faulty welds caused by the poor workmanship shall be cut and re-welded at the contractor's expense. The Engineer, prior to any repair being made, shall approve the procedure for the repair of defective welds. After the repair has been carried out, the compliance shall be submitted to the engineer.
4.6	The contractor shall carry out the root run welding of all HP / LP piping, valves by TIG welding method only. The contractor shall have to carry out full TIG welding of butt weld joints of tubes / pipes of lesser thickness if required. During the root runs of stainless steel joints, the contractor shall before and during welding have to purge the pipes with inert gas. All arrangements required for the above shall be the responsibility of the contractor at no additional cost. In this regard, the welding manual/drawing

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Chapter- IV WELDING, HEAT TREATMENT, RADIOGRAPHY AND NDT

	and WPS shall be referred and BHEL engineer's decision in this regard shall be final and binding on contractor.
4.7	All expenses for testing of contractor's welders including destructive and non-destructive tests conducted by BHEL at site or at laboratory shall have to be borne by the contractor only. Limited quantity of raw material required for making test pieces may be supplied by BHEL free of cost.
4.8	The regulators used on welding machines shall be calibrated before putting these into use for work. The Contractor at his cost shall also arrange periodic calibration for the same.
4.9	Only BHEL/ CUSTOMER approved electrodes and filler wire are to be arranged and used by the contractor, within the finally quoted price. BHEL/ NPCIL reserve the right to test from the certified lab of approved electrode being used by the contractor. Testing charges for the same shall be borne by the contractor. All electrodes shall be baked and dried in the electric electrode-drying oven to the required temperature for the period specified by the Engineer before these are used in erection work. All welders shall have electrodes drying portable oven at the work spot. The electrodes brought to the site will have valid manufacturing test certificate. The test certificate should have a co-relation with the lot number/ batch number given on electrode packets. No electrodes will be used in the absence of above requirement. The thermostat and thermometer of electrode drying oven shall also be calibrated and test certificate from Govt. approved/ accredited test house traceable to National/ International standards will be submitted to BHEL before putting the oven in use. The contractor shall also arrange periodical calibration for the same.
4.10	All butt / fillet welds shall be subject to dye penetration test as per the instructions of the engineer at no additional cost to BHEL.
4.11	The contractor shall maintain a record in the form as prescribed by BHEL of all operations carried out on each weld. He has to maintain a record indicating the number of welds, the names of welders who welded the same, date and time of start and completion, preheat temperature, radiographic results, rejection if any, percentage of rejection etc. and submit copies of the same to the BHEL Engineer as required. Interpretation of the BHEL Engineer regarding acceptability or other wise of the welds shall be final.
4.12	The contractor shall carry out the edge preparation of weld joints at site in accordance with the details acceptable to BHEL Engineer. Wherever possible machining or automatic flame cutting should be done. Gas cutting will be allowed only wherever edge preparation otherwise is impractical. All slag / burrs shall be removed from the edge and all the hand cuts shall be ground smooth to the satisfaction of engineer.
4.13	All welds shall be painted with anticorrosive red oxide paint once radiography and stress relieving works are over. Necessary consumables

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Chapter- IV WELDING, HEAT TREATMENT, RADIOGRAPHY AND NDT

	and scaffolding etc. including paints shall be provided by contractor at his own cost.
4.14	Pre-heating, radiography and other NDT tests, post heating and stress relieving after welding of tubes, pipes, including attachment welding wherever necessary, are part of erection work and shall be carried out by the contractor in accordance with the instructions of the Engineer. Contractor at his cost shall arrange all equipment and consumables essential for carrying out the above process.
4.15	Contractor shall arrange all necessary stress relieving equipment with automatic recording devices. The contractor arrange for labour, heating elements, thermocouples, thermo-chalks, temperature recorders, thermocouple attachment units, graphs, sheets insulating materials like asbestos cloth, ceramic beads, asbestos ropes etc. required for heat treatment/ stress relieving operations. The contractor should take a note of the following:
4.15.1	Temperature shall be measured by thermocouple and recorded on a continuous printing type recorder. All the recorded graphs for heat treatment works shall be the property of BHEL.
4.15.2	All stress relieving equipment will be used after due calibration and submission of test certificate to BHEL. Periodic calibration from Govt. Approved / accredited Test Houses traceable to National / International standards will also be arranged by the contractor for such equipment at his cost.
4.15.3	The contractor shall obtain the signature of Engineer or his representative on the strip chart of the recorder prior to the starting of SR operations.
4.16	The contractor shall also be equipped for carrying out other NDT like LPI / MPI / Hardness test/Ultrasonic testing etc. as required as per welding schedules / drawings within the finally accepted price / rates.
4.17	The technical particulars, specification and other general details for radiography work shall be in accordance with ASME, IBR or ISO as specified by BHEL/NPCIL.
4.18	Contractor for radiography work shall use iridium-192/cobalt-60/any other source as may be required/ specified. The geometric un-sharpness shall not exceed 1.5 mm. The contractor should take adequate safety precautions while carrying out radiography. Contractor at his cost shall arrange necessary safe guards required for radiography (including personnel from BARC).
4.19	Low speed high contrasts, fine grain films (D-7 or equivalent) in 10 cm width only be used for weld joint radiography. Film density shall be between 1.5 to 2.0.
4.20	All radiographs shall be free from mechanical, chemical or process marks, to the extent they should not confuse the radiographic image and defect

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Chapter- IV WELDING, HEAT TREATMENT, RADIOGRAPHY AND NDT

	finding. Penetrometer as per ASME or ISO must be used for each exposure.
4.21	Lead numbers and letters are to be used (generally 6mm size) for identification of radiographs. Contract number, joint identification, source used, welder's identification and SFD are to be noted down on paper cover of radiograph.
4.22	Lead intensifying screens for front and back of the film should be used as per the above-referred ASME specification.
4.23	The joint is to be marked with permanent mark A, B, C to identify the segments. For this a low stress stamp shall be used to stamp the pipe on the down streamside of the weld.
4.24	For multiple exposures on pipes, an overlap of about 25-mm of film should be provided.
4.25	Radiography personnel with sufficient experience and certified by M/s BARC for conducting radiographic tests in accordance with safety rules laid down by Division of Radiological protection only have to be deployed. These personnel should also be registered with DRP / BARC for film badge service.
4.26	All arrangements for carrying out radiography work including dark room and air conditioner and other accessories shall be provided by contractor within the space allotted for office at his cost. As an alternative the contractor may deploy an agency having all above facilities and who are duly approved / accredited by BARC and / or other Regulatory authorities. Detailed particulars of such agencies will be submitted and got approved by BHEL Engineer before the actual deployment of agency for radiography work.
4.27	The contractor shall have a dark room fully equipped with radiography equipment, film (un-exposed), chemicals and any other dark room accessories.
4.28	Contractor shall note that 100% radiography will be done at the initial stages on all the piping welding joints. Subsequently radiographic inspection will be done on the basis of quality of welding. However minimum percentage of joints to be radiographed shall not be less than the requirement of BHEL welding schedule / IBR / Customer's requirements. The percentage may be increased depending upon the quality of joints and at the discretion of BHEL. However, on LP piping joints other NDT test as called for in the FQP including LPI,UT, MPI and HT will have to be carried out as per customer and BHEL requirement.
4.29	All the Radiographs shall be properly preserved with proper documentation and shall become the property of BHEL after submission. They are to be reconciled with the work done, joints radiographed and submitted to BHEL / customer.

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4.30	Since radioisotopes are being used, all precautions and safety rules as prescribed by BHEL/BARC/ Customer shall be strictly followed. BARC / DRP certificate to be provided before taking up the work.
4.31	Radiography of joints shall be so planned after welding that the same is done either on the same day or next day of the welding to assess the performance of HP welders. If the performance of welder is unsatisfactory, he is to be replaced immediately.
4.32	Wherever radiographs are not accepted, on account of bad shot, joints shall be re-radiographed and re- submitted for evaluation at his cost.
4.33	However, if the defect persists after first repair, further repair work followed with radiography shall be repeated till the joint is made acceptable. In case the joint is not repairable, the same shall be cut, re-welded and re-radiographed at contractor's cost.
4.34	If the contractor does not carry out radiography work due to non-availability of source / film / chemical / operator etc., BHEL will get the work done departmentally or through some other agency at the risk and cost of the contractor.
4.35	Heat treatment and radiography may be required to be carried out at any time (day and night) to ensure the continuity of progress. The contractor shall make all necessary arrangements including labour, supervisors/ Engineer required for the work as per directions of BHEL.
4.36	The contractor shall assist BHEL Engineer in preparing complete field welding schedule for all the field welding activities to be carried out in respect of piping and equipment erected by him involving high pressure welding at least 30 days prior to the scheduled start of erection work at site. The contractor shall strictly adhere to such schedules.
4.37	Check shots as per the requirement of BHEL/ NPCIL will be taken at the contractor's cost.
4.38	All weld joints on piping shall be ground or filed on completion of welding and before radiography as per instructions BHEL engineer so as to achieve smooth surface free of notches, ripples, undulations, etc. and to limit the reinforcement as per the codes.

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Chapter- V: APPLICATION OF INSULATION

5.0	APPLICATION OF INSULATION
5.1	Application of red oxide paint including supply of paint on welded portions, before insulation as directed by BHEL is also included in scope of work.
5.2	Application of insulation on STG, piping etc. is not covered in this scope of work. However, necessary assistance for carrying out insulation of equipment's and systems covered in this package will be in the scope of contractor. The contractor shall facilitate the insulation agency in carrying out the insulation work by providing fronts which are cleared of temporary supports, clits and any other fittings. All the required testing (e.g. NDT, UT and other checks) of the area cleared for insulation shall be completed as per the quality plans.
5.3	All temporary pipelines required during testing, pre-commissioning and commissioning should be insulated by the TG contractor, as directed by BHEL at no extra cost to BHEL. However required insulation material shall be issued by BHEL free of cost.
5.4	After completion of insulation by the insulation agency, if due to reasons attributable to the TG contractor, the insulation is required to be removed /dismantled, and then the TG contractor will be responsible for the re-application of the insulation at his cost. If the contractor fails to do so to the satisfaction of the engineer, then BHEL reserves its right to get it done on risk and cost basis of the TG contractor.

Technical Conditions of Contract (TCC) Part-2
Chapter- VI: PAINTING INCLUDING FINISH PAINTING

6.0	PAINTING INCLUDING FINAL FINISH PAINTING
6.1	BHEL or Customer Specification for Shop & Field Painting with regard to surface preparation and final painting with colour codes and scheme for surface preparation and finish paints coating including primer coating for shop and field painting will be given at site at the time of painting work. Contractor shall carry out surface preparation and final painting works as per BHEL or Customer specification and instruction of BHEL engineer at site.
6.2	Paints and painting work carried at site shall confirm to the following codes and standards: IS:5 – Colour for ready mixed paints and enamels IS : 101 Part 1 to 9 – Methods of sampling and test for paints, varnishes and related products IS : 1477 Part I&II – Code of practice for painting of ferrous metals in building IS : 2932 – Specifications for enamel, synthetic and exterior, a) Under Coating b) Finishing IS: 9407 – Colour code for identification of pipelines used in thermal power plants. Contractor shall satisfy himself, availability of all information in the specifications for proper selection of the paints and ensure their applications as per Codes.
6.3	All the primer, thinner & paints for final painting and all other consumables like brush, cleaning agents etc. and all T&P including scaffolding materials, manpower, supervision is in contractor's scope.
6.4	Primer Painting: a) After surface preparation, two coats of epoxy resin based zinc primer shall be applied. Dry film thickness of each coat shall be as per the recommendations of primer or paint manufacturer. Primer shall be applied by either spraying or brushing ensuring a continuous film without "holidays". Primer coat shall be immediately applied without any time lag after the surface preparation.

Technical Conditions of Contract (TCC) Part-2

Chapter- VI: PAINTING INCLUDING FINISH PAINTING

	b) Any equipment shall be carefully examined and where ever the primer coat is damaged shall be recoated with primer. However over the field welds, bolts and nuts etc. two primer coats as per a) shall be applied.
6.5	Final Finish Painting a) After the primer coat has dried out, the surface shall be cleaned of dust without scratching or in any way damaging the primer coat. Over this, dry surface finish painting shall be carried out. b) Finish painting shall be carried out in two coats. Dry film thickness of each coat shall be as per the recommendation of the primer or paint manufacturer. Minimum thickness including primer and paint coating shall be 400 microns. c) Paint shall be applied either by brushing or spraying. It shall be ensured that brush marks are a minimum and the requirements of workmanship are as specified in IS: 1477 (for site painting works on systems, structures and components). d) Paint used shall be stirred frequently to keep the pigment in suspension. Paint shall be of ready mixed type in original sealed containers as packed by the paint manufacturer. Addition of thinners shall not be permitted. e) No painting shall be done in frost or foggy weather or when the humidity is high enough to cause condensation on the surface to be painted. Paint shall not be applied when the temperature of the surface to be painted is 5 deg. C or below.
6.6	Components of TG and auxiliaries will in general be supplied painted by BHEL manufacturing units as per their standard applicable painting schemes. Contractor shall carry out primer and finish painting coats and DFT requirement with colour codes & specifications as per requirement of customer. All exposed metal parts of the equipment including piping, structures, railings etc. wherever applicable, after installation unless otherwise surface protected, shall be first painted with at least one coat of suitable primer which matches the shop primer paint used, after thoroughly cleaning all such parts of all dirt, rust, scales, greases, oils and other foreign materials by wire brushing, scraping or sand blasting, and the same being inspected and approved by BHEL engineer for painting. Afterwards, the above parts shall be finished with two coats of alloyed resin machinery enamel paints.
6.7	Touch-up painting on damaged areas after completion of finish painting – a) For coatings damaged up to metal surface -Surface preparation shall be carried out by manual cleaning. Minimum 6 inches adjoining area with existing coating shall be roughened by wire brushing, emery paper rubbing etc., for best adhesion of patch primer. Primer coat of touch-up primer has to be applied by brush immediately after the surface preparation.

Technical Conditions of Contract (TCC) Part-2

Chapter- VI: PAINTING INCLUDING FINISH PAINTING

	Over this primer coat, finish coat and final finish coat shall be applied as covered above by brush within maximum seven (7) days of application of touch up primer.
6.8	Painting of welded areas and painting of areas exposed after removal of temporary supports and touch-up painting on damaged areas of employer's structures, where inter-connection, welding or modification etc. has been carried out by the bidder. (a.) Clean the surface to remove flux spatters and loose rust, loose coatings in the adjoining areas of weld seams by wire brush and emery paper.
6.9	The scope of work includes painting of colour bands, lettering, marking and signs for direction of flow/rotation, names etc. of approved colour as per the standard colour codes and specifications specified in tender specification or as advised by BHEL or Customer engineer at site for the equipment or components covered in these specifications. Supply of applicable paints and primer is in Bidder's scope.
6.10	The condenser main tube plates will be dispatched to site from the works with surface protection only on water box side. The same shall be removed adopting any of the suitable methods as approved by BHEL. The Main Tube plates are having SS cladding on the outer side and may not require separate surface protection. The water box/Chamber has to be surface protected. The surface shall be first painted with at least two or more coats of approved quality chemical resistant epoxy zinc chromate primer after thoroughly cleaning all such parts of all dirt, rust scales greases, oils and other foreign materials by adopting suitable methods as approved by BHEL. Afterwards the above parts shall be finished with two or more coats of approved quality high build black coal tar coating. Before the painting is taken up, the contractor shall plug all the holes with suitable tapered plastic / wooden plugs to avoid any damage to the tube ends. The plastic / wooden plugs and paints required for the above operations shall have to be arranged by the contractor at his cost. The above paints are also to be applied on water chamber / box. The thickness is to be confirmed by suitable measurement. The inside of water box has to paint with High build Black Coal Tar epoxide paint of thickness DFT= 0.25mm.
6.10.1	The condenser steam space shall be surface protected with at least two coats of suitable steam washable paint. Before the painting is taken up, the contractor shall clean the surfaces to be coated by adopting suitable methods. The contractor at no extra cost shall provide steam washable paint to BHEL.
6.11	In certain isolated instances where it is not possible to clean the equipment as explained above, cleaning by grinding might have to be resorted to. No damage to the equipment/components should be caused.

Technical Conditions of Contract (TCC) Part-2

Chapter- VI: PAINTING INCLUDING FINISH PAINTING

6.12	Surface to be painted should be free of oil and grease. It should be removed by using suitable cleaning agents including permitted solvents. Surface cleaned by chemical agent, if required, shall be treated further as prescribed in use of such cleaning agents. The Contractor at his own cost shall provide all the consumables and application implements.
6.13	During the preparation of surface, if the shop coat is damaged by chemical cleaning or by mechanical means, contractor shall repair the same free of cost. Also, due to long storage, the surface may get damaged due to rusting, pitting etc., the contractor will have to repair the surface and apply primers, painting and finish painting as per painting schedule, within this scope of work and no extra cost to BHEL.
6.14	This work requires working at higher altitudes from ground level to as high as 30m and more. The work spread is also substantial involving substantial run of structures and piping. Contractor shall take sufficient precautions to avoid any accident and hazard in all respects. The ropes, ladders, scaffolding materials, clamps etc. and climber used should be of standard quality for safe and smooth execution of work.
6.15	Contractor shall carry out the work in such a way that other erected equipment, structure, civil foundations and other property are not damaged. For damages in any of such cases due to lapses by Contractor, BHEL shall have the right to recover the cost of such damages from the Contractor.
6.16	Contractor shall take due care to cover or protect the equipment which are already painted while carrying out the painting of other adjacent equipment. If so happens, it shall be cleaned and repainted by the Contractor without any extra charges.
6.17	In general, painting of structural parts and colour bands, lettering, marking of direction of flow/rotation etc. will be carried out by brush painting. However, areas/equipment inaccessible for manual painting have to be painted by spray painting. The decision of BHEL engineer, in this regard, shall be final and binding on the Contractor. Laying of air hose pipe and any other line required shall be done by Contractor at his cost. The Contractor shall provide spray equipment set.
6.18	Final painting work shall be started after obtaining clearance from BHEL engineers and as per his instructions
6.19	Supply of Paints/Primer/Thinner and application of paints for final painting and all other consumables like brush, cleaning agents etc and all T&P including scaffolding materials, manpower, and supervision is in contractor's scope.
6.20	Final Painting Scheme for this package at RAPP shall be issued during execution.

Technical Conditions of Contract (TCC) Part-2

Chapter- VII: TESTING, PRE-COMMISSIONING, COMMISSIONING, AND POST-COMMISSIONING

7.0	TESTING, PRE-COMMISSIONING, COMMISSIONING, AND POST-COMMISSIONING
7.1	The contractor shall carry out the following tests & activities for commissioning of Steam Turbine Generator & its auxiliaries:
7.1.1	Trial run of vacuum pumps, Oil pumps and other pumps of various auxiliaries and various rotating machineries/ pumps.
7.1.2	Trial run of motors/ drives of various auxiliaries.
7.1.3	Hydraulic test of pipe lines, closed systems, tank & vessels.
7.1.4	Flushing of all pipelines/tanks by air/ oil/ water/ chemicals/ steam as per requirement.
7.1.5	Servicing of all valves, Hydraulic Power cylinders, HP Valves (ESV&CV) 04 No.'s, LP Valves- 06 no.'s, LP Bypass valves and fittings.
7.1.6	Manual/ mechanical cleaning of oil tanks, suction strainers, filter elements of pumps & other various equipment and tanks, vessels as per requirement till handing over of the machine.
7.1.7	Chemical/Alkali cleaning of piping systems. (Vulnerable components like spray nozzles, gauges, instruments etc. shall be dis-assembled and re-assemble as per requirement)
7.1.8	Putting turbine on barring gear
7.1.9	Rolling and synchronization
7.1.10	Full load operation.
7.1.11	Trial Operation and operational acceptance.
7.2	These shall include hydraulic test of condenser, MSR, Heaters and tanks, land flow test, chemical cleaning, alkali flushing and water flushing of piping, oil flushing of oil system and seal oil system etc. as instructed by BHEL.
7.3	All the chemicals required for carrying out these pre-commissioning/commissioning activities will be supplied by BHEL free of cost.
7.4	All required tests (Mechanical and electrical), Motor testing (HT&LT) indicated by BHEL and their clients for successful commissioning are included in the scope of these specifications. These tests / activities may not have been listed in these specifications. All the test equipment other than provided by BHEL as per clause no. 5.1 of TCC, has to be arranged by contractor at no extra cost to BHEL.

Technical Conditions of Contract (TCC) Part-2

Chapter- VII: TESTING, PRE-COMMISSIONING, COMMISSIONING, AND POST-COMMISSIONING

7.5	Any Specialized test equipment other than that specified in clause no. 5.1, may be provided by BHEL / its client free of hire charges. However contractor has to take proper care of the equipment issued to him.
7.6	The contractor shall carry out the air-tightness test on assembled generator to the satisfaction of BHEL Engineer. The necessary arrangement for testing with dry-clean air shall be made by the contractor at his cost. Helium Leakage Test- The contractor shall carry out the Helium Leakage Test on assembled generator to the satisfaction of BHEL Engineer. The necessary arrangement/ test kit for carrying out the Helium Leakage test shall be made available by the contractor at his own cost. The contractor may have to repeat the test, if BHEL/NPCIL is not satisfied with the results, at no extra cost to BHEL.
7.7	All the tests may have to be repeated till all the equipment satisfy the requirement / obligation of BHEL at various stages. The contractor shall repairs all joints (shop welded or site welded) failed during testing.
7.8	All chemicals/oil/pipes required for conducting Detergent flushing, oil flushing, steam blowing etc. of the pipelines of this scope, will be supplied by BHEL / its customer.
7.9	Contractor shall lay temporary pipelines with fittings and accessories etc. as instructed by BHEL engineer for the purpose of pre-commissioning and commissioning activities like Hydraulic testing, chemical cleaning, oil flushing, steam blowing etc. of piping and other equipment's as part of the scope of work. Temporary installations shall be dismantled by contractor and returned to BHEL stores as specified elsewhere in this technical specification
7.10	Contractors quoted rate shall be inclusive of fabrication, cost of consumables, erection, dismantling of temporary piping and servicing of the equipment and valves and handing over to BHEL/customer. No separate payment on this account shall be entertained.
7.11	Thermal shocks may be required during oil flushing operations. The contractor is required to make all arrangements for the same. This would include fabrication of heating tank with nozzles and requisite piping with supports. Complete erection with pumps, tanks, electrical fittings including and other accessories is to be carried out. The equipment shall be provided on returnable basis by BHEL.
7.12	The scope of pre-commissioning activities cover installation of all necessary temporary piping, supports, valves, blanking, pumps, tanks etc. and other accessories with access platforms valves, pressure gauges, electric cables, switches, cutting of some of existing valve, placing of rubber wedges in the valves etc., required for hydro test, chemical cleaning, steam blowing or for any other tests as the case may be and will carry out above activities under this scope of work as per instructions of BHEL. The scope also covers the off-site disposal of effluents.

Technical Conditions of Contract (TCC) Part-2

Chapter- VII: TESTING, PRE-COMMISSIONING, COMMISSIONING, AND POST-COMMISSIONING

7.13	It shall be the responsibility of the contractor to preserve the cleaned surface as per BHEL's requirement.
7.14	The pre-commissioning activities will start prior to lube oil flushing of the TG and various trials, commissioning operations shall continue till the TG is handed over to customer. Simultaneous commissioning checks, activities will be in progress in various areas like trial run of various equipment, checking of equipment erected, making ready for trial runs, filling up of lubricants, Chemicals etc.
7.15	All these works need specialized gangs including electricians, instrument technicians, and fitters, in each area to render assistance to BHEL commissioning staff. Contractor shall earmark separate manpower for various commissioning activities. This manpower shall not be disturbed or diverted. The mobilization of these commissioning gangs shall be sufficient so that planned commissioning activities are taken up in time and also completed as per schedule and the work is to be undertaken round the clock if required.
7.16	Association of BHEL's / Client's staff during above period will not absolve contractor from above responsibilities.
7.17	It shall be specifically noted that the employees of the contractor may have to work round the clock along with BHEL/Customer Engineers and hence overtime payment by the contractor may be involved. The contractor's finally accepted rates/ price shall be inclusive of all these factors also.
7.18	In case, any rework is required because of contractor's faulty erection that is noticed during pre-commissioning and commissioning, the same has to be rectified by the contractor at his cost. If any equipment / part is required to be inspected during pre-commissioning and commissioning, the contractor will dismantle/open up the equipment / part and reassemble / redo the work without any extra claim.
7.19	During commissioning, opening / closing of valves, changing of gaskets/seals of equipment/pumps, realignment of rotating and other equipment, attending to leakage and adjustments of erected equipment may arise. This is included in the scope of work.
7.20	The contractor shall make all necessary arrangements including making of temporary closures on piping / equipment for carrying out the hydro-static testing on all piping equipment covered in the specification at no additional cost.
7.21	The water boxes of the condensers will be tested hydraulically to 1.5 times the design pressure after its assembly at site. The arrangement of all the blanking for carrying out the hydraulic test shall be the responsibility of the contractor at no additional cost. However, only the main blanking flanges with fasteners for CW inlet and CW outlet of the condenser shall be

Technical Conditions of Contract (TCC) Part-2

Chapter- VII: TESTING, PRE-COMMISSIONING, COMMISSIONING, AND POST-COMMISSIONING

	provided by BHEL free of cost. Fabrication of blanks will be carried out by the contractor.
7.22	The water-fill test of the steam space shall be carried out by filling the water upto 1 Meter or as required above the top row of tubes to facilitate leak detection. Hydraulic testing shall be carried out on the condenser water boxes i.e. of the water side of the condenser. Dummy plates shall be provided by BHEL.
7.23	The contractor shall fill the condensers upto the specified level as many times as called for by the Engineer for checking of the turbine at no additional cost.
7.24	In case any defect is noticed during tests, trial runs and commissioning such as loose components, undue noise or vibration, strain on connected equipment etc., the contractor shall immediately attend to these defects and take necessary corrective measures. If any re-adjustment and realignment including repair, rectification and replacement work are necessary, the contractor shall carry out the same as per Engineer's instructions. The parts to be replaced shall be provided by BHEL.
7.25	During hydraulic testing of pipes, all piping having variable spring type supports shall be held securely in place by temporary means while constant spring type support hangers shall be pinned or blocked solid during the test.
7.26	The contractor shall carry out cleaning and servicing of valves and valve actuators prior to pre-commissioning tests and / or trial operations of the plant. A system for recording of such servicing operations shall be developed and maintained in a manner acceptable to BHEL Engineer to ensure that no valves and valve actuators are left un-serviced.
7.27	Cleaning & servicing of all the filters / strainers, toppings of oils coming in the system shall be done by the contractor till the completion of trial operation and handing over of the unit within the quoted price.
7.28	The contractor shall incorporate all the changes / decisions proposed by BHEL Engineer at no additional cost.

Architectural drawing of the 100000 Level Plan of the Fukushima Daiichi Nuclear Power Plant. The drawing shows a complex layout of buildings, corridors, and structural elements, overlaid on a grid system with horizontal lines labeled 1 through 12 and vertical lines labeled A through F. A north arrow is located in the top left corner. To the right of the main plan is a detailed inset of a specific area, likely the reactor building. Below the main plan is a section view labeled 'SECTION 100000' showing the vertical arrangement of the buildings. At the bottom right, there is a table with technical specifications and a legend. The title 'PLAN 100000' is centered at the bottom.

Architectural drawing of the 1st floor plan of the South Atlantic Power Station. The plan shows a large rectangular building with a complex internal layout of rooms, corridors, and service areas. A grid system is overlaid on the plan, with letters A through F along the left and right edges and numbers 1 through 12 along the top and bottom edges. A north arrow is located in the top left corner. Several smaller detail drawings are included: 'Detail of Staircase' at the top right, 'Detail of Staircase' at the bottom right, and 'Detail of Staircase' at the bottom center. A legend is located in the top right corner, defining symbols for various elements. A table of dimensions is located in the bottom left corner. A table of room numbers and names is located in the bottom right corner. A table of room numbers and names is located in the bottom right corner. A table of room numbers and names is located in the bottom right corner.

Rev 02
08th October
2014

SPECIAL CONDITIONS OF CONTRACT (SCC)

(Document No PS:MSX:SCC)

BHARAT HEAVY ELECTRICALS
LIMITED



SPECIAL CONDITIONS OF CONTRACT (SCC)

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SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter - I : General Intent of Specifications

1.0	INTENT OF THE SPECIFICATION
1.1	The intent of this erection specification is to provide services for execution of the project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation of the plant shall not relieve the contractor of the responsibility of providing such services / facilities to complete the work or portion of work awarded to him. The quoted / accepted rates / price shall deem to be inclusive of all such contingencies.
1.2	The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during erection. If any portion of works is found to be defective in workmanship and not conforming to drawings / documents or other stipulations, the contractor shall dismantle and re-do the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be effected from contractor's bills.
1.3	It is not the intent of this specification to specify herein all the details of erection and commissioning. However, the system shall conform in all respects to high standards of quality and workmanship for performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his judgments is not in full accordance herewith.
1.4	The omission of specific reference to any fabrication / erection or other method, equipment or material necessary for proper and efficient working of the plant shall not relieve the tenderer of the responsibility of providing such facilities to complete the work at quoted rates. Any mismatch/ defect found due to mistake in fabrication / erection shall have to be rectified by the vendor free of cost. Inspection by BHEL/Customer does not relieve vendor of his responsibility of executing quality erection.
1.5	The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, supervision, engineering and construction management. The contractor should ensure proper planning and successful and timely completion of the work to meet the overall project schedule. The contractor must deploy adequate quantity of tools & plants, modern / latest construction aids etc. He must also deploy adequate trained, qualified and experienced supervisory staff and skilled personnel.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter - I : General Intent of Specifications

1.6	Contractor shall erect and commission all the equipments and auxiliaries as per the sequence & methodology prescribed by BHEL depending upon the technical requirements. Availability of materials and fronts will decide this. BHEL Engineer's decision regarding correctness of the work and method of working shall be final and binding on the contractor. No claims for extra payment from the contractor will be entertained on the ground of deviation from the methods / sequence adopted in erection of similar sets elsewhere.
1.7	Following shall be the minimum responsibility of contractor and have to be provided within finally accepted rates / prices:
1.7.1	Provision as required of all types of labour, supervisors, engineers, watch and ward, tools & tackles, calibrated MMEs (Monitoring and Measuring Equipment) as specified and otherwise required for the work, consumables for erection, testing and commissioning including material handling
1.7.2	Achieving Proper out-turn / Turn-over as per BHEL plan and commitment.
1.7.3	Completion of work as per BHEL Schedule
1.7.4	Good quality and accurate workmanship for proper performance of the equipment
1.7.5	Repair and rectification
1.7.6	Preservation / Re-conservation of all components during storage / erection / commissioning till handing over.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter - II : General Services to be rendered by the Bidder

2.0	GENERAL SERVICES TO BE RENDERED BY THE BIDDER
2.1	Services for construction, fabrication, equipment erection testing as well as trial run & commissioning of various equipment and accessories under the contract shall include but not be limited to the following:
2.2	Issuing materials from store/open yard from time to time for erection as per the construction programme. The Contractor shall be the custodian of all the materials issued till the plant/equipment is officially taken over by the owner / BHEL after complete erection any successful trial run & commissioning.
2.3	Transport of material to their respective places of erection and erection of the complete plant & equipment as supplied under this specification.
2.4	Trial run and commissioning of individual equipment / sub-systems to the satisfaction of Owner/BHEL.
2.5	Deployment of all skilled and unskilled manpower required for erection, supervision of erection, watch & ward, commissioning and other services to be rendered under this specification.
2.6	Deployment of all erection tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the erection work to be handled under scope of this specification except otherwise specified.
2.7	Supply of all consumables, eg welding electrodes, cleaning agents, diesel oil, lubricant etc as well as materials required for temporary supports, scaffolding etc as necessary for such erection work, unless specified otherwise.
2.8	Providing support services for the contractor's erection staff eg construction of site offices, temporary stores, residential accommodation and transport to work site for erection personnel, watch and ward for security and safety of the materials under the Contractor's custody etc. as required.
2.9	Maintaining proper documentation of all the site activities undertaken by the Contractor as per the proforma mutually agreed with BHEL, Submission of monthly progress reports and any such document as and when desired by BHEL/owner, taking approval of all statutory authorities i.e Boiler Inspector, Factory Inspector, Inspector of Explosives etc , as applicable for respective portions of work fall under the jurisdiction of such statutes of laws.
2.10	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the specification.

SPECIAL CONDITIONS OF CONTRACT (SCC)
Chapter - III : General Technical Requirements (Codes and Standards)

3.0	GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)
3.1	Except where otherwise specified, the plant/equipment shall comply with the appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in contract specifications, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the Bidder shall give all particulars and details as necessary, to enable BHEL to identify all of the plant/equipment in the same detail as would be possible had there been a Standard Specification.
3.2	Where the Bidder proposes alternative codes or standards he shall include in his tender one copy (in English) of each Standard Specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
3.3	In the event of any conflict between the codes and standards referred above, and the requirements of this specification, the requirements which are more stringent shall govern.
3.4	Tools used during erection and commissioning shall not be accepted except with the specific approval of the Engineer.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter - IV : Obligations of Contractor

4.0	OBLIGATIONS OF CONTRACTOR
4.1	CONSUMABLES & OTHER ITEMS
4.1.1	The contractor shall provide within finally accepted price / rates, all consumables (excepting those indicated in BHEL scope) like welding electrodes (including alloy steel and stainless steel), filler wires, TIG filler wires (over & above as supplied by the unit along with the plant materials, which will be given free of cost to bidder), gases (inert, welding, cutting), soldering material, dye penetrants, radiography films, etc. Other erection consumables such as tapes, jointing compound, grease, mobile oil, M-seal, Araldite, petrol, CTC / other cleaning agents, grinding and cutting wheels are to be provided by the contractor. Steel, packers, shims, wooden planks, scaffolding materials hardware items etc required for temporary works such as supports, scaffoldings are to be arranged by the contractor. Sealing compounds, gaskets, gland packing, wooden/concrete sleepers, for temporary work, required for completion of work except those which are specifically supplied by manufacturing unit are also to be arranged by the contractor.
4.1.2	All the shims, gaskets and packing, which go finally as part of plant equipment, shall be supplied by BHEL free of cost.
4.1.3	It shall be the responsibility of the contractor to plan the activities and store sufficient quantity of consumables. Non-availability of any consumable materials or equivalent suggested by BHEL cannot be considered as reason for not attaining the required progress or for additional claim.
4.1.4	<u>TIG Filler wire for Boiler and Filler wires for Electrodes for P91/T91 piping:</u> These shall be supplied by BHEL free of cost as supplied by BHEL Manufacturing Units as part of regular supply. Required quantity as arrived at by calculation / standards will only be supplied. It would be the contractors' responsibility to account for the consumption of these filler wires. Additional consumption beyond standard / calculated quantity will be at cost recovery basis only unless and otherwise accounted for. Surplus quantity of TIG filler wire, if any, shall be properly stored and returned to BHEL stores.
4.1.5	It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of electrodes etc before procurement of welding electrodes. On receipt of electrodes at site these shall be subjected to inspection and approval by BHEL. The contractor shall inform BHEL details regarding type of electrodes, batch number, date of expiry etc and produce test certificate for each lot / batch with correlation of batch / lot number with respective test certificate. No electrode without a valid test certificate will to be used.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter - IV : Obligations of Contractor

4.1.6	BHEL reserves the right to reject the use of any consumable including electrodes, gases, lubricants / special consumables if it is not found to be of the required standard / make / purity or when shelf life has expired. Contractor shall ensure display of shelf life on consumable wherever required and records maintained.
4.1.7	Storage of all consumables including welding electrodes shall be done as per requirement / instruction of the Engineer by the contractor at his cost.
4.1.8	In case of improper arrangement for procurement of any consumable, BHEL reserves the right to procure the same from any source and recover the cost from the Contractor's first subsequent bill at market value plus the departmental charges of BHEL from time to time. Postponement of such recovery is normally not permitted. The decision of Engineer in this regard shall be final and binding on the Contractor.
4.1.9	All lubricants and chemicals required for pre-commissioning, commissioning, testing, preservation and lubricants for trial runs of the equipment shall be supplied by BHEL / BHEL's client. All services including labour and T&P will be provided by the contractor for handling, filling, emptying, refilling etc. The consumption of lubricants / chemicals shall be properly accounted for. Surplus material if any shall be properly stacked/ tagged and returned to BHEL/ CUSTOMER stores at no extra cost to BHEL. BHEL reserves the right to recover costs for wastage by the contractor.
4.1.10	Transportation of oil drums, from stores, filling of oil for flushing, first filling, subsequent changeover if any, topping/making up till the unit is fully commissioned and handed over to customer is included in scope of this contract. The contractor shall have to return all the empty drums to BHEL / BHEL's client store at no extra cost. Any loss / damage to above drums shall be to contractor's account.
4.1.11	All charges on account of Octroi, terminal or sales tax and other duties on materials obtained from any source for carrying out the works in the scope of the contractor shall be borne by the contractor.
4.2	TOOLS AND PLANTS / MONITORING AND MEASURING EQUIPMENT (MMEs)
4.2.1	T&Ps and MMEs to be provided by Contractor
4.2.1.1	All T&Ps and MMEs excepting those specifically indicated in BHEL scope are to be provided by the Contractor. Contractor has to make his own arrangement at his cost for completing the formalities (including arrangement of Road permits, if any) if required with Sales Tax/VAT authorities, for bringing their materials, plants and equipments at site for the execution of work under this contract.

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4.2.1.2	All suitable cranes, lifting and transport equipments for material handling at stores/yard/siding of BHEL/Customer are included in scope. BHEL's cranes will not be available for this purpose unless otherwise specifically permitted as per contract conditions
4.2.1.3	All T&Ps to be deployed by the contractor shall have the approval of BHEL Engineer with regard to brand, quality and specification.
4.2.1.4	Indicative list of Major T&Ps in the scope of Contractor are given in the Technical Conditions of Contract. Bidders to note that these are only indicative and as such all other T&P necessary for timely and satisfactory completion of work in scope shall be mobilized by Contractor
4.2.1.5	Timely deployment of adequate T&Ps is the responsibility of the contractor. The contractor shall be prepared to augment the T&P at short notice to match the planned programme and to achieve the milestones.
4.2.1.6	Contractor shall maintain and operate his tools and plants in such a way that major breakdowns are avoided. In the event of major breakdown, contractor shall make alternative arrangements expeditiously so that the progress of work is not hampered.
4.2.1.7	In the event of contractor failing to arrange the required tools, plants, machinery, equipment, material or non-availability of the same owing to breakdown, BHEL will make alternative arrangement at the risk and cost of the contractor. Decision of BHEL shall be final and binding on the contractor. It is not obligatory on the part of BHEL to provide any tools and tackles or other materials other than those specifically agreed to do so by BHEL. However, depending upon the availability, BHEL/ BHEL 's Customer handling equipment and other plants may be made available to the contractor on payment of hire charges as fixed, subject to the conditions laid down by BHEL/ Customer from time to time, Unless paid in advance, such hire charges, if applicable, shall be recovered from contractor's bill /security deposit or any other due payment in one instalment.
4.2.1.8	The T&P to be arranged by the contractor shall be in proper working condition and their operation shall not lead to unsafe condition. The movements of cranes, and other equipment should be such that no damage / breakage occurs to foundations, other equipments, material, property and men. All arrangements for the movement of the T&P etc shall be the contractor's responsibility.
4.2.1.9	Use of welding generators/ rectifiers only shall be permitted for welding. Use of welding transformers will be subject to specific approval of BHEL engineer.

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4.2.1.10	The contractor at his cost shall carry out periodical testing of his construction equipments. Test certificates shall be furnished to BHEL.
4.2.1.11	Contractor shall ensure deployment of serviced and healthy T&Ps including cranes, lifting tackles, wire ropes, manila ropes, winches and slings etc. History card and maintenance records for major T&Ps will be maintained by the contractor and will be made available to BHEL Engineer for inspection as and when required. Fitness certificate / Test Certificates of T&P shall have to be submitted before it is put in use. Identification for such T&Ps will be done as per BHEL Engineer's advice. BHEL reserves the right to permit only new slings up to 20 mm and lifting tackles up to 3 MT capacities.
4.2.1.12	Contractor shall ensure deployment of reliable and calibrated MMEs (Inspection measuring and Monitoring equipment). The MMEs shall have test / calibration certificates from authorized / Government approved / accredited agencies traceable to National / International standards. Each MME shall have a label indicating calibration status i.e. date of calibration, calibration agency and due date for calibration. A list of such instruments deployed by contractor at site with its calibration status is to be submitted to BHEL Engineer for control.
4.2.1.13	Re-testing/ re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MME so that work does not suffer when the particular instrument is sent for calibration. If any MMEs not found fit for use, BHEL shall have the right to stop the use of such item. It will be necessary for the contractor to deploy proper item. Any readings taken by the defective instrument will be recalled and repeat the readings taken by that instrument with a proper one. In case he fails to do so, BHEL may deploy MMEs and retake the readings at contractor's cost.
4.2.1.14	BHEL shall have lien on all T&P, MMEs and other equipment of the contractor brought to the site for the purpose of erection, testing and commissioning. BHEL shall continue to hold the lien on all such items throughout the period of contract / extended period. The contractor and/ or his sub-contractors, without the prior written approval of the Engineer, shall remove no material brought to the site.
4.2.1.15	The month wise T&P deployment plan to execute the work is to be submitted as per relevant format as per the instruction of BHEL. It shall be the contractor's responsibility to deploy the required T&P, for timely and successful completion of the job, to any extent.
4.2.2	Obligations in respect of T&Ps and MMEs provided by BHEL

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4.2.2.1	T&P / MMEs being provided by BHEL to sub-contractor free of hire charges shall be shared by other subcontractors working for BHEL at site and the allotment done by BHEL Engineer shall be final and binding.
4.2.2.2	BHEL T&P will be issued in basic assembled condition. Additional loose components / sub-assemblies / attachments as and when necessary, will be issued by BHEL. Assembly of such additional loose components/sub-assemblies/ attachments is in contractor's scope.
4.2.2.3	In case of non-availability of the T&Ps to be provided by BHEL due to breakdown, major overhauls, distribution pattern or any other reason, the contractor shall plan / amend / alter his activities to meet erection / commissioning targets in consultation with BHEL.
4.2.2.4	void
4.2.2.5	The contractor shall engage trained and experienced operators for the operation of BHEL's T&Ps. Their skill / performance will be checked by BHEL Engineer before they are allowed to operate the same. However checking of skills by BHEL does not absolve the contractor of his responsibilities for proper and safe handling of equipment, consistent good performance of operators and regular performance evaluation of operators.
4.2.2.6	The day to day operation and maintenance of BHEL's T&Ps (Other than cranes) shall be carried out by contractor as per manufacturer's / BHEL's maintenance schedule at his cost. The contractor shall arrange, at his own cost, trained operators, fuel and other consumables for their operation. BHEL shall arrange all spares needed for upkeep of major T&Ps provided like Huck Bolting Machine*, DG Set, Induction Machine and Hydraulic Test pumps. The contractor has to arrange for fixing of the spares; supervision in specialized cases will be provided by BHEL. For upkeep of all other T&Ps supplied by BHEL, spares shall be arranged by the Contractor. BHEL supplied T&Ps shall be maintained in good working condition during the entire period of use. T&Ps in defective / damaged condition shall be rectified promptly to the full satisfaction of BHEL engineer. Contractor shall maintain records for maintenance of major T&Ps. These shall be made available for Inspection whenever required. In case of any lapses on the part of the contractor, BHEL at its own discretion shall get the servicing/ repair of equipment done at the risk and cost of the contractor along with BHEL overheads. Further, if there are breakdowns / damages due to negligence of the contractor, the complete service / repair charges and cost of all the spares damaged with BHEL overheads shall be recovered from contractor's RA bills.

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	*: for operation and maintenance of ESP Huck bolting machine, BHEL shall provide the basic power rig and hose. Balance toolings ie Guns, chuck jaws etc are to be arranged by contractor.
4.2.2.7	void
4.2.2.8	Increasing / shortening of the crane boom to suit work requirements shall have to be arranged by the indenting contractor at his cost including restoration to a state as directed by BHEL. All necessary manpower tools, support, consumables, illumination etc. will have to be arranged by contractor at his cost. If required, contractor has to return the crane with original boom.
4.2.2.9	The area and infrastructure development of the area to be carried out by the customer. However in construction projects of this magnitude it is possible that all the areas / approaches may not be ready. In such cases backfilling of approaches where ever necessary, consolidation of ground and arrangement of sleepers / sand bag filling etc for safe operation / movement of equipment including cranes / trailers etc shall be the responsibility of the contractor at his cost. No compensation on this account shall be payable.
4.2.2.10	In the event of contractor not using and maintaining BHEL T&Ps according to BHEL's instructions. BHEL will have the right to withdraw such item without any notice and no claim in this regard shall be entertained and contractor shall be responsible for delay in execution on this account.
4.2.2.11	The contractor shall furnish regular utilization report of the BHEL T&Ps, as per requirement of BHEL.
4.2.2.12	Any loss / damage to any part of BHEL T&Ps and MMEs shall be to the contractor's account and any expenditure on these accounts by BHEL will be recovered from the contractor's bill in case the contractor fails to make good the loss.
4.2.2.13	It shall be responsibility of the contractor to take delivery of T&Ps and MMEs from stores or place of use by other contractor at project site, transport the same to site and return the same to BHEL store / place as intimated by Engineer in project site in good working conditions after use.
4.2.2.14	The contractor shall return BHEL T&Ps and MMEs issued to him in good working condition as and when desired by BHEL (on completion or reduction of workload). If contractor delays return of T&P and MME, hire charges as applicable shall be levied by BHEL from time, it was requisitioned till the time of actual return.

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	T&Ps and MMEs returned in damaged / unserviceable condition shall be got repaired by BHEL at its own discretion and entire cost of repair with BHEL overheads shall be recovered from the contractor.
4.2.2.15	Replacement cost including BHEL overheads in respect of irreparable / completely damaged / non return of T&Ps and MMEs shall be recovered from the contractor's running / final bills
4.2.2.16	Obligations in respect of Cranes provided by BHEL
a)	BHEL will make available the cranes (as per Technical Conditions of Contract) free of charge to the contractor on sharing basis mainly for the purposes enumerated/ indicated therein. BHEL cranes have to be shared with other agencies / contractors of BHEL. The allocation of cranes shall be the discretion of BHEL engineer, which shall be binding on the contractor.
b)	BHEL Cranes may be initially issued in basic assembled condition. Any alteration/addition like boom reduction / extension, assembly of components/sub-assemblies needed for modulating the capacity/reach/other features of cranes and restoration to the state as directed by BHEL shall be the contractor's responsibility.
c)	In case the BHEL cranes are not covered under AMC of BHEL, then the day-to-day upkeep and running maintenance like filling / topping up of lubricants, changing filters, etc including repair of self starter and dynamo of these cranes shall be the responsibility of the contractor. If on checking it is found that the same is not followed, BHEL will exercise its right to get the job/works done at the risk and cost of contractor. In case BHEL cranes are covered under AMC awarded by BHEL, then the day-to-day upkeep and running maintenance as described above are excluded from scope. However any additional helpers if any required during Preventive/ Breakdown Maintenance, Assembly/ disassembly shall be provided by contractor at no extra cost. BHEL may also provide cranes through crane hiring agencies in which case the day-to-day upkeep and running maintenance shall be excluded from scope of contractor.
d)	Minor consumables like cotton cloth, cotton waste, etc is to be supplied by Contractor. All spares and lubricants/grease is excluded from scope. Contractor to give the requirements of these items well in advance in case the cranes provided by BHEL are BHEL owned cranes.

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Chapter - IV : Obligations of Contractor

e)	Unless otherwise specified, trained operators for BHEL owned cranes shall be provided by the contractor. These operators should possess valid license for heavy vehicle.
f)	BHEL cranes will be withdrawn for regular and capital maintenance as per the respective schedule of maintenance. As far as possible such schedules will be intimated to the contractor in advance and may be adjusted depending on the work requirements at site. However no claim whatsoever will be entertained on account of non-availability of cranes.
g)	Where the services of the cranes provided by BHEL are to be shared by other agencies/ contractors of BHEL, the contractor's responsibilities defined above will also be apportioned accordingly to the beneficiary agency. Working arrangements in this regard will be done at site by BHEL engineer and in any case his decision shall be final and binding.
h)	Major breakdowns will be attended to by BHEL. However, in case of breakdowns or damages due to negligence of the contractor, the complete service/repair charges including cost of spares shall be to the account of the contractor, along with BHEL overheads.
4.2.2.17	Obligations in respect of Construction Lift/Elevators provided by BHEL
a)	The total erection including commissioning, maintenance, statutory clearances shall be included in scope of work. Supervision by the original equipment supplier or their authorized agency shall be arranged for by BHEL, in case found necessary.
b)	All day to day and routine maintenance and checking is to be carried out by the contractor as per the recommendations of the supplier. He should periodically check the brakes and carry out the all works to ensure the safety of all those using the lift/elevator. BHEL shall arrange spares required for upkeep of Construction lift/elevator
c)	The construction lift/ elevator should never be overloaded as this can lead to serious accidents. Ensuring all safety aspects in operation of the lift shall be the responsibility of the contractor. Erection of all the required number of landing platforms is included in scope. Landing platforms are to be provided with proper barricades and hand railings.
d)	After completion of contractual scope of work or as per BHEL advice, the temporary elevator/lift shall be dismantled and handed over to BHEL neatly identified/tagged. Temporary structures/ platforms etc. erected for the elevators/ lifts are also to be dismantled and materials to be returned to stores as applicable. The construction and dismantling of the foundations required for the construction/elevator lifts is included in the scope of the contractor.

SPECIAL CONDITIONS OF CONTRACT (SCC)
**Chapter – V : Responsibilities of Contractor in respect of Labour,
Supervisory Staff, etc.**

5.0	RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF LABOUR, SUPERVISORY STAFF, ETC.
5.1	Refer relevant clauses of General Conditions of Contract (GCC) also in this regard
5.2	The contractor shall deploy all the necessary skilled/semiskilled/ unskilled labour including highly skilled workmen etc. These workmen should have previous experience on similar job. They shall hold valid certificates wherever necessary. BHEL reserves the right to insist on removal of any employee of the contractor at any time if he is found to be unsuitable and the contractor shall forthwith remove him.
5.3	Contractor shall also comply with the requirements of local authorities/ project authorities calling for police verification of antecedents of the workmen, staff etc.
5.4	It is the responsibility of the contractor to engage his workmen in shifts and or on overtime basis for achieving the targets set by BHEL. This target may be set to suit BHEL's commitments to its customer or to advance date of completion of events or due to other reasons. The decision of BHEL in regard to setting the erection and commissioning targets will be final and binding on the contractor.
5.5	Contractor shall provide at different elevation suitable arrangement for urinal and drinking water facility with necessary plumbing & disposal arrangement including construction of septic tank. These installations shall be maintained in hygienic condition at all times.
5.6	The Contractor in the event of engaging 20 or more workmen, shall obtain Independent license under the Contract labour (Regulation and Abolition) Act 1970 from the concerned authorities based on Form-V issued by the Principal Employer/Customer. In order to issue Form-V by Customer, Contractor shall fulfill all Statutory requirements like Insurance Policy, PF Code/PF Account number etc as per the requirement of BHEL/Customer
5.7	Contractor shall deduct the necessary amount towards Provident Fund and contribute equal amount as per Government of India laws. This amount will be deposited regularly to the provident Fund Commissioner. BHEL/Customer may insist for submission of the account code duly certified by PF Commissioner
5.8	Contractor may also be required to comply with provisions of ESI Act in vogue if applicable and submit evidence to BHEL.
5.9	BHEL / customer may insist for witnessing the regular payment to the labour. They may also like to verify the relevant records for compliance with statutory requirements. Contractor shall enable such facilities to BHEL/ Customer.

SPECIAL CONDITIONS OF CONTRACT (SCC)
**Chapter – V : Responsibilities of Contractor in respect of Labour,
Supervisory Staff, etc.**

5.10	Contractor shall deploy only qualified and experienced engineers/ supervisors. They shall have professional approach in executing the work.
5.11	The contractor's supervisory staff shall execute the work in the most professional manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. They shall be responsible to ensure that the assembly and workmanship conform to dimensions and tolerances given in the drawings/instructions given by BHEL engineer from time to time.
5.12	The supervisory staff employed by the contractor shall ensure proper outturn of work and discipline on the part of the labour put on the job by the contractor. Also in general they should see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other contractors of BHEL or BHEL's client.
5.13	It is the responsibility of the contractor to arrange gate pass for all his employees, T&P etc for entering the project premises. Necessary coordination with customer officials is the responsibility of the contractor. Contractor to follow all the procedures laid down by the customer for making gate passes. Where permitted, by customer / BHEL, to work beyond normal working hours, the contractor shall arrange necessary work permits for working beyond normal working hours.
5.14	The actual deployment will of Labour and Engineer/supervision staff shall be so as to satisfy the erection and commissioning targets set by BHEL. If at any time, it is found that the contractor is not in a position to deploy the required engineers/supervisors/workmen due to any reason, BHEL shall have the option to make alternate arrangements at the contractor's risk and cost. The expenditure incurred along with BHEL overheads thereon shall be recovered from the contractor
5.15	Contractor shall not deploy women labour at night.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter – VI: Material Handling, Storage & preservation

6.0	MATERIAL HANDLING, STORAGE AND PRESERVATION ETC
6.1	MATERIAL HANDLING AND STORAGE
6.1.1	All the equipments/ materials furnished under this contract shall be received from the project stores, sheds / storage yards and transported to pre assembly area / erection site and stored in the storage spaces in a manner so that they are easily retrievable till the contractor erects them. While drawing/lifting material from BHEL / customer stores, the contractor shall ensure that the balance / other materials are stacked back immediately. No claim is admissible on this account
6.1.2	While BHEL will endeavor to store / stack / identify materials properly in their open / close / semi closed / tarpaulins covered storage yard / shed, it shall be contractor's responsibility to assist BHEL in identifying materials well in time for erection. They should take the delivery of the same, following the procedure indicated by BHEL, and transport the material safely to pre-assembly yard / erection site in time, according to program.
6.1.3	The contractor shall take delivery of components, equipment / consumables from storage area after getting the approval of BHEL Engineer on standard indent forms.
6.1.4	The contractor shall identify and deploy necessary Engineers / supervisors / workmen for the above work in sufficient number as may be needed by BHEL, for areas covering their scope.
6.1.5	All the equipment shall be handled very carefully to prevent any damage or loss. No untested wire ropes / slings etc. shall be used for unloading / handling. The equipment shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the stores shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site.
6.1.6	Contractor shall ensure that while lifting slings shall be put over the points indicated on the equipment or as indicated in the manufacturer's drawings. Slings / shackles of proper size shall be used for all lifting and rigging purposes. All care shall be taken to safe guard the equipment against any damage. Dragging of piping / valves should be avoided. In case of any damage the cost shall be covered from the contractor.
6.1.7	Approach road conditions from the stores/ yards to the erection site may not be equipped and ideal for smooth transportation of the equipment. Contractor may have to be adequately prepared to transport the materials under the above

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Chapter – VI: Material Handling, Storage & preservation

	circumstances without any extra cost. The contractor may familiar himself with soil conditions at site.
6.1.8	Contractor shall be responsible for examining all the plant and materials issued to him and notify the Engineer immediately of any damage, shortage, discrepancy etc. before they are moved out of the stores / storage area. The contractor shall be solely responsible for any shortages or damages in transit, handling, storage and erection of the equipment once received by him. As the erection work will be spread in different areas/ locations of the project, contractor has to arrange sufficient number of watch / ward personal to avoid any pilferage of material
6.1.9	The contractor shall maintain an accurate and exhaustive record-detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the engineer at any time.
6.1.10	All the material in the custody of contractor and stored in the open or dusty locations must be covered with suitable weather proof / fire retardant covering material wherever applicable and shall be blocked up on raised level above ground. All covering materials including blocks and sleeper shall be arranged by the contractor at his cost.
6.1.11	If the material belonging to the contractor are stored in area other than those earmarked for his operation the engineer will have the right to get it moved to the area earmarked for the contractor at the contractors risk and cost.
6.1.12	The contractor shall be responsible for making suitable indoor storage facilities to store all equipment (drawn by the contractor from BHEL/ customer stores), which require indoor storage till the time of their installation. The Engineer will direct the contractor in this regard, which item in his opinion will require indoor storage, and the contractor shall comply with Engineer's decision.
6.1.13	The contractor shall ensure that all surplus / damaged / scrap / unused material, packing wood / containers/ special transporting frames etc are returned to BHEL at a place in project area identified by the Engineer. The contractor will maintain an account for all items received and returned to BHEL. Any shortage in returning such items shall be chargeable to the contractor except allowable wastage for packing wood only.
6.1.14	The contractor shall hand over all parts / materials remaining extra over the normal requirement with proper identification tags to the stores as directed by the concerned BHEL engineer.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter – VI: Material Handling, Storage & preservation

6.1.15	The contractor shall ensure that all the packing materials and protective devices installed on equipment during transit and storage are removed before installation.
6.1.16	It shall be the responsibility of the contractor to keep the work / storage areas in neat, tidy and working conditions. All surplus/unusable packing and other materials shall be removed and deposited at location(s) specified by BHEL within the project premises. If required weighing of the same within the project premises will have to be carried out.
6.2	PRESERVATION OF COMPONENTS
6.2.1	After taking delivery from BHEL / customer's stores, plant materials storage shall be subjected to the following protection besides other provisions indicated in these specifications elsewhere.
6.2.1.1	Items stored outdoors shall be stacked up at least six inches (6") off the ground. Items should not be stored in a low lying area where water logging is a possibility. Contractor should have sufficient numbers of wooden / concrete / steel sleepers for the job.
6.2.1.2	Motors, valves, electrical equipment, control equipment and instruments, and special or precision items requiring special care, etc shall be stored indoors. Motor windings shall be kept dry by use of external heat or space heaters.
6.2.1.3	Bearings and other wearing surfaces of plant materials shall be protected against corrosion and kept clean and should be regularly monitored.
6.2.1.4	Insulation materials shall be stored indoors or otherwise protected against getting wet/ damaged, using suitable measures and should be protected from direct rain.
6.2.2	It shall be the responsibility of the contractor to apply preservatives / touch up paints (primer) on equipment handled and erected by him till such time of final painting. It shall be contractor's responsibility to arrange for required paints (primer), thinners, labour, scaffolding materials, cleaning materials like wire brush, emery sheets, etc, cleaning of surface and provide one coat of preservatives / paints (primer) from time to time as decided by BHEL engineer. The accepted rate shall include this work also. It is to be noted that such painting may have to be done as and when required till such time the final painting is carried out.
6.2.3	The contractor shall effectively protect the finished work from action of weather and from damage or defacement and shall cover the finished parts then and there for their protection.

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Chapter – VI: Material Handling, Storage & preservation

6.2.4	Any failure on the part of contractor to carry out works according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from contractor.

SPECIAL CONDITIONS OF CONTRACT (SCC)
Chapter – VII: Drawings and documents

7.0	DRAWINGS AND DOCUMENTS
7.1	The detailed drawings, specifications available with BHEL engineers will be made available to the contractor during execution of work at site. The contractor will also ensure availability of all drawings / documents at work place.
7.2	Necessary drawings to carry out the erection work will be furnished to the contractor by BHEL on loan, which shall be returned to BHEL Engineer at site after completion of work. Contractor shall ensure safe storage and quick retrieval of these documents.
7.3	The contractor shall maintain a record of all drawings and documents available with him in a register as per format given by BHEL Engineer. Contractor shall ensure use of pertinent drawings / data / documents and removal of obsolete ones from work place and returning to BHEL.
7.4	The data furnished in various annexure enclosed with this tender specification are only approximate and for guidance. However, the change in the design and in the quantity may occur as is usual in any such large scale of work. The contractors quoted rates shall be inclusive of the above factor
7.5	Should any error or ambiguity be discovered in the specification or information the contractor shall forthwith bring the same to the notice of BHEL before commencement of work. BHEL's interpretation in such cases shall be final and binding on the contractor.
7.6	Deviation from design dimensions should not exceed permissible limit. The contractor shall not correct or alter any dimension / details, without specific approval of BHEL.

SPECIAL CONDITIONS OF CONTRACT (SCC)
Chapter – VIII: Inspection and Quality

8.0	INSPECTION AND QUALITY
8.1	Inspection, Quality Assurance, Quality Control
8.1.1	Preparation of quality assurance log sheets and protocols with customer/ consultants/statutory authority, welding logs, NDE records, testing & calibration records and other quality control and quality assurance documentation as per BHEL engineer's instructions, is within the scope of work/specification. These records shall be submitted to BHEL/customer for approval from time to time.
8.1.2	The protocols between contractor and customer/ BHEL shall be made prior to installation for correctness of foundations, materials, procedures, at each stage of installation, generally as per the requirement of customer/ BHEL. This is necessary to ensure elimination of errors or keeping them within tolerable limits and to avoid accumulation and multiplication of errors.
8.1.3	A daily log book should be maintained by every supervisor/engineer of contractor on the job in duplicate (one for BHEL and one for contractor) for detailing and incorporating alignment/clearance / centering / leveling readings and inspection details of various equipments etc. High pressure welding details like serial number of weld joints, welders name, date of welding, details of repair, heat treatment etc. will be documented in welding log as per BHEL Engineer's instructions. Record of radiography containing details like serial number of weld joints, date of radiography, repairs, if any, re-shots etc shall also be maintained as per BHEL Engineer's instructions. Record of heat treatments performed shall be maintained as prescribed by BHEL
8.1.4	The performance of welders will be reviewed from time to time as per the BHEL standards. Welders' performance record shall be periodically furnished for scrutiny of BHEL's Engineer. Corrective action as informed by BHEL shall be taken in respect of those welders not conforming to these standards. This may include removal/ discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately
8.1.5	All the welders shall carry identity cards as per the proforma prescribed by BHEL/ Customer/ Consultant. Only welders duly authorized by BHEL/ customer/ consultant shall be engaged on the work.

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Chapter – VIII: Inspection and Quality

8.1.6	Contractor shall provide all the Measuring Monitoring Equipments (MMEs) required for completion of the work satisfactorily. These MMEs shall be of brand, quality and accuracy specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirement of BHEL Engineer. Decision of BHEL Engineer regarding acceptance or otherwise of the measuring instruments/gauges/tools for the work under this specification, is final and binding on the contractor. BHEL may give an indicative list of MMEs required for this work and to be made available by the contractor. The list will be reviewed by BHEL and the contractor shall meet any augmentation needed wherever required.
8.1.7	It is the responsibility of the contractor to prove the accuracy of the testing/measuring/calibrating equipments brought by him based on the periodicity of calibration as called for in the BHEL's quality assurance standards/BHEL Engineer's instructions.
8.1.8	Any re-laying or re-termination of cables/re-erection of instruments/ recalibration of instruments etc. required due to contractor's mistake or design requirement and found at any stage inspection, shall be carried out by the contractor at no extra cost.
8.1.9	BHEL, Power Sector Regions (PSNR/PSER/PSWR/PSSR) have already been accredited with ISO 9001 certification and as such this work is subject to various audits to meet ISO 9001 requirements. One particular aspect which needs special mention is about arrangement of calibration of instruments by the contractor. Contractor shall ensure deployment of reliable and calibrated MMEs (Measuring and Monitoring Equipments). The MMEs shall have test / calibration certificates from authorised / Government approved / Accredited agencies traceable to National / International Standards. Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MMEs so that work does not suffer when the particular equipment / instrument is sent for calibration. Also if any MMEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall ie repeat the readings taken by that instrument, failing which BHEL may deploy MME and retake the readings at Contractor's cost.
8.1.10	Re-work necessitated on account of use of invalid MMEs shall be entirely to the contractor's account. He shall be responsible to take all corrective actions,

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter – VIII: Inspection and Quality

	including resource augmentation if any, as specified by BHEL to make-up for the loss of time.
8.1.11	In the courses of erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. BHEL may counter/ finally check the measurements with their own MMEs. Contractor shall render all assistance in conduct of such counter/final measurements.
8.1.12	Total Quality is the watchword of the work and Contractor shall strive to achieve the Quality Standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and Quality Standards.
8.2	Stage Inspection By FES/QA Engineers
8.2.1	Apart from day-to-day inspection by BHEL Engineers stationed at Site and Customer's Engineers, stage inspection of equipments under erection and commissioning at various stages shall also be conducted by teams of Engineers from Field Engineering Services of BHEL's Manufacturing Units, Quality Assurance teams from Field Quality Assurance, Unit/Factory Quality Assurance and Commissioning Engineers from Technical Services etc. Contractor shall arrange all labour, tools and tackles etc along with proper access for such stage inspections free of cost.
8.2.2	Any modifications suggested by BHEL FES and QA Engineers' team shall be carried out. Claims of contractor, if any, shall be dealt as per Section 13, and provided such modifications have not arisen for reasons attributable to the contractor.
8.3	Statutory Inspection of Work
8.3.1	The work to be executed under these specifications has to be offered for inspection, at appropriate stages of work completion, to various statutory authorities for compliance with applicable regulations. The work related statutory inspections, though not limited to, are as under: 1) Inspectorate of Steam Boilers and Smoke Nuisance 2) Electrical Inspector 3) Factory Inspector, Labour Commissioner, PF Commissioner and other authority connected to this project work The scope includes getting the approvals from the statutory authorities, which includes arranging for inspection visits of statutory authority periodically as per

SPECIAL CONDITIONS OF CONTRACT (SCC)

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	BHEL Engineer's instructions, arranging materials for ground inspection, taking rub outs for the pressure parts to be offered for inspection, submitting co-related inspection reports, documents, radiographs etc and following up the matter with them. Contractor shall also make all arrangements for offering the Products / Systems for inspection at location, as applicable, to the concerned authority.
8.3.2	Contractor should be qualified to execute pressure parts & piping work coming under the purview of IBR, for which he should register himself with CIB of state concerned. contractor also should be aware of the latest IBR regulations and Electricity Act, including the amendments thereof.
8.3.3	Contractor shall comply with 'Qualification Tests for welders engaged in welding of Boilers and Steam Pipes under Construction, Erection and Fabrication at Site in India and in repairing Boilers and steam pipes by welding' in line with Chapter XIII of Indian Boiler Regulations-1950, for testing his welders / men / workers, including all associated fees, procedures, required instruments and equipments and their calibration thereof. It shall be contractor's responsibility to obtain approval of Statutory Authorities, wherever applicable, for the conducting of any work which comes under the purview of these authorities, at his cost.
8.3.4	The following fees shall be excluded from scope of Contractor: 1. Registration Fee as per Regulation 385 of Chapter IX of Indian Boiler Regulations-1950 2. Fees for inspection of Boiler at the site of Construction as per Regulation 395 A, sl no 4 of Chapter IX of Indian Boiler Regulations-1950 However all other fees like visit fees charged by the Boiler Inspector and other arrangements for his visit or visits till satisfactory completion of work, shall be included in scope of Contractor
8.4	The Quality Management System of BHEL, Power Sector Regions (PSNR/ PSER/ PSWR/ PSSR) have already been certified and accredited under ISO 9002 standards in this regard. The basic philosophy of the Quality Management System is to define the organizational responsibility, work as per documented procedures, verify the output with respect to acceptance norms, identify the non-conforming product/ procedure and take corrective action for removal of non-conformance specifying the steps for avoiding recurrence of such non-conformities, & maintain the relevant quality records. The non-conformities are to be identified through the conduct of periodical audit of implementation of

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter – VIII: Inspection and Quality

	quality systems at various locations/stages of work. Suppliers/vendors of various products/services contributing in the work are also considered as part of the quality management system. .as such the contractor is expected not only to conform to the quality management system of BHEL but also it is desirable that they themselves are accredited under any quality management system standard.
8.5	Field Quality Assurance
8.5.1	Contractor shall carry out all activities conforming to the approved Field Quality Plan (FQP) as revised from time to time. Total quality shall be the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and quality standards. Contractor shall provide the services of quality assurance engineer as per the relevant clauses.
8.6	Contractor has to fulfil quality requirement as per this chapter. In case of any gap in fulfilling these requirements by the contractor, financial penalty shall be imposed on the contractor with the rate mentioned in the “MEMO for penalty imposition against non-compliance in Quality area” enclosed as Annexure-IV.

SPECIAL CONDITIONS OF CONTRACT (SCC)
Chapter-IX:HSE & OHSAS

9.0	OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT MANAGEMENT/ QUALITY ASSURANCE PROGRAMME : BHEL, Power Sector Regions (PSNR/ER/WR/SR) are each certified for ISO 9001. Quality of work to customer's satisfaction and fulfillment of system requirements are the essence of ISO 9001 certification. BHEL, PS Regions have HSE certification (ISO 14001 & OHSAS 18001) and therefore Contractor also shall organise/ plan/ perform all their activities to meet with the applicable requirements of these standards.
9.1	HSE (Health, Safety & Environment): Contractor will comply with HSE (Health, safety & Environment) requirements of BHEL as per the "HSE Plan for Site Operations by Subcontractor" (Document no. HSEP:14 Rev 00) <u>Please see the attached document</u>
9.2	In case of any financial deduction made by Customer for lapses of safety other than what is provided above or elsewhere in the contract, the same shall be charged on back-to-back basis on the defaulting contractor without prejudice to any other right spelt anywhere in the tender /contract.

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter-X: RA Bill Payments

10.0	RA Bill Payments
10.1	The contractor shall submit his monthly RA bills with all the details required by BHEL on specified date every month covering progress of work in all respects and areas for the previous calendar month.
10.2	Mode of payment and measurement of work completed shall be as per relevant clauses of General Conditions of Contract
10.3	Release of payment in each running bill including PVC Bills where ever applicable will be restricted to 95% of the value of work admitted as per stages of progressive pro rata payments.
10.4	The 5% thus remaining shall be treated as 'Retention Amount' and shall be released as per terms specified in the General Conditions of Contract.
10.5	The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc and other dues in the meanwhile. In case of Civil works, 60% of RA Bills complete and correct in all respects and certified by BHEL Engineer, shall be paid within 15 days of receipt. Balance payment shall be within 30 days.
10.6	BHEL shall release payment through Electronic Fund Transfer (EFT)/RTGS. In order to implement this system, Contractor to furnish details pertaining to his Bank Accounts where proceeds will be transferred through BHEL's banker, as per prescribed formats: Note: BHEL may also choose to release payment by other alternative modes as applicable
10.7	Paying Authority shall be the Construction Manager of the Site. Any change in the paying Authority shall be intimated to the Contactor accordingly.

SPECIAL CONDITIONS OF CONTRACT (SCC)
Chapter-XI : Performance Monitoring

11.0	Performance Monitoring
11.1	Performance of the contractor is monitored through various reports/reviews and shall be jointly evaluated every month for unit wise identified packages as per prescribed formats. Based on the net weighted scores obtained, Contractors shall be rated 'Good' or 'Satisfactory' or 'Unsatisfactory'
11.2	In case of any dispute on performance rating and the contractor refuses to sign on the performance rating given by BHEL package Incharge, the same shall be reviewed by BHEL site Incharge/Construction Manager and his decision shall be final.
11.3	Release of RA Bills will be contingent upon joint evaluation of performance
11.4	Performance of the contractor will be taken into consideration for assessing the capacity of the bidder to execute future jobs under tender, as detailed in the Notice Inviting Tender. Risk of non evaluation or non availability of the Monthly performance evaluation reports is to be borne by the Bidder.
11.5	In case of 'Unsatisfactory performance' for a continuous period of three or more months for a package or packages, BHEL has the right to get the balance works executed at the risk and cost of the contractor.
11.6	In case of 'Unsatisfactory performance' in a financial year, BHEL reserves the right to put on hold such Contractors for a period of six months for similar package or similar packages

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter-XII: Suspension of Business Dealings

12.0	Suspension of Business dealings
12.1	BHEL reserves the right to take action against contractors who fail to perform or indulge in malpractices, by suspending business dealings with them.
12.2	Suspension could be in the form of 'Hold', 'De-listing' or 'Banning' a contractor.
12.3	A bidder may be put on HOLD for a period of 6 months, for future tenders for specific works on the basis of one or more of the following reasons: a) Bidder does not honour his own offer or any of its conditions within the validity period. b) Bidder fails to respond against three consecutive enquires of BHEL. c) After placement of order, Bidder fails to execute a contract. d) Bidder fails to settle sundry debt account, for which he is legitimately liable, within one year of its occurrence. e) Bidder's performance rating falls below 60% in specific category (more fully described in chapter 'Performance Monitoring') f) Bidder works are under strike/ lockout for a long period.
12.4	A Bidder may be de-listed from the list of registered Bidders of the region for a period of 1 year on the basis of one or more of the following reasons:- a) Bidder tampers with tendering procedure affecting ordering process or commits any misconduct which is contrary to business ethics. b) Bidder has substituted, damaged, failed to return, short returned or unauthorizedly disposed off materials/ documents/ drawings/ tools etc of BHEL. c) Bidder no longer has the technical staff, equipment, financial resources etc. required to execute the orders/ contracts.
12.5	A Bidder can be banned from doing any business with all Units of BHEL for a period of 3 years on the basis of one or more of the following reasons: a) Bidder is found to be responsible for submitting fake/ false/ forged documents, certificates, or information prejudicial to BHEL's interest. b) In spite of warnings, the Bidder persistently violates or circumvents the provisions of labour laws/ regulations/ rules and other statutory requirements. c) Bidder is found to be involved in cartel formation

SPECIAL CONDITIONS OF CONTRACT (SCC)

Chapter-XII: Suspension of Business Dealings

	d) The Bidder has indulged in malpractices or misconduct such as bribery, corruption and fraud, pilferage etc which are contrary to business ethics. e) The Bidder is found guilty by any court of law for criminal activity/ offences involving moral turpitude in relation to business dealings. f) The Bidder is declared bankrupt, insolvent, has wound up or been dissolved; i.e ceases to exist for all practical purposes. g) Bidder is found to have obtained Official Company information/ documentation by questionable means. h) Communication is received from the administrative Ministry of BHEL to ban the Bidder from business dealings.
12.6	Contracts already entered with a contractor before the date of issue of order of 'HOLD' or 'DE-LISTING' shall not be affected.
12.7	All existing contracts with a 'BANNED' contractor shall normally be short closed
12.8	Once the order for suspension is passed, existing offers/new offers of the contractor shall not be entertained
12.9	The above guidelines are not exhaustive but enunciate broad principles governing action against contractors



Bharat Heavy Electricals Limited

(A Govt. of India Undertaking)

Power Sector- Northern Region

BHEL/PSNR/Site.....

Dated: _____

MEMO for imposition of penalty against non-compliances in Quality area

The Lapse as tick marked below has been observed in your area and penalty is being imposed as per the details mentioned at the bottom of this memo:-

S. No	Nature of non- compliance	Penalty (in Rs.)	Remarks
1.	Non availability of required no. of Quality Engineers/NDT certified person as per contract	1000	Per Person
<u>Calibration:-</u>			
2.	Use of IMTEs without having valid calibration certificate	1000	Per equipment per instance
3.	Use of NDT equipment, welding equipment's without having valid calibration certificate, condition not as per requirement	1000	Per equipment per instance
<u>Welding & NDT area:-</u>			
4.	Un qualified Welder carrying out weld/ tack weld	1000	Per welder per instance
5.	Not using portable oven	500	Per welder per instance
6.	Not using electrodes pre- baked in master oven/ approved make of electrodes/correct electrodes as per EWS/ WPS	500	Per instance
7.	Non- removal of slag and spatters after welding	200	Per Joint
8.	Not using NDT equipment as prescribed in the manual/contract/guidelines	1000	Per equipment per instance
9.	Welder doing welding without job card	500	Per instance
10.	Discrepancy observed in the RT taken of weld joints vs RT offered	2000	Per joint
<u>Material management:-</u>			
11.	Mismatch of location of material in store area wrt in Stock register	200	Per instance
12.	Non- compliance of preservation of material as per storage & preservation manual	1000	Per equipment
13.	Non verification of material within stipulated time as per contract	500	Per instance
<u>Other Areas:-</u>			
14.	Painting without surface cleaning	500	Per instance
15.	Not attending Quality meeting by the nominated member	1000	Per meeting

Details of non- compliance (Name of Sub contractors, persons, description of deficiency, etc.)

Penalty imposed:-

1, Rate as per above chart _____

2. No. of Persons/ equipment/ instance/ Joint/ welder/meeting. _____

3. Total Penalty= 1. X 2. = _____

Signature

(Witnessed by Sub- Contractor representative)

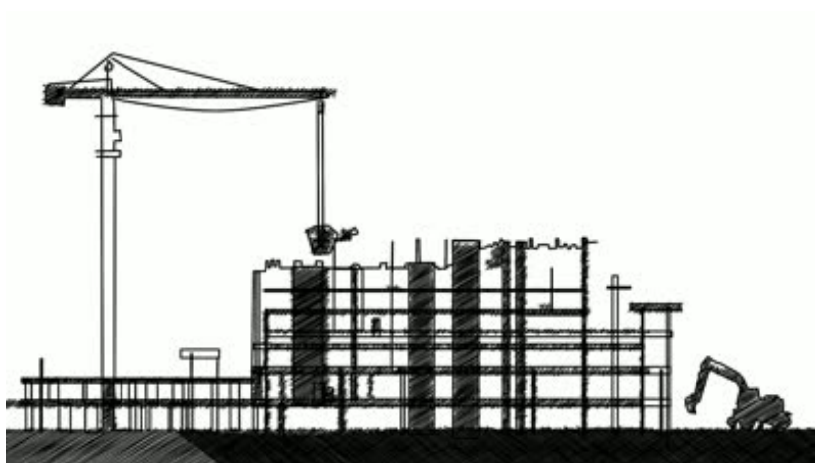
Name _____

(Witnessed by PSNR Personnel)

Name _____

Distribution: 1. Sub- contractor

2. Head (Quality & Safety)/ BHEL PSNR



HEALTH, SAFETY and ENVIRONMENT PLAN

for

**SITE
OPERATIONS**

by

**SUB-
CONTRACTORS**

POWER SECTOR



HEALTH, SAFETY AND ENVIRONMENT
PLAN FOR
SITE OPERATION by SUBCONTRACTORS

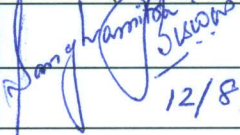
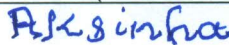
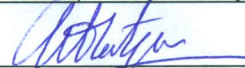
POWER SECTOR

Doc no.: HSEP: 14

REV: 00

Date: 12.08.2014

DOCUMENT ISSUE SHEET

	Prepared	Reviewed	Approved
Name	Sanghamitra B. Jayant	A.K. Sinha	Anuj Bhatnagar
Designation	Dy. Manager PSHQ(FQA & Safety)	GM PSHQ(FQA & Safety)	ED PSHQ(FQA & Safety)
Signature			
Date	12/8/14	12/8/14	12/8/14

HSE PLAN FOR SITE OPERATIONS BY BHEL'S SUBCONTRACTORS

AT A GLANCE

BEFORE START	SIGNING OF MOU	
	Agree to comply to HSE requirement- Statutory and BHEL's	
PLAN	HSE ORGANISATION	
	Manpower 1 (one) safety officer for every 500 workers or part thereof 1(one) safety-steward/ supervisor for every 100 workers Qualification As per Cl. 7.1	HSE Roles and responsibilities - Site In-charge- As per clause 7.2.1 - Safety officer- As per clause 7.2.2
	HSE Planning for Man , Machinery/Equipment/Tools & Tackles	
PROVIDE	HSE INFRASTRUCTURE	
	- PPEs - Drinking Water - Washing Facilities - Latrines and Urinals - Provision of shelter for rest - Medical facilities	- Canteen facilities - Labour Colony - Emergency Vehicle - Pest Control - Scrapyard - Illumination
TRAIN	HSE TRAINING , AWARENESS & PROMOTION	
	Training - Induction training - Height work and other critical areas - Tool Box talk & Pep Talk	Awareness & Promotion - Signage - Poster - Banner - Competition - Awards
COMMUNICATE	HSE COMMUNICATION	
	Incident Reporting - Accident- Fatal & Major - Property damage - Near Miss	Event Reporting - Celebrations - Training - Medical camp

EXECUTE SAFELY

OPERATIONAL CONTROL PROCEDURES

PERMIT TO WORK

Height work (above 2 metres), Hot Work, Heavy Lifting, Confined Space, Radiography, excavation(More than 4 metres)

SAFETY DURING WORK EXECUTION

• Welding • Rigging • Cylinder- storage & Movement • Demolition work • T&Ps • Chemical Handling • Electrical works	• Fire • Scaffolding • Height work • Working Platform • Excavation • Ladder • Lifting • Hoisting appliance

HOUSE KEEPING

WASTE MANGEMENT

TRAFFIC MANAGEMENT

ENVIRONMENTAL CONTROL

EMERGENCY PREPAREDNESS AND RESPONSE PLAN

CHECKS

HSE AUDITS & INSPECTION

• Daily Checks • Inspection of PPEs • Inspection of T& Ps • Inspection of Cranes & Winches	• Inspection of Height work • Inspection of Welding and Gas cutting • Inspection of elevators etc

HSE PERFORMANCE EVALUATION PARAMETERS

NON CONFORMANCE

PENALTY for NON CONFORMANCE

Refer Clause 16

Incremental penalty

For repeated violation by the same person, the penalty would be double of the previous penalty

For repeated fatal incident in the same Unit incremental penalty to be imposed. The subcontractor will pay 2 times the penalty compared to previously paid in case there are repeated cases of fatal incidents under the same subcontractor for the same package in the same unit.



**HEALTH, SAFETY AND ENVIRONMENT
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1.0 PURPOSE

- 1.1 The purpose of this HSE Plan is to provide for the systematic identification, evaluation, prevention and control of general workplace hazards, specific job hazards, potential hazards and environmental impacts that may arise from foreseeable conditions during installation and servicing of industrial projects and power plants.
- 1.2 This document shall be followed by BHEL's subcontractors at all installation and servicing sites. In case customer specific documents are to be implemented, this document will be followed in conjunction with customer specific documents.
- 1.3 Although every effort has been made to make the procedures and guidelines in line with statutory requirements, in case of any discrepancy relevant statutory guidelines must be followed.
- 1.4 In case the customer has any specific requirement, the same is to be fulfilled.

2.0 SCOPE

The document is applicable for BHEL's Subcontractors at all installation / servicing activities of BHEL Power Sector as per the relevant contractual obligations.

3.0 OBJECTIVES AND TARGETS

The HSE Plan reflects that BHEL places high priority upon the Occupational Health, Safety and Environment at workplaces.

- Ensure the Health and Safety of all persons at work site is not adversely affected by the work.
- Ensure protection of environment of the work site.
- Comply at all times with the relevant statutory and contractual HSE requirements.
- Provide trained, experienced and competent personnel. Ensure medically fit personnel only are engaged at work.
- Provide and maintain plant, places and systems of work that are safe and without risk to health and the environment.
- Provide all personnel with adequate information, instruction, training and supervision on the safety aspect of their work.
- Effectively control, co-ordinate and monitor the activities of all personnel on the Project sites including subcontractors in respects of HSE.
- Establish effective communication on HSE matters with all relevant parties involved in the Project works.
- Ensure that all work planning takes into account all persons that may be affected by the work.
- Ensure fitness testing of all T&Ps/Lifting appliances like cranes, chain pulley blocks etc. are to be certified by competent person.
- Ensure timely provision of resources to facilitate effective implementation of HSE requirements.
- Ensure continual improvements in HSE performance
- Ensure conservation of resources and reduction of wastage.
- Capture the data of all incidents including near misses, process deviation etc. Investigate and analyze the same to find out the root cause.
- Ensure timely implementation of correction, corrective action and preventive action.



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HSE TARGETS

EXPLOSION	ZERO
FATALITY	ZERO
LOST TIME INJURY	ZERO
FIRE	ZERO
VEHICLE INCIDENTS	ZERO
ENVIRONMENTAL INCIDENTS	ZERO

4.0 BHEL POWER SECTOR HEALTH, SAFETY & ENVIRONMENT POLICY

Power Sector HSE Policy

We, at BHEL Power Sector, reaffirm our belief that the Health and Safety of our stakeholders and conservation of Environment is of utmost importance and takes precedence in all our business decisions. In pursuit of this belief and commitment, we strive to:

- ✓ Ensure total compliance with applicable legislation, regulations and other requirements concerning Occupational Health, Safety and Environment.
- ✓ Ensure continual improvement in the Occupational Health, Safety and Environment Management System performance.
- ✓ Enhance Occupational Health, Safety and Environment awareness amongst employees, customers and suppliers by proactive communication and training.
- ✓ Review periodically and improve Occupational Health, Safety and Environment Management System to ensure its continuing suitability, adequacy and effectiveness in a continuously changing business environment.
- ✓ Develop a culture of safety through active leadership and provide appropriate training at all levels to enable employees to fulfill their Health, Safety and Environmental obligations.
- ✓ Incorporate appropriate Occupational Health, Safety and Environmental criteria into business decisions for selection of plant, technology and services as well as appointment of key personnel.
- ✓ Ensure availability at all times of appropriate resources to fully implement the Occupational Health, Safety and Environmental policy of the company.

This policy will be communicated to all employees and made available to interested parties.

Sd/-

Date: 01.05.2013

Director (Power)

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5.0 MEMORANDUM OF UNDERSTANDING:

After award of work, subcontractors are required to enter into a memorandum of understanding as given below:

Memorandum of Understanding

BHEL, Power Sector _____ Region is committed to Health, Safety and Environment Policy (HSE Policy).

M/s _____ do hereby also commit to comply with the same HSE Policy while executing the Contract Number _____

M/s _____ shall ensure that safe work practices as per the HSE plan. Spirit and content therein shall be reached to all workers and supervisors for compliance.

In addition to this, M/S _____ shall comply to all applicable statutory and regulatory requirements which are in force in the place of project and any special requirement specified in the contract document of the principal customer.

M/s _____ shall co-operate in HSE audits/inspections conducted by BHEL /customer/ third party and ensure to close any non-conformity observed/reported within prescribed time limit.

Signed by authorized representative of M/s -----

Name :

Place & Date:



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6.0 TERMS AND DEFINITIONS

6.1 DEFINITIONS

6.1.1 INCIDENT

Work- related or natural event(s) in which an injury , or ill health (regardless of severity), damage to property or fatality occurred, or could have occurred.

6.1.2 NEAR MISS

An incident where no ill health, injury, damage or other loss occurs, but it had a potential to cause, is referred to as "Near-Miss".

6.1.3 MAN-HOUR WORKED

The total number of man hours worked by all employees including subcontractors working in the premises. It includes managerial, supervisory, professional, technical, clerical and other workers including contract labours. Man-hours worked shall be calculated from the payroll or time clock recorded including overtime. When this is not feasible, the same shall be estimated by multiplying the total man-days worked for the period covered by the number of hours worked per day. The total number of workdays for a period is the sum of the number of men at work on each day of period. If the daily hours vary from department to department separate estimate shall be made for each department and the result added together.

6.1.4 FIRST AID CASES

First aids are not essentially all reportable cases, where the injured person is given medical treatment and discharged immediately for reporting on duty, without counting any lost time.

6.1.5 LOST TIME INJURY

Any work injury which renders the injured person unable to perform his regular job or an alternative restricted work assignment on the next scheduled work day after the day on which the injury occurred.

6.1.6 MEDICAL CASES

Medical cases come under non-reportable cases, where owing to illness or other reason the employee was absent from work and seeks Medical treatment.

6.1.7 TYPE OF INCIDENTS & THEIR REPORTING:

The three categories of Incident are as follows:

Non-Reportable Cases:

An incident, where the injured person is given medical help and discharged for work without counting any lost time.



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Reportable Cases:

In this case the injured person is disable for 48 hours or more and is not able to perform his duty.

Injury Cases:

These are covered under the heading of non-reportable cases. In these cases the incident caused injury to the person, but he still continues his duty.

6.1.8 TOTAL REPORTABLE FREQUENCY RATE

Frequency rate is the number of Reportable Lost Time Injury (LTI) per one Million Man hours worked. Mathematically, the formula read as:

$$\frac{\text{Number of Reportable LTI} \times 1,000,000}{\text{Total Man Hours Worked}}$$

6.1.9 SEVERITY RATE

Severity rate is the Number of days lost due to Lost Time Injury (LTI) per one Million Man hours worked. Mathematically, the formula reads as:

$$\frac{\text{Days lost due to LTI} \times 1,000,000}{\text{Total Man Hours Worked}}$$

6.1.10 INCIDENCE RATE

Incidence Rate is the Number of LTI per one thousand manpower deployed. Mathematically, the formula reads as:

$$\frac{\text{Number of LTI} \times 1000}{\text{Average number of manpower deployed}}$$

7.0 HSE ORGANISATION

Number of safety officers:

The subcontractor must deploy one safety officer for every 500 workers or part thereof in each package. In addition, there must be one safety-steward/safety-supervisor for every 100 workers.

Deployment: The subcontractor should deploy sufficient safety officers and safety-steward/Safety-supervisor, as per requirement given above, since initial stage and add more in proportion to the added strength in work force. Any delay in deployment will attract a penalty of Rs.30,000/- per man month for the delayed period.

7.1 QUALIFICATION FOR HSE PERSONNEL

Sl.no	Designation	Qualification	Experience
1	Safety officer (Construction Agency)	Degree or Diploma in Engineering with full time diploma in Industrial Safety with construction safety as one of the subjects	Minimum two years for degree holder and five years for diploma holder in the field of Construction of power plant/ major industries

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2	Safety-Steward/ Supervisor	Safety- Supervisor	Degree or diploma in any discipline with full time diploma in Industrial Safety with construction safety as one of the subjects	Minimum two years

7.2 RESPONSIBILITIES

7.2.1 SITE IN -CHARGE OF SUBCONTRACTOR

- Shall sign Memorandum of Understanding (MoU) for compliance to BHEL's HSE Plan for Site Operations as per clause 5.0
- Shall engage qualified safety officer(s) and steward (s) as per clause 7.0
- Shall adhere to the rules and regulations mentioned in this code, practice very strictly in his area of work in consultation with his concerned engineer and the safety coordinator.
- Shall screen all workmen for health and competence requirement before engaging for the job and periodically thereafter as required.
- Shall not engage any employee below 18 years.
- Shall arrange for all necessary PPEs like safety helmets, belts, full body harness, shoes, face shield, hand gloves etc. before starting the job. Shall ensure that no working men/women carry excessive weight more than stipulated in Factory Rule Regulation R57.
- Shall ensure that all T&Ps engaged are tested for fitness and have valid certificates from competent person.
- Shall ensure that provisions stipulated in contract Labour Regulation Act 1970, Chapter V C.9, canteen, rest rooms/washing facilities to contracted employees at site.
- Shall adhere to the instructions laid down in Operation Control Procedures (OCPs) available with the site management.
- Shall ensure that person working above 2.0 meter should use Safety Harness tied to a life line/stable structure.
- Shall ensure that materials are not thrown from height. Cautions to be exercised to prevent fall of material from height.
- Shall report all incidents(Fatal/Major/Minor/Near Miss)to the Site engineer /HSE officer of BHEL.
- Shall ensure that Horseplay is strictly forbidden.
- Shall ensure that adequate illumination is arranged during night work.
- Shall ensure that all personnel working under subcontractor are working safely and do not create any Hazard to self and to others.
- Shall ensure display of adequate signage/posters on HSE.
- Shall ensure that mobile phone is not used by workers while working.
- Shall ensure conductance of HSE audit, mockdrill, medical camps, induction training and training on HSE at site.
- Shall ensure full co-operation during HQ/External /Customer HSE audits.



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- Shall ensure submission of look-ahead plan for procurement of HSE equipment's and PPEs as per work schedule.
- Shall ensure good housekeeping.
- Shall ensure adequate valid fire extinguishers are provided at the work site.
- Shall ensure availability of sufficient number of toilets /restrooms and adequate drinking water at work site and labour colony.
- Shall ensure adequate emergency preparedness.
- Shall be member of site HSE committee and attend all meetings of the committee
- Power source for hand lamps shall be maximum of 24 v.
- Temporary fencing should be done for open edges if Hand – railings and Toe-guards are not available.

7.2.2 HEALTH, SAFETY AND ENVIRONMENT OFFICER OF SUBCONTRACTOR

- Carry out safety inspection of Work Area, Work Method, Men, Machine & Material, P&M and other tools and tackles.
- Facilitate inclusion of safety elements into Work Method Statement.
- Highlight the requirements of safety through Tool-box / other meetings.
- Help concerned HOS to prepare Job Specific instructions for critical jobs.
- Conduct investigation of all incident/dangerous occurrences & recommend appropriate safety measures.
- Advice & co-ordinate for implementation of HSE permit systems, OCPs & MPs.
- Convene HSE meeting & minute the proceeding for circulation & follow-up action.
- Plan procurement of PPE & Safety devices and inspect their healthiness.
- Report to PS Region/HQ on all matters pertaining to status of safety and promotional program at site level.
- Facilitate administration of First Aid
- Facilitate screening of workmen and safety induction.
- Conduct fire Drill and facilitate emergency preparedness
- Design campaigns, competitions & other special emphasis programs to promote safety in the workplace.
- Apprise PS– Region on safety related problems.
- Notify site personnel non-conformance to safety norms observed during site visits / site inspections.
- Recommend to Site In charge, immediate discontinuance of work until rectification, of such situations warranting immediate action in view of imminent danger to life or property or environment.
- To decline acceptance of such PPE / safety equipment that do not conform to specified requirements.
- Encourage raising Near Miss Report on safety along with, improvement initiatives on safety.
- Shall work as interface between various agencies such customer, package-in-charges, subcontractors on HSE matters



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8.0 PLANNING BY SUBCONTRACTOR

8.1 MOBILISATION OF MACHINERY/EQUIPMENT/TOOLS BY SUBCONTRACTOR

- As a measure to ensure that machinery, equipment and tools being mobilized to the construction site are fit for purpose and are maintained in safe operating condition and complies with legislative and owner requirement, inspection shall be arranged by in-house competent authority for acceptance as applicable.
- The machinery and equipment to be embraced for this purpose shall include but not limited to the following:
 - o Mobile cranes.
 - o Side Booms.
 - o Forklifts.
 - o Grinding machine.
 - o Drilling machine.
 - o Air compressors.
 - o Welding machine.
 - o Generator sets.
 - o Dump Trucks.
 - o Excavators.
 - o Dozers
 - o Grit Blasting Equipment.
 - o Hand tools.
- Subcontractor shall notify the engineer, of his intention to bring on to site any equipment or any container, with liquid or gaseous fuel or other substance which may create a hazard. The Engineer shall have the right to prescribe the condition under which such equipment or container may be handled and used during the performance of the works and the subcontractor shall strictly adhere to such instructions. The Engineer shall have the right to inspect any construction tool and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition will be entertained.

8.2 MOBILISATION OF MANPOWER BY SUBCONTRACTOR

- The subcontractor shall arrange induction and regular health check of their employees as per schedule VII of BOCW rules by a registered medical practitioner.
- The subcontractor shall take special care of the employees affected with occupational diseases under rule 230 and schedule II of BOCW Rules. The employees not meeting the fitness requirement should not be engaged for such job.
- Ensure that the regulatory requirements of excessive weight limit (to carry/lift/ move weights beyond prescribed limits) for male and female workers are complied with.
- Appropriate accommodation to be arranged for all workmen in hygienic condition.



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8.3 PROVISION OF PPEs

- Personnel Protective Equipment (PPEs), in adequate numbers, will be made available at site & their regular use by all concerned will be ensured
- The following matrix recommends usage of minimum PPEs against the respective job.

Sl. No	Type of work	PPEs
1	Concrete and asphalt mixing	Nose mask, hand glove, apron and gum boot
2	Welders/Grinders/ Gas cutters	Welding/face screen, apron, hand gloves, nose mask and ear muffs if noise level exceeds 90dB. Helmet fitted with welding shield is preferred for welders
3	Stone/ concrete breakers	Ear muffs, safety goggles, hand gloves
4	Electrical Work	Rubber hand glove, Electrical Resistance shoes
5	Insulation Work	Respiratory mask, Hand gloves, safety goggles
6	Work at height	Double lanyard full body harness, Fall arrestor (specific cases)
7	Grit/Sand blasting	Blast suit, blast helmet, respirator, leather gloves
8	Painting	Plastic gloves, Respirators (particularly for spray painting)
9	Radiography	As per BARC guidelines

- The PPEs shall conform to the relevant standards as below and bear ISI mark.

Relevant is-codes for personal protection

IS: 2925 – 1984	Industrial Safety Helmets.
IS: 4770 – 1968	Rubber gloves for electrical purposes.
IS: 6994 – 1973 (Part-I)	Industrial Safety Gloves (Leather & Cotton Gloves).
IS: 1989 – 1986 (Part-I-II)	Leather safety boots and shoes.
IS: 5557 – 1969	Industrial and Safety rubber knee boots.
IS: 6519 – 1971	Code of practice for selections care and repair of Safety footwear.
IS: 11226 – 1985	Leather Safety footwear having direct molding sole.
IS: 5983 – 1978	Eye protectors.
IS: 9167 – 1979	Ear protectors.
IS: 1179-1967	Eye & Face protection during welding
IS: 3521 – 1983	Industrial Safety Belts and Harness
IS: 8519 -1977	Guide for selection of industrial Safety equipment for body protection
IS: 9473-2002, 14166-1994, 14746-1999	Respiratory Protective Devices

The list is not exhaustive. The safety officer may demand additional PPEs based on specific requirement.



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- Where workers are employed in sewers and manholes, which are in use, the subcontractor shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into manhole, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent incident to the public
- Besides the PPEs mentioned above, the persons shall use helmet and safety shoe. The visitors shall use Helmet and any other PPEs as deemed appropriate for the area of work.

Colour scheme for Helmets:

1. Workmen: Yellow
 2. Safety staff: Green or white with green band
 3. Electrician: Red
 4. Others including visitors: White
- All the PPEs shall be checked for its quality before issue and the same shall be periodically checked. The users shall be advised to check the PPEs themselves for any defect before putting on. The defective ones shall be repaired/ replaced.
 - The issuing agency shall maintain register for issue and receipt of PPEs.
 - The Helmets shall have logo or name (abbreviation of agency name permitted) affixed or printed on the front.
 - The body harnesses shall be serial numbered.

8.4 ARRANGEMENT OF INFRASTRUCTURE

8.4.1 DRINKING WATER

- Drinking water shall be provided and maintained at suitable places at different elevations.
- Container should be labeled as " Drinking Water"
- Cleaning of the storage tank shall be ensured atleast once in 3 months indicating date of cleaning and next due date.
- Potability of water should be tested as per IS10500 at least once in a year.

8.4.2 WASHING FACILITIES

- In every workplace, adequate and suitable facilities for washing shall be provided and maintained.
- Separate and adequate cleaning facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition and dully illuminated for night use.
- Overalls shall be supplied by the subcontractor to the workmen and adequate facilities shall be provided to enable the painters and other workers to wash during the cessation of work.

8.4.3 LATRINES AND URINALS

- Latrines and urinals shall be provided in every work place.
- Urinals shall also be provided at different elevations.
- They shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times, by appointing designated person.
- Separate facilities shall be provided for the use of male and female worker if any.

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8.4.4 PROVISION OF SHELTER DURING REST

Proper Shed & Shelter shall be provided for rest during break

8.4.5 MEDICAL FACILITIES

8.4.5.1 MEDICAL CENTRE (As per Schedule V, X and XI of BOCW central Rules, 1998)

- A medical centre shall be ensured/identified at site with basic facilities for handling medical emergencies. The medical center can be jointly developed on proportionate sharing basis with permission from BHEL
- A qualified medical professional, not less than MBBS, shall be deployed at the medical centre
- The medical centre shall be equipped with one ambulance, with trained driver and oxygen cylinder.
- Medical waste shall be disposed as per prevailing legislation (Bio-Medical Waste –Management and Handling Rules, 1998)

8.4.5.2 FIRST AIDER

- Ensure availability of Qualified First-aider throughout the working hours.
- Every injury shall be treated, recorded and reported.
- Refresher course on first aid shall be conducted as necessary.
- List of Qualified first aiders and their contact numbers should be displayed at conspicuous places.

8.4.5.3 FIRST AID BOX (as per schedule III of BOCW)

- The subcontractor shall provide necessary first aid facilities as per schedule III of BOCW. At every work place first aid facilities shall be provided and maintained.
- The first aid box shall be kept by first aider who shall always be readily available during the working hours of the work place. His name and contact no to be displayed on the box.
- The first aid boxes should be placed at various elevations so as to make them available within the reach and at the quickest possible time.
- The first aid box shall be distinctly marked with a Green Cross on white background.
- Details of contents of first aid box is given in Annexure No. 01
- Monthly inspection of First Aid Box shall be carried out by the owner as per format no. HSEP:13-F01
- The subcontractor should conduct periodical first –aid classes to keep his supervisor and Engineers properly trained for attending to any emergency.

8.4.5.4 HEALTH CHECK UP (As per schedule VII and Form XI)

The persons engaged at the site shall undergo health checkup as per the format no. HSEP:13-F02 before induction. The persons engaged in the following works shall undergo health checkup at least once in a year:

- a. Height workers
- b. Drivers/crane operators/riggers



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- c. Confined space workers
- d. Shot/sand blaster
- e. Welding and NDE personnel

8.4.6 PROVISION OF CANTEEN FACILITY

- Canteen facilities shall be provided for the workmen of the project inside the project site.
- Proper cleaning and hygienic condition shall be maintained.
- Proper care should be taken to prevent biological contamination.
- Adequate drinking water should be available at canteen.
- Fire extinguisher shall be provided inside canteen.
- Regular health check-up and medication to the canteen workers shall be ensured.

8.4.7 PROVISION OF ACCOMODATION/LABOUR COLONY

- The subcontractor shall arrange for the accommodation of workmen at nearby localities or by making a labour colony.
- Regular housekeeping of the labour colony shall be ensured.
- Proper sanitation and hygienic conditions to be maintained.
- Drinking water and electricity to be provided at the labour colony.
- Bathing/ washing bay
- Room ventilation and electrification.

8.4.8 PROVISION OF EMERGENCY VEHICLE

- Dedicated emergency vehicle shall be made available at workplace by each subcontractor to handle any emergency

8.4.9 PEST CONTROL

Regular pest control should be carried out at all offices, mainly laboratories, canteen, labour colony and stores.

8.4.10 SCRAPYARD

- In consultation with customer, scrapyard shall be developed to store metal scrap, wooden scrap, waste, hazardous waste.
- Scrap/Waste shall be segregated as Bio-degradable and non-bio-degradable and stored separately.

8.4.11 ILLUMINATION

- The subcontractor shall arrange at his cost adequate lighting facilities e.g. flood lighting, hand lamps, area lighting etc. at various levels for safe and proper working operations at dark places and during night hours at the work spot as well as at the pre-assembly area.
- Adequate and suitable light shall be provided at all work places & their approaches including passage ways as per IS: 3646 (Part-II). Some recommended values are given below:



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S. No.	Location	Illumination (Lux)
A.	Construction Area	
1.	Outdoor areas like store yards, entrance and exit roads	20
2.	Platforms	50
3.	Entrances, corridors and stairs	100
4.	General illumination of work area	150
5.	Rough work like fabrication, assembly of major items	150
6.	Medium work like assembly of small machined parts	300
	rough measurements etc.	
7.	Fine work like precision assembly, precision	700
	measurements etc.	
8.	Sheet metal works	200
9.	Electrical and instrument labs	450
B.	Office	
1.	Outdoor area like entrance and exit roads	20
2.	Entrance halls	150
3.	Corridors and lift cars	70
4.	Lift landing	150
5.	Stairs	100
6.	Office rooms, conference rooms, library reading tables	300
7.	Drawing table	450
8.	Manual telephone exchange	200

- Lamp (hand held) shall not be powered by mains supply but either by 24V or dry cells.
- Lamps shall be protected by suitable guards where necessary to prevent danger, in case of breakage of lamp.
- Emergency lighting provision for night work shall be made to minimise danger in case of main supply failure.

If the subcontractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions issued by the authorized BHEL official, BHEL shall have the right to take corrective steps at the risk and cost of the subcontractor

9.0 HSE TRAINING& AWARENESS

9.1 HSE INDUCTION TRAINING

All persons entering into project site shall be given HSE induction training by the HSE officer of BHEL /subcontractor before being assigned to work.

In-house induction training subjects shall include but not limited to:

- Briefing of the Project details.
- Safety objectives and targets.
- Site HSE rules.
- Site HSE hazards and aspects.
- First aid facility.
- Emergency Contact No.
- Incident reporting.
- Fire prevention and emergency response.
- Rules to be followed in the labour colony (if applicable)



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- Proper safety wear & gear must be issued to all the workers being registered for the induction (i.e., Shoes/Helmets/Goggles/Leg guard/Apron etc.)
- They must arrive fully dressed in safety wear & gear to attend the induction.
- Any one failing to conform to this safety wear& gear requirement shall not qualify to attend.
- On completing attending subcontractor's in-house HSE induction, each employee shall sign an induction training form (format no. HSEP:13-F03) to declare that he had understood the content and shall abide to follow and comply with safe work practices. They may only then be qualified to be issued with a personal I.D. card, for access to the work site.

9.2 HSE TOOLBOX TALK

- HSE tool Box talk shall be conducted by frontline foreman/supervisor of subcontractor to specific work groups prior to the start of work. The agenda shall consist of the followings:
 - o Details of the job being intended for immediate execution.
 - o The relevant hazards and risks involved in executing the job and their control and mitigating measures.
 - o Specific site condition to be considered while executing the job like high temperature, humidity, unfavorable weather etc.
 - o Recent non-compliances observed.
 - o Appreciation of good work done by any person.
 - o Any doubt clearing session at the end.
- Record of Tool box talk shall be maintained as per format no. HSEP:13-F04
- Tool box talk to be conducted at least once a week for the specific work.

9.3 TRAINING ON HEIGHT WORK

Training on height work shall be imparted to all workers working at height by in-house/external faculty at least twice in a year. The training shall include following topics:

- Use of PPEs
- Use of fall arrester, retractable fall arrester, life line, safety nets etc.
- Safe climbing through monkey ladders.
- Inspection of PPEs.
- Medical fitness requirements.
- Mock drill on rescue at height.
- Dos & Don'ts during height work.

9.4 HSE TRAINING DURING PROJECT EXECUTION

- Other HSE training shall be arranged by BHEL/ subcontractor as per the need of the project execution and recommendation of HSE committee of site.
- The topics of the HSE training shall be as follows but not limited to:
 - o Hazards identification and risk analysis (HIRA)
 - o Work Permit System
 - o Incident investigation and reporting
 - o Fire fighting
 - o First aid
 - o Fire-warden training
 - o EMS and OHSMS
 - o T & Ps fitness and operation



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- o Electrical safety
- o Welding, NDE & Radiological safety
- o Storage, preservation & material handling.
- A matrix shall be maintained to keep an up-to-date record of attendance of training sessions carried out.

9.5 HSE PROMOTION-SIGNAGE, POSTERS, COMPETITION, AWARDS ETC

9.5.1 Display of HSE posters and banners

- Site shall arrange appropriate posters, banners, slogans in local/Hindi/English languages at work place

9.5.2 Display of HSE signage

- Appropriate HSE signage shall be displayed at the work area to aware workmen and passersby about the work going on and do's and don'ts to be followed

9.5.3 Competition on HSE and award

- Site will arrange different competition (slogan, poster, essay etc.) on HSE time to time (Safety day, BHEL day, World Environment Day etc.) and winners will be suitably awarded.

9.5.4 HSE awareness programme

- Subcontractor shall arrange HSE awareness programme periodically on different topics including medical awareness for all personnel working at site

10.0 HSE COMMUNICATION

10.1 INCIDENT REPORTING

- The subcontractor shall submit report of all incidents, fires and property damage etc to the Engineer immediately after such occurrence, but in any case not later than 24 hours of the occurrence. Such reports shall be furnished in the manner prescribed by BHEL. (Refer HSE procedure for incident investigation, analysis and reporting for details)
- In addition, periodic reports on safety shall also be submitted by the subcontractor to BHEL from time to time as prescribed by the Engineer. Compiled monthly reports of all kinds of incidents, fire and property damage to be submitted to BHEL safety officer as per prescribed formats.
- HSE incidents of site shall be reported to BHEL site Management as per Procedure for Incident Investigation and Reporting in format no. HSEP:14-F15. Corrective action shall be immediately implemented at the work place and compliance shall be verified by BHEL HSE officer and until then, work shall be put on hold by Construction Manager.

10.2 HSE EVENT REPORTING

- Important HSE events like HSE training, Medical camp etc. organized at site shall be reported to BHEL site management in detail with photographs for publication in different in-house magazines
- Celebration of important days like National Safety Day, World Environment Day etc. shall also be reported as mentioned above.



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11.0 OPERATIONAL CONTROL

All applicable OCPs (Operational control procedures) will be followed by subcontractor as per BHEL instructions. This will be done as part of normal scope of work. List of such OCPs is given below. In case any other OCP is found to be applicable during the execution of work at site, then subcontractor will follow this as well, within quoted rate. These OCPs (applicable ones) will be made available to subcontractor during work execution at site. However for reference purpose, these are kept with Safety Officer of BHEL at the Power Sector Regional HQ, or available in downloadable format in the website, which may be referred by subcontractor, if they so desire.

LIST OF OCPs

Safe handling of chemicals	Safety in use of cranes	Hydraulic test
Electrical safety	Storage and handling of gas cylinders	Spray insulation
Energy conservation	Manual arc welding	Trial run of rotary equipment
Safe welding and gas cutting operation	Safe use of helmets	Stress relieving
Fire safety	Good house keeping	Material preservation
Safety in use of hand tools	Working at height	Cable laying/tray work
First aid	Safe excavation	Transformer charging
Food safety at canteen	Safe filling of hydrogen in cylinder	Electrical maintenance
Illumination	Vehicle maintenance	Safe handling of battery system
Handling and erection of heavy metals	Safe radiography	Computer operation
Safe acid cleaning	Waste disposal	Storage in open yard
Safe alkali boil out	Working at night	For sanitary maintenance
Safe oil flushing	Blasting	Batching
Steam blowing	DG set	Piling rig operation
Safe working in confined area	Handling & storage of mineral wool	Gas distribution test
Safe operation of passenger lift, material hoists & cages	Drilling, reaming and grinding(machining)	Cleaning of hotwell / deaerator
Electro-resistance heating	Compressor operation	O&M of control of AC plant & system
Air compressor	Passivation	Safe Loading of Unit
Safe EDTA Cleaning	Safe Chemical cleaning of Pre boiler system	Safe Boiler Light up
Safe Rolling and Synchronisation		

11.1 HSE ACTIVITIES

HSE activities shall be conducted at site based on the HSEMSM developed by Power Sector and issued to site by Regions.

While planning for any activity the following documents shall be referred for infrastructural requirements to establish control measures:

- 1) HSE Procedure for Register of OHS Hazards and Risks
- 2) HSE Procedure for Register of Environmental Aspects and Impacts
- 3) HSE Procedure for Register of Regulations



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- 4) Operational Control Procedures
- 5) HSE Procedure for Emergency Preparedness and Response Plan
- 6) Contract documents

11.2 WORK PERMIT SYSTEM

- The following activities shall come under Work Permit System
 - a. Height working above 2 metres
 - b. Hot working at height
 - c. Confined space
 - d. Radiography
 - e. Excavation more than 4 meter depth
 - f. Heavy lifting above 50 tonRefer Annexure 05 for Work permit formats.
- "HSE Procedure for Work Permit System" shall be followed while implementing permit system. Where customer is having separate Work Permit System the same shall be followed.
- Permit applicant shall apply for work permit of particular work activity at particular location before starting of the work with Job Hazard Analysis.
- Permit signatory shall check that all the control measures necessary for the activity are in place and issue the permit to the permit holder.
- Permit holder shall implement and maintain all control measures during the period of permit .He will close the permit after completion of the work. The closed permit shall be archived in HSE Department of site.

11.3 SAFETY DURING WORK EXECUTION

Respective OCPS are to be followed and adherence to the same would be contractually binding

11.3.1 WELDING SAFETY

All safety precautions shall be taken for welding and cutting operations as per IS-818. All safety precautions shall be taken for foundation and other excavation marks as per IS-3764.

11.3.2 RIGGING

Rigging equipment shall not be loaded in excess of its recommended safe working load. Rigging equipment, when not in use, shall be removed from the original work area so as not to present a hazard to employees.

11.3.3 CYLINDERS STORAGE AND MOVEMENT

All gas cylinders shall be stored in upright position. Suitable trolley shall be used. There shall be flash-back arrestors conforming to IS-11006 at both cylinder and burner ends. Damaged tube and regulators must be immediately replaced. No of cylinders shall not exceed the specified quantity as per OCP

Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dragged, struck or permitted to strike each other violently.

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When cylinders are transported by powered vehicle they shall be secured in a vertical position.

11.3.4 DEMOLITION WORK

Before any demolition work is commenced and also during the process of the work the following shall be ensured:

- All roads and open areas adjacent to the work site shall either be closed or suitably protected.
- No electric cable or apparatus which is liable to be a source of danger nor a cable or an apparatus used by the operator shall remain electrically charged.
- All practical steps shall be taken to prevent danger to persons employed from the risks 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 them unsafe.

11.3.5 T&Ps

All T&Ps/ MMEs should be of reputed brand/appropriate quality & must have valid test/calibration certificates bearing endorsement from competent authority of BHEL..Subcontractor to also submit monthly reports of T&Ps deployed and validity test certificates to BHEL safety Officer as per the format/procedure of BHEL.

11.3.6 CHEMICAL HANDLING

Displaying safe handling procedures for all chemicals such as lube oil, acid, alkali, sealing compounds etc , at work place.Where it is necessary to provide and/or store petroleum products or petroleum mixture & explosives, the subcontractor shall be responsible for carrying out such provision / storage in accordance with the rules & regulations laid down in the relevant petroleum act, explosive act and petroleum and carbide of calcium manual, published by the chief inspector of explosives of India. All such storage shall have prior approval if necessary from the chief inspector of explosives or any other statutory authority. The subcontractor shall be responsible for obtaining the same.

11.3.7 ELECTRICAL SAFETY

- Providing adequate no. of 24 V sources and ensure that no hand lamps are operating at voltage level above 24 Volts.
- Fulfilling safety requirements at all power tapping points.
- High/ Low pressure welders to be identified with separate colour clothings. No welders will be deployed without passing appropriate tests and holding valid welding certificates. Approved welding procedure should be displayed at work place.
- The subcontractor shall not use any hand lamp energized by Electric power with supply voltage of more than 24 volts in confined spaces like inside water boxes, turbine casings, condensers etc.
- All portable electric tools used by the subcontractor shall have safe plugging system to source of power and be appropriately earthed. Only electricians licensed by appropriate statutory authority shall be employed by the subcontractor to carry out all types of electrical works. Details of earth resource and their test date to be given to BHEL safety officer as per the prescribed formats of BHEL
- The subcontractor shall use only properly insulated and armored cables which conform to the requirement of Indian Electricity Act and Rules for all wiring, electrical applications at site.



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- BHEL reserves the right to replace any unsafe electrical installations, wiring, cabling etc. at the cost of the subcontractor.
- All electrical appliances used in the work shall be in good working condition and shall be properly earthed.
- No maintenance work shall be carried out on live equipment.
- The subcontractor shall maintain adequate number of qualified electricians to maintain his temporary electrical installations.
- Area wise Electrical safety inspection is to be carried out on monthly basis as per "Electrical Safety Inspection checklist" and the report is to be submitted to BHEL safety officer
- Adequate precautions shall be taken to prevent danger for electrical equipment. 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 the public
- The subcontractor shall carefully follow the safety requirement of BHEL/ the purchaser with the regard to voltages used in critical areas.

11.3.8 FIRE SAFETY

- Providing appropriate fire fighting equipment at designated work place and nominate a fire officer/warden adequately trained for his job.
- Subcontractor shall provide enough fire protecting equipment of the types and numbers at his office, stores, temporary structure in labor colony etc. Such fire protection equipment shall be easy and kept open at all times.
- The fire extinguishers shall be properly refilled and kept ready which should be certified at periodic intervals. The date of changing should be marked on the Cylinders.
- All other fire safety measures as laid down in the "codes for fire safety at construction site" issued by safety coordinator of BHEL shall be followed.
- Non-compliance of the above requirement under fire protection shall in no way relieve the subcontractor of any of his responsibility and liabilities to fire incident occurring either to his materials or equipment or those of others.
- Emergency contacts nos must be displayed at prominent locations
- Tarpaulin being inflammable should not be used (instead, only non infusible covering materials shall be used) as protective cover while preheating, welding, stress relieving etc. at site.

11.3.9 SCAFFOLDING

- Suitable scaffolds shall be provided for workman for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration of work which can be done safely from ladders.
- When a ladder is used, it shall be of rigid construction made of steel. The steps shall have a minimum width of 45 cm and a maximum rise of 30 cm. Suitable handholds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ horizontal and 1 vertical.
- Scaffolding or staging more than 3.6 m above the ground floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly bolted, braced or otherwise secured, at least 90 cm above the floor or platform of such scaffolding or staging and extending along the entire length of the out side 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 savor, from swaying, from the building or structure.

11.3.10 WORK AT HEIGHT:

- Guardrails and toe-board/barricades and sound platform conforming to IS:4912-1978 should be provided.



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- Wherever necessary, life-line(pp or metallic) and fall arrestor along with Polyamide rope or Retractable lifeline should be provided.
- Safety Net as per IS:11057:1984 should be used extensively for prevention/ arrest of men and materials falling from height. The safety nets shall be fire resistant, duly tested and shall be of ISI marked and the nets shall be located as per site requirements to arrest or to reduce the consequences of a possible fall of persons working at different heights.
- Reaching beyond barricaded area without lifeline support, moving with support of bracings, walking on beams without support, jumping from one level to another, throwing objects and taking shortcut must be discouraged.
- Use of Rebar steel for making Jhoola and monkey-ladder (Rods welded to vertical or inclined structural members), temporary platform etc. must be avoided.
- Monkey Ladder should be properly made and fitted with cages.
- Jhoola should be made with angles and flats and tested like any lifting tools before use.
- Lanyard must be anchored always and in case of double lanyard, each should be anchored separately.
- In case of pipe-rack, persons should not walk on pipes and walk on platforms only.
- In case of roof work, walking ladder/ platform should be provided along with lifeline and/ or fall arrestor.
- Empty drums must not be used.
- For chimney or structure painting, both hanging platform and men should be anchored separately to a firm structure alongwith separate fall arrestor. Rope ladder should be discouraged.

11.3.11 WORKING PLATFORM

Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform gangways provided is more than 3.6 m above ground level or floor level, they shall be closely boarded and shall have adequate width which shall not be less than 750 mm and be suitably fenced as described above. Every opening in the floor or a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 90 cm.

11.3.12 EXCAVATION

Wherever there are open excavation in ground, they shall be fenced off by suitable railing and danger signals installed at night so as to prevent persons slipping into the excavations.

11.3.13 LADDER SAFETY

Safe means of access shall be provided to all working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 m in the length while the width between side rails in rung ladder shall in no case be less than app. 29.2 cm for ladder upto and including 3 m in length. For longer ladders this width shall be increased at least ¼" for each additional foot of length.

A sketch of the ladders and scaffolds proposed to be used shall be prepared and approval of the Engineer obtained prior to Construction.

11.3.14 LIFTING SAFETY

- It will be the responsibility of the subcontractor to ensure safe lifting of the equipment, taking due precaution to avoid any incident and damage to other equipment and personnel.



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- All requisite tests and inspection of handling equipment, tools & tackle shall be periodically done by the subcontractor by engaging only the Competent Persons as per law.
- Defective equipment or uncertified shall be removed from service.
- Any equipment shall not be loaded in excess of its recommended safe working load.

11.3.15 HOISTING APPLIANCE

- Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safe guards.
- Hoisting appliance should be provided with such means as will reduce to the minimum the risk of any part of a suspended load becoming incidentally displaced.
- When workers 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 worker should not wear any rings, watches and carry keys or other materials which are good conductor of electricity.

11.4 ENVIRONMENTAL CONTROL

Environment protection has always been given prime importance by BHEL. Environmental damage is a major concern of the principal subcontractor and every effort shall be made, to have effective control measures in place to avoid pollution of Air, Water and Land and associated life. Chlorofluorocarbons such as carbon tetrachloride and trichloroethylene shall not be used. Waste disposal shall be done in accordance with the guidelines laid down in the project specification.

Any chemical including solvents and paints, required for construction shall be stored in designated bonded areas around the site as per Material Safety Data Sheet (MSDS).

In the event of any spillage, the principle is to recover as much material as possible before it enters drainage system and to take all possible action to prevent spilled materials from running off the site. The subcontractor shall use appropriate MSDS for clean-up technique

All subcontractors shall be responsible for the cleanliness of their own areas.

The subcontractors shall ensure that noise levels generated by plant or machinery are as low as reasonably practicable. Where the subcontractor anticipates the generation of excessive noise levels from his operations the subcontractor shall inform to Construction Manager of BHEL accordingly so that reasonable & practicable precautions can be taken to protect other persons who may be affected.

It is imperative on the part of the subcontractor to join and effectively contribute in joint measures such as tree plantation, environment protection, contributing towards social upliftment, conversion of packing woods to school furniture, keeping good relation with local populace etc.

The subcontractor shall carry out periodic air and water quality check and illumination level checking in his area of work place and take suitable control measure.

11.5 HOUSEKEEPING

- Keeping the work area clean/ free from debris, removed scaffoldings, scraps, insulation/sheeting wastage /cut pieces, temporary structures, packing woods etc. will be in the scope of the subcontractor. Such cleanings has to be done by



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subcontractor within quoted rate, on daily basis by an identified group. If such activity is not carried out by subcontractor / BHEL is not satisfied, then BHEL may get it done by other agency and actual cost along with BHEL overheads will be deducted from contractor's bill. Such decisions of BHEL shall be binding on the subcontractor

- Proper housekeeping to be maintained at work place and the following are to be taken care of on daily basis.
- All surplus earth and debris are removed/disposed off from the working areas to identified locations.
- Unused/Surplus cables, steel items and steel scrap lying scattered at different places/elevation within the working areas are removed to identified locations.
- All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from workplace to identified locations. Sufficient waste bins shall be provided at
- Different work places for easy collection of scrap/waste. Scrap chute shall be installed to remove scrap from high location.
- Access and egress (stair case, gangways, ladders etc.) path should be free from all scrap and other hindrances.
- Workmen shall be educated through tool box talk about the importance of housekeeping and encourage not to litter.
- Labour camp area shall be kept clear and materials like pipes, steel, sand, concrete, chips and bricks, etc. shall not be allowed in the camp to obstruct free movement of men and machineries.
- Fabricated steel structures, pipes & piping materials shall be stacked properly.
- No parking of trucks/trolleys, cranes and trailers etc. shall be allowed in the camp, which may obstruct the traffic movement as well as below LT/HT power line.
- Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas

11.6 WASTE MANAGEMENT

Take suitable measures for waste management and environment related laws/legislation as a part of normal construction activities. Compliance with the legal requirements on storage/ disposal of paint drums (including the empty ones), Lubricant containers, Chemical Containers, and transportation and storage of hazardous chemicals will be strictly maintained.

11.6.1 BINS AT WORK PLACE

- Sufficient rubbish bins shall be provided close to workplaces.
- Bins should be painted yellow and numbered.
- Sufficient nos. of drip trays shall be provided to collect oil and grease.
- Sufficient qty. of broomsticks with handle shall be provided.
- Adequate strength of employees should be deployed to ensure daily monitoring and service for waste management.

11.6.2 STORAGE AND COLLECTION

- Different types of rubbish/waste should be collected and stored separately.
- Paper, oily rags, smoking material, flammable, metal pieces should be collected in separate bins with close fitting lids.
- Rubbish should not be left or allowed to accumulate on construction and other work places.
- Do not burn construction rubbish near working site.

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11.6.3 SEGREGATION

- Earmark the scrap area for different types of waste.
- Store wastes away from building.
- Oil spill absorbed by non-combustible absorbent should be kept in separate bin.
- Clinical and first aid waste stored and incinerated separately.

11.6.4 DISPOSAL

- Sufficient containers and scrap disposal area should be allocated.
- All scrap bin and containers should be conveniently located.
- Provide self-closing containers for flammable/spontaneously combustible material.
- Keep drainage channels free from choking.
- Make schedule for collection and disposal of waste.

11.6.5 WARNING AND SIGNS

- Appropriate sign to be displayed at scrap storage area
- No toxic, corrosive or flammable substance to be discarded into public sewage system.
- Waste disposal shall be in accordance with best practice.
- Comply with all the requirements of Pollution Control Board (PCB) for storage and disposal of hazardous waste.

11.7 TRAFFIC MANAGEMENT SYSTEM

11.7.1 SAFE WORKPLACE TRANSPORT SYSTEM

- Traffic routes in a work place shall be suitable for the persons or vehicles using them. This shall be sufficient in number and of sufficient size. This shall reflect the suitability of traffic routes for vehicles and pedestrians.
- Where vehicles and pedestrians use the same traffic routes there shall be sufficient space between them. Where necessary all traffic routes must be suitably indicated. Pedestrians or vehicles must be able to use traffic routes without endangering those at work. There must be sufficient separation of traffic routes from doors, gates and pedestrian traffic routes.
- For internal traffic, lines marked on roads / access routes and between buildings shall clearly indicate where vehicles are to pass.
- Temporary obstacles shall be brought to the attention of drivers by warning signs or hazard cones.
- Speed limits shall be clearly displayed. Speed ramps preceded by a warning signs or marker are necessary.
- The traffic route should be wide enough to allow vehicles to pass and re-pass oncoming or parked traffic and it may be advisable to introduce on-way system or parking restrictions.
- Safest route shall be provided between places where vehicles have to call or deliver.
- Avoid vulnerable areas/items such as fuel or chemicals tanks or pipes, open or unprotected edges and structures likely to collapse



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- Safe areas shall be provided for loading and unloading.
- Avoid sharp or blind bends. If this is not possible hazards should be indicated e.g. blind corner.
- Ensure road crossings are minimum and clearly signed.
- Entrance and gateways shall be wide enough to accommodate a second vehicle without causing obstruction.
- Set sensible speed limits which are clearly sign posted.
- Where necessary ramps should be used to retard speed. This shall be preceded by a warning sign or mark on the road.
- Forklift trucks shall not pass over road hump unless of a type capable of doing so.
- Overhead electric cable, pipes containing flammable hazardous chemical shall be shielded by using goal posts height gauge posts or barriers.
- Road traffic signs shall be provided on prominent locations for prevention of incidents and hazards and for quick guidance and warning to employees and public. Safety signs shall be displayed as per the project working requirement and guideline of the state in which project is done. Vehicles hired or used shall not be parked within the 15m radius of any working area. Any vehicle, that is required to be at the immediate/near the vicinity, shall be approved by the person in-charge of the site.

11.7.2 TRAFFIC ROUTE FOR PEDESTRIANS

- Where traffic routes are used by both pedestrians and vehicles road shall be wide enough to allow vehicles and pedestrians safely.
- Separate routes shall be provided for pedestrians to keep them away from vehicles. Provide suitable barriers/guard at entrances/exit and the corners or buildings.
- Where pedestrian and vehicle routes cross, appropriate crossing shall be provided.
- Where crowd is likely to use roadway e.g. at the end of shift, stop vehicles from using them at such times.
- Provide high visibility clothing for people permitted in delivery area.

11.7.3 WORK VEHICLE

Work vehicle shall be as safe stable efficient and roadworthy as private vehicles on public roads. Site management shall ensure that drivers are suitably trained. All vehicle e.g. heavy motor vehicle forklift trucks dump trucks mobile cranes shall ensure that the work equipment conforms to the following:

- o A high level of stability.
- o A safe means of access/egress.
- o Suitable and effective service and parking brakes.
- o Windscreens with wipers and external mirrors giving optimum all round visibility.
- o Provision of horn, vehicle lights, reflectors, reversing lights, reversing alarms.
- o Provision of seat belts.
- o Guards on dangerous parts.
- o Driver protection - to prevent injury from overturning and from falling objects/materials.
- o Driver protection from adverse weather.
- o No vehicle shall be parked below HT/LT power lines.
- o Valid Pollution Under Control certification for all vehicles

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11.7.4 DAILY CHECK BY DRIVER

- There should also be daily safety checks containing below mentioned points by the driver before the vehicle is used.
 - o Brakes.
 - o Tires.
 - o Steering.
 - o Mirrors.
 - o Windscreen waters.
 - o Wipers.
 - o Warning signals.
 - o Specific safety system i.e. control interlocks
- Management should ensure that drivers carry out these checks.

11.7.5 TRANSPORTATION OF PERSONNEL AND MATERIALS BY VEHICLES

- All drivers shall hold a valid driving License for the class of vehicle to be driven and be registered as an authorized BHEL driver with the Administration Department.
 - Securing of the load shall be by established and approved methods, i.e. chains with patented tightening equipment for steel/heavy loads. Sharp corners on loads shall be avoided when employing ropes for securing.
 - All overhangs shall be made clearly visible and restricted to acceptable limits
 - Load shall be checked before moving off and after traveling a suitable distance.
 - On no account is construction site to be blocked by parked vehicles Drivers of vehicles shall only stop or park in the areas designate by the stringing foreman.
 - Warning signs shall be displayed during transportation of material.
- All vehicles used by BHEL shall be in worthy condition and in conformance to the Land Transport requirement.

11.7.6 MAINTENANCE

All Vehicles used for transportation of man and material shall undergo scheduled inspections on frequent intervals to secure safe operation. Such inspections shall be conducted in particular for steering, brakes, lights, horn, doors etc. Site management shall ensure that work equipment is maintained in an efficient, working order and in good repair. Inspections and services carried out at regular intervals of time and or mileage. No maintenance shall be carried below HT/LT power lines.

11.8 EMERGENCY PREPAREDNESS AND RESPONSE

- Emergency preparedness and response capability of site shall be developed as per Emergency Preparedness and Response plan issued by Regional HQ
- Availability of adequate number of first aiders and fire warden shall be ensured with BHEL and its subcontractors
- All the subcontractor's supervisory personnel and sufficient number of workers shall be trained for fire protection systems. Enough number of such trained personnel must be available during the tenure of contract. Subcontractor should nominate his supervisor to coordinate and implement the safety measures.
- Assembly point shall be earmarked and access to the same from different location shall be shown
- Fire exit shall be identified and pathway shall be clear for emergency escape.



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- Appropriate type and number of fire extinguisher shall be deployed as per Fire extinguisher deployment plan and validity shall be ensured periodically through inspection
- Adequate number of first aid boxes shall be strategically placed at different work places to cater emergency need. Holder of the first aid box shall be identified on the box itself who will have the responsibility to maintain the same.
- First aid center shall be developed at site with trained medical personnel and ambulance
- Emergency contact numbers (format given in EPRP) of the site shall be displayed at prominent locations.
- Tie up with fire brigade shall be done in case customer is not having fire station.
- Tie up with hospital shall be done in case customer is not having hospital.
- Disaster Management group shall be formed at site
- Mock drill shall be arranged at regular intervals. Monthly report of the above to be given to BHEL safety Officer as per prescribed BHEL formats
- Mock drill shall be conducted on different emergencies periodically to find out gaps in emergency preparedness and taking necessary corrective action

12.0 HSE INSPECTION

Inspection on HSE for different activities being carried out at site shall be done to ensure compliance to HSEMS requirements. The subcontractor shall maintain and ensure necessary safety measures as required for inspection and tests HV test, Pneumatic test, Hydraulic test, Spring test, Bend test etc as applicable, to enable inspection agency for performing Inspection. If any test equipment is found not complying with proper safety requirements then the Inspection Agency may withhold inspection, till such time the desired safety requirements are met.

12.1 DAILY HSE CHECKS

Both the Site Supervisors and safety officer of Subcontractor are to conduct daily site Safety inspection around work activities and premises to ensure that work methods and the sites are maintained to an acceptable standard. The following are to form the common subjects of a daily safety inspection:

- Personal Safety wears & gear compliance.
- Complying with site safety rules and permit-to-work (PTW).
- Positions and postures of workers.
- Use of tools and equipment etc. by the workers.

The inspection should be carried out just when work starts in beginning of the day, during peak activities period of the day and just before the day's work ends.

12.2 INSPECTION OF PPE

- PPEs shall be inspected by HSE officer at random once in a week as per format no. HSEP:13-F06 for its compliance to standard and compliance to use and any adverse observation shall be recorded in the PPE register.
- The applicable PPEs for carrying out particular activities are listed below.

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12.3 INSPECTION OF T&Ps

- A master list of T&Ps shall be maintained by each subcontractor.
- All T&Ps being used at site shall be inspected by HSE officer once in a month as per format no. HSEP:13-F07 for its healthiness and maintenance.
- The T&Ps which require third party inspection shall be checked for its validity during inspection. The third party test certificate should be accompanied with a copy of the concerned competent person's valid qualification record.
- The validity of T&P shall be monitored as per "Status of T&Ps" format no. HSEP:13-F08

12.4 INSPECTION OF CRANES AND WINCHES

- Cranes and winches shall be inspected by the operator through a daily checklist for its safe condition (as provided by the equipment manufacturer) before first use of the day.
- Cranes and Winches shall be inspected by HSE officer once in a month as per format no. HSEP:13-F09 for healthiness, maintenance and validity of third party inspection.
- The date of third party inspection and next due date shall be painted on cranes and winches.
- The operators/drivers shall be authorized by sub-contractor based on their competency and experience and shall carry the I-card.
- The operator should be above 18 years of age and should be in possession of driving license of HMV man & goods), vision test certificate and should have minimum qualification so that he can read the instructions and check list.

12.5 INSPECTION ON HEIGHT WORKING

- Inspection on height working shall be conducted daily by supervisors before start of work to ensure safe working condition including provision of
 - o Fall arrestor
 - o Lifelines
 - o Safety nets
 - o Fencing and barricading
 - o Warning signage
 - o Covering of opening
 - o Proper scaffolding with access and egress.
 - o Illumination
- Inspection on height working shall be conducted once in a week by HSE officer as per format no. HSEP:14-F10.
- Medical fitness of height worker shall be ensured.
- Height working shall not be allowed during adverse weather.

12.6 INSPECTION ON WELDING AND GAS CUTTING OPERATION

- Supervisor shall ensure that no flammable items are available in near vicinity during welding and gas cutting activity.
- Gas cylinders shall be kept upright.
- Use of Flash back arrestor shall be ensured at both ends.



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- Inspection during welding and gas cutting operations shall be carried out by HSE officer once a month as per format no. HSEP:14-F11.
- Use of fire blanket to be ensured to avoid falling of splatters during welding or gas cutting operation at height.
- Availability of fire extinguisher at vicinity shall be ensured.

12.7 INSPECTION ON ELECTRICAL INSTALLATION / APPLIANCES

- Ensure proper earthing in electrical installation
- Use ELCB at electrical booth
- Electrical installation shall be properly covered at top where required
- Use appropriate PPEs while working
- Use portable electrical light < 24 V in confined space and potentially wet area.
- Monthly inspection shall be carried out as per format no. HSEP:14-F12.

12.8 INSPECTION OF ELEVATOR

- Elevators shall be inspected by concerned supervisors once in a week as per format no. HSEP:14-F13.
- All elevators shall be inspected by competent person and validity shall be ensured.
- The date of third party inspection and next due date shall be painted on elevator.

13.0 HSE PERFORMANCE

HSE performance of the subcontractor shall be monitored as per the following parameters:

Sl. No.	Parameters of measurement
1	Timely deployment of qualified safety officer and cumulative number of days in a month the required no. of qualified safety officer is available
2	Shortfall in number of meetings in the month conducted or attended by the safety officer
3	Level of compliance wrt decisions taken in previous meetings/audit/inspection/as reported.
4	Delay in submission of monthly report on safety in the prescribed format
5	Delay in reporting any incident including near-miss to BHEL /Customer/statutory authority(if required)
6	Degree of PPE non-compliance
7	Non- conducting of health check-up as per BOCW equirements
8	Non availability of proper first-aid facility , ambulance, adequate labour welfare initiatives
9	Non conductance of induction training and tool box meeting
10	Total number of instances in the month, House keeping NOT attended inspite of instructions by BHEL i.e. removal/disposal of surplus earth/ debris/scrap/unused/surplus cable drums/other electrical items/surplus steel items/packing material

- Suitable HSE reward system shall be developed at site level to promote HSE compliance amongst workmen.
- To decide HSE reward performance towards HSE shall be evaluated for workmen and it shall be awarded regularly in public gathering.
- If safety record of the subcontractor in execution of the awarded job is to the satisfaction of safety department of BHEL, issue of an appropriate certificate to recognize the safety performance of the subcontractor may be considered by BHEL after completion of the job.

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14.0 HSE PENALTIES

- As per contractual provision HSE penalties shall be imposed on subcontractors for non- compliance on HSE requirement as per format no. HSEP:14-F14. The list in the format is only indicative. For any other violation, not listed in the format, the minimum penalty amount is to be decided as per BOCW act.
- If principal customer/statutory and regulatory bodies impose some penalty on HSE due to the non-compliance of the subcontractor the same shall be passed on to them.
- The penalty amount shall be recovered by Site Finance department from subcontractors from the RA/Final bill.

15.0 OTHER REQUIREMENTS

- In case of any delay in completion of a job due to mishaps attributable to lapses by the subcontractor, BHEL shall have the right to recover cost of such delay from the payments due to the subcontractor, after notifying the subcontractor suitably.
- If the subcontractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so and/or if the subcontractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instruction regarding safety issued by BHEL, BHEL shall have the right to take corrective steps at the risk and cost of the subcontractor after giving a notice of not less than 7 days indicating the steps that would be taken by BHEL.
- If the subcontractor succeeds in carrying out its job in time without any fatal or disabling injury incident and without any damage to property BHEL may, at its sole discretion, favorably consider to reward the subcontractor suitably for the performance.
- In case of any damage to property due to lapses by the subcontractor, BHEL shall have the right to recover the cost of such damages from the subcontractor after holding an appropriate enquiry.
- The subcontractor shall take all measures at the sites of the work to protect all persons from incidents and shall be bound to bear the expenses of defense of every suit, action or other proceeding of law that may be brought by any persons for injury sustained or death owing to neglect of the above precautions and to pay any such persons such compensation or which may with the consent of the subcontractor be paid to compromise any claim by any such person, should such claim proceeding be filed against BHEL, the subcontractor hereby agrees to indemnify BHEL against the same.
- The subcontractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, overalls shall be supplied by the subcontractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
- The subcontractor shall notify BHEL of his intention to bring to site any equipment or material which may create hazard.
- BHEL shall have the right to prescribe the conditions under which such equipment or materials may be handled and the subcontractor shall adhere to such instructions.



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- BHEL may prohibit the use of any construction machinery, which according to the organization is unsafe. No claim for compensation due to such prohibition will be entertained by BHEL.

16. NON COMPLIANCE

NONCONFORMITY OF SAFETY RULES AND SAFETY APPLIANCES WILL BE VIEWED SERIOUSLY AND BHEL HAS RIGHT TO IMPOSE FINES ON THE SUBCONTRACTOR AS UNDER FOR EVERY INSTANCE OF VIOLATION NOTICED:

SN	Violation of Safety Norms	Fine (in Rs)
01.	Not Wearing Safety Helmet	200/- *
02.	Not wearing Safety Belt or not anchoring life line	500/-*
03.	Not wearing safety shoe	200/-*
04.	Not keeping gas cylinders vertically	200/-
05.	Not using flash back arrestors	100/-
06.	Not wearing gloves	50/- *
07.	Grinding Without Goggles	50/- *
08.	Not using 24 V Supply For Internal Work	500/-
09.	Electrical Plugs Not used for hand Machine	100/-
10.	Not Sliding properly	200/-
11.	Using Damaged Sling	200/-
12.	Lifting Cylinders Without Cage	500/-
13.	Not Using Proper Welding Cable With Lot of Joints And Not Insulated Property.	200/-
14.	Not Removing Small Scrap From Platforms	500/-
15.	Gas Cutting Without Taking Proper Precaution or Not Using Sheet Below Gas Cutting	500/-
16.	Not Maintaining Electric Winches Which are Operated Dangerously	500/-
17.	Improper Earthing Of Electrical T&P	500/-
18.	No or improper barricading	500/-
19.	Activity carried out without Safety work permit (Height work, Lifting activity, Hot work-each person/case)	1000/-
20.	Incident Resulting in Partial Loss in Earning Capacity	25,000/- per victim
21.	Fatal Incident Resulting in total loss in Earning Capacity	1,00,000/- per victim for first instance #

• Legend:-

*: per head. For repeated violation by the same person, the penalty would be double of the previous penalty. Date of "Repeated violation" will be counted from subsequent days.

#: or as deducted by customer, whichever is higher. For repeated fatal incident in the same Unit incremental penalty to be imposed. The subcontractor will pay 2 times the penalty compared to previously paid in case there are repeated cases of fatal incidents under the same subcontractor for the same package in the same unit.

Any other non-conformity noticed not listed above will also be fined as deemed fit by BHEL. The decision of BHEL engineer is final on the above. The amount will be deducted from running bills of the subcontractor. The amount collected above will be utilized for giving award to the employees who could avoid incident by following safety rules. Also the amount will be spent for purchasing the safety appliances and supporting the safety activity at site.



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17.0 HSE AUDIT/INSPECTION

- Regular HSE Audit/inspection shall be carried out by Subcontractor as per Site HSE audit calendar.
- HSE checklist(**Annexure 02**) shall be used for carrying out audit/inspection and report shall be submitted to BHEL sitemangement
- All non-conformities and observations on HSE identified during internal or external HSE audit shall be disposed off by site in a time bound manner and reported back the implementation status
- Corrective action and Preventive action on HSE issues raised by certification body issued by Regional HQs shall be implemented by site and reported to Site management.

18.0 MONTHLY HSE REVIEW MEETING

- Site shall hold HSE review meeting every month to discuss and resolve HSE issues of site and improve HSE performance. It will also discuss the incidents occurred since previous meeting, its root cause and Corrective action and Preventive action. The agenda is given below:
 - o Implementation of earlier MOM
 - o HSE performance
 - o HSE inspection
 - o HSE audit and CAPA
 - o HSE training
 - o Health check-up camp
 - o HSE planning for the erection and commissioning and installation activities in the coming month
 - o HSE reward and promotional activities
- The meeting shall be chaired by Construction Manager, convened by HSE coordinator and attended by all HOS, Site Incharge of Subcontractors and HSE officer of Subcontractors.
- MOM on the discussion will be circulated to the concerned for implementation.

19.0 FORMATS USED (Details available in Annexure-04)

SL. No.	Format Name	Format No.	Rev No.
01	Inspection of First Aid Box	HSEP:13-F01	00
02	Health Check Up	HSEP:13-F02	00
03	HSE Induction Training	HSEP:13-F03	00
04	Tool Box Talk	HSEP:13-F04	00
05	Monthly Site HSE Report	HSEP:13-F05	00
06	Inspection of PPE	HSEP:13-F06	00



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07	Inspection of T&Ps	HSEP:13-F07	00
08	Status of T&Ps	HSEP:13-F08	00
09	Inspection of Cranes and Winches	HSEP:13-F09	00
10	Inspection on Height Working	HSEP:13-F10	00
11	Inspection on Welding & Gas Cutting	HSEP:13-F11	00
12	Inspection on Electrical Installation	HSEP:13-F12	00
13	Inspection on Elevator	HSEP:13-F13	00
14	HSE Penalty	HSEP:13-F14	00
15	Accident /incident / property damage /fire incident report	HSEP:13-F15	00



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20.0 ANNEXURES

ANNEXURE 01

As per Contract Labour (Regulation & Abolition Act), Central Rules, 1971,

- (1) The first-aid box shall be distinctively marked with a Red Cross on a white background and shall contain the following items, namely:

(a) For establishments in which the number of contract labour employed does not exceed fifty, each first aid box shall contain the following equipment:

(i)	6 small sterilized dressings
(ii)	3 medium size sterilized dressings
(iii)	3 large size sterilized dressings
(iv)	6 pieces of sterilized eye pads in separate sealed packets.
(v)	6 roller bandages 10 cm wide.
(vi)	6 roller bandages 5 cm wide.
(vii)	One tourniquet
(viii)	A supply of suitable splints
(ix)	Three packets of safety pins.
(x)	Kidney tray.
(xi)	3 large sterilized burn dressings.
(xii)	1 (30ml) bottle containing a two percent alcoholic solution of iodine
(xiii)	1 (30 ml) bottle containing Sal volatile having the dose and mode of administration indicated on the label
(xiv)	1 snake bite lancet
(xv)	1 (30gms) bottle of potassium permanganate crystals.
(xvi)	1 pair scissors
(xvii)	1 copy of the First-Aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
(xviii)	A bottle containing 100 tablets (each of 5 grains) of aspirin
(xix)	Ointment for burns
(xx)	A bottle of suitable surgical anti-septic solution

(b) For establishment in which the number of contract labour exceeds fifty each first-aid box shall contain the following equipment:

(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 grams) packets sterilized cotton wool
(vi)	12 pieces of sterilized eye pads in separate sealed packets.



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(vii)	12 roller bandages 10 cm wide.
(viii)	12 roller bandages 5 cm wide.
(ix)	One tourniquet.
(x)	A supply of suitable splints.
(xi)	Three packets of safety pins.
(xii)	Kidney tray.
(xiii)	Sufficient number of eye washes bottles filled with distilled water or suitable liquid clearly indicated by a distinctive sign which shall be visible at all times.
(xiv)	4 per cent Xylocaine eye drops, and boric acid eye drops and soda by carbonate eye drops.
(xv)	1 (60ml) bottle containing a two percent alcoholic solution of iodine
(xvi)	One (two hundred ml) bottle of mercurochrome (2 per cent) solution in water.
(xvii)	1 (120ml) bottle containing Sal volatile having the dose and mode of administration indicated on the label.
(xviii)	1 roll of adhesive plaster (6 cmX1 meter)
(xix)	2 rolls of adhesive plaster (2 cmX1 meter)
(xx)	A snake bite lancet.
(xxi)	1 (30 grams) bottle of potassium permanganate crystals.
(xxii)	1 pair scissors
(xxiii)	1 copy of the First-Aid leaflet issued by the Director-General, Factory Advice service and labour Institutes, Government of India.
(xxiv)	a bottle containing 100 tablets (each of 5 grains) of aspirin
(xxv)	Ointment for burns
(xxvi)	A bottle of a suitable surgical anti septic solution.

(2) Adequate arrangement shall be made for immediate recoupment of the equipment when necessary.



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ANNEXURE 02

HSE AUDIT/INSPECTION CHECKLIST CUM COMPLIANCE REPORT

PROJECT: _____

SUBCONTRACTOR: _____

DATE : _____

OWNER : _____

INSPECTION BY: _____

Note : write 'NA' wherever the items is not applicable

Item	Y e s	N o	Remarks	Action
HOUSEKEEPING				
Waste containers provided and used				
Passageways and walkways clear				
General neatness of working area				
Other				
PERSONNEL PROTECTIVE EQUIPMENTS				
Goggles; shields				
Face protection				
Hearing protection				
Respiratory masks etc.				
Safety belts				
Other				
EXCAVATIONS / OPENINGS				
Openings properly covered or barricaded				
Excavations shored				
Excavations barricaded				
Overnight lighting provided				
Other				
WELDING, CUTTING				
Gas cylinders chained upright				
Cable and hoses not obstructing				
Fire extinguisher (s) accessible				
Others				
SCAFFOLDING				
Fully decked platforms				
Guard and intermediate rails in place				
Toe boards in place				
Adequate shoring				
Adequate access				
Others				
LADDER				
Extension side rails 1 m above				
Top of landing				
Properly secured				



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Angle + 70° from horizontal				
Other				
HOISTS, CRANES AND DERRICKS				
Condition of cables and sheaf OK				
Condition of slings, chains, hooks OK				
Inspection & maintenance log maintained				
Outriggers used				
Signals observed and understood				
Qualified operators				
Others				
MACHINERY, TOOLS & EQUIPMENT				
Proper instruction				
Safety devices				
Proper cords				
Inspection and maintenance				
Other				
VEHICLE AND TRAFFIC				
Rules and regulations observed				
Inspection and maintenance				
Licensed drivers				
Other				
TEMPORARY FACILITIES				
Emergency instructions posted				
Fire extinguishers provided				
Fire-aid equipment available				
General neatness				
Others				
FIRE PREVENTION				
Personnel instructed				
Fire extinguishers checked				
No smoking in prohibited areas.				
Hydrants				
Clearance				
Others				
ELECTRICAL				
Proper wiring				
ELCB's provided				
Ground fault circuit interrupters				
Protection against damage				
Prevention of tripping hazards				
Other				
HANDLING & STORAGE OF MATERIALS				
Properly stored or stacked				
Passageways clear				
Other				
FLAMMABLE GASES AND LIQUIDS				
Containers clearly identified				
Proper storage				
Fire extinguisher nearby				



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Other				
WORKING AT HEIGHT				
Safety nets				
Safety belts				
Safety helmets				
Anchoring of safety belt to the life line rope				
ENVIRONMENT				
Lubricant waste/engine oils properly dispose.				
Waste from Canteen, offices, sanitation etc. disposed properly.				
Disposal of surplus earth, stripping materials, expired batteries, oily rags and combustible materials done properly.				
HEALTH CHECKS				
Hygienic conditions at labor camps O.K.				
Availability of first-aid facilities				
Proper sanitation at site, office & labor camps.				
Arrangement of medical facilities.				
Measures for dealing with illness.				
Availability of potable drinking water for workmen & staff.				
Provision of crèches for children.				



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ANNEXURE 03

REFERENCES

- Contract documents
- Relevant legislations
- HSEMSM
- Relevant Indian standards as listed below (illustrative only):

SL NO	CODE NAME	TITLE
(1)	IS : 818-1888 (Reaffirmed 2003)	Code of Practice for safety and health requirements in Electric and Gas Welding and Cutting operations.
(2)	IS: 1179-1967 (Reaffirmed 2003)	Specification for Equipment for Eye & Face protection during welding.
(3)	IS : 1989 (Part 2):1986 (Reaffirmed 1997)	Specification for Leather Safety Boots & Shoes
(4)	IS:2925 – 1984 (Reaffirmed 2010)	Specification for Industrial Safety Helmets
(5)	IS:3521 : 1999 (Reaffirmed 2002)	Industrial Safety Belts & Harnesses-Specification
(6)	IS:3646(Part II) – 1966 (Reaffirmed 2003)	Code of Practice for Interior Illumination
(7)	IS:3696 (Part I) – 1987 (Reaffirmed 2002)	Safety Code for Scaffolds and Ladders
(8)	IS: 3696(Part 2) : 1991 (Reaffirmed 2002)	Scaffolds and Ladders-Code of Safety
(9)	IS:3786 – 1983 (Reaffirmed 2002)	Method for Computation of Frequency and Severity Rates for Industrial Injuries and Classification of Industrial Incidents
(10)	IS:4770 : 1991 (Reaffirmed 2006)	Rubber Gloves – Electricals purposes-Specification
(11)	IS:4912 : 1978 (Reaffirmed 2002)	Safety Requirements for Floor and Wall Openings, Railings and Toe Boards
(12)	IS: 5983 – 1980 (Reaffirmed 2002)	Specification for Eye-Protectors
(13)	IS:6519 – 1971 (Reaffirmed 1997)	Code of Practice for Selection, Care and Repair of Safety Footwear
(14)	IS:9167:1979	Specification for Ear-Protectors
(15)	IS:6994(Part I)-1973 (Re affirmed 1996)	Specification for Industrial Safety Gloves Leather and Cotton Gloves
(16)	IS:8519 – 1977 (Reaffirmed 1983)	Guide for Selection of Industrial Safety Equipment for Body Protection.
(17)	IS 11006 : 2011	Flash Back(Flame Arrestor) Specification



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(18)	IS:8520 – 1977 (Reaffirmed 2002)	Guide for Selection of Industrial Safety Equipment for Eye, Face and Ear Protection.
(19)	IS:9473:2002	Respiratory Protective Devices-Filtering Half Masks to protect against Particles-Specification.
(20)	IS:9944:1992 (Reaffirmed 2003)	Natural and Man-made Fiber Rope Slings-Recommendations on Safe working loads.
(21)	IS:11057 – 1884 (Reaffirmed 2001)	Specification for Industrial Safety Nets
(22)	IS:12254:1993 (Reaffirmed 2002)	Polyvinyl Chloride (PVC) Industrial Boots-Specification
(23)	IS:13367(Part 1):1992 (Reaffirmed 2003)	Safe Use of Cranes-Code of Practice
(24)	IS:14166:1994 (Reaffirmed 2002)	Respiratory Protective Devices-Full Face Masks Specification
(25)	IS:14746 : 1999 (Reaffirmed 2003)	Respiratory Protective Devices-Half Masks and Quarter Masks - Specification
(26)	IS : 15397 :2003 (Reaffirmed 2008)	Portable Extinguisher Mechanical Foam Type(Stored Pressure)-Specification
(27)	IS: 19011:2002	Guidelines for Quality and/or Environmental Management Systems Auditing



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**ANNEXURE 04 : SAFETY FORMATS
&
ANNEXURE 05 : WORK PERMIT FORMATS**

**POWER SECTOR****INSPECTION OF FIRST AID BOX**

FORMAT NO: HSEP:13-F01

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Inspected by :	
Date of Inspection :	

Number of employees on the site:- _____

Sl.No.	Item	No. Available	Remarks
1	No. of small sterilized dressings		
2	No of medium sized sterilized dressings		
3	No of large sized sterilized dressings.		
4	No of large sized sterilized burn dressings		
5	No of (15 grams) packets sterilized cotton wool		
6	No of pieces of sterilized eye pads in separate sealed packets.		
7	No of roller bandages 10 cm wide.		
8	No of roller bandages 5 cm wide.		
9	Whether tourniquet available		
10	Whether supply of suitable splints available.		
11	No of packets of safety pins.		
12	Whether kidney tray available		
13	Whether sufficient number of eye wash bottles, filled with distilled water or suitable liquid, clearly indicated by a distinctive sign which shall be visible at all times, available.		
14	Whether 4%-xylocaine eye drops, and boric acid eye drops and soda by carbonate eye drops available.		
15	Whether (60ml) bottle containing a two percent alcoholic solution of iodine available		
16	Whether (two hundred ml) bottle of mercurochrome (2 per cent) solution in water available.		

**POWER SECTOR****INSPECTION OF FIRST AID BOX**

FORMAT NO: HSEP:13-F01

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Sl.No.	Item	No. Available	Remarks
17	Whether 120ml bottle containing Sal volatile having the dose and mode of administration indicated on the label, available.		
18	Whether roll of adhesive plaster (6 cmX1 meter) available		
19	No of rolls of adhesive plaster (2 cmX1 meter)		
20	Whether snake bite lancet available.		
21	Whether (30 grams) bottle of potassium permanganate crystals available.		
22	Whether a pair scissors available		
23	Whether copy of the First-Aid leaflet issued by the Director-General, Factory Advice service and labour Institutes, Government of India available.		
24	Whether bottle containing 100 tablets (each of 5 grains) of aspirin available		
25	Whether Ointment for burns available		
26	Whether bottle of a suitable surgical anti septic solution available		

Signature of Subcontractor's Site I/C::

**POWER SECTOR****HEALTH CHECK UP**

FORMAT NO: HSEP:13-F02

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Name of Employee :	

NAME:

History Of Past Illness	H/O Epilepsy
	H/O Drug Allergy
	H/O Diabetics/ Hypertension
	H/O Unconsciousness

Personal History

EXAMINATION	OBSERVATION
<u>General Physical Examination</u>	
Height :	
Weight :	
BMI :	
Built And nourishment :	
Pallor :	
Temperature :	
Chest Expansion :	Inspiration Expansion
Lymph Node Enlargement :	
<u>Ear, Nose, Throat</u> :	
Ear :	
Nose :	
Throat :	

**POWER SECTOR****HEALTH CHECK UP**

FORMAT NO: HSEP:13-F02

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EXAMINATION	OBSERVATION
<u>Cardiovascular System Examination :</u>	
Inspection :	
Palpation :	Pulse BP
Auscultation (Heart Sounds) :	
<u>Respiratory System :</u>	
Inspection :	Respiratory Rate
Palpation:	
Percussion :	
Auscultation (Breath Sounds) :	
<u>Examination of Abdomen :</u>	
Inspection :	
Palpation :	
Auscultation (Bowel Sounds) :	
Any Other :	
Clinical Impression	

Signature of the examining doctor

**POWER SECTOR****HSE INDUCTION TRAINING**

FORMAT NO: HSEP:13-F03

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Date :	
Name of Training Co-ordinator	

Sl No.	Name	Designation	Organisation	Signature

Signature of Training co-ordinator :

	POWER SECTOR	FORMAT NO: HSEP:13-F04 REV NO.: 00 PAGE NO. 01 OF 01
	TOOL-BOX TALK	

Name of Site :	
Sub-Contractors Name :	
Date :	

Topic	Name of person delivered Tool Box Talk	No. of Participants attended	Remarks

Signature of Site I/C of Subcontractor :

**POWER SECTOR****PERSONAL PROTECTIVE EQUIPMENTS**

FORMAT NO: HSEP:13-F06

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Inspected by :	
Date of Inspection :	

Item	Issued this Month	Nos. Issued up to the Month	Percentage of usage at site
Safety Helmet			
Safety Shoes			
Full Body Harness			
Fall Arrestor			
Safety Nets			
Other PPEs.			

Signature of Site I/C of Subcontractor :

**POWER SECTOR****INSPECTION OF T&Ps**

FORMAT NO: HSEP:13-F07

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Date of Inspection :	

Sl.No.	Description	Remarks
1.0	Name of equipment	
2.0	Basic Information of equipment	
2.1	Specification	
2.2	Sr. No. of equipment	
2.3	Make	
2.4	Year of manufacture	
3.0	Major repairs / overhauls(Furnish details of work carried out)	Date(s) of major repair/overhaul
3.1		
3.2		
3.3	Repairs carried out at site	
4.0	Any performance test conducted	Yes/No
5.0	Document Submitted	Yes/No
6.0	Manufacturer's test / guarantee certificate	Available/ Not available
7.0	Performance test	Done/ Not Done
8.0	Acceptance Norms	
9.0	Committee Observations	
10.0	Date of next review (if accepted)	

Signature-Site Safety Officer (BHEL)

Signature-Subcontractor/ Subcontractor's
Safety Officer

**POWER SECTOR****STATUS OF T&Ps**

FORMAT NO: HSEP:13-F08

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Name of Site	
Name of Sub-Contractor	
Date of Inspection	

Item	Nos. Deployed	Identification No.	Nos. Tested by competent person	Validity of Test Certificate
Winches				
Chain Blocks				
Wire Rope Slings				
Man Cages				
D-Shackles				
Air Compressors				
Crawler Cranes				
Mobile Cranes				
Hydra Cranes				
Others				

Signature of Site I/C of subcontractor :

**POWER SECTOR****INSPECTION OF CRANES AND WINCHES**

FORMAT NO: HSEP:13-F09

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Inspected by :	
Date of Inspection:	

Crane Reg. No (Make/Model)

Name of Driver/Operator

Sl.no.	Description	Observation	Measures
1	Valid Driving license		
2	Hook & Hook Latch		
3	Over Hoist limit switch		
4	Boom limit switch		
5	Boom Angle Indicator		
6	Boom limit cutoff switch		
7	Condition of Boom		
8	Condition of ropes		
9	Number of load lines		
10	Size and condition of the slings		
11	Stability of the cranes		
12	Soil Condition		
13	Swing Break And Lock		
14	Proper Break And Lock		
15	Hoist Break And Lock		
16	Boom Break And Lock		
17	Main Clutch		
18	Leakage in Hydraulic Cylinders		
19	Out riggers fully extendable		
20	Tyre pressure		
21	Condition of Battery And Lamps		

**POWER SECTOR****INSPECTION OF CRANES AND WINCHES**

FORMAT NO: HSEP:13-F09

REV NO.: 00

PAGE NO. 02 OF 03

Sl.no.	Description	Observation	Measures
22	Guards of moving and rotating parts		
23	Load chart provided		
24	Number and position of pedant ropes		
25	Reverse Horn		
26	Load Test Details		
27	Operator's fitness		
28	Pollution under control certificate		
29	Fire extinguisher of appropriate type.		
30	Training of the operator		

WINCH

Sl. No.	Description	YES	NO	NA	Remarks
1	Has the copy of Third Party Inspection certificate been provided in winch machine shed?				
2	Is winch machine operator experienced enough to operate the winch machine?				
3	Is the winch machine operated by someone other than the winch machine operator?				
4	Is there guard provided in all moving parts like wheel and motor's shaft?				
5	Will it protect against unforeseen operational contingencies?				
6	Are brakes, clutch and locking arrangement working properly?				
7	Has it been ensured that the guard does not constitute a hazard by itself?				
8	Are the cranks and the connecting rods protected by guardrails?				
9	Is there provision for fully covered shed with wooden plank roof?				

**POWER SECTOR****INSPECTION OF CRANES AND WINCHES**

FORMAT NO: HSEP:13-F09

REV NO.: 00

PAGE NO. 03 OF 03

Sl. No.	Description	YES	NO	NA	Remarks
10	Is wire rope free from any kind of damage or wear and tear?				
11	Is split pin provided for the protection of clutch and brake locking arrangement?				
12	Is pulley inspected by competent person and certified before use?				
13	Is pulley free from any wear and tear visually?				
14	Is winch rope barricaded with clipsheet for the protection of rope and person?				
15	Is the wire rope lubricated by cardium oil?				
16	Is there any friction in wire rope which may damage the wire rope rather than the rolling parts?				
17	Is there any oil leakage in the hydraulic system of the winch machine?				
18	Has it been ensured that the guard will not cause discomfort or inconvenience to operator?				
	Total Number of NO:				
	Total Number of NA:				
	% Compliance :				

Signature of Site I/C of subcontractor :

	POWER SECTOR	FORMAT NO: HSEP:13-F10 REV NO.: 00 PAGE NO. 01 OF 02
	INSPECTION OF HEIGHT WORKING	

Name of Site :	
Name of Sub-Contractor :	
Inspected by :	
Date of Inspection:	

Sl. No.	Descriptions	Observation (Yes/No)	Remarks
1	All the workers have been explained safe work method?		
2	An established communication system has been established and explained to the workers.		
3	Adequate illumination has been ensured.		
4	Work area inspected prior to the start of the work.		
5	Area below the work place barricaded, particularly below hot work.		
6	Workers provided with bags /box to carry bolts, nuts and hand tools		
7	Arrangement for fastening hand tools made.		
8	All work platforms ensured to be of adequate strength and ergonomically suitable.		
9	Fabricated makeshift arrangements are checked for quality and type of material welding, anchoring etc.		
10.	Work at more than one elevation at the same segment is restricted.		
	ACCESS/EGRESS		
1	Walkways provided with handrail, mid-rail and toe guard?		
2	All checkered plates, gratings properly welded/ bolted?		
3	Are ladders inspected and they are in good condition?		
4	Are ladders spliced?		
5	Are ladders properly secured to prevent slipping, sliding or falling?		
6	Do side rails extend 36" above top landing?		
7	Are built up ladders constructed of sound materials?		

**POWER SECTOR****INSPECTION OF HEIGHT WORKING**

FORMAT NO: HSEP:13-F10

REV NO.: 00

PAGE NO. 02 OF 02

Sl. No.	Descriptions	Observation (Yes/No)	Remarks
8	Are rugs and cleats not over 12" on center?		
9	Metal ladders not used around electrical hazards.		
10	Proper maintenance and storage.		
11	Ladders placed at right slope.		
12	Ladders / staircases welded/ bolted properly.		
13	Any obstruction in the stairs.		
14	Are landing provided with handrails, knee rails, toe boards etc.?		
15	Whether ramp is provided with proper slope.		
16	Proper hand rails / guards provided in ramps.		
	Housekeeping		
1	Walkways, aisles & all overhead workplaces cleared of loose material.		
2	Flammable materials, if any, are cleared.		
3	All the de shuttering materials are removed after de shuttering is done.		
4	Platforms and walkways free from oil/grease or other slippery material.		
5	Collected scrap are brought down or lowered down and not dropped from height.		
	PPE And Safety Devices		
1	Use of safety helmet, safety belts ensured for all workers		
2	Anchoring points provided at all places of work.		
3	Common lifeline provided wherever linear movement at height is required.		
4	Safety nets are use wherever required.		
5	Proper fall arrest system is deployed at critical workplaces.		
6	Crawler boards/Safety system or works on fragile roof are used.		

Signature of Site I/C of subcontractor :

**POWER SECTOR****INSPECTION OF WELDING AND GAS
CUTTING**

FORMAT NO: HSEP:13-F11

REV NO.: 00

PAGE NO. 01 OF 02

Name of Site	
Name of Sub-Contractor	
Inspected by	
Date of Inspection	

Welding				
Sl.no.	Description	Y e s	N o	Remarks
1	Is electric connection given through 30 mA ELCB/RCCB to welding m/c?			
2	Is electric cable fitted properly in junction box on m/c?			
3	Is electrical cable free from joints?			
4	Are the joints attached firmly & insulated with tape?			
5	Is double earthing given to body of m/c?			
6	Is the physical condition of the m/c good?			
7	Is ON/OFF switch connected to the m/c is working and in good condition?			
8	Are indication lamps on m/c working?			
9	Is the electrode holder in good condition?			
10	Are the cables of the welding m/c lugged & tight properly?			
11	Are return lead connected properly (Rod, Angle, Channels shall not be used)			
	Total No of NO			
	Total No of YES			

**POWER SECTOR****INSPECTION OF WELDING AND GAS
CUTTING**FORMAT NO: HSEP:13-F11
REV NO.: 00
PAGE NO. 02 OF 02

Gas Cutting				
Sl. no	Description	Yes	No	Remarks
1	Are Cylinders kept on trolleys?			
2	Physical condition of Gas cylinders Good?			
3	Is there Oil/Grease on valve of the cylinder?			
4	Are pressure regulators in good condition?			
5	Condition of hose pipe OK?			
6	Are hose pipe clamped with hose clip?			
7	Is flash back arrestor & NRV fitted on torch both for O2 and LPG cylinder?			
8	Is nozzle of the torch cleaned?			
	Total Number of NO			
	Total No of YES			
	% Compliance			

Signature of Site I/C of subcontractor :

	POWER SECTOR	FORMAT NO: HSEP:13-F12 REV NO.: 00 PAGE NO. 01 OF 02
	INSPECTION OF ELECTRICAL INSTALLATION	

Name of Site	
Name of Sub-Contractor	
Inspected by	
Date of Inspection:	

Sr. No.	Contents	Yes/No	Remarks
A	Cable		
1.	Whether the condition of cable is checked?		
2.	Are cables received from other sites checked for insulation resistance before putting them into use?		
3.	Are all main cables taken either underground / overhead?		
4.	Are welding cables routed properly above the ground?		
5.	Are welding and electrical cables overlapping?		
6.	Is any improper joining of cables/wires prevailing at site?		
B	DBs/SDBs		
1.	Is earth conductor continued upto DB / SDB?		
2.	Whether DBs and extension boards are protected from rain / water?		
3.	Is there any overloading of DBs / SDBs?		
4.	Are correct / proper fuses & CBs provided at main boards and sub-boards?		
5.	Is energized wiring in junction boxes, CB panels & similar places covered all times?		
C	ELCB		
1.	Whether the connections are routed through ELCB?		
2.	Is ELCB sensitivity maintained at 30 mA?		

**POWER SECTOR****INSPECTION OF ELECTRICAL INSTALLATION**

FORMAT NO: HSEP:13-F12

REV NO.: 00

PAGE NO. 02 OF 02

Sr. No.	Contents	Yes/No	Remarks
3.	Are the ELCB numbered and tested periodically & test results recorded in a logbook countersigned by a competent person?		
D	Grounding		
1.	Is natural earthing ensured at the source of power (main DB at Generator or Transformer)?		
2.	Whether the continuity and tightness of the earth conductor are checked?		
3.	Mention the gauge of the earth conductor used at the site.		
4.	Mention the value of Earth Resistance.		
E	Electrically operated Machines or Accessories.		
1.	Whether the plug top is provided everywhere.		
2.	Are all metal parts of electrical equipment and light fittings / accessories grounded?		
3.	Is there any shed or cover for welding machines?		
4.	Are halogen lamps fixed at proper places?		
5.	Are portable power tools maintained as per norms?		
6.	Any other information:		

Signature of Site I/C of subcontractor :

**POWER SECTOR****INSPECTION OF ELEVATOR**

FORMAT NO: HSEP:13-F13

REV NO.: 00

PAGE NO. 01 OF 01

Name of Site	
Name of Sub-Contractor	
Inspected by	
Date of Inspection	

Sr. No.	Description	Remarks
1.0	Name of equipment	
2.0	Basic Information of equipment	
2.1	Specification	
2.2	Sr. No. of equipment	
2.3	Make	
2.4	Year of manufacture	
3.0	Major repairs/overhauls(Furnish details of work carried out)	Date(s) of major repair/overhaul
3.1		
3.2		
3.3	Repairs carried out at site	
4.0	Any performance test conducted	Yes/No
5.0	Document Submitted	Yes/No
6.0	Manufacturer's test / guarantee certificate	Available/ Not available
7.0	Performance test	Done/ Not Done
8.0	Acceptance Norms	
9.0	Committee Observations	
10.0	Date of next review (if accepted)	

Signature-Subcontractor/ Subcontractor's
Safety Officer

Signature-Site Safety Officer (BHEL)

**POWER SECTOR****HSE PENALTY**

FORMAT NO: HSEP:13-F14

REV NO.: 00

PAGE NO. 01 OF 02

Sub: MEMO for Penalty for non compliances in Safety

Following lapse (tick marked) was observed and penalty is imposed as stated at the bottom of this memo. It is requested that such occurrences be please avoided in future.

Safety Area

SN	Violation of Safety Norms	Fine (in Rs)
01.	Not Wearing Safety Helmet	200/- *
02.	Not wearing Safety Belt or not anchoring life line	500/-*
03.	Not wearing safety shoe	200/-*
04.	Not keeping gas cylinders vertically	200/-
05.	Not using flash back arrestors	100/-
06.	Not wearing gloves	50/- *
07.	Grinding Without Goggles	50/- *
08.	Not using 24 V Supply For Internal Work	500/-
09.	Electrical Plugs Not used for hand Machine	100/-
10.	Not Slings properly	200/-
11.	Using Damaged Sling	200/-
12.	Lifting Cylinders Without Cage	500/-
13.	Not Using Proper Welding Cable With Lot of Joints And Not Insulated Property.	200/-
14.	Not Removing Small Scrap From Platforms	500/-
15.	Gas Cutting Without Taking Proper Precaution or Not Using Sheet Below Gas Cutting	500/-
16.	Not Maintaining Electric Winches Which are Operated Dangerously	500/-
17.	Improper Earthing Of Electrical T&P	500/-
18.	No or improper barricading	500/-
19.	Activity carried out without Safety work permit (Height work, Lifting activity, Hot work-each person/case)	1000/-
20.	Incident Resulting in Partial Loss in Earning Capacity	25,000/- per victim
21.	Fatal Incident Resulting in total loss in Earning Capacity	1,00,000/- per victim for first instance #

Legend:-

*: per head. For repeated violation by the same person, the penalty would be double of the previous penalty. Date of "Repeated violation" will be counted from subsequent days.

#: or as deducted by customer, whichever is higher. For repeated fatal incident in the same Unit incremental penalty to be imposed. The subcontractor will pay 2 times the penalty compared to previously paid in case there are repeated cases of fatal incidents under the same subcontractor for the same package in the same unit.

1 Copy to Site Construction Manager(BHEL)

	POWER SECTOR- HQ	FORMAT NO: HSEP:13-F15 REV NO.: 00 PAGE NO. 01 OF 01
	Incident Report (To be submitted within 24 hours of time of incident)	

Type of incident: Fatal/Major/ Minor/Fire/Property Damage/Near-miss

1	NAME OF SITE		3	ACTIVITY AREA	
2	SCOPE OF WORK		4	NAME OF CONTRACTOR	
			5	NAME & DESIGNATION OF BHEL ACTIVITY I/C	
6	DATE & TIME OF ACCIDENT		7	DATE RESUMED	
8	NO. OF WORK-DAYS LOST BY VICTIM (If duty not resumed, give estimated figure)				
9	NO. OF MANHOURS LOST BY OTHERS				
10	PERSONAL DETAILS OF INJURED AND / OR DETAILS OF MATERIALS / EQUIPMENT / PROPERTY DAMAGED				
NAME			NAME OF MATERIAL / EQUIPMENT / PROPERTY		
PERIOD OF EMPLOYMENT					
AGE	YRS	SEX	MALE/ FEMALE	ESTIMATED COST	ACTUAL COST
MARITAL STATUS		SINGLE / MARRIED			
OCCUPATION		NATURE OF DAMAGE			
PART OF BODY INJURED					
NATURE OF INJURY					
AGENCY (OBJECT / EQUIPMENT / SUBSTANCE) MOST RESPONSIBLE FOR CAUSING ACCIDENT / INJURY / DAMAGE					
12	PERSON (NAME & DESIGNATION) WITH MOST CONTROL OVER AGENCY (OBJECT / EQUIPMENT / SUBSTANCE) CAUSING ACCIDENT INJURY / DAMAGE				
13	DESCRIBE CLEARLY HOW THE ACCIDENT OCCURRED (USE ADDITIONAL SHEET, IF REQUIRED)				
ANALYSIS					
14	WHAT ACTS AND / OR CONDITIONS CONTRIBUTED MOST DIRECTLY TO THIS ACCIDENT				
15	WHAT ARE THE BASIC REASON FOR THE EXISTENCE OF THESE ACTS AND / OR CONDITION ?				
16	WHAT CORRECTIVE ACTIONS HAVE BEEN TAKEN TO PREVENT ACCIDENT RECURRENCE ?				
	DATE :		SIGNATURE OF SITE HSE COORDINATOR		
17	COMMENTS OF HEAD / SOX				
	DATE:		SIGNATURE OF HEAD/SOX		



SAFETY WORK CLEARANCE

Permit no. _____

Project: _____

Emergency Contact Nos: _____

Subcontractor: _____

BURNING/WELDING /HOT WORK PERMIT

Area : _____ Date: _____ Time: _____

Name of Site Engineer (Permit Requesting Authority): _____ Sign: _____

Name of Work Performing Contractor: _____

Name of Package In charge: _____ Sign: _____ Date: _____

Description of Work: _____

Work Execution Date: _____ Time Valid from: _____ to _____

The above signing person(s) will be responsible to ensure that the above described work will be done under all the safety precautions mentioned on the permit to work.

The following precautions are to be taken:

No.	Item	Yes	Not required
1.	Proper Access/Exit available		
2.	Proper ventilation and /or lighting provided.		
3.	Proper and safe scaffolding, platform, ladder provided.		
4.	Welding machine located in a clean and dry area.		
5.	Welding machine grounded at the equipment and proper leakage current protection device (ELCB) provided for welding machine.		
6.	Emergency STOP buttons are in working condition. Welder /Helper knows how to operate it.		
7.	Welding machine input/output cables, welding holder and weld return clamp (Holder) are insulated and in good condition.		
8.	Welder & Fitter trained to connect ground/work return clamps (Holder) to work place prior to energization of welding machine.		
9.	Gas cylinders are stacked vertically and not below the welding / cutting area. Regulator key is available with cylinder.		
10.	Pressure gauges/Flash back arrestor provided and in working condition.		
11.	Personal Protective equipment Minimum applicable: safety helmet, safety goggles, welding helmet, safety shoes, leather gloves, long sleeve and nose mask -provided		
12.	In case of pits, water removed from the pit and wood/rubber insulation provided.		
13.	Safety signboards are in place.		
14.	Adequate and Suitable nos. of fire fighting extinguisher provided.		
15.	Nearby combustible material removed. Housekeeping done.		
16.	Other		

Name of Contractor Safety Officer: _____ Sign: _____ Date: _____ Time: _____

Reviewed and approved by BHEL Site Engineer (Permit Issuing Authority):

Name: _____ Sign: _____ Date: _____ Time: _____

Name of BHEL Safety Representative: _____ Sign: _____

I understand the precaution to be taken as described above and as per project requirement and hereby confirm that work will be executed under my supervision by following all precaution and Safety Rules.

Name of Work Performing Authority: _____ **Sign:** _____ **Date:** _____ **Time:** _____**Permit Cancellation:**

I hereby declare that the work is complete, all workers under my control have been withdrawn and the site restored to safe tidy condition.

Name of Work performing Authority: _____ Sign: _____ Date: _____ Time: _____

Name of Site Engr. (Permit Requesting Authority): _____ Sign: _____ Date: _____ Time: _____

Name of BHEL Site Engr. (Permit Issuing Authority): _____ Sign: _____ Date: _____ Time: _____

(This permit is valid only for the date it is issued)

Original at BHEL site

Second Copy – BHEL SAFETY

Third Copy : Contractor



SAFETY WORK CLEARANCE

Permit no. _____

Project: _____

Emergency Contact Nos: _____

Subcontractor: _____

LIFTING ACTIVITY PERMIT

Area : _____ Date: _____ Time: _____

Name of Site Engineer (Permit Requesting Authority): _____ Sign: _____

Name of Work Performing Contractor: _____

Name of Package In charge: _____ Sign: _____ Date: _____

Description of Work: _____

Work Execution Date: _____ Time Valid from: _____ to _____

The above signing person(s) will be responsible to ensure that the above described work will be done under all the safety precautions mentioned on the permit to work.

The following precautions are to be taken:

No.	Item	Yes	Not required
1.	Crane used for lifting activity tested, certified and approved for rated lifting		
2.	All lifting tackles, gears/appliances are tested and certified for lifting works.		
3.	Crane operator is trained and competent for lifting operation.		
4.	Lifting sling/ belt is protected against sharp edge of the jobs to be lifted.		
5.	Access and exit marked and without obstruction.		
6.	Lifting arrangement adequate.		
7.	Unwanted rubbish material removed from work platform.		
8.	Minimum 2 guidelines have been provided for balancing and guiding jobs to be lifted.		
9.	Periphery area of crane booms as well as lifting job is barricaded and unauthorised/no-entry sign board posted.		
10.	Rigger and signal man is trained and competent for lifting work.		
11.	No lifting activity to be carried out during lightening, heavy wind/rain.		
12.	If scaffolding to be used during lift, scaffolding with valid tag available for use.		
13.	Double lanyards safety harness/belt checked and in working condition.		
14.	Safety shoes (non-slip), helmet with chin strap available with employees.		
15.	Others.		

Name of Contractor Safety Officer: _____ Sign: _____ Date: _____ Time: _____

Reviewed and approved by BHEL Site Engineer (Permit Issuing Authority):

Name: _____ Sign: _____ Date: _____ Time: _____

Name of BHEL Safety Representative: _____ Sign: _____

I understand the precaution to be taken as described above and as per project requirement and hereby confirm that work will be executed under my supervision by following all precaution and Safety Rules.

Name of Work Performing Authority: _____ **Sign:** _____ **Date:** _____ **Time:** _____**Permit Cancellation:**

I hereby declare that the work is complete, all workers under my control have been withdrawn and the site restored to safe tidy condition.

Name of Work performing Authority: _____ Sign: _____ Date: _____ Time: _____

Name of Site Engr. (Permit Requesting Authority): _____ Sign: _____ Date: _____ Time: _____

Name of BHEL Site Engr. (Permit Issuing Authority): _____ Sign: _____ Date: _____ Time: _____

(This permit is valid only for the date it is issued)

Original at BHEL site

Second Copy – BHEL SAFETY

Third Copy : Contractor



SAFETY WORK CLEARANCE

Permit no. _____

Project: _____

Emergency Contact Nos: _____

Subcontractor: _____

WORKING AT HEIGHT PERMIT

Area : _____ Date: _____ Time: _____

Name of Site Engineer (Permit Requesting Authority): _____ Sign: _____

Name of Work Performing Contractor: _____

Name of Package In charge: _____ Sign: _____ Date: _____

Description of Work: _____

Work Execution Date: _____ Time Valid from: _____ to _____

The above signing person(s) will be responsible to ensure that the above described work will be done under all the safety precautions mentioned on the permit to work.

The following precautions are to be taken:

No.	Item	Yes	Not required
1.	All workers on job are medically fit for working at height (Person should not have vertigo)		
2.	Scaffolding with valid tag available for use		
3.	Safety harness with life line support/ fall arrester are checked and in working condition		
4.	Safety shoes (non-slip), Helmet with chin strip available with employees		
5.	Safety nets are provided as per design and provided 25 ft. below working area & extending 8 ft beyond.		
6.	Horizontal life lines are provided to cater to design specification of 2300kg per person.		
7.	Ladders have been inspected and provided as per BHEL standard/contract.		
8.	All lifting / tightening tools, hand tools/equipment checked and in good condition		
9.	Access and exit marked and without obstruction.		
10.	Lighting arrangement adequate.		
11.	Unwanted and rubbish material removed from working platform.		
12.	Electrical cable, welding Hose/Compressed air hose properly secured and lay down without obstruction.		
13.	Signboards provided on working platforms		
14.	Hazards in the vicinity are identified and communicated to the worker.		
15.	Other		

Name of Contractor Safety Officer: _____ Sign: _____ Date: _____ Time: _____

Reviewed and approved by BHEL Site Engineer (Permit Issuing Authority):

Name: _____ Sign: _____ Date: _____ Time: _____

Name of BHEL Safety Representative: _____ Sign: _____

I understand the precaution to be taken as described above and as per project requirement and hereby confirm that work will be executed under my supervision by following all precaution and Safety Rules.

Name of Work Performing Authority: _____ **Sign:** _____ **Date:** _____ **Time:** _____**Permit Cancellation:**

I hereby declare that the work is complete, all workers under my control have been withdrawn and the site restored to safe tidy condition.

Name of Work performing Authority: _____ Sign: _____ Date: _____ Time: _____

Name of Site Engr. (Permit Requesting Authority): _____ Sign: _____ Date: _____ Time: _____

Name of BHEL Site Engr. (Permit Issuing Authority): _____ Sign: _____ Date: _____ Time: _____

(This permit is valid only for the date it is issued)

Original at BHEL site**Second Copy – BHEL SAFETY****Third Copy : Contractor**

General Conditions of Contract

(Common for Power Sector Regions)

2012

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CHAPTER -1

1. GENERAL INSTRUCTION TO TENDERERS

1.1. DESPATCH INSTRUCTION

- i) The General Conditions of Contract form part of the Tender specifications. **All pages of the tender documents shall be duly signed, stamped and submitted along with the offer in token of complete acceptance thereof.** The information furnished shall be complete by itself. The tenderer is required to furnish all the details and other documents as required in the following pages
- ii) Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. Should the tenderers have any doubt about the meaning of any portion of the Tender Specification or find discrepancies or omissions in the drawings or the tender documents issued are incomplete or shall require clarification on any of the technical aspect, the scope of work etc., he shall at once, contact the authority inviting the tender well in time (so as not to affect last date of submission) for clarification before the submission of the tender. Tenderer's request for clarifications shall be with reference to Sections and Clause numbers given in the tender documents. The specifications and terms and conditions shall be deemed to have been accepted by the tenderer in his offer. Non compliance with any of the requirements and instructions of the tender enquiry may result in the rejection of the tender.
- iii) Integrity pact (IP) shall be applicable for all tenders / contracts if indicated in NIT. This integrity pact shall be issued as part of the Tender documents and shall be returned by the bidder along with Techno-commercial bid duly filled, signed and stamped by the authorized signatory who signs the bid. Only those vendors / bidders who have entered into such an IP with BHEL shall be considered qualified to participate in the bidding. Entering into this pact shall be a preliminary qualification.

1.2. SUBMISSION OF TENDERS

- 1.2.1 The tenderers must submit their tenders to Officer inviting tender as per instructions in the NIT

Offer shall be submitted online in e procurement portal - . **<https://bheleps.buyjunction.in>**
No other mode of offer submission shall be acceptable & shall be rejected.

Note : Party can review & revise their submitted offers till due date & time of submission

- 1.2.2 The tenders received after the specified time of their submission are treated as 'Late Tenders' and shall not be considered under any circumstances.
- 1.2.3 Tenders shall be opened by authorized officer of BHEL as specified in the NIT.

- 1.2.4 Tenderers whose bids are found techno commercially qualified shall be informed the date and time of opening of the Price Bids and such Tenderers may depute their representatives to witness the opening of the price bids. BHEL's decision in this regard shall be final and binding.
- 1.2.5 Before submission of Offer, the tenderers are advised to inspect the site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour, means of transport and access to Site, accommodation, etc. No claim will be entertained later on the grounds of lack of knowledge of any of these conditions.
- 1.3. LANGUAGE**
- 1.3.1 The tenderer shall quote the rates in English language and international numerals. These rates shall be entered in figures as well as in words. For the purpose of the tenders, the metric system of units shall be used.
- 1.3.2 All entries in the tender shall either be typed or written legibly in ink. Erasing and over-writing is not permitted and may render such tenders liable for rejection. All cancellations and insertions shall be duly attested by the tenderer.
- 1.4 PRICE DISCREPANCY:**
- 1.4.1 **Conventional Price Bid opening :** In the case of price bid opening without resorting to Reverse Auction, if there are differences between the rates given by the tenderer in words and figures or in amount worked out by him, the following procedure for evaluation and award shall be followed:
- i) When there is a difference between the rates in figures and in words, the rates which corresponds to the amounts worked out by the contractor, shall be taken as correct
 - ii) When the amount of an item is not worked out by the contractor or it does not correspond with the rate written either in figure or in words, then the rate quoted by the contractor in words shall be taken as correct.
 - iii) When the rate quoted by the contractor in figures and words tallies but the amount is not worked out correctly, the rate quoted by the contractor shall be taken as correct and not the amount.
 - iv) In case of lumpsum price, if there is any difference between the amount in figures and in words, the amount quoted by the bidder in words shall be taken as correct.
 - v) In case of omission in quoting any rate for one or more items, the evaluation shall be done considering the highest quoted rate obtained against the respective items by other tenderers for the subject tender. If the tenderer becomes L-1, the notional rates for the omission items shall be the lowest rates quoted for the respective items by the other tenderers against the respective omission items for the subject job and the 'Total quoted price (loaded for omissions)' shall be arrived at. However the overall price remaining the same as quoted originally, the rates for all the items in the 'Total quoted price (loaded for omissions)' shall be reduced item wise in proportion to the ratio of 'Original' total price and the 'Total quoted price (loaded for omissions)'.
 - vi) The 'Final Total Amount' shall be arrived at after considering the amounts worked out in line with 'i' to 'v' above.
- 1.4.2 **Reverse Auction:** In case of Reverse Auction, the successful bidder shall undertake to execute the work as per overall price offered by him during the Reverse Auction process. In case of omission of rates, the procedure shall be as per 'Guidelines for Reverse Auction' enclosed.
- 1.5. QUALIFICATION OF TENDERERS**
- i) Only tenderers who have previous experience in the work of the nature and description detailed in the Notice Inviting Tender and/or tender specification are expected to quote for this work duly

- detailing their experience along with offer.
- ii) Offers from tenderers who do not have proven and established experience in the field shall not be considered
- iii) Offers from tenderers who are under suspension (banned) by any Unit/Region/Division of BHEL shall not be considered.
- iv) Offers from tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India shall not be considered.

1.6. EVALUATION OF BIDS

- i) Technical Bids submitted by the tenderer will be opened first and evaluated for fulfilling the Pre Qualification criteria and other conditions in NIT/Tender documents, based on documentary evidences submitted along with the offer
- ii) In case the same qualifying experience is claimed by more than one agency, then the agency who has executed the work as per documentary evidence submitted shall only be qualified. Scope of qualifying work should be totally with the agency who has executed and in case it is only labour+consumables without T&P, then the responsibility of execution is assigned to the first agency and not to the agency who has executed only as labour supply contractor. Further, BHEL reserves the right to ask for further proofs including submission of TDS certificates for the said job
- iii) In case the qualifying experience is claimed by private organizations based on Work Order and completion certificates from another private organization, BHEL reserves the right to ask for further proofs including submission of TDS certificates for the said job
- iv) Assessing Bidder Capacity for executing the current tender shall be as per Notice Inviting Tender
- v) Price Bids of shortlisted bidders shall only be opened either through the conventional price bid opening or through electronic Reverse Auction, at the discretion of BHEL
- vi) Price Bids of unqualified bidders shall not be opened. Reasons for rejection shall be intimated in due course after issue of LOI/LOA to successful bidder and receipt of unqualified acceptance from the successful bidder
- vii) Bidders are advised to also refer to clause no 2.9.4 regarding evaluation of their performance in ongoing projects for the current tender.

1.7. DATA TO BE ENCLOSED

Full information shall be given by the tenderer in respect of the following. Non-submission of this information may lead to rejection of the offer.

- i) **INCOME TAX PERMANENT ACCOUNT NUMBER**
Certified copies of Permanent Account Numbers as allotted by Income Tax Department for the Company/Firm/Individual Partners, etc. shall be furnished along with tender.
- ii) **ORGANIZATION CHART**
The organization chart of the tenderer's organization, including the names, addresses and contact information of the Directors/Partners shall be furnished along with the offer.
- iii) Not used
- iv) **IN CASE OF INDIVIDUAL TENDERER:**
His / her full name, address and place & nature of business.
- v) **IN CASE OF PARTNERSHIP FIRM**
The names of all the partners and their addresses, A copy of the partnership deed/instrument of

partnership duly certified by the Notary Public shall be enclosed.

vi) **IN CASE OF COMPANIES:**

- a. Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished).
- b. Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.

1.8 Not used

1.9 EARNEST MONEY DEPOSIT

1.9.1 Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.

- i) EMD shall be furnished before tender opening / along with the offer in full as per the amount indicated in the Special Conditions of Contract / NIT.
- ii) The EMD is to be paid in the following forms:
 - (a) Cash deposit as permissible under the extant Income Tax Act (before tender opening).
 - (b) Electronic Fund Transfer credited in BHEL account (before tender opening).
 - (c) Banker's cheque / Pay order / Demand draft, in favour of 'Bharat Heavy Electricals Limited' and payable at Regional HQ issuing the tender (along with offer).In case total EMD amount is more than INR 20 Lakh, the amount in excess of INR 20 lakh may be accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months.
- iii) No other form of EMD remittance shall be acceptable to BHEL.

1.9.2 EMD by the Tenderer will be forfeited as per NIT conditions, if:

- i) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.
- ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ LOA/ Contract.
EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.

1.9.3 EMD shall not carry any interest.

1.9.4 In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after award of work.

1.9.5 EMD of successful tenderer will be retained as part of Security Deposit.

1.10 SECURITY DEPOSIT

1.10.1 Upon acceptance of Tender, the successful Tenderer should deposit the required amount of Security Deposit towards fulfilment of any obligations in terms of the provisions of the contract. The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

1.10.2 The security Deposit should be furnished before start of the work by the contractor.

1.10.3 The balance amount to make up the required Security Deposit of 5% of the contract value may be accepted in the following forms:-

- i) Cash (as permissible under the extant Income Tax Act)
- ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- iii) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).
- iv) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Security Deposit shall be in the prescribed formats.
- v) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).
- vi) Security deposit can also be recovered at the rate of 10% of the gross amount progressively from each of the running bills of the contractor till the total amount of the required security deposit is collected. However in such cases at least 50% of the required Security Deposit, including the EMD, should be deposited in any form as prescribed before start of the work and the balance 50% may be recovered from the running bills as described above.

(Note: In case of small value contracts not exceeding INR 20 lakhs, work can be started before the required Security Deposit is collected. However, payment can be released only after collection/ recovery of initial 50% Security Deposit).

Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.

1.10.4 The Security Deposit shall not carry any interest.

1.10.5 In case the value of work exceeds / reduces from the awarded / accepted value, the Security Deposit shall be correspondingly enhanced / reduced as given below:

- i) The enhanced part of the Security Deposit shall be immediately deposited by the Contractor or adjusted against payments due to the Contractor.
- ii) There will be no reduction in Security Deposit value in case of variation in contract value upto the lower limit specified in Quantity variation clause. In case of reduction of contract value beyond the lower limit specified in Quantity Variation clause, then the Security Deposit shall be re adjusted in proportion.
- iii) In case of reduction, the reduced Contract value shall be certified by BHEL Construction Manager after ascertaining / freezing of BOQ / Drawings from the Design / Engineering Centre. The reduced Security Deposit value can only be considered after taking into account the adequacy of the securities held by BHEL to meet the liabilities of the contractor for the contract, and the performance of the contract in general. **In such cases, the revised value of Security Deposit shall be worked out only after execution of not less than the lower limit of the revised scope of work/contract value as per quantity variation clause, and as certified by Construction Manager. This reduction in value of Security Deposit shall not entitle the contractor to any amendment of Contract and shall be operated at the discretion of BHEL**
- iv) Contract value for the purpose of operating the reduced/increased value of Security Deposit due to Quantity Variation, shall be exclusive of Price Variation Clause, Over Run Compensation and Extra works done on manday rates.
- v) The recoveries made from running bills (cash deduction towards balance SD amount) can be

released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, with the approval of BHEL.

1.10.6 The validity of Bank Guarantees towards Security Deposit shall be initially upto the completion period as stipulated in the Letter of Intent/Award + 3 months, and the same shall be kept valid by proper renewal till the acceptance of Final Bills of the Contractor, by BHEL.

1.10.7 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.

1.11 RETURN OF SECURITY DEPOSIT

Security Deposit shall be refunded/Bank Guarantee(s) released to the Contractor along with the 'Final Bill' after deducting all expenses / other amounts due to BHEL under the contract / other contracts entered into with them by BHEL.

1.12 BANK GUARANTEES

Where ever Bank Guarantees are to be furnished/submitted by the contractor, the following shall be complied with

- i) Bank Guarantees shall be from Scheduled Banks / Public Financial Institutions as defined in the Companies Act.
- ii) The Bank Guarantees shall be as per prescribed formats.
- iii) It is the responsibility of the bidder to get the Bank Guarantees revalidated/extended for the required period (subject to a minimum period of six months), as per the advice of BHEL Site Engineer / Construction Manager. BHEL shall not be liable for issue of any reminders regarding expiry of the Bank Guarantees.
- iv) In case extension/further extensions of any Bank Guarantees are not required, the bidders shall ensure that the same is explicitly endorsed by the Construction Manager and submitted to the Regional HQ issuing the LOI/LOA.
- v) In case the Bank Guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same by informing the concerned Bank in writing, without any advance notice/communication to the concerned bidder.
- vi) Bidders to note that any corrections to Bank Guarantees shall be done by the issuing Bank, only through an amendment in an appropriate non judicial stamp paper.
- vii) The Original Bank Guarantee shall be sent directly by the Bank to BHEL under Registered Post (Acknowledgement Due), addressed to the Subcontracting Department of the respective Region.

1.13 VALIDITY OF OFFER

The rates in the Tender shall be kept open for acceptance for a minimum period of **SIX MONTHS** from latest due date of offer submission (including extension, if any). In case BHEL (Bharat Heavy Electricals Ltd) calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the tenderers.

1.14 EXECUTION OF CONTRACT AGREEMENT

The successful tenderer's responsibility under this contract commences from the date of issue of the Letter of Intent/ Award by Bharat Heavy Electricals Limited. The Tenderer shall submit an unqualified acceptance to the Letter of Intent/Award within the period stipulated therein.

The successful tenderer shall be required to execute an agreement in the prescribed form, with BHEL, within a reasonable time after the acceptance of the Letter of Intent/Award, and in any case before releasing the first running bill. The contract agreement shall be signed by a person duly authorized/empowered by the tenderer.

1.15 REJECTION OF TENDER AND OTHER CONDITIONS

1.15.1 The acceptance of tender will rest with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever:-

- a. To reject any or all of the tenders.
- b. To split up the work amongst two or more tenderers as per NIT
- c. To award the work in part if specified in NIT
- d. In case of either of the contingencies stated in (b) and (c) above, the time for completion as stipulated in the tender shall be applicable.

1.15.2 Conditional tenders, unsolicited tenders, tenders which are incomplete or not in the form specified or defective or have been materially altered or not in accordance with the tender conditions, specifications etc., are liable to be rejected.

1.15.3 Tenders are liable to be rejected in case of unsatisfactory performance of the tenderer with BHEL, or tenderer under suspension (hold/banning /delisted) by any unit / region / division of BHEL or tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India. BHEL reserves the right to reject a bidder in case it is observed that they are overloaded and may not be in a position to execute this job as per the required schedule in line with clause no. 9.0 of the 'NIT'. The decision of BHEL will be final in this regard.

1.15.4 If a tenderer who is a proprietor expires after the submission of his tender or after the acceptance of his tender, BHEL may at their discretion, cancel such tender. If a partner of a firm expires after the submission of tender or after the acceptance of the tender, BHEL may then cancel such tender at their discretion, unless the firm retains its character.

1.15.5 BHEL will not be bound by any Power of Attorney granted by changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognise such power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.

1.15.6 If the tenderer deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract if awarded and forfeit the Earnest Money/Security Deposit/any other money due.

1.15.7 Canvassing in any form in connection with the tenders submitted by the Tenderer shall make his offer liable to rejection.

1.15.8 In case the Proprietor, Partner or Director of the Company/Firm submitting the Tender, has any

relative or relation employed in BHEL, the authority inviting the Tender shall be informed of the fact as per specified format, along with the Offer. Failing to do so, BHEL may, at its sole discretion, reject the tender or cancel the contract and forfeit the Earnest Money/Security Deposit.

- 1.15.9 The successful tenderer should not sub-contract part or complete work detailed in the tender specification undertaken by him without written permission of BHEL's Construction Manager/Site Incharge. The tenderer is solely responsible to BHEL for the work awarded to him.
- 1.15.10 The tender submitted by a techno commercially qualified tenderer shall become the property of BHEL who shall be under no obligation to return the same to the bidder.
- 1.15.11 Unsolicited discount received after the due date and time of Bid Submission shall not be considered for evaluation. However, if the party who has submitted the unsolicited discount/rebate becomes the L-I party, then the awarded price i.e contract value shall be worked out after considering the discount so offered.
- 1.15.12 BHEL shall not be liable for any expenses incurred by the bidder in the preparation of the tender irrespective of whether the tender is accepted or not.

CHAPTER-2

2.1 **DEFINITION:** The following terms shall have the meaning hereby assigned to them except where the context otherwise requires

- i) BHEL shall mean Bharat Heavy Electricals Limited (of the respective Power Sector Region inviting the Tender), a company registered under Indian Companies Act 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110 049, or its Power Sector Regional Offices or its Authorised Officers or its Site Engineers or other employees authorised to deal with any matters with which these persons are concerned on its behalf.
- ii) “EXECUTIVE DIRECTOR” or ‘GROUP GENERAL MANAGER’ or “GENERAL MANAGER (Incharge)” or “GENERAL MANAGER” shall mean the Officer in Administrative charge of the respective Power Sector Region.
- iii) “COMPETENT AUTHORITY” shall mean Executive Director or Group General Manager or General Manager (Incharge) or General Manager or BHEL Officers who are empowered to act on behalf of the Executive Director or General Manager (Incharge) or General Manager of BHEL.
- iv) “ENGINEER” or “ENGINEER IN CHARGE” shall mean an Officer of BHEL as may be duly appointed and authorized by BHEL to act as “Engineer” on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents. The term also includes ‘CONSTRUCTION MANAGER’ or ‘SITE INCHARGE’ as well as Officers at Site or at the Headquarters of the respective Power Sector Regions.
- v) “SITE” shall mean the places or place at which the plants/equipments are to be erected and services are to be performed as per the specification of this Tender.
- vi) “CLIENT OF BHEL” or “CUSTOMER” shall mean the project authorities with whom BHEL has entered into a contract for supply of equipments or provision of services.
- vii) “CONTRACTOR” shall mean the successful Bidder/Tenderer who is awarded the Contract and shall include the Contractor’s successors, heirs, executors, administrators and permitted assigns.
- viii) “CONTRACT” or “CONTRACT DOCUMENT” shall mean and include the Agreement of Work Order, the accepted appendices of Rates, Schedules, Quantities if any, General Conditions of Contract, Special Conditions of Contract, Instructions to the Tenderers, Drawings, Technical Specifications, the Special Specifications if any, the Tender documents, subsequent amendments mutually agreed upon and the Letter of Intent/Award/Acceptance issued by BHEL. Any conditions or terms stipulated by the contractor in the tender documents or subsequent letters shall not form part of the contract unless, specifically accepted in writing by BHEL in the Letter of Intent/Award and incorporated in the agreement.
- ix) “GENERAL CONDITIONS OF CONTRACT” shall mean the ‘Instructions to Tenderers’ and ‘General Conditions of Contract’ pertaining to the work for which above tenders have been called for.
- x) “TENDER SPECIFICATION” or “TENDER” or “TENDER DOCUMENTS” shall mean General Conditions, Common Conditions, Special Conditions, Price Bid, Rate Schedule, Technical

	Specifications, Appendices, Annexures, Corrigendums, Amendments, Forms, procedures, Site information, etc and drawings/documents pertaining to the work for which the tenderers are required to submit their offers. Individual specification number will be assigned to each Tender Specification.
xi)	“LETTER OF INTENT/ AWARD” shall mean the intimation by a Letter/Fax/email to the tenderer that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all terms and conditions of the contract are applicable from this date.
xii)	“COMPLETION TIME” shall mean the period by ‘date/month’ specified in the ‘Letter of Intent/Award’ or date mutually agreed upon for handing over of the intended scope of work, the erected equipment/plant which are found acceptable by the Engineer, being of required standard and conforming to the specifications of the Contract.
xiii)	“PLANT” shall mean and connote the entire assembly of the plant and equipments covered by the contract.
xiv)	“EQUIPMENT” shall mean equipment, machineries, materials, structural, electricals and other components of the plant covered by the contract.
xv)	“TESTS” shall mean and include such test or tests to be carried out on the part of the contractor as are prescribed in the contract or considered necessary by BHEL, in order to ascertain the quality, workmanship, performance and efficiency of the contractor or part thereof.
xvi)	“APPROVED”, “DIRECTED” or “INSTRUCTED” shall mean approved, directed or instructed by BHEL.
xvii)	“WORK or CONTRACT WORK” shall mean and include supply of all categories of labour, specified consumables, tools and tackles and Plants required for complete and satisfactory site transportation, handling, stacking, storing, erecting, testing and commissioning of the equipments to the entire satisfaction of BHEL.
xviii)	“SINGULAR AND PLURALS ETC” words carrying singular number shall also include plural and vice versa, where the context so requires. Words imparting the masculine Gender shall be taken to include the feminine Gender and words imparting persons shall include any Company or Associations or Body of Individuals, whether incorporated or not.
xix)	“HEADING” – The heading in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken as instructions thereof or of the contract.
xx)	“MONTH” shall mean calendar month unless otherwise specified in the Tender.
xxi)	Day’ or ‘Days’ unless herein otherwise expressly defined shall mean calendar day or days of twenty four (24) hours each. A week shall mean continuous period of seven (7) days.
xxii)	“COMMISSIONING” shall mean the synchronisation testing and achieving functional operation of the Equipment with associated system after all initial adjustments, trials, cleaning, re-assembly required at site if any, have been completed and Equipment with associated system is ready for

	taking into service.
xxiii)	“WRITING” shall include any manuscript type written or hand written or printed statement or electronically transmitted messages, under the signature or seal or transmittal of BHEL.
xxiv)	“TEMPORARY WORK” shall mean all temporary works for every kind required in or for the execution, completion, maintenance of the work.
xxv)	‘CONTRACT PRICE’ or ‘CONTRACT VALUE’ shall mean the sum mentioned in the LOI/LOA/Contract Agreement subject to such additions thereto or deductions there from as may be made under provisions hereinafter contained
xxvi)	“COMMENCEMENT DATE” or “START DATE” shall mean the commencement/start of work at Site as per terms defined in the Tenderl
xxvii)	“SHORT CLOSING” or “FORE CLOSING” of Contract shall mean the premature closing of Contract, for reasons not attributable to the contractor and mutually agreed between BHEL and the contractor
xxviii)	“TERMINATION” of Contract shall mean the pre mature closing of contract due to reasons as mentioned in the contract
xxix)	“DE MOBILISATION” shall mean the temporary winding up of Site establishment by Contractor leading to suspension of works temporarily for reasons not attributable to the contractor
xxx)	“RE MOBILISATION” shall mean the resumption of work with all resources required for the work after demobilization.
2.2	LAW GOVERNING THE CONTRACT AND COURT JURISDICTION The contract shall be governed by the Law for the time being in force in the Republic of India. Subject to clause 2.21.1 or 2.21.2 of this contract, the Civil Court having original Civil Jurisdiction at Delhi for PSNR, at Kolkata for PSER, at Nagpur for PSWR and at Chennai for PSSR, shall alone have exclusive jurisdiction in regard to all matters in respect of the Contract.
2.3	ISSUE OF NOTICE 2.3.1 <u>Service of notice on contractor</u> Any notice to be given to the Contractor under the terms of the contract shall be served by sending the same by Registered Post / Speed Post to or leaving the same at the Contractor’s last known address of the principal place of business (or in the event of the contractor being a company, to or at its Registered Office). In case of change of address, the notice shall be served at changed address as notified in writing by the Contractor to BHEL. Such posting or leaving of the notice shall be deemed to be good service of such notice and the time mentioned to the condition for doing any act after notice shall be reckoned from the date so mentioned in such notice. 2.3.2 <u>Service of notice on BHEL</u> Any notice to be given to BHEL in-charge/Region under the terms of the Contract shall be served by sending the same by post to or leaving the same at BHEL address or changed address as notified in writing by BHEL to the Contractor.
2.4	USE OF LAND No land belonging to BHEL or their Customer under temporary possession of BHEL shall be occupied by the contractor without written permission of BHEL.

2.5 COMMENCEMENT OF WORK

- 2.5.1** The contractor shall commence the work as per the time indicated in the Letter of Intent/Award from BHEL and shall proceed with the same with due expedition without delay.
- 2.5.2** If the contractor fails to start the work within stipulated time as per LOI/ LOA or as intimated by BHEL, then BHEL at its sole discretion will have the right to cancel the contract. The Earnest Money and/or Security Deposit with BHEL will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.
- 2.5.3** All the work shall be carried out under the direction and to the satisfaction of BHEL.

2.6 MEASUREMENT OF WORK AND MODE OF PAYMENT:

- 2.6.1** All payments due to the contractors shall be made by e mode only, unless otherwise found operationally difficult for reasons to be recorded in writing.
- 2.6.2** For progress running bill payments: - The Contractor shall present detailed measurement sheets in triplicate, duly indicating all relevant details based on technical documents and connected drawings for work done during the month/period under various categories in line with terms of payment as per contract. The basis of arriving at the quantities, weights shall be relevant documents and drawings released by BHEL. These measurement sheets shall be prepared jointly with BHEL Engineers and signed by both the parties.
- 2.6.3** These measurement sheets will be checked by BHEL Engineer and quantities and percentage eligible for payment under various groups shall be decided by BHEL Engineer. The abstract of quantities and percentage so arrived at based on the terms of payment shall be entered in Measurement Book and signed by both the parties.
- 2.6.4** Based on the above quantities, contractor shall prepare the bills in prescribed format and work out the financial value. These will be entered in Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the contractor.
- 2.6.5** All recoveries due from the contractor for the month/period shall be effected in full from the corresponding running bills unless specific approval from the competent authorities is obtained to the contrary.
- 2.6.6** Measurement shall be restricted to that portion of work for which it is required to ascertain the financial liability of BHEL under this contract.
- 2.6.7** The measurement shall be taken jointly by persons duly authorized on the part of BHEL and by the Contractor.
- 2.6.8** The Contractor shall bear the expenditure involved if any, in making the measurements and testing of materials to be used/used in the work. The contractor shall, without extra charges, provide all the assistance with appliances and other things necessary for measurement.
- 2.6.9** If at any time due to any reason whatsoever, it becomes necessary to re-measure the work done in full or in part, the expenses towards such re measurements shall be borne by the contractor unless such re measurements are warranted solely for reasons not attributable to contractor.

2.6.10 Passing of bills covered by such measurements does not amount to acceptance of the completion of the work measured. Any left out work has to be completed, if pointed out at a later date by BHEL.

2.6.11 Final measurement bill shall be prepared in the final bill format prescribed for the purpose based on the certificate issued by BHEL Engineer that entire works as stipulated in tender specification has been completed in all respects to the entire satisfaction of BHEL. Contractor shall give unqualified "No Claim" Certificate. All the tools and tackles loaned to him should be returned in satisfactory condition to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Books and signed by both parties to the contract. The Final Bill shall be prepared and paid within a reasonable time after completion of work.

2.7 RIGHTS OF BHEL

BHEL reserves the following rights in respect of this contract during the original contract period or its extensions if any, as per the provisions of the contract, without entitling the contractor for any compensation.

2.7.1 To withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of work and get it done through other agencies to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion due to other emergent reasons/ BHEL's obligation to its customer.

2.7.2 To terminate the contract or get any part of the work done through other agency or deploy BHEL's own/hired/otherwise arranged resources, at the risk and cost of the contractor after due notice of a period of two weeks by BHEL, in the event of:-

- i) Contractor's continued poor progress
- ii) Withdrawal from or abandonment of the work before completion of the work
- iii) Contractor's inability to progress the work for completion as stipulated in the contract
- iv) Poor quality of work
- v) Corrupt act of Contractor
- vi) Insolvency of the Contractor
- vii) Persistent disregard to the instructions of BHEL
- viii) Assignment, transfer, sub-letting of contract without BHEL's written permission
- ix) Non fulfillment of any contractual obligations
- x) In the opinion of BHEL, the contractor is overloaded and is not in a position to execute the job as per required schedule

2.7.3 To meet the expenses including BHEL overheads on the differential cost at 5%, over and above the Liquidated damages/penalties arising out of "Risk & Cost" as explained above under sl. no. 2.7.2. BHEL shall recover the amount from any money due from Contractor, or from any money due to the Contractor including Security Deposit, or by forfeiting any T&P or material of the contractor under this contract or any other contract of BHEL or by any other means or any combination thereof

2.7.4 To terminate the contract or to restrict the quantum of work and pay for the portion of work executed in case BHEL's contract with their customer are terminated for any reason, as per mutual agreement.

2.7.5 To effect recovery from any amounts due to the contractor under this or any other contract or in any

other form, the moneys BHEL is statutorily forced to pay to anybody, due to contractor's failure to fulfill any of his obligations. BHEL shall levy overheads of 5% on all such payments along with interest as defined elsewhere in the GCC.

- 2.7.6** While every endeavour will be made by BHEL to this end, they cannot guarantee uninterrupted work due to conditions beyond their control. The Contractor will not be normally entitled for any compensation/extra payment on this account unless otherwise specified elsewhere in the contract.
- 2.7.7** In case the execution of works comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than two months, due to reasons not attributable to the contractor and other than Force Majeure conditions, BHEL may consider permitting the contractor to de mobilize forthwith and re mobilize at an agreed future date. Cost of such demobilization/remobilization shall be mutually agreed. ORC in such cases shall not be applicable for the period between the period of demobilization and re mobilisation. The duration of contract/time extension shall accordingly get modified suitably. In case of any conflict, BHEL decision in this regard shall be final and binding on the contractor.
- 2.7.8** In the unforeseen event of inordinate delay in receipt of materials, drawings, fronts, etc, due to which inordinate discontinuity of work is anticipated, BHEL on its own or contractor's request at its discretion may consider to short close the contract in following cases:
- a) The balance works (including but not limited to Trial Operation, PG Test, etc) are minor vis a vis the scope of work envisaged as per the contract.
 - b) There has been no significant work in past 6 months OR no significant work is expected in next 6 months (example in Hydro projects or in projects where work has stopped due to reasons beyond the control of BHEL)
 - c) The balance works cannot be done within a reasonable period of time as they are dependent on unit shut down or on other facilities of customer or any other reasons not attributable to the contractor.
 - d) Work does not start within six months of LOI/ LOA date.

At the point of requesting for short closure, contractor shall establish that he has completed all works possible of completion and he is not able to proceed with the balance works due to constraints beyond his control. In such a case, the estimated value of the unexecuted portion of work (or estimated value of services to be provided for carrying out milestone/stage payments like Trial Operation/PG Test, etc) as mutually agreed, shall however be reduced from the final contract value.

2.7.9 LIQUIDATED DAMAGES/PENALTY

If the contractor fails to maintain the required progress of work which results in delay in the completion of the work as per the contractual completion period, BHEL shall have the right to impose Liquidated Damage/Penalty at the rate of 0. 5% of the contract value, per week of delay or part thereof subject to a maximum of 10% of the contract value. For this purpose, the period of delay shall be the delay attributable to the Contractor for the completion of work as per contract. Contract Value for this purpose, shall be the final executed value exclusive of ORC, Extra Works executed on Mandy rate basis, Supplementary/ Additional Items and PVC.

2.8 RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS ETC.

The following are the responsibilities of the contractor in respect of observance of local laws, employment of personnel, payment of taxes etc. The subcontractor shall fully indemnify BHEL against any claims of whatsoever nature arising due to the failure of the contractor in discharging any of his responsibilities hereunder:

- 2.8.1** As far as possible, Unskilled Workers shall be engaged from the local areas in which the work is being executed.
- 2.8.2** The contractor at all times during the continuance of this contract shall, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals and religious and other customs.
- 2.8.3** The contractor shall comply with all applicable State and Central Laws, Statutory Rules, Regulations, Notifications, etc. such as Payment of Wages Act, Minimum Wages Act, Workmen Compensation Act, Employer's Liability Act, Industrial Disputes Act, Employers Provident Act, Employees State Insurance Scheme, Contract Labour (Regulation and Abolition) Act, 1970, Payment of Bonus & Gratuity Act, Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996, The Building and Other Construction Workers' Welfare Cess Act, 1996 and other Acts, Rules, and Regulations for labour/workers as applicable and as may be enacted by the State Government and Central Govt. during the tenure of the Contract and having force or jurisdiction at Site. The Contractor shall also comply with provisions of and give all such notices to the local Governing Body, Police and other relevant Authorities as may be required by the Law.
- 2.8.4** The Contractor shall obtain independent License under the Contract Labour (Regulations and Abolition) Act, 1970 for engaging contract labour as required from the concerned Authorities based on the certificate (Form- V) issued by the Principal Employer/Customer.
- 2.8.5** The contractor shall pay and bear all taxes, fees, license charges, Cess, duties, deposits, tolls, royalties, commission or other charges which may be leviable on account of his operations in executing the contract.
- 2.8.6** While BHEL would pay the inspection fees and Registration fees of Boiler/Electrical Inspectorate, all other arrangements for site visits periodically by the Inspectorate to site, Inspection certificate etc. will have to be made by contractor. However, BHEL will not make any payment to the Inspectorate in connection with contractor's Welders/Electricians qualification tests etc.
- 2.8.7** Contractor shall be responsible for provision of Health and Sanitary arrangements (more particularly described in Contract Labour Regulation & Abolition Act), Safety precautions etc. as may be required for safe and satisfactory execution of contract.
- 2.8.8** The contractor shall be responsible for proper accommodation including adequate medical facilities for personnel employed by him.
- 2.8.9** The contractor shall be responsible for the proper behavior and observance of all regulations by the staff employed by him.

- 2.8.10** The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused, it is responsibility of the contractor to make good the losses or compensate for the same.
- 2.8.11** All the properties/equipments/components of BHEL/their Client loaned with or without deposit to the contractor in connection with the contract shall remain properties of BHEL/their Client.
- 2.8.12** The contractor shall use such properties for the purpose of execution of this contract. All such properties/equipments/components shall be deemed to be in good condition when received by the contractor unless he notifies within 48 hours to the contrary. The contractor shall return them in good condition as and when required by BHEL/their Client. In case of non-return, loss, damage, repairs etc, the cost thereof as may be fixed by BHEL Engineer will be recovered from the contractor
- 2.8.13** In case the contractor is required to undertake any work outside the scope of this contract, the rates payable shall be those mutually agreed upon if the item rates are not mentioned in existing contract
- 2.8.14** Any delay in completion of works/or non achievement of periodical targets due to the reasons attributable to the contractor, the same may have to be compensated by the contractor either by increasing manpower and resources or by working extra hours and/or by working more than one shift. All these are to be carried out by the contractor at no extra cost.
- 2.8.15** The contractor shall arrange, coordinate his work in such a manner as to cause no hindrance to other agencies working in the same premises.
- 2.8.16** All safety rules and codes applied by the Client/BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards, slings etc. or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer with a view to prevent pilferage, accidents, fire hazards. Due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of Clerical staff, watch and ward, store keepers to take care of equipment/materials and construction tools and tackles shall be posted at site by the contractor till the completion of work under this contract.
- The contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per prescribed standards and practices.
- Contractor has to ensure the implementation of Health, Safety and Environment (HSE) requirements as per directions given by BHEL/Customer. The contractor has to assist in HSE audit by BHEL/Customer and submit compliance Report. The contractor has to generate and submit record/reports as per HSE plan/activities as per instruction of BHEL/Customer
- 2.8.17** The contractor will be directly responsible for payment of wages to his workmen. A pay roll sheet giving all the payments given to the workers and duly signed by the contractor's representative should be furnished to BHEL site for record purpose, if so called for.

Contractor shall create awareness amongst their workforce by helping & encouraging in opening

bank accounts and to encourage them to adopt digital mode of transactions. While releasing wages/ salary to their workers/ supervisors/ staff, Contractor shall comply with the GOI's guidelines for maximizing such transactions through Non-Cash / digital means.

- 2.8.18** In case of any class of work for which there is no such specification as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.
- 2.8.19** Also, no idle charges will be admissible in the event of any stoppage caused in the work resulting in contractor's labour and Tools & Plants being rendered idle due to any reason at any time.
- 2.8.20** The contractor shall take all reasonable care to protect the materials and work till such time the plant/equipment has been taken over by BHEL or their Client whichever is earlier.
- 2.8.21** The contractor shall not stop the work or abandon the site for whatsoever reason of dispute, excepting force majeure conditions. All such problems/disputes shall be separately discussed and settled without affecting the progress of work. Such stoppage or abandonment shall be treated as breach of contract and dealt with accordingly
- 2.8.22** The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices, etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor.
- 2.8.23** The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/ or as per the instructions of the Engineer.
- 2.8.24** The Contractor to note that some of BHEL's T&Ps/MMDs may not be insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL. In case the damage / loss is due to carelessness/ negligence on the part of the contractor, the Contractor is liable to get them repair/ replaced immediately and in case of his failure to do so within a reasonable time, BHEL will reserve the right to recover the loss from the contractor.

2.9 PROGRESS MONITORING, MONTHLY REVIEW AND PERFORMANCE EVALUATION

- 2.9.1** A detailed plan/ programme for completion of the contractual scope of work as per the time schedule given in the contract shall be jointly agreed between BHEL and Contractor, before commencement of work. The above programme shall be supported by month wise deployment of resources viz Manpower, T&P, Consumables, etc. Progress will be reviewed periodically (Daily/Weekly/Monthly) vis a vis this jointly agreed programme. The Contractor shall submit periodical progress reports (Daily/Weekly/Monthly) and other reports/information including manpower, consumables, T&P mobilization etc as desired by BHEL.

- 2.9.2** Monthly progress review between BHEL and Contractor shall be based on the agreed programme as above, availability of inputs/fronts etc, and constraints if any, as per prescribed formats. Manpower, T&P and consumable reports as per prescribed formats shall be submitted by contractor every month. Release of RA Bills shall be contingent upon certification by BHEL Site Engineer of the availability of the above prescribed formats duly filled in and signed.
- 2.9.3** The burden of proof that the causes leading to any shortfall is not due to any reasons attributable to the contractor is on the contractor himself. The monthly progress review shall record shortfalls attributable to (i) Contractor, (ii) Force Majeure Conditions, and (iii) BHEL
- 2.9.4** Performance of the Contractor shall be assessed as per prescribed formats and shall form the basis for 'Annual/Overall Performance Evaluation' of the Contractor and also for 'Assessment of Capacity of Bidder' for Tenders where the Contractor is a bidder. BHEL reserves the right to revise the evaluation formats during the course of execution of the works
- 2.10 TIME OF COMPLETION**
- 2.10.1** The time schedule shall be as prescribed in the Contract. The time for completion shall be reckoned from the date of commencement of work at Site as certified by BHEL Engineers
- 2.10.2** The entire work shall be completed by the contractor within the time schedule or within such extended periods of time as may be allowed by BHEL under clause 2.11.
- 2.11 EXTENSION OF TIME FOR COMPLETION**
- 2.11.1** If the completion of work as detailed in the scope of work gets delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the Contract.
- 2.11.2** Based on the monthly reviews jointly signed, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.
- 2.11.3** However if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.
- 2.11.4** A joint programme shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources (with weightages) to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done every month of the 'Time extension' period in the same manner as is done for the regular contract period.
- 2.11.5** During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program.
- 2.11.6** At the end of total work completion as certified by BHEL Engineer, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The

total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/levied for the portion of time extensions attributable to contractor and recoverable from the dues payable to the contractor.

2.12 OVERRUN COMPENSATION

- 2.12.1** Over Run Compensation (ORC) is payable for works done during the extension period, by way of rate revisions for periods beyond original contract period subject to the following terms and conditions.
- 2.12.2** Rates shall be increased by 5% for the first twelve months of one or more extensions beyond original contract period. For the next twelve months of further extensions if any, rates shall be increased as above by 5% over the previous twelve months, and similarly for each subsequent twelve months extension.
- 2.12.3** The amount of payable per month due to rate revisions is subject to a minimum of Rs. 1,00,000/- per month and a maximum of Rs.5,00,000/- per month.
- 2.12.4** Should there be any 'Time extension' for reasons attributable only to the contractor, then the work shall be executed by the contractor at the rates applicable for the period the work was planned
- 2.12.5** Payment of ORC shall be regulated as follows:
- i) Contractor is entitled to Over Run Compensation (ORC) only for the portion of backlog attributable to BHEL.
 - ii) 50% of the compensation as per clause 2.12.3 is allocated for deployment of resources agreed as per the joint programme drawn vide 2.11.4. Payment shall however be based on the actual deployment of resources for the month as certified by BHEL, as per weightages assigned therein
 - iii) 50% of the compensation as per clause 2.12.3, is allocated for achieving of planned progress agreed as per the joint programme drawn vide 2.11.4. Payment shall be on pro rata basis for actual achieved quantities
 - iv) Total Over Run Compensation shall be limited to 10% of the executed contract value as certified in Final Bill. For this purpose executed contract value excludes PVC, ORC, Supplementary/Additional Items and Extra Works done on Manday rate basis
- 2.12.6** Contractor shall not be entitled for any Over Run Compensation (ORC) for the portion of backlog attributable to the contractor. Such works shall be executed at the rates applicable for the period the work was planned

2.13 INTEREST BEARING RECOVERABLE ADVANCES

- 2.13.1** Normally no advance is payable to the contractor. However, advance payment in exceptional circumstances shall be interest bearing and secured through a Bank Guarantee and shall be limited to a maximum of 5% of contract value. This 'Interest Bearing Recoverable Advance' shall be payable in not less than two installments with any of the installment not exceeding 60% of the total eligible advance.
- 2.13.2** In exceptional circumstances, with due justification, Competent Authority of BHEL is empowered to approve proposals for payment of additional interim interest bearing advance against Bank Guarantee, for resource augmentation towards expediting work for project implementation.
- 2.13.3** Bank Guarantee towards 'Interest Bearing Recoverable Advance' shall be atleast 110% of the advance so as to enable recovery of not only principle amount but also the interest portion, if so required.

- 2.13.4** Contractor shall establish the utilization of advance drawn before the release of next installment.
- 2.13.5** Payment and recovery of Interest Bearing Recoverable advance shall be at the sole discretion of BHEL and shall not be a subject matter of arbitration.
- 2.13.6** The rate of interest applicable for the above advances shall be the Base rate of SBI (on date of release of advance) plus 6%, and such rate will remain fixed till the total advance amount is recovered.
- 2.13.7** Unadjusted amount of advances paid shall not exceed 5% of the total contract value at any point of time. Recovery of advances shall be made progressively from each Running Bill such that the advance amounts paid along with the interest is fully recovered by the time the contractor's billing reaches 80% of contract value.
- 2.13.8** Recovery rate per month shall be the sum of:
- Not less than 10% of Running Bill amount
 - Simple interest up to the date of RA Bill on the outstanding Principle amount/amounts
- 2.13.9** Contractor to submit Bank Guarantee as per prescribed formats for each of the advance and shall be valid for at least one year or the recovery duration or the balance contract period which ever is later. In case the recovery of dues does not get completed within the aforesaid BG period, the contractor shall renew the BG or submit fresh BG for the outstanding amount and the remaining recovery period.
- 2.13.10** BHEL is entitled to make recovery of the entire outstanding amount in case the contractor fails to comply with the BG requirement

2.14 QUANTITY VARIATION

- 2.14.1** The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The quoted rates for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limits of Minus (-) 15% of awarded contract value.
- 2.14.2** Compensation due to variation of final executed value in excess of the limits defined in clause above, shall be as follows:
- In case the finally executed contract value reduces below the lower limit of awarded Contract Value due to quantity variation specified above, the contractor will be eligible for compensation @ 15% of the difference between the lower limit of the awarded contract value and the actual executed contract value.
 - In case the finally executed contract value increases above the awarded Contract Value due to quantity variation, there will be no upward revision in the rates for the individual items and also contractor is not eligible for any compensation.

2.15 EXTRA WORKS

- 2.15.1** All rectifications/modifications, revamping, and reworks required for any reasons not due to the fault of the contractor, or needed due to any change in deviation from drawings and design of equipments, operation/maintenance requirements, mismatching, or due to damages in transit, storage and erection/commissioning, and other allied works which are not very specifically indicated in the drawings, but are found essential for satisfactory completion of the work, will be considered as extra works.

- 2.15.2** Extra works arising on account of the contractor's fault, irrespective of time consumed in rectification of the damage/loss, will have to be carried out by the contractor free of cost. Under such circumstances, any material and consumable required for this purpose will also have to be arranged by the contractor at his cost.
- 2.15.3** All the extra work should be carried out by a separately identifiable gang, without affecting routine activities. Daily log sheets in the pro-forma prescribed by BHEL should be maintained and shall be signed by the contractor's representative and BHEL engineer. No claim for extra work will be considered/entertained in the absence of the said supporting documents i.e. daily log sheets. Signing of log sheets by BHEL engineer does not necessarily mean the acceptance of such works as extra works.
- 2.15.4** BHEL retains the right to award or not to award any of the major repair/rework/modification/rectification/fabrication works to the contractor, at their discretion without assigning any reason for the same
- 2.15.5** After eligibility of extra works is established and finally accepted by BHEL engineer/designer, payment will be released on competent authority's approval at the following rate.

MAN-HOUR RATE FOR ELIGIBLE EXTRA WORKS: Single composite average labour man-hour rate, including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, consumables for carrying out any major rework/ repairs/ rectification/ modification/ fabrication as certified by site as may arise during the course of erection, testing, commissioning or extra works arising out of transit, storage and erection damages, payment, if found due will be at Rs 60/- per man hour.

- 2.15.6** The above composite labour man hour rate towards extra works shall remain firm and not subject to any variation during execution of the work. PVC will not be applicable for extra works. Rate revision, Over Run Charges/compensation etc will not be applicable due to extra works.

- 2.15.7** **Extra Works for Civil Packages** shall be regulated as follows

- i) Rates for Extra Works arising due to (1) non availability of BOQ (Rate Schedule), OR (2) change in Specifications of materials/works (3) rectification/modification/dismantling & re erecting etc due to no fault of Contractor, shall be in the order of the following:
 - a) Item rates are to be derived from similar nature of items in the BOQ (Rate Schedule) with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities.
 - b) As per CPWD-DSR-2007 (or latest edition) with applicable escalation derived from All India Consumer price Index for Whole Sale Commodities, OR, Notification issued by the office of CPWD for 'Cost Index' in that Region where the project is being executed, whichever is less
 - c) Item rates are to be worked out on the basis of prevailing market rates mutually agreed between BHEL and Contractor, plus 15% towards Contractor's overheads and profit.
- ii) PVC and ORC will not applicable be for (i) above.

2.16 SUPPLEMENTARY ITEMS

2.16.1 For NON Civil Works

Supplementary items are items/works required for completion of entire work but not specified in the scope of work. Subject to certification of such items/works as supplementary items by BHEL Engineer, rates shall be derived on the basis of any one of the following on mutual agreement:

- i) Based on percentage breakup/rates indicated for similar/nearby items

- ii) In case (i) above does not exist, then BHEL/site may derive the percentage breakup/rates to suit the type of work.

2.16.2 For Civil Works

- i) Rates for Supplementary Works/Additional Works arising out due to additions/alterations in the original scope of works as per contract subject to certification of BHEL Engineer shall be worked out as under:
- a) Item rates which are available in existing BOQ (Rate Schedule) shall be operated with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities
- b) Items of works which are not available in existing BOQ shall be operated as an 'Extra Works' and rate shall be derived as per clause no 2.15.7
- ii) Execution of Supplementary Works/Additional Works through the Contractor shall be at the sole discretion of BHEL, and shall be considered as part of executed contract value for the purpose of Quantity Variation as per clause 2.14
- iii) BHEL Engineer's decision regarding fixing the rate as above is final and binding on the contractor.
- iv) PVC and ORC will not be applicable for (i) above.

2.17 PRICE VARIATION COMPENSATION

2.17.1 In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS, Price Variation Formula as described herein shall be applicable (only for works executed during extended period, if any, subject to other conditions as described in this section).

2.17.2 85% component of Contract Value shall be considered for PVC calculations and remaining 15% shall be treated as fixed component. The basis for calculation of price variation in each category, their component, Base Index, shall be as under:

SL NO.	CATEGORY	BASE INDEX	PERCENTAGE COMPONENT ('K')				
			CIVIL PACKAGES (See Note A/B/C)			MECHANICAL PACKAGES	Electrical, C&I, Material Management/ Handling and other labour oriented packages
			A	B	C		
i)	LABOUR (ALL CATEGORIES)	'MONTHLY ALL-INDIA AVERAGE CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS' published by Labour Bureau, Ministry of Labour and Employment, Government of India. (Website: labourbureau.nic.in)	40	25	30	65	80
ii)	HIGH SPEED DIESEL OIL	Name of Commodity: HSD OIL. Commodity Code: 1200020005 (See Note E)	5	3	5	5	5
iii)	WELDING ROD	Name of Commodity : WELDING ROD Commodity Code: 1310030017 (See Note E)				15	

iv)	CEMENT	Name of Commodity : GREY CEMENT Commodity Code: 1309030001 (See Note E)		20	30		
v)	STEEL (Structural and Reinforcement Steel)	Name of Commodity: a2. STEEL:LONG Commodity Code: 1310010200 (See Note E)		25			
vi)	ALL OTHER MATERIALS (Other than Cement & Steel)	Name of Commodity: ALL COMMODITIES Commodity Code: 1000000000 (See Note E)	40	12	20		

Note: A) Cement & Steel : Free Issue (BHEL Scope)

B) Cement & Steel : In Contractor Scope

C) Cement in Contractor Scope, and Steel is Free Issue (BHEL Scope)

D) For Composite packages (i.e. Civil+Mechanical+Electrical and/or CI or Civil+Mechanical or Mechanical+Electrical and/or CI), the COMPONENT ('K') for various categories shall be as per respective packages as above.

F) As per the 'MONTHLY WHOLE SALE PRICE INDEX' for the respective Commodity and Type, published by Office of Economic Adviser, Ministry of Commerce and Industry, Government of India. (Website: www.eaindustry.nic.in/download_data_0405.asp). Revisions in the index or commodity will be re adjusted accordingly.

2.17.3 #

2.17.4 Payment/recovery due to variation in index shall be determined on the basis of the following notional formula in respect of the identified COMPONENT ('K') viz LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS.

$$P = K \times R \times \frac{(X_N - X_0)}{X_0}$$

Where

P = Amount to be paid/recovered due to variation in the Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials.

K = Percentage COMPONENT ('K') applicable for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

R = Value of work done for the billing month (Excluding Taxes and Duties if payable extra)

X_N = Revised Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials for the billing month under consideration

X₀ = Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials as on the Base date.

2.17.5 **Base date shall be the calendar month of the schedule completion date (i.e. Actual start date + Scheduled Contractual completion period as per Letter of Intent/award and/or work order).**

2.17.6 PVC shall not be payable for the ORC amount, Supplementary/Additional Items, Extra works. However, PVC will be payable for items executed under quantity variation of BOQ items under originally awarded contract.

2.17.7 The contractor shall furnish necessary monthly bulletins in support of the requisite indices from the relevant websites along with his Bills.

2.17.8 The contractor will be required to raise the bills for price variation payments on a monthly basis along with the running bills irrespective of the fact whether any increase/decrease in the index for relevant categories has taken place or not. In case there is delay in publication of bulletins (final figure), the provisional values as published can be considered for payments and arrears shall be paid/recovered on getting the final values.

2.17.9 PVC shall be applicable only, during the extended period of contract (if any) after the scheduled completion period and for the portion of work delayed / backlog for the reasons not attributable to the contractor.

However total quantum of Price Variation amount payable/recoverable shall be regulated as follows:

- i) For the portion of shortfall / backlog not attributable to contractor, PVC shall be worked out on the basis of indices applicable for the respective month in which work is done. Base index shall be applicable as defined in clause 2.17.5.
- ii) In case of Force majeure, PVC shall be regulated as per (a) or (b) below:
 - a) Force majeure is invoked before “base date”/“revised base date” (as explained below) OR immediately after “base date”/“revised base date” in continuation (i.e. during the period when PVC is not applicable):
 1. Base date shall be revised: Revised base date=Previous base date + duration of Force majeure. No PVC will be applicable for the work done till revised base date.
 2. PVC will be applicable for the work done after “base date”/“revised base date” as the case may be (during extended period when delay is not attributable to contractor). PVC shall be worked out on the basis of the indices applicable for the respective month in which work is done with base index as on “base date”/“revised base date” as the case may be.
 - b) Force majeure is invoked after “base date”/“revised base date” as the case may be (during extended period when delay is not attributable to contractor).
 1. PVC shall be applicable for the work done after revocation of force majeure.
 2. PVC for the work done after revocation of force majeure shall be worked out on the basis of indices applicable for the respective month in which work is done excluding the effect of change in indices during total period of Force majeure(s) invoked after “base date”/“revised base date” as the case may be. Base index shall be taken as on “base date”/“revised base date” as the case may be.
- iii) The total amount of PVC shall not exceed 15% of the cumulatively executed contract value. Executed contract value for this purpose is exclusive of PVC, ORC, Supplementary/Additional Items and Extra works except items due to quantity variation.

2.18 INSURANCE

2.18.1 BHEL/their customer shall arrange for insuring the materials/properties of BHEL/customer covering the risks during transit, storage, erection and commissioning.

2.18.2 It is the sole responsibility of the contractor to insure his materials, equipments, workmen, etc. against accidents and injury while at work and to pay compensation, if any, to workmen as per Workmen's compensation Act. The work will be carried out in a protected area and all the rules and regulations of the client /BHEL in the area of project which are in force from time to time will have to be followed by the contractor.

2.18.3 If due to negligence and or non-observation of safety and other precautions by the contractors, any

accident/injury occurs to the property / manpower belong to third party, the contractor shall have to pay necessary compensation and other expense, if so decided by the appropriate authorities.

- 2.18.4 The contractor will take necessary precautions and due care to protect the material, while in his custody from any damage/ loss due to theft or otherwise till the same is taken over by BHEL or customer. For lodging / processing of insurance claim the contractor will submit necessary documents. BHEL will recover the loss including the deductible franchise from the contractor, in case the damage / loss is due to carelessness / negligence on the part of the contractor. In case of any theft of material under contractor's custody, matter shall be reported to police by the contractor immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL for taking up with insurance. However this will not relieve the contractor of his contractual obligation for the material in his custody.

2.19 STRIKES & LOCKOUT

- 2.19.1 The contractor will be fully responsible for all disputes and other issues connected with his labour. In the event of the contractor's labour resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of one month, BHEL shall have the right to get the work executed through any other agencies and the cost so incurred by BHEL shall be deducted from the Contractor's bills.
- 2.19.2 For all purposes whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL

2.20 FORCE MAJEURE

- 2.20.1 "Force Majeure" shall mean any event beyond the reasonable control of the parties including but not limited to fire, flood, earthquake or other acts of God, war, riots, civil war and restraints of Governing States, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected. The following events are explicitly excluded from Force Majeure and are solely the responsibilities of the non-performing party : a) any strike, work-to-rule action, go-slow or similar labour difficulty (b) late delivery of equipment or material (unless caused by Force Majeure event) and (c) economic hardship.
- 2.20.2 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within 15 (fifteen) days after the occurrence of such event.
- 2.20.3 The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended by a period of time equal to period of delay caused due to such Force Majeure event.
- 2.20.4 Delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall not
- Constitute a default or breach of the Contract.
 - Give rise to any claim for damages or additional cost or expense occasioned thereby, if and to the extent that such delay or non-performance is caused by the occurrence of an event of

Force Majeure.

2.21 ARBITRATION

2.21.1 Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL Power Sector Region issuing the Contract. It shall not be open to the Contractor to object to such arbitrator only on the ground that such arbitrator is an employee/ ex-employee of BHEL or has dealt with or has expressed any opinion on any issue touching upon the Contract.

The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be New Delhi/ delhi.

2.21.2 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable :

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred by either Party for arbitration to the sole arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the Parties to the dispute, provided, however, any Party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively.

2.21.3 The cost of arbitration shall be borne equally by the Parties.

2.21.4 Notwithstanding the existence or any dispute or differences and / or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner.

2.22 RETENTION AMOUNT

2.22.1 Retention Amount shall be 5% of executed contract value and shall be recovered at the rate of 5% from each Running Bill admitted, including PVC Bills.

2.22.2 Refund of Retention Amount shall be as follows:

- i) 50% of retention amount along with 'Final Bill'
- ii) Balance 50% of retention amount shall be retained towards 'Performance Guarantee for

Workmanship' and shall become refundable after expiry of Guarantee period, provided all the defects noticed during the guarantee period have been rectified to the satisfaction of BHEL Site Engineer/BHEL Construction Manager, and after deducting all expenses/other amounts due to BHEL under the contract/other contracts entered into by BHEL with them. This portion of the retention amount can be released on commencement of the Guarantee period, on submission of equivalent Bank Guarantee.

2.23 PAYMENTS

Payments to Contractors are made in any one of the following forms

2.23.1 Running Account Bills (RA Bills)

- i) These are for interim payments when the contracts are in progress. The bills for such interim payments are to be prepared by Contractor in prescribed formats (RA Bill forms).
- ii) Payments shall be made according to the extent of work done as per measurements taken up to the end of the calendar month and in line with the terms of payments described in the Tender documents
- iii) Recoveries on account of electricity, water, statutory deductions, etc are made as per terms of contract
- iv) Full rates for the work done shall be allowed only if the quantum of work has been done as per the specifications stipulated in the contract. If the work is not executed as per the stipulated specifications, BHEL may ask the contractor to re do the work according to the required specifications, without any extra cost. However, where this is not considered necessary 'OR' where the part work is done due to factors like non-availability of material to be supplied by BHEL 'OR' non availability of fronts 'OR' non availability of drawings, fraction payment against full rate, as is considered reasonable, may be allowed with due regard for the work remaining to be done. BHEL decision in this regard will be final and binding on the contractor.
- v) In order to facilitate part payment, BHEL Site Engineer at his discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work

2.23.2 Final Bill

Final Bill' is used for final payment on closing of Running Account for works or for single payment after completion of works. 'Final Bill' shall be submitted as per prescribed format after completion of works as per scope and upon material reconciliation, along with the following.

- i) 'No Claim Certificate' by contractor
- ii) Clearance certificates where ever applicable viz Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department, etc
- iii) Indemnity bond as per prescribed format

BHEL shall settle the final bills after deducting all liabilities of Contractor to BHEL

2.24 PERFORMANCE GUARANTEE FOR WORKMANSHIP

- 2.24.1 Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of twelve months from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the Contractor's risk and cost, without prejudice to

any other rights and recover the same from the Guarantee money.

2.24.2 BHEL shall release the guarantee money subject to the following

- i) Contractor has submitted 'Final Bill'
- ii) Guarantee period as per contract has expired
- iii) Contractor has furnished 'No Claim Certificate' in specified format
- iv) BHEL Site Engineer/Construction Manager has furnished the 'No Demand Certificate' in specified format
- v) Contractor has carried out the works required to be carried out by him during the period of Guarantee and all expenses incurred by BHEL on carrying out such works is included for adjustment from the Guarantee money refundable.

2.25 CLOSING OF CONTRACTS

The Contract shall be considered completed and closed upon completion of all contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of Contract, BHEL shall issue a completion certificate as per standard format, based on specific request of Contractor.

2.26 REVERSE AUCTION:

BHEL reserves the right to go for Reverse Auction for Price Bid Opening by BHEL appointed service provider, instead of opening the submitted sealed price bid in the conventional way. The Business Rules for Reverse Auction shall be as per BHEL guidelines issued from time to time.

2.27 SUSPENSION OF BUSINESS DEALINGS

BHEL reserves the right to take action against Contractors who either fail to perform or Tenderers/Contractor who indulge in malpractices, by suspending business dealings with them in line with BHEL guidelines issued from time to time.

2.28 OTHER ISSUES

- 2.28.1 Value of Non judicial Stamp Paper for Bank Guarantees and for Contract Agreement shall be not less than Rs 100/- unless otherwise required under relevant statutes.
- 2.28.2 In case of any conflict between the General Conditions of Contract and Special Conditions of Contract, provisions contained in the Special Conditions of Contract shall prevail.
- 2.28.3 Unless otherwise specified in NIT, offers from consortium/ JVs shall not be considered.
- 2.28.4 BHEL may not insist for signing of Contract Agreements in respect of low value and short time period contracts like providing services for Hot water flushing, Chemical Cleaning, Transportation, etc.

Rev 01

1st June
2012

FORMS & PROCEDURES

(Document No. PS:MSX:F&P)

BHARAT HEAVY ELECTRICALS
LIMITED



FORMS & PROCEDURES

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FORMS & PROCEDURES

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##: will be released later

OFFER FORWARDING LETTER / TENDER SUBMISSION LETTER
(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

Offer Reference No:.....

Date:.....

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : Submission of Offer against Tender Specification No:

I/We hereby offer to carry out the work detailed in the Tender Specification issued by Bharat Heavy Electricals Limited, Power Sector-....., in accordance with the terms and conditions thereof.

I/We have carefully perused the following listed documents connected with the above work and agree to abide by the same.

1. Amendments/Clarifications/Corrigenda/Errata/etc issued in respect of the Tender documents by BHEL
2. Notice Inviting Tender (NIT)
3. Price Bid
4. Technical Conditions of Contract
5. Special Conditions of Contract
6. General Conditions of Contract
7. Forms and Procedures

Should our Offer be accepted by BHEL for Award, I/we further agree to furnish 'Security Deposit' for the work as provided for in the Tender Conditions within the stipulated time as may be indicated by BHEL.

I/We further agree to execute all the works referred to in the said Tender documents upon the terms and conditions contained or referred to therein and as detailed in the appendices annexed thereto.

I/We have deposited/depositing herewith the requisite Earnest Money Deposit (EMD) as per details furnished in the Check List.

Authorised Representative of Bidder

Signature :

Name :

Address :

Place:

Date:

DECLARATION BY AUTHORISED SIGNATORY OF BIDDER

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : **Declaration by Authorised Signatory**

Ref : 1) NIT/Tender Specification No:
2) All other pertinent issues till date

I/We, hereby certify that all the information and data furnished by me with regard to the above Tender Specification are true and complete to the best of my knowledge. I have gone through the specifications, conditions, stipulations and all other pertinent issues till date, and agree to comply with the requirements and Intent of the specification.

I further certify that I am authorised to represent on behalf of my Company/Firm for the above mentioned tender and a valid Power of Attorney to this effect is also enclosed.

Yours faithfully,

(Signature, Date & Seal of Authorized
Signatory of the Bidder)

Date:

Enclosed : Power of Attorney

DECLARATION BY AUTHORISED SIGNATORY OF BIDDER

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : **Declaration by Authorised Signatory regarding Authenticity of submitted documents.**

Ref : 1) NIT/Tender Specification No:
2) All other pertinent issues till date

I/We, hereby certify that all the documents submitted by us in support of possession of “Qualifying Requirements” are true copies of the original and are fully compliant required for qualifying / applying in the bid and shall produce the original of same as and when required by Bharat Heavy Electricals Limited.

I / We hereby further confirm that no tampering is done with documents submitted in support of our qualification as bidder. I / We understand that at any stage (during bidding process or while executing the awarded works) if it is found that fake / false / forged bid qualifying / supporting documents / certificates were submitted, it would lead to summarily rejection of our bid / termination of contract. BHEL shall be at liberty to initiate other appropriate actions as per the terms of the Bid / Contract and other extant policies of Bharat Heavy Electricals Limited.

Yours faithfully,

(Signature, Date & Seal of Authorized
Signatory of the Bidder)

Date:

NO DEVIATION CERTIFICATE

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : **No Deviation Certificate**

Ref : 1) NIT/Tender Specification No:,

2) All other pertinent issues till date

We hereby confirm that we have not changed/ modified/materially altered any of the tender documents as downloaded from the website/ issued by BHEL and in case of such observance at any stage, it shall be treated as null and void.

We also hereby confirm that we have neither set any Terms and Conditions and nor have we taken any deviation from the Tender conditions together with other references applicable for the above referred NIT/Tender Specification.

We further confirm our unqualified acceptance to all Terms and Conditions, unqualified compliance to Tender Conditions, Integrity Pact (if applicable) and acceptance to Reverse Auctioning process.

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

Thanking you,

Yours faithfully,

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

DECLARATION CONFIRMING KNOWLEDGE ABOUT SITE CONDITIONS
(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : **Declaration confirming knowledge about Site conditions**

Ref : 1) NIT/Tender Specification No:,

2) All other pertinent issues till date

I/We, _____ hereby declare and confirm that we have visited the Project Site as referred in BHEL Tender Specifications and acquired full knowledge and information about the Site conditions including Wage structure, Industrial Climate, the Law & Order and other conditions prevalent at and around the Site. We further confirm that the above information is true and correct and we shall not raise any claim of any nature due to lack of knowledge of Site conditions.

I/We, hereby offer to carry out work as detailed in above mentioned Tender Specification, in accordance with Terms & Conditions thereof.

Yours faithfully,

(Signature, Date & Seal of Authorized
Representative of the Bidder)

Date :

Place:

DECLARATION FOR RELATION IN BHEL

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder failing which the offer of Bidder is liable to be summarily rejected)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : **Declaration for relation in BHEL**

Ref : 1) NIT/Tender Specification No:,

I/We hereby submit the following information pertaining to relation/relatives of Proprieter/Partner(s)/Director(s) employed in BHEL

Tick(✓) any one as applicable:

1. The Proprieter, Partner(s), Director(s) of our Company/Firm DO NOT have any relation or relatives employed in BHEL

OR

2. The Proprieter, Partner(s), or Director(s) of our Company/Firm HAVE relation/relatives employed in BHEL and their particulars are as below:

(i)

(ii)

Signature of the Authorised Signatory

Note:

1. Attach separate sheet, if necessary.
2. If BHEL Management comes to know at a later date that the information furnished by the Bidder is false, BHEL reserves the right to take suitable against the Bidder/Contractor.

NON DISCLOSURE CERTIFICATE

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

NON DISCLOSURE CERTIFICATE

I/We understand that BHEL PS __ is committed to Information Security Management System as per their Information Security Policy.

Hence, I/We M/s.....
who are submitting offer for providing services to BHEL PS __ against
Tender Specification No:_____,
hereby undertake to comply with the following in line with Information
Security Policy of BHEL PS __, _____

- To maintain confidentiality of documents & information which shall be used during the execution of the Contract.
- The documents & information shall not be revealed to or shared with third party which shall not be in the business interest of BHEL PS__.

(Signature, date & seal of Authorized
Signatory of the bidder)

Date:

BANK ACCOUNT DETAILS FOR E-PAYMENT

(To be given on Letter head of the Company /Firm of Bidder, and **ENDORSED (SIGNED & STAMPED) BY THE BANK** to enable BHEL release payments through Electronic Fund Transfer (EFT/RTGS))

1. Beneficiary Name :
2. Beneficiary Account No. :
3. Bank Name & Branch :
4. City/Place :
5. 9 digit M ICR Code of Bank Branch :
6. IFSC Code of Bank Branch :
7. Beneficiary E-mail ID :
(for payment confirmation)

NOTE: In case Bank endorsed certificate regarding above has already been submitted earlier, Kindly submit photocopy of the same

FORMAT FOR SEEKING CLARIFICATION

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : **Request for Clarification**Ref : 1) NIT/Tender Specification No:
2) All other pertinent issues till date

Sl no	Reference clause of Tender Document	Existing provision	Bidder's query	BHEL's clarification
1				
2				
3				
4				
5				
6				

Yours faithfully,

(Signature, date & seal of Authorized
Representative of the Bidder)

CAPACITY EVALUATION OF BIDDERS FOR CURRENT TENDER

SL NO.	DESCRIPTION OF WORK (Similar to Tendered Scope)	WORK ORDER REF & DATE	CONTRACT VALUE (Rs. LACS)	CUSTOMER NAME & ADDRESS	CURRENT STATUS OF THE JOB ALONG WITH LATEST MILE STONE COMPLETED	%AGE OF WORK COMPLETE D	VALUE OF BALANCE WORK (Rs. Lacs)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

NOTES:

1. BIDDERS ARE REQUIRED TO FURNISH ALL THE JOBS OF SIMILAR NATURE WHICH THEY ARE EXECUTING (IN PROGRESS) AT THE TIME OF SUBMISSION OF TENDER, AS PER ABOVE FORMAT.

2. BIDDERS HEREBY UNDERTAKE THAT THEY HAVE FURNISHED THE DETAILS SOUGHT AS PER POINT NO. 1 IN TOTALITY AND THAT THE DETAILS FURNISHED IS COMPLETE IN ALL RESPECT.

3. BHEL WILL TAKE APPROPRIATE ACTION AS DEEMED FIT , IN CASE, IT IS FOUND AT A LATER DATE THAT THE CONTRACTOR HAD SUPPRESSED THE FACTS AND HAVE NOT FURNISHED THE CORRECT & COMPLETE INFORMATIONS.

DATE :
PLACE:

Signature

Name, Designation & Seal of Bidder

CONTRACT AGREEMENT

Form No: F-10 (Rev 00)

BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Region

.....

.....

CONTRACT AGREEMENT

AGREEMENT NO. _____

NAME OF WORK	
NAME OF THE CONTRACTOR WITH FULL ADDRESS	
VALUE OF WORK AWARDED	
LOI/ LOA NO.	
CONTRACT DURATION	

SIGNATURE OF CONTRACTOR

(SIGNATURE OF BHEL OFFICER)

CONTRACT AGREEMENT

Form No: F-10 (Rev 00)

THIS AGREEMENT MADE THIS _____ DAY OF _____ between BHARAT HEAVY ELECTRICALS LIMITED (A Government of India Enterprise) a Company incorporated under the Companies Act, 1956, having its Registered Office at BHEL House, Siri Fort New Delhi-110049 (herein after called BHEL) of the ONE PART.

AND

M/S _____
_____ (hereinafter called the 'Contractor') of the
SECOND PART.

WHEREAS M/s -----state that they
have acquired and possess extensive experience in the field of -----

And Whereas in response to an Invitation to Tender No. ----- issued by BHEL for execution of ----- the contractor submitted their offer No.-----dated -----And whereas BHEL has accepted the offer of the Contractor on terms and conditions specified in the Letter of Intent/ Letter of Award (LOA) No.-----dated -----read with the references cited therein.

THIS AGREEMENT WITNESSES AND it is hereby agreed by and between the parties as follows:

1. That the contractor shall execute the work of -----and more particularly described in Tender Specification No -----including Drawings and Specifications (hereinafter called the said works) in accordance with and subject to terms and conditions contained in these presents, instructions to Tenderers, General Conditions of Contract, Special Conditions, Annexures, Letter of Intent/ LOA dated -----and such other instructions, Drawings, Specifications given to him from time to time by BHEL.
2. The Contractor is required to furnish to BHEL Security deposit in the form of cash/ approved securities/ Bank Guarantee valid upto ----- for a sum of Rs.----- towards satisfactory performance and completion of the Contract.
3. The Contractor has furnished a Bank Guarantee bearing no.-----dated -----for a sum of Rs.-----executed by ----- in favour of BHEL towards Security Deposit valid upto -----

OR

The Contractor has furnished to BHEL an initial Security Deposit of Rs.-----in the form of cash / approved Securities/ B.G No.----- dated ----- for Rs.-----executed by ----- in favour of BHEL valid upto ----- and has agreed for recovery of the balance security deposit by BHEL @ 10% of the value of work done from each running bill till the entire Security Deposit is recovered.

OR

The contractor has furnished to BHEL an initial Security Deposit of Rs.----- (Rs.----- vide Bank draft No.-----dated -----and by adjusting EMD of Rs.----- submitted vide Bank draft No.----- dt.-----) and has agreed for recovery of balance Security Deposit by BHEL @ 10% of the value of work done from each running bill till the entire security deposit is recovered.

4. The Contractor hereby agrees to extend the validity of the Bank Guarantee for such further period or periods as may be required by BHEL and if the Contractor fails to obtain such extension(s) from the Bank, the Contractor, shall pay forthwith or accept

recovery of Rs.----- from the bills in one installment and the contractor further agrees that failure to extend the validity of the Bank Guarantee or failure to pay the aforesaid amount in the manner specified above shall constitute breach of contract. In addition to above, BHEL shall be entitled to take such action as deemed fit and proper for recovering the said sum of Rs.-----

OR

In case the contractor furnishes the bank guarantee at a later date the contractor hereby agrees to extend the validity of bank guarantee for such further period or periods as may be required by BHEL and if the contractor fails to obtain such extension(s) from the bank, the contractor shall pay forthwith or accept recovery of the amount of bank guarantee given in lieu of security deposit from the bills in one installment and the contractor further agrees that failure to extend the validity of bank guarantee or failure to pay the aforesaid amount in the manner specified above shall constitute breach of contract. In addition to above, BHEL shall be entitled to take such action as deemed fit and proper for recovering the said sum.

5. That in consideration of the payments to be made to the Contractor by BHEL in accordance with this Agreement the Contractor hereby covenants and undertakes with BHEL that they shall execute, construct and complete the works in conformity, in all respects, with the terms and conditions specified in this Agreement and the documents governing the same.
6. That the Contractor shall be deemed to have carefully examined this Agreement and the documents governing the same and also to have satisfied himself as to the nature and character of the Works to be executed by him.
7. That the Contractor shall carry out and complete the execution of the said works to the entire satisfaction of the Engineer or such other officer authorised by BHEL, within the agreed time schedule.
8. That BHEL shall, after proper scrutiny of the bills submitted by the Contractor, pay to him during the progress of the said works such sum as determined by BHEL in accordance with this Agreement.
9. That this Agreement shall be deemed to have come into force from ----- the date on which the letter of intent/ LOA has been issued to the Contractor.
10. That whenever under this contract or otherwise, any sum of money shall be recoverable from or payable by the Contractor, the same may be deducted in the manner as set out in the General Conditions of Contract or other conditions governing this Agreement.
11. That all applicable charges on account of Octroi, Terminal and other taxes including sales tax or other duties on material obtained for execution of the said works shall be borne and paid by the Contractor.
12. That BHEL shall be entitled to deduct from the Contractor's running bills or otherwise Income Tax as per prevailing Income Tax Act.
13. That BHEL shall be further entitled to recover from the running bills of the Contractor or otherwise such sum as may be determined by BHEL from time to time in respect of consumables supplied by BHEL, hire charges for tools and plants issued (Where applicable) and any other dues owed by the Contractor.

CONTRACT AGREEMENT

Form No: F-10 (Rev 00)

14. That it is hereby agreed by and between the parties that non- exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents and the liability of the Contractor with respect to compensation payable to BHEL or Contractor's obligations shall remain unaffected.

15. The following documents

1. Invitation to Tender No.-----
and the documents specified therein with technical bid opening date as
2. Contractor's Offer Ref. No.-----
dated-----.
3. _____
4. _____
5. _____
6. Letter of Intent/ LOA No. _____ dated _____.
7. _____

shall also form part of and govern this Agreement.

IN WITNESS HEREOF, the parties hereto have respectively set their signatures in the presence of

WITNESS

1.

2.

WITNESS

1.

2.

(CONTRACTOR)
(to be signed by a person holding
a valid Power of Attorney)

(For and on behalf of BHEL)

BANK GUARANTEE FOR SECURITY DEPOSIT

B.G. NO.

Date

This deed of Guarantee made this ----- day of -----two thousand ---- by <Name and Address of Bank> hereinafter called the "The Guarantor" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns) in favour of M/s Bharat Heavy Electrical Limited (A Govt. of India Undertaking) a company incorporated under the Companies Act, 1956, having its registered office at BHEL House, Siri Fort, Asiad, New Delhi – 110049 through its unit at Bharat Heavy Electricals Limited, Power Sector Northern Region, HRDI & PSNR Complex, Plot no. 25, Sector – 16 A, Noida - 201301 hereinafter called "The Company" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns)

WHEREAS < Contractor's Name and Address> (hereinafter referred to as the Contractor) have entered into a contract arising out of Letter of Intent no. < LOI REF & Date > (hereinafter referred to as "the contract") for < Name of Work > with the company.

AND WHEREAS the contract inter-alia provides that the contractor shall furnish to the company a sum of Rs.----- (Rupees-----) towards security deposit for due and faithful performance of the contract in the form and manner specified therein.

AND WHEREAS the contractor has approached the Guarantor and in consideration of the arrangement arrived at between the contractor and the Guarantor, the Guarantor has agreed to give the Guarantee as hereinafter mentioned in favour of the company.

The Guarantor do hereby guarantee to the company the due and faithful performance, observance or discharge of the Contract by the contractor and further unconditionally and irrevocably undertake to pay to the Company without demur and merely on a demand, to the extent of Rs.----- (Rupees-----) against any claim by the company on them for any loss, damage, costs, charges and expenses caused to or suffered by the company by reasons of the contractor making any default in the performance, observance or discharge of the terms, conditions, stipulations or undertakings or any of them as contained in the contract.

The decision of the company whether any default has occurred or has been committed by the contractor in the performance, observance or discharge of any of the terms, conditions, stipulations or undertakings or any one of them as contained in the contract and / or as to the extent of loss, damage, costs, charges and expenses caused to or suffered by the company by reason of the contractor making any default in the performance, observance or discharge of any of the terms, conditions, stipulations or undertakings or any one of them shall be conclusive and binding on the Guarantor irrespective of the fact whether the contractor admits or denies the default or questions the correctness of any demand made by the company in any Court, Tribunal or Arbitration proceedings or before any other Authority.

The company shall have the fullest liberty without affecting in any way the liability of the Guarantor under this Guarantee, from time to time to vary any of the terms and conditions of the contract or extend time of performance by the contractor or to postpone for any time and from time to time any of the powers exercisable by it against the contractor and either enforce or forbear from enforcing any of the terms and conditions governing the contract or securities available to the company and the Guarantor shall not be released from its liability under these presents by any exercise by the company of the liberty with reference to the matters aforesaid or by reasons of time being given to the contractor or any other forbearance, act or commission on the part of the company or any indulgence by the company to the contractor or 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 Guarantor from its liability under this guarantee.

The Guarantor further agrees that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the contract and its claim satisfied or discharged and till the company certifies that the terms and conditions of the contract have been fully and properly carried out by the contractor and accordingly discharges this Guarantee, subject however, that the company shall have no claim under this Guarantee after -- ----- i.e. (the present date of validity of Bank Guarantee unless the date of validity of this Bank Guarantee is further extended from time to time, as the case may be) unless a notice of the claim under this Guarantee has been served on the Guarantor before the expiry of the said period in which case the same shall be enforceable against the Guarantor notwithstanding the fact that the same is enforced after the expiry of the said period.

BANK GUARANTEE FOR SECURITY DEPOSIT

The Guarantor undertakes not to revoke this Guarantee during the period it is in force except with the previous consent of the Company in writing and agrees that any liquidation or winding up or insolvency or dissolution or any change in the constitution of the contractor or the Guarantor shall not discharge the Guarantor's liability hereunder.

It shall not be necessary for the company to proceed against the contractor before proceeding against the Guarantor and the Guarantee herein contained shall be enforceable against them notwithstanding any security which the Company may have obtained or obtain from the Contractor shall at the time when proceedings are taken against the Guarantor hereunder be outstanding or unrealized.

Notwithstanding anything contained herein before, our liability under the Guarantee is restricted to Rs.----- (Rupees-----). Our guarantee shall remain in force until -----, i.e. (the present date of validity of Bank Guarantee unless the date of validity of this Bank Guarantee is further extended from time to time) unless a claim or demand under this guarantee is made against us on or before ----- we shall be discharged from our liabilities under this Guarantee thereafter.

Any claim or dispute arising under the terms of this documents shall only be enforced or settled in the courts of at New Delhi/ Delhi only.

The Guarantor hereby declares that it has power to execute this guarantee and the executant has full powers to do so on behalf of the Guarantor.

IN WITNESS whereof the ----- (Bank) has hereunto set and subscribed its hand the day, month and year first, above written.

(Name of the Bank)

Signed for and on behalf of the Bank
(Designation of the Authorized Person Signing the Guarantee)

(Signatory No.-----)

DATED:

SEAL

=====

Notes :

1. The BG shall be executed on non-judicial stamp papers of adequate value procured in the name of the Bank in the State where the Bank is located.
2. The BG is required to be sent by the executing Bank directly to BHEL at the address where tender is submitted / accepted under sealed cover.

BANK GUARANTEE FOR INTEREST BEARING REFUNDABLE ADVANCE

B.G. No.

Date

This deed of Guarantee made this _____ day of _____ two thousand _____ by < **Name and Address of Bank** > hereinafter called the "The Guarantor" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns) in favour of M/S Bharat Heavy Electricals Limited a Company incorporated under the Companies Act, 1956, having its registered office at BHEL House, Siri Fort, New Delhi - 110049 through its unit at Bharat Heavy Electricals Limited, Power Sector Northern Region, HRDI & PSNR Complex, Plot no. 25, Sector – 16 A, Noida - 201301, hereinafter called "The Company" (which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns).

WHEREAS M/s. _____ (hereinafter referred to as the Contractor) have entered into a Contract arising out of Letter of Intent no. _____ dtd _____ (hereinafter referred to as "the Contract") for the < **Name of work** > with the Company.

AND WHEREAS the Contract inter-alia provides that the Company will pay to the Contractor interest bearing advance of Rs. _____ (Rupees _____ only) on certain terms and conditions specified in the Contract subject to the Contractor furnishing a Bank Guarantee for Rs. _____ (Rupees _____ only) in favour of the Company.

AND WHEREAS the Company has agreed to accept a Bank Guarantee from a Bank to cover the said advance.

AND WHEREAS the Contractor has approached the Guarantor and in consideration of the arrangement arrived at between the Contractor and the Guarantor, the Guarantor has agreed to give the Guarantee as hereinafter mentioned in favour of the Company.

NOW THIS DEED WITNESSES AS FOLLOWS:-

- (1) In consideration of the Company having agreed to advance a sum of Rs. _____ (Rupees _____ only) to the Contractor, the Guarantor do hereby guarantee the due recovery by the Company of the said advance with interest thereon as provided according to the terms and conditions of the Contract. If the said Contractor fails to utilise the said advance for the purpose of the Contract and /or the said advance together with interest as aforesaid is not fully recovered by the Company the Guarantor do hereby unconditionally and irrevocably undertake to pay to the Company without demur and merely on a demand, to the extent of the said sum of Rs. _____ (Rupees _____ only) any claim made by the Company on them for the loss or damage caused to or suffered by the Company by reasons of the Company not being able to recover in full the advance with interest as aforesaid.

BANK GUARANTEE FOR INTEREST BEARING REFUNDABLE ADVANCE

- (2) The decision of the Company whether the Contractor has failed to utilise the said advance or any part thereof for the purpose of the Contract and / or as to the extent of loss or damage caused to or suffered by the Company by reason of the Company not being able to recover in full the said sum of Rs. _____ with interest if any shall be final and binding on the Guarantor, irrespective of the fact whether the Contractor admits or denies the default or questions the correctness of any demand made by the Company in any Court Tribunal or Arbitration proceedings or before any other Authority.
- (3) The Company shall have the fullest liberty without affecting in any way the liability of the Guarantor under this Guarantee, from time to time to vary any of the terms and conditions of the Contract or extend time of performance by the Contractor or to postpone for any time and from time to time any of the powers exercisable by it against the Contractor and either enforce or forbear from enforcing any of the terms and conditions governing the Contract or securities available to the Company and the Guarantor shall not be released from its liability under these presents by any exercise by the Company of the liberty with reference to the matters aforesaid or by reasons of time being given to the Contractor or any other forbearance, act or commission on the part of the Company or any indulgence by the Company to the Contractor or of 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 Guarantor from its liability under this guarantee.
- (4) The Guarantor further agrees that the Guarantee herein contained shall remain in full force and effect during the period till the Company discharges this Guarantee, subject to however, that the Company shall have no claim under this Guarantee after _____ i.e. (the present date of validity of Bank Guarantee unless the date of validity of this Bank Guarantee is further extended from time to time, as the case may be) unless a notice of the claim under this Guarantee has been served on the Guarantor before the expiry of the said period in which case the same shall be enforceable against the Guarantor notwithstanding the fact that the same is enforced after the expiry of the said period.
- (5) The Guarantor undertakes not to revoke this Guarantee during the period it is in force except with the previous consent of the Company in writing and agrees that any liquidation or winding up or insolvency or dissolution or any change in the constitution of the Contractor or the Guarantor shall not discharge the Guarantor's liability hereunder.
- (6) It shall not be necessary for the Company to proceed against the Contractor before proceeding against the Guarantor and the Guarantee herein contained shall be enforceable against them notwithstanding any security which the Company may have obtained or obtain from the Contractor shall at the time when proceedings are taken against the Guarantor hereunder be outstanding or unrealised.
- (7) Notwithstanding anything contained herein before, our liability under the Guarantee is restricted to Rs. _____ (Rupees _____). Our guarantee shall remain in force until _____, i.e. the present date of validity of Bank Guarantee unless the date of validity of this Bank Guarantee is further extended from time to time. Unless a claim or demand under this guarantee is made against us on or before-----, we shall be discharged from our liabilities under this Guarantee thereafter.

BANK GUARANTEE FOR INTEREST BEARING REFUNDABLE ADVANCE

- (8) Any claim or dispute arising under the terms of this document shall only be enforced or settled in the courts at New Delhi/ Delhi only.
- (9) The Guarantor hereby declares that it has power to execute this Guarantee under its Memorandum and Articles of Association and the executant has full powers to do so on its behalf under the Power of Attorney dated _____ (To be incorporated by the Bank) granted to him by the proper authorities of the Guarantor.

IN WITNESS whereof the _____(Bank) has hereunto set and subscribed its hand the day, month and year first, above written.

(Name of the Bank)

Signed for and on behalf of the Bank
(Designation of the Authorized Person Signing the Guarantee)

(Signatory No.-----)

DATED:

SEAL

=====

Notes :

1. The BG shall be executed on non-judicial stamp papers of adequate value procured in the name of the Bank in the State where the Bank is located.
2. The BG is required to be sent by the executing Bank directly to BHEL at the address where tender is submitted / accepted, under sealed cover.

FORM for EXTENSION OF VALIDITY OF BANK GUARANTEE

1. To be typed on non judicial Stamp Papers of value as applicable in the State of India from where the BG has been issued or the State of India where the BG shall be operated
2. The non judicial stamp papers shall be purchased in the name of the Party on whose behalf the BG is being issued or the BG issuing Bank

BANK GUARANTEE No:

Date:.....

To

(Write Designation and Address of Officer of BHEL inviting the Tender)

Dear Sir

Sub : Validity of Bank Guarantee No:..... Dated for
 Rs in favour of yourself, expiry date
, on account of M/s in respect of
 Contract Number....., (herein after called the Original bank Guarantee)

At the request of M/s....., we Bank,
 having its branch Office at and having Head office
 at, do hereby extend our liability under the above mentioned Bank Guarantee
 number..... dated for a further period of Months/years
 from to expire on

Except as provided above, all other terms and conditions of the Original Bank Guarantee No
 Dated..... shall remain unaltered and binding on us.

Kindly treat this extension as an integral part of the original Bank Guarantee to which it
 would be attached.

Yours faithfully

Signature.....

Name & Designation.....

Power of Attorney/Signing Power No

Seal of Bank



PS- R

MONTHLY PLAN & REVIEW WITH CONTRACTOR

Page 1 of 4

Name of Site		Contract No.	
		Name of Contractor	
Review for the month of		Brief Scope of work	
Date of Review			

PART- A PHYSICAL REVIEW

Sl.No	Description of work	Unit of Measurement	Original Plan (QTY Planned for the month as per joint review of previous month)	Last months shortfall (attributable to Contractor)	Total Planned for the month (including previous month backlog attributable to Contractor)	Achieved	Shortfall attributable to (in Qty)		REMARKS
			(a)	(b)	C=(a)+(b)		BHEL	Contractor	
		UOM	Phy.	Phy	Phy	Phy.	Phy.	Phy.	

Use separate sheets if necessary

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)



PS- R

MONTHLY PLAN & REVIEW WITH CONTRACTOR

Page 2 of 4

CONTRACT NO:

CONTRACTOR:

PART – B-1 REVIEW OF DEPLOYMENT OF MAJOR T&Ps

SUPPLIER SCOPE:-

SN.	MAJOR T&P TO BE DEPLOYED AS PER WORK PLANNED FOR THE MONTH	QTY.	DEPLOYMENT STATUS (ACTUAL DEPLOYED)	REMARKS (WORKS EFFECTED DUE TO NON- DEPLOYMENT OF T&Ps

BHEL SCOPE:-

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)



PS- R

MONTHLY PLAN & REVIEW WITH CONTRACTOR

Page 3 of 4

CONTRACT NO:

CONTRACTOR:

PART – B-2 REVIEW OF DEPLOYMENT OF MANPOWER

SUPPLIER SCOPE:-

SNO.	AREA OF WORK	CATEGORY OF LABOUR	NO. OF LABOUR REQUIRED AS PER CATEGORY	DEPLOYED FOR THE PERIOD	REMARKS (WORKS AFFECTED DUE TO NON- AVAILABILITY OF LABOUR)

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)



PS- R

MONTHLY PLAN & REVIEW WITH CONTRACTOR

Page 4 of 4

CONTRACT No.:**Date of Report:****PART C1 : PLAN FOR THE NEXT MONTH (PHYSICAL)**

SL NO.	DESCRIPTION OF WORK (Area Wise)	PLANNED MT/ % / QTY (EXCLUDING SHORTFALLS ATTRIBUTABLE TO CONTRACTOR TILL DATE)	T&Ps REQUIRED	MANPOWER REQUIRED	REMARKS

NOTE: USE SEPARATE SHEETS, IF REQUIRED

**PART C2: PLAN FOR THE NEXT MONTH
(OTHERS)**

SL NO.	DESCRIPTION OF WORK (Area Wise)	PLANNED MT/ % / QTY	T&Ps REQUIRED	MANPOWER REQUIRED	REMARKS

NOTE: USE SEPARATE SHEETS, IF REQUIRED

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)

 PS- R	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 5 of 4

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

Page 1 of 8

Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#1.01	Cumulative number of days in the month, the nominated Quality Officer or his authorised nominee was not available	QUALITY	0.35			Quality Officer or his authorised nominee should be available for all the days	Daily Log Book entry/Incident Registers/letter references
#1.02	Shortfall in number of weekly Quality meetings in the month, not conducted or not attended by Quality officer or his authorised nominee	QUALITY	0.7			Quality meetings to be held every week	Daily Log Book entry/Incident Registers/letter references
#1.03	Level of compliance wrt decisions taken in previous Quality meetings	QUALITY	0.35			Number of consolidated issues discussed in Quality meetings	Daily Log Book entry/Incident Registers/letter references
#1.04	Number of batches of welding electrodes, cement, sand , aggregate, consumable, Paints etc as applicable for which test certificates not submitted OR MM & MH pkg:) In case of MM & MH package, monthly checks	QUALITY	0.375			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#1.05	Number of incidences of improper storage of inflammable gases and liquids, fuel etc	QUALITY	0.35			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#1.06	Total number of complaints in the month on non-preservation of materials under the custody of the contractor / erected in his scope.	QUALITY	0.35			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#1.07	Cumulative number of days in the month delayed due to poor organisation/planning of works at site.	QUALITY	0.625			Cumulative number of days delayed	Daily Log Book entry/Incident Registers/letter references
#1.08	Total number of rework instances in a month necessitated due to improper works/procedures by contractor	QUALITY	0.625			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#1.09	Total number of complaints received in the month on the quality of finish / aesthetics	QUALITY	0.65			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#1.10	Total number of instances in the month, House keeping NOT attended to inspite of instructions by BHEL -ie removal / disposal of surplus earth / debris / scrap / unused / surplus cable drums / other electrical items / surplus steel items / packing materials, thrown out scrap like weld butts, cotton waste etc from the working area to identified locations	QUALITY	0.625			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

Page 2 of 8

Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#2.01	Number of times the workplan submitted FOR THE NEXT MONTH is REJECTED for not being supported with proper T&P (major) and Manpower.	PERFORMAN CE	3.47			Number of rejections	Daily Log Book entry/Incident Registers/letter references
#2.02	Number of times the Work plan (unloading and storage plans in case of MM & MH packages) is not supported by relevant construction/layout drawings - like A4 plan / elevation views of plan status for structures / pressure parts/Civil Works, Piping isometrics for piping, Layout / PID / System reference sketch, Unloading/storage plans etc as applicable for the works planned	PERFORMAN CE	3.47			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#2.03	Cumulative number of days of delay in submission of plan FOR THE NEXT MONTH supported by deployment plan of Major T&Ps and Manpower (as per C-1 & C-2 of Format F-14)	PERFORMAN CE	1.73			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#2.04	Percentage of delayed submission of Daily Reports for Progress, Labour etc	PERFORMAN CE	1.87			Percentage of daily reports delayed/Scheduled date is each day for the previous day	Daily Log Book entry/Incident Registers/letter references
#2.05	Number of days delayed for submission of log sheets / protocols / Monthly Progress reports for the work executed during the month under measurement	PERFORMAN CE	0.93			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#2.06	Shortfall attributable to contractor as a percentage of what is clearly executable (In line with Terms of payment) by contractor as per the plan (part-A of F-14) for the subject month	PERFORMAN CE	20.67			Percentage calculated as per part-A of F-14	Progress review formats
#2.07	Cumulative number of days in the month for which feedback/briefing on plans for the day and the progress of previous day was not given to BHEL	PERFORMAN CE	2.67			Cumulative number of days for which briefing or feedback not given/each day for the previous day	Daily Log Book entry/Incident Registers/letter references
#2.08	Cumulative number of major instances in the month hampering/affecting progress of work due to improper management of labour and T&P at site leading to slowed progress of work or extended the completion of works	PERFORMAN CE	3.47			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

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Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#2.09	Cumulative number of days of work lost due to interface issues with fellow contractors/ customers leading to stoppage / delay in works, attributable to the contractor	PERFORMAN CE	1.73			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#2.10	Number of times the commitments on augmentation of resources as per plan for the month have slipped	PERFORMAN CE	3.47			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#2.11	Number of days the submission of Running bills for the month are delayed	PERFORMAN CE	0.93			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#2.12	Number of days the supporting documents for the Running bills submitted for the month are delayed	PERFORMAN CE	0.93			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#2.13	Number of times updations were not carried out in maintainance of records in PC in a form approved by BHEL at site (as applicable for respective packages).	PERFORMAN CE	1.33			Cumulative number of days updation not carried out/	Daily Log Book entry/Incident Registers/letter references
#2.14	Number of times the Top Management of contractor did not respond to critical issues of site, for the month	PERFORMAN CE	3.47			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#2.15	Number of refusals for improvement/remedial measures suggested by BHEL	PERFORMAN CE	0.67			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#2.16	Cumulative number of days in the month the works were stopped / refused on interpretation of contract clauses/scope due to tendency of taking undue advantage by interpreting contract clauses in their favour	PERFORMAN CE	2.67			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#2.17	Number of times rework refused	PERFORMAN CE	1.73			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#2.18	Cumulative number of days in the month recording/logging was not done in daily log/ history register / hindrance register maintained at BHEL Site Office	PERFORMAN CE	1.33			Cumulative number of days recording or logging was not done/all days of the month	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

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Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#2.19	Erection Agency: Cumulative number of major instances in the month hampering/affecting progress of work due to delayed or non-deployment of separate gang for material handling works OR MM Agency: Cumulative number of major instances in the month hampering/affecting erection work due to not identifying or not locating or not retrieving of materials required by erection agency	PERFORMANCE	3.47			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#3.01	Number of days of delay in submission of PLAN vis a vis ACTUAL deployment of Manpower for the month under review (as per part B-2 of F-014)	RESOURCES	1.5			Number of days delayed/ Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#3.02	Number of days of non-availability of supporting staff at office for submission of required reports/documentation as required for the contract	RESOURCES	1.5			Cumulative number of days supporting staff not available	Daily Log Book entry/Incident Registers/letter references
#3.03	Number of days of delay in submission of PLAN vs ACTUAL deployment of major T&P for the month under review (as per B-1 of F-14)	RESOURCES	2.5			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#3.04	Cumulative number of major instances in the month hampering/affecting progress of work due to non availability of operator / fuel in contractor's scope for Major T&P and MME	RESOURCES	2.5			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#3.05	Cumulative number of major instances in the month hampering/affecting progress of work due to breakdown or non availability of major T&P and MME for the work	RESOURCES	2.5			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#3.06	Cumulative number of major instances in the month hampering/affecting progress of work due to non-availability of proper T&P/MME (number, capacity adequacy, and working condition) under the scope of contractor	RESOURCES	2.5			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#3.07	Number of times Contractor's T&P (items common to BHEL and Contractor) was NOT made available before requesting for the same T&P from BHEL	RESOURCES	2.5			Total number of requests from contractor	Daily Log Book entry/Incident Registers/letter references
#3.08	Cumulative number of major instances in the month hampering/affecting progress of work due to non-availability of Consumables under the scope of contractor	RESOURCES	2.5			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

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Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#3.09	Cumulative number of days in the month lost due to use of improper consumables like electrodes, gases, Cement, sand, etc as applicable	RESOURCES	2			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#4.01	Number of deviations from the site organisation report submitted initially wrt deployment for the current month affecting work progress.	SITE INFRASTRUC TURE & SERVICE	0.94			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#4.02	Cumulative number of days in the month lost due to delayed renewal in respect of Labour license, Insurance, electrical licence, factory inspector etc as applicable	SITE INFRASTRUC TURE & SERVICE	0.94			Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#4.03	Number of non-compliances of Statutory requirements like validity of Labour Licence, Labour Insurance, PF, etc and any other applicable Regulation	SITE INFRASTRUC TURE & SERVICE	0.5			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#4.04	Cumulative number of days in a month poor illumination is reported at storage area, erection area, pre-assy area and other designated areas by BHEL site.	SITE INFRASTRUC TURE & SERVICE	0.44			Total number of non compliances/random checks	Daily Log Book entry/Incident Registers/letter references
#4.05	Number of days of non-availability of well maintained toilets facilities for workers (separate for men and women)	SITE INFRASTRUC TURE & SERVICE	0.44			Total number of non compliances/random checks	Daily Log Book entry/Incident Registers/letter references
#4.06	Number of days of non-availability of potable drinking water stations for workers in specified areas.	SITE INFRASTRUC TURE & SERVICE	0.44			Total number of non compliances/random checks	Daily Log Book entry/Incident Registers/letter references
#4.07	If applicable as per contract, Provision of Water meter for each point of distribution and cumulative number of days of non-submission of water consumption / non-working of water meter	SITE INFRASTRUC TURE & SERVICE	0.44			Total number of non compliances/random checks	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

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Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#4.08	Provision of Energy meter for each point of distribution and cumulative number of days of non-submission of energy consumption / non-working of energy meter	SITE INFRASTRUCTURE & SERVICE	0.44			Total number of non compliances/random checks	Daily Log Book entry/Incident Registers/letter references
#4.09	Commitment of Top Management of Contractor for welfare of labour	SITE INFRASTRUCTURE & SERVICE	0.44			Percentage of welfare activities done	Daily Log Book entry/Incident Registers/letter references
#5.01	Number of days delayed in making labour payments of the last month	SITE FINANCE	2.14			Number of days delayed/Scheduled date is 10th day of the month succeeding the month under reference	Daily Log Book entry/Incident Registers/letter references
#5.02	Number of complaints from sub supplier for non receipt of payments	SITE FINANCE	1.43			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#5.03	Number of times the site operations are hampered for want of funds at the disposal of site-in-charge.	SITE FINANCE	1.43			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#6.01	Cumulative number of days in a month the nominated Safety Officer or his authorised nominee is not available	HSE & SA	0.5			Safety Officer or his authorised nominee should be available for all the days	Daily Log Book entry/Incident Registers/letter references
#6.02	Shortfall in number of weekly safety meetings in the month conducted or attended by the Safety Officer or his authorised nominee	HSE & SA	0.25			Safety meetings to be held every week	Copy of Minutes of meeting
#6.03	Level of compliance wrt decisions taken in previous Safety meetings	HSE & SA	0.25			Number of consolidated issues discussed in Safety meetings	Daily Log Book entry/Incident Registers/letter references
#6.04	Delay in submission of monthly report on safety in the prescribed form	HSE & SA	0.25			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#6.05	Number of days taken for lodging FIRs from date of occurrence/notice of incident of theft / accident etc	HSE & SA	0.25			Number of days delayed/Scheduled date is the next date of occurrence/notice of incidence	Copy of FIR lodged by Contractor

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

Page 7 of 8

Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#6.06	Number of times warnings issued for using scaffoldings other than steel	HSE & SA	0.25			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#6.07	Number of times punitive fines imposed for not complying with use of PPE	HSE & SA	0.375			Total number of non compliances	Non-compliance intimation documents from BHEL site
#6.08	Number of times punitive fines imposed for unsafe practices	HSE & SA	0.345			Total number of non compliances	Copy of fine intimation documents from BHEL site
#6.09	Delay in number of days in submission of monthly report on provisions, maintainance and validity of fire extinguishers	HSE & SA	0.25			Number of days delayed/Scheduled date is first working day of next month	Daily Log Book entry/Incident Registers/letter references
#6.10	Delay in number of days in submission of monthly report on provisions and maintenance of Electrical Safety for Equipments	HSE & SA	0.25			Number of days delayed/Scheduled date is first working day of next month	copy of report
#6.11	Delay in number of days in submission of monthly report on provisions and maintainance of proper ELCBs for Electrical Safety of Personnel.	HSE & SA	0.25			Number of days delayed/Scheduled date is first working day of next month	copy of report
#6.12	Number of times the agency has defaulted on display of safety posters / safety slogans / safety barriers/emergency numbers etc in identified areas	HSE & SA	0.25			Total number of non compliances	Non-compliance intimation documents from BHEL site
#6.13	Non compliances observed during HSE and Safety Audit	HSE & SA	0.25			Total number of non compliances	Daily Log Book entry/Incident Registers/letter references
#6.14	Cumulative number of days in the month, First Aid Kits were not maintained at designated places at site	HSE & SA	0.25			Cumulative number of days	Non-compliance intimation documents from BHEL site
#6.15	Cumulative number of days in the month, there was non-availability of Ambulance or Emergency vehicle (whichever applicable) at Site.	HSE & SA	0.25			Cumulative number of days Ambulance or Emergency vehicle not available	Daily Log Book entry/Incident Registers/letter references
#6.16	Number of days taken for submission of Root Cause analysis (RCA) for the accident /theft/ incidence from the cut off date intimated by BHEL for submission of RCA NOTE: Occurrences of last month to be accounted for in the evaluating month)	HSE & SA	0.25			Number of days delayed/Scheduled date is 7th day of occurrence or notice of incidence NOTE: Occurrences of last month to be accounted for in the evaluating month)	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MONTHLY PERFORMANCE EVALUATION OF CONTRACTOR

Form No: F-15 (Rev 01)

Page 8 of 8

Project		Vendor				Package & Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained		Measurement Key/Scheduled date	Supporting Documents`
#6.17	Cumulative number of days in the month Women labour were deployed for office or site works during night hours (anytime between 18.00 hrs to 08.00 hrs)	HSE & SA	0.25			Cumulative number of days	Daily Log Book entry/Incident Registers/letter references
#6.18	Cumulative number of days in the month children under the age of 18 years were deployed for office or site works	HSE & SA	0.25			Cumulative number of days	Daily Log Book entry/Incident Registers/letter references

A

Performance Score Summary for the Month	Total score	Score Obtained
QUALITY	5	
PERFORMANCE	60	
RESOURCES	20	
SITE INFRASTRUCTURE & SERVICE	5	
SITE FINANCE	5	
HSE & SA	5	
OTHERS	0	
TOTAL	100	0

“NOTE:

1). It is only indicative and shall be as per the online format issued by BHEL time to time.

2). No request will be entertained after specified date of the current month w.r.t. changes requested in the scores of immediate previous month.”

Name and Signature of BHEL Package Incharge

Name and Signature of Contractor

MILESTONE COMPLETION CERTIFICATE
(issued by BHEL on the specific request of Contractor)

Ref :

Date:

To,

(Name & address of Contractor)

Dear Sir,

References

1. Contract No:
2. Job Description:

This is to hereby confirm that the following Milestone Activity has been achieved in respect of the Contract /Job under reference

Sl No	Milestone Activity	Remarks

This certificate is issued as per your request vide letter no
without any prejudice to the rights of BHEL in line with the terms and conditions of the
above referred Contract

Yours faithfully,

For and on behalf of Bharat Heavy Electricals Limited

Construction Manager/Head (Subcontracts)

CONTRACT COMPLETION CERTIFICATE
(Issued by BHEL/HQ on the specific request of Contractor)

Ref :

Date:

To Whom so ever it may concern

1	DESCRIPTION OF WORK	
2	NAME AND ADDRESS OF THE CONTRACTOR	
3	CONTRACT NO	
4	CONTRACT VALUE	
5	LETTER OF INTENT/ AWARD NO. & DATE	
6	CONTRACT PERIOD//CONTRACT DURATION	
7	DATE OF START/COMPLETION	
8	FINAL EXECUTED VALUE	
9	PERFORMANCE	GOOD SATISFACTORY UNSATISFACTORY

This certificate is issued as per your request vide letter no
without any prejudice to the rights of BHEL to use this certificate for evaluation of your offers for future tenders

Yours faithfully,

For and on behalf of Bharat Heavy Electricals Limited

Head (Subcontracts)

INDEMNITY BOND

(To be executed on a Non Judicial Stamp Paper of the requisite value as per Stamp Duty prevalent in the respective State)

 This Indemnity Bond executed by <name of company> having their Registered Office at <xxxxxxxxxx> in favour of M/s Bharat Heavy Electricals Limited, a Company incorporated under the Companies Act, 1956, having its Registered Office at BHEL House, Siri Fort, Asiad, New Delhi - 110049 through its Unit at Power Sector-_____ Region, _____, _____ State. (Hereinafter referred to as the Company)

And whereas the Company has entered into a Contract with M/s xxxxxxxxx, the executants of this Deed (hereinafter referred to as the Contractor) as its contractor in respect of the work of "xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx".

AND WHEREAS under the provisions of GCC further stipulates that the Contractor shall indemnify the Company against all claims of whatever nature arising during the course of execution of Contract including defects liability period of <xx Months > i.e till <xx xx xxxx>

Now this deed witness that in case the Company is made liable by any Authority including Court to pay any claim or compensation etc. in respect of all labourers or other matters at any stage under or relating to the Contract with the Contractor, the Contractor hereby covenants and agrees with the Company that they shall indemnify and reimburse the Company to the extent of such payments and for any fee, including litigation charges, lawyers' fees, etc, penalty or damages claimed against the Company by reason of the Contractor falling to comply with Central/States Laws, Rules etc, or his failure to comply with Contract (including all expenses and charges incurred by the Company).

The Contractor further indemnifies the Company for the amount which the Company may be liable to pay by way of penalty for not making deductions from the Bills of the Contractor towards such amount and depositing the same in the Government Treasury.

INDEMNITY BOND

(To be executed on a Non Judicial Stamp Paper of the requisite value as per Stamp Duty prevalent in the respective State)

The Contractor further agree that the Company shall be entitled to with hold and adjust the Security Deposit and/or with hold and adjust payment of Bills of Contractor pertaining to this Contract against any payment which the Company has made or is required to make for which the Contractor is liable under the Contract and that such amount can be withheld, adjusted by the Company till satisfactory and final settlement of all pending matters and the Contractor hereby gives his consent for the same.

The Contractor further agrees that the terms of indemnity shall survive the termination or completion of this contract.

The contractor further agrees that the liability of the contractor shall be extended on actual basis notwithstanding the limitations of liability clause, in respect of :

1. breach of terms of contract by the contractor
2. breach of laws by the contractor
3. breach of Intellectual property rights by the contractor
4. breach of confidentiality by the contractor

Nothing contained in this deed, shall be construed as absolving or limiting the liability of the Contractor under said Contract between the Company and the Contractor. That this Indemnity Bond is irrevocable and the condition of the bond is that the Contractor shall duly and punctually comply with the terms and the conditions of this deed and contractual provisions to the satisfaction of the Company.

In witness where of M/s xxxxxxxxxxxxxx these presents on the day, month and year first, above written at xxxxxxxx by the hand of its signatory Mr. xxxxxxxxxxxx.

Signed for and on behalf of
M/s xxxxxxxxxxxxxxxx

Witness:

1
2

CONSORTIUM AGREEMENT

(To be executed on Rs. 50/- Non – Judicial Stamp Paper)

THIS AGREEMENT is made and executed on this _____ day of _____, by and between (1) M/s _____, (The First Party, i.e, the Bidder) a company incorporated under the Company's Act 1956, having its registered office at _____(herein after called the "Bidder", which expression shall include its' successors, administrators, executors and permitted assigns) and (2) M/s _____, (The Second Party, i.e, the associates), a company incorporated under the Company's Act 1956, having its registered office at _____ (herein after called the " Associates", which expression shall include its' successors, administrators, executors and permitted assigns).

WHEAEAS the Owner, Bharat Heavy Electricals Ltd, a Government of India Undertaking, proposes to issue / issued an NIT (herein after referred to as the said NIT) inviting bids from the individual Bidders for undertaking the work of _____, at _____ (herein after referred to as the said works).

WHEREAS the said NIT enables submission of a bid by a Consortium subject to fulfillment of the stipulations specified in the said NIT.

AND WHEREAS M/s _____ (The First Party, i.e, the Bidder) will submit its proposal in response to the aforesaid invitation to bid by the Owner for _____ as detailed in the Bid doc. no. < TENDER REF----->

AND WHEREAS M/s _____ (The First Party, i.e the Bidder) itself is meeting all the qualifying requirements except the qualifying requirements of _____ (as detailed in the NIT) and in order to fully meet the qualifying requirements of NIT, this tie-up agreement is being entered into with M/s _____ (The Second Party, the Associates) , who fully meet the balance part of the said works (_____).

WHEREAS the First Party and the Second Party are contractors engaged in the business of carrying out various items of works. WHEREAS the two parties have agreed to constitute themselves into a consortium for the purpose of carrying out the said works, and that the consortium will be continued till the completion of the works in all respects.

WHEREAS the parties have agreed to certain terms and conditions in this regard:

CONSORTIUM AGREEMENT

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS :

1. First and Second parties hereby constitute themselves into a Consortium for the purpose of bidding and undertaking the said works pursuant to the said NIT as hereinafter stated.
2. The First Party will be the leader (Lead Partner) and will be responsible for the entire works.

CONSORTIUM AGREEMENT

3. The First Party shall undertake the following part(s) of work detailed in the NIT namely _____

4. The Second Party shall undertake the following part(s) of work detailed in the said NIT namely _____

5. The parties hereby declare and confirm that each of them will fulfill the required minimum qualifying requirements as prescribed in the said NIT for the works agreed to be undertaken by them as stated here-in-above.
6. It is also agreed between the parties hereto that all of them shall be individually and severally responsible for the completion of the said works as per the schedule. Further, if the Employer/Owner sustains any loss or damage on account of any breach of the Contracts, we the, Consortium partners individually and severally undertake to promptly indemnify and pay such losses / damages caused to the Employer/Owner on its written demand without any demur, reservation, contest or protest in any manner whatsoever.
7. The parties hereby agree and undertake that they shall provide adequate finances, suitable Tools, Plants, Tractors, Trailers, other transportation equipment, other Tools & Plants, Measuring & Monitoring Equipments (MMEs), Men and Machinery etc. for the proper and effective execution of the works to be undertaken by them as specified here-in-above.
8. It is agreed interse between the parties hereto that all the consequences liabilities etc., arising out of any default in the due execution of the said works shall be borne by the party in default, that is by party in whose area of works default has occurred, provided however, so far as M/s Bharat Heavy Electricals Limited is concerned, all the parties shall be liable jointly and severally.

CONSORTIUM AGREEMENT

IN WITNESS HEREOF the parties above named have signed this agreement on the day month and year first above written at _____(Place) .

WITNESS

For

1. NAME
2. OFFICIAL ADDRESS

(FIRST PARTY)

WITNESS

For

1. NAME
2. OFFICIAL ADDRESS

(SECOND PARTY)

[The successful bidder shall have to execute the " JOINT DEED OF UNDERTAKING " in the format to be made available by BHEL at the time of awarding].

REFUND OF SECURITY DEPOSIT

To,

The Construction Manager
BHEL Site Office

Dear Sir,

Sub : **Refund of Security Deposit**

Ref : Contract No:

Work:.....

I/We have submitted Final Bill in respect of the above Contract/Work vide our letter no:.....
dated In line with Tender conditions (GCC clause no 1.11), kindly arrange to
release/refund the Security Deposit along with Final Bill payments.

The details of Security Deposit are as below:

1. Cash Portion :
2. BG Portion :

Thanking You

Date: _____

Authorised representative of Contractor

To be filled up by BHEL

1. Security Deposit to be refunded:
 - a. Cash Portion:
 - b. BG Portion :
2. Less
 - a. Amount spent by BHEL on behalf of Contractor:
 - b. Payments made by BHEL on behalf of Contractor:
 - c. Other recoveries for Services etc
 - d. Any other recoveries
 - e. Total of 'a' to 'd':
3. Net Amount to be released (1-2) :
4. Certified that
 - a. The payment recommended for release is in order and there are no demands other than those included in the claim outstanding from the Contractor
 - b. Contract Guarantee period of Months commenced wef : _____
 - c. All objections raised so far have been settled
 - d. A note for refund of Security Deposit has been made in the Measurement Book

Signature of BHEL Engineer

Construction Manager

Date:-----

REFUND OF GUARANTEE MONEY

BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR, _____ REGION

Ref No:

Date:

1. Name and Address of Contractor :
2. Contract Agreement/LOI/ LOA No. :
3. Date of Contract Agreement/LOI/ LOA :
4. Name of the Work undertaken :
5. Date of commencement of the Work :
6. Date of Completion of the Work :
7. Period of Maintenance :
(Guarantee Period)
8. Date on which the Final Bill was paid :
9. Last date of making good the defect :
during Maintenance Period
10. Expenditure incurred by BHEL during :
Maintenance Period, if any, recoverable
11. Date on which Guarantee Money refund:
falls due as per Contract
12. Amount of Guarantee Money to be refunded:
13. Less Amounts recoverable (with details)
 - a. Amount spent by BHEL on maintenance :
 - b. Payments made by BHEL on behalf of Contractor:
 - c. Court dues/penalties/compensation :
 - d. Other recoveries for Services, etc :
 - e. Total of 'a' to 'd' :
14. Net Amount recommended for release (12-13) :

Signature of BHEL Engineer

Date: _____

REFUND OF GUARANTEE MONEY

BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR, _____ REGION

CERTIFICATE TO BE FURNISHED BY THE CONTRACTOR

I/We have no claim or demand outstanding against BHEL _____, for the work done or for labour or material supplied or any other account arising out of or connected with the Contract Agreement/LOI/ LOA (No _____ dated _____) and the payment of this bill shall be in full and final settlement of all my/our claims and demands including the 'Deposits' of the Contract Agreement/LOI/ LOA referred to.

Signature of Contractor

Date: _____

CERTIFICATE TO BE FURNISHED BY SENIOR ENGINEER/CONSTRUCTION MANAGER

1. Certified that
 - a. The payment recommended for release is in order and there are no demands other than those included in the claim outstanding from the Contractor
 - b. Maintenance period (Contract Guarantee period) is over and the Contractor has carried out the works required to be carried out by him during the period of maintenance (Guarantee) to our satisfaction, and all expenses incurred by the Company on carrying out such works have been included for adjustment
 - c. All objections raised so far have been settled
 - d. A note for refund of Guarantee Amount has been made in the Measurement Book and Contract Agreement/Work Order

Signature of BHEL Engineer

Construction Manager

Date:-----

FOR USE IN ACCOUNTS DEPARTMENT

Passed for Rs _____ (Rupees _____ only)

Accountant

Accounts Officer

ACKNOWLEDGE BY THE CONTRACTOR

Received Rs _____ in full and final settlement of my/our claim

Signature of Contractor

Date: _____

**POWER OF ATTORNEY for SUBMISSION OF TENDER/SIGNING CONTRACT
AGREEMENT (To be typed on non-judicial stamp paper of minimum Rs. 100/- and
Notarized)**

KNOW ALL MEN BY THESE PRESENTS, that I/We do hereby make, nominate, constitute and appoint Mr , whose signature given below herewith to be true and lawful Attorney of M/s..... hereinafter called 'Company', for submitting Tender/entering into Contract and inter alia, sign, execute all papers and to do necessary lawful acts on behalf of Company with M/s Bharat Heavy Electricals Ltd, Power Sector _____ Region, _____, in connection with
.....
.....
..... vide Tender Specification No : _____, dated _____.

And the Company do hereby agree to ratify and confirm all acts, deeds, things or proceedings as may be lawfully done by the said attorney and by or on behalf of the company and in the name of the company, by virtue of the powers conferred herein and the same shall be binding on the company and shall have full force and effect.

IN WITNESS WHEREOF the common seal of the company has been hereunto affixed in the manner hereinafter appearing on the document.

Dated at _____, this _____ day of _____

Director/CMD/Partner/Proprietor

Signature of Mr.....(Attorney)

Attested by: Director/CMD/Partner/Proprietor

Witness

Notary Public

ANALYSIS OF UNIT RATES QUOTED

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

Offer Reference No:.....

Date:.....

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub : Analysis of Unit Rates Quoted

Ref : Tender Specification No:

Analysis of Unit Rates quoted by us in respect of above Tender is as detailed

SN	DESCRIPTION	% OF QUOTED RATE	REMARKS
01	SITE FACILITIES VIZ., ELECTRICITY, WATER OTHER INFRASTRUCTURE.		
02	SALARY AND WAGES + RETRENCHMENT BENEFITS		
03	CONSUMABLES		
04	T&P DEPRECIATION & MAINTENANCE		
05	ESTABLISHMENT & ADMINISTRATIVE EXPENSES		
06	OVERHEADS		
07	PROFIT		
	TOTAL	100%	

Yours faithfully,

(Signature, Date & Seal of Authorized Representative of the Bidder)

BHARAT HEAVY ELECTRICALS LIMITED

DIVISION.....

Running Account Bill

(Para 4.31.1 of Works Accounts Manual)

Name of the Contractor:

Name of the Work:

Sanctioned Estimate:

Code No:

Contract Agreement No :

Dated:

Departmental Bill no:

Division:

Date of written order to commence the work :

Date of commencement of the Work:

Due date of completion as per Agreement:

Date:

Sub-Division:

1. ACCOUNT OF WORK EXECUTED

On account payment for work not previously previously measured**			Item No of	Description of Work	Quantity as per agree- ment	Quantity executed up to date	Rate	Unit	Payment on the basis of actual measure- ment up to date	Quantity since last running account bill	Payment on the basis of actual measurement since last running account bill	Remarks
Total	since last	Total										
As per	running	up to										
Running	account	date										
Account	bill											
bill												
Rs.	Rs.	Rs.					Rs.	P.	Rs.	P.	Rs.	P.
1	2	3	4	5	6	7	8	9	10	11	12	13

* *1. Whenever payment is made on 'on account' basis without actual measurements the amount in whole rupees should be entered in columns 1 to 3 only and not in columns 7 to 12.

2. whenever there is an entry in column 12 on the basis of actual measurement, the whole of the amount previously paid without detailed measurement should be adjusted by a minus entry in column 2 equivalent to the amount shown in column 1, so that the total up to date in column 4 may become nil.

Form WAM 6 (contd...)

1	2	3	4	5	6	7	8	9	10	11	12	13

Total value of work done up to date (A) ...

Deduct value of work shown on the last
Running Account Bill (B) ...

Net value of work done since last (C) ...

Rupees (in words) only.

II.MEMORANDUM OF PAYMENTS

		I		II	
		Rs.	P.	Rs.	P.
1.Total value of work actually measured as per Account No. I. Column 10	(A)	.....		.....	
2.Total up to date 'on account' payment for work covered by approximate Or plan measurements as per Account No. I, Column 3	(B)	.....		.....	
3.Total up to date secured advances on security of materials as per column 8 Of the enclosed Account (Form WAM 10)	(C)	.....		.....	
4.Total up to date payments [(A) + (B) + (C)]	(D)	.....		.....	
5.Total amount of payments already made as per Entry (D) of last Running Account Bill No..... Dated.....forwarde to the Accounts Office on	(E)				
6.Balance [(D)-(E)]		.....			
7.Payments now to be made:					
a) by cash/cheque			.....		
b) by deduction for value of materials supplied			.....		
c) by BHEL vide Annexure A attached			.....		
d) by deduction for hire of tools and plant vide Annexure B attached			.....		
e) by deduction for other charges vide Annexure C Attached			.....		
f)by deduction on account of security deposit			.....		
h) by deduction on account of Income Tax			.....		.....

Note: Amounts relating to items 4 to 6 above should be entered in column II and those relating to item 7 in column I. The amount shown against item 6 and the total of item 7 should agree with each other.

III.CERTIFICATE OF THE ENGINEER IN CHARGE

Form WAM 6 (contd...)

1. The measurements on which the entries in column 7 to 12 of Part I of this Bill (Account of work executed) are based were made by.....and are recorded at pages.....of

(Name and Designation)

Measurement Book No

2. Certified that the methods of measurement are correct and the work has been carried out in accordance with the terms and conditions, schedules, specifications and drawings etc, forming part of the contract agreement, subject to deviations included in the deviation statement (Annexure D).
3. Certified that in addition to and quite apart from the quantities of work actually executed as shown in column 10 of Part I, some work has actually been done in connection with several items and the value of the such work is, in no case, less than 'on account' payments as per column 3 of Part I, made or proposed to be made, for the convenience of the contractor in anticipation of, and subject to the results of, detailed measurement which will be made as soon as possible.

Signature of Contractor

Date:

Signature of Engineer in charge

Designation:

Date:

IV. CERTIFICATE OF THE SENIOR ENGINEER

1. Certified that measurements have been check measured to the prescribed extent by at site and also by the undersigned and the relevant entries have been intialled in the Measurement book. (vide pages.....)
(Name and Designation)

2. Certified that all the measurements recorded in the measurement book have been correctly billed for

3. Certified that all recoberable amounts in respect of materials tools and plant etc, and other charges have been correctly made vide

Annexures A to C attached.

Certified for payment * of Rs.....(Rupees.....only)

To be paid in cash/by cheque in the presence of

ALLOCATION

The expenditure is chargeable as under and to be included in the accounts for.....20.....

Ledger Head

Debit (Gross amount)

Credit (Deductions)

Rs. P.

Rs. P.

Total

* Here specify the net amount payable.

Signature of Senior Engineer

Date:

V.ENTRIES TO BE MADE IN THE ACCOUNTS OFFICE

Accounts Bill No Dated.....
 Entered in Journal Book vide entry No.....Dated.....
 Passed for.....Rs.....
 Less Deductions.....Rs.....
 Net Amount Payable.....Rs.....
 (Rupees.....only)
 Payable to Shri/M/s.....by cheque/cash
 Entered in Contractor's Ledger No.....Page.....

ALLOCATION		
Estimate No:	Code no:	
Name of the Work:		
Ledger Head	Debit	
	(Gross amount)	
	Rs.	P.
-----	-----	-----
	-----	-----
Total	-----	-----

Assistant Accountant Account Officer
 Date: Date: Date:

VI. Received Rs.....(Rupees.....only) as per
 Memorandum of Payments on account of this work.

Signature of witness
 Address :

Date:

Revenue
 Stamp
 Signature of Contractor
 Date:

VII. ENTRIES TO BE MADE BY TREASURY SECTION

Cash Book entry No. and date:

Amount paid Rs.....
 Amount unpaid Rs.....
 Total Rs.....

Signature of Cashier
 Date:

ANNEXURE A

Statement showing details of materials issued to the contractor Shri/M/s.....

In respect of Contract Agreement No Dated.....

Sl. No.	Stores issue Voucher No. and date	Issue voucher No. and date allotted by stores to the SIV	Description of material issued to the contractor	Quantity issued	Quantity actually incorporated in the work	Whether recoverable from the contractor or supplied free	If recoverable from the contractor				REMARKS
							Rate at which recoverable	Amount recoverable	Amount recovered up to previous bill	Balance now recovered	
							Rs. P.	Rs. P.	Rs. P.	Rs. P.	
1	2	3	4	5	6	7	8	9	10	11	12

Total

Signature of contractor
Date:Signature of Engineer in Charge
Date:Signature of Senior Engineer
Date:

ANNEXURE B

Statement showing tools and plant issued to the contractor Shri/M/s.....

In respect of Contract Agreement No Dated.....

Sl. No	Description of tools and plant issued	Period for which Issued	Rate at which recovery Is to be Made		Amount recover- able		Amount recovered upto previous bill		Balance now recovered		Remarks
			Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	
1	2	3	4	5	6	7	8	9	10	11	12

Total

Signature of contractor

Date:

Signature of Engineer in Charge

Date:

Signature of Senior Engineer

Date:

ANNEXURE C

Statement showing details of other recoveries to be made from the contractor Shri/M/s.....
 In respect of Contract Agreement No Dated.....

Sl. No	Particulars	Unit	Quantity	Rate	Amount recover-able	Amount recovered upto pre-vious bill	Amount now recovered	Remarks
				Rs. P.	Rs. P.	Rs. P.	Rs. P.	
1	2	3	4	5	6	7	8	9
1.			Water Charges					
2.			Electricity charges					
3.			Seignorage charges					
4.			Medical charges					
5.			Cost of empty gunny bags and					
	Empty containers not returned							
6.								
7.								
8.								
9.								
10.								
				Total	-----			

Signature of contractor
Date:

Signature of Engineer in Charge
Date:

Signature of Senior Engineer
Date:

ANNEXURE D

Name of the Contractor:

Contract Agreement No:

Name of the Work:

Date:

Sl. No.	Description of item	Unit	Quantity as per Agreement	Quantity as executed	Quantity further anticipated	Total quantity anticipated on completion	Rate as per agreement Rs. P.
1	2	3	4	5	6	7	8

Rate as executed	Amount as per agreement	Amount as executed	Amount further anticipated	Total amount anticipated on completion	Difference				Reason for the deviation with authority, if any
Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Excess	savings			
Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.		
9	10	11	12	13	14	15			16

Signature of Engineer in Charge

Date:

Signature of Senior Engineer

Date:

BHARAT HEAVY ELECTRICALS LIMITED

DIVISION.....

.....And Final bill

(Para 4.3.2 Of Works Accounts Manual)

Name of Contractor		Departmental Bill no		Date	
Name of the Work		Division		Division	
Sanctioned Estimate		Date of written order to commence the work			
Contract Agreement/work Order No		Date of commencement of work			
		Due date of completion as per agreement			
		Date of actual completion of the work			

I. ACCOUNT OF WORK EXECUTED

On Account payment for the work not previously measured **												
Total as per last running account bill Rs.	Since last running account bill Rs	Total up to date Rs	Item No of the agreement/work order	Description of work	Quantity as per agreement	Quantity executed up to date	Rate Rs. P	Unit	Payment on the basis of actual measurement up to date Rs P	Quantity since last running account bill	Payment on the basis of actual measurement since last running account bill Rs P	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13

1	2	3	4	5	6	7	8	9	10	11	12	13

Total Value of Work Done up to date	(A)	
Deduct Value of work shown on the last running account bill	(B)	
Net value of work done since last running account bill	(C)	
Rupees (In Words).....Only		

II MEMORANDUM OF PAYMENT

		Rs.	P
1	Total Value of work actually measured as per Account no I coloumn 10	(A)	
	Deduct amount of paym,ents already made as per last running account bill No Dated.....		
2	Forwarded to the Accounts Office on	(B)	
3	Payments now to be made { (A) - (B)}	(C)	
4	Deduct ammounts recoverable from the contractor on account of :	Rs	P
	a Material suplied by BHEL vide annexure A attached		
	b Hire of Tools & Plants vide Annexure B attached		
	c Other charges vide Annexure C attached		
	d Income Tax		
	Total deduction		
5	Balance		
6	Refund of 50% of security deposite on completion of work		
7	Net amount to be paid to the Contractor		

III. CERTIFICATE OF THE ENGINEER IN CHARGE

The measurement on which the entries in coulms 7 to 12 of Part I of this bill (Account of work executed) are based were made by

-
- 1 (Name and designation)
- 2 A statement showing the quantities of stores issued to the contractor (whether free or on recovery basis) and their disposal is attached.

Date:

Signature of Engineer in charge
Designation

IV CERTIFICATE OF THE SENIOR ENGINEER

- 1 Certified that I have personally inspected the work and that the work has been physically completed on the due date in accordance with the terms and
Cretified that the measurements have been check measured to the prescribed extent by
..... (Name & designation). And by the the undersigned at site and relevent entries have been initiated in the measurement book
- 2 (vide pages.....)
- 3 Certified that the methods of measurement are correct
- 4 Certified that the measurements have been technically checked with reference to contract drawings, deviations etc
- 5 Certified that all the measurements recorded in the measurement book have been correctly billed for at the contract rates or approved rates.
- 6 Certified that all the recoverable amounts in respect of stores, tools and pallant, elwater, electricity charges etc, have been correctly made vide Annexures A
- 7 Certified that the issues of all stores as per statement atytached (whether charged to the contractor or direct to the work) have been technically checked and

Certified for payment of * Rs (Rupees.....) (Only). To be paid in
cash/by cheque in the presence of

ALLOCATION

The expenditure as under and to be included in the accounts for 19

Ledger Head	Debit (Gross Amount)		Credit (Deduction)	
	Rs.	P	Rs.	P
.....				
Total				

* Here specify the net amount payable

Signature of Senior Engineer
Date

V. ENTRIES TO BE MADE IN THE ACCOUNTS OFFICE

Account Bill no..... Dated
 Entered in Journal book vide entry No.....Dated.....
 Passed for.....Rs.....
 Less Deductions.....Rs.....
 (Rupees.....Only)
 Payable to Shri/M/s..... by cheque/cash
 Entered in contractors' Ledger no..... Page

ALLOCATION
 Estimate No: Code No
 Name of the Work
 Ledger Head Debit Credit
 (Gross Amount) (Deduction)
 Rs P Rs

 Total

Assistant Accountant Accounts officer
 Date: Date: Date:

VI. Received Rs.....(Rupees.....Only) in full and final settlement of all moneys due under this contract and I / we have no further claims of this contract.

Signature of Witness
 Address

Revenue Stamp
 Signature of Contractor
 Date:

VII . ENTRIES TO BE MADE BY TREASURY SECTION

Cash book entry no and date :

Amount Paid Rs.....
 Amount unpaid Rs.....
 Total Rs.....

Signature of Cashier
 Date:

ANNEXURE A

Part I

Statement showing details of material issued to the contractor Shri/M/s..... In respect of Contract

Agreement/Work Order No..... Dated

SI No	Stores Issue voucher No and date	Issue voucher No and date alloted by stores to the SIV	description of material issued to the contractor	Quantity issued	Quantity actually incorporated in the work	Whether recoverabl e from the contractor or supplied free	Rate at which recoverable		Amount Recoverabl e		Amount recoverable upto previous bill		Balance Now recovered		Remarks
							Rs	P	Rs	P	Rs	P	Rs	P	
1	2	3	4	5	6	7	8		9		10		11		12

Total

Signature of Contractor
Date

Signature of Engineer in charge
Date

Signature of Senior Engineer
Date

ANNEXURE A

Part II

Statement showing details of material issued to the contractor Shri/M/s..... in respect of Contract Agreement/Work Order No..... Dated and not covered by the agreement

SI No	Stores Issue voucher No and date	voucher No and date alloted by stores to the SIV	description of material issued to the contractor	Quantity issued	Quantity actually incorporated in the work	Issue Rate		Amount Recoverabl e		Amount recoverable upto previous bill		Balance Now recovered		Remarks
						Rs	P	Rs	P	Rs	P	Rs	P	
1	2	3	4	5	6	7		8		9		10		11

Total

Add Departmental Charges

Add Sales Tax (wherever applicable)

Total

Signature of Contractor
Date

Signature of Engineer in charge
Date

Signature of Senior Engineer
Date

ANNEXURE B

Statement showing TOOLS & PLANTS issued to the contractor Shri/M/s..... in respect of Contract Agreement/Work Order No..... Dated and not covered by the agreement

SI No 1	Description of tools & plants issued 2	Period for which issued 3	Rate at which Recivry is to be made 4	Amount recoverabl e Rs P 5		Amount recoverable upto previous bill Rs P 6		Balance Now recovered Rs P 7		Remarks 8

Total

Signature of Contractor
Date

Signature of Engineer in charge
Date

Signature of Senior Engineer
Date

ANNEXURE C

Showing detail of other recoveries to be made from the contractor Shri/M/s.....
 Client/Work Order No.....Dated.....

Sr.No	Particulars	Unit	Quantity	Rate Rs. P.	Amount recoverable Rs. P	Amount recovered upto previous bill Rs. P.	Amount now recovered Rs. P.	Remarks
1	2	3	4	5	6	7	8	9
	1 Water Charges							
	2 Electricity Charges							
	3 Seignorage Charges							
	4 Medical Charges							
	Cost of empty gunny bags and empty containers not 5 returned							
	6							
	7							
	8							
	9							
	10							
Total								

Signature of Contractor
Date

Signature of Engineer Incharge
Date

Signature of Sr. Engineer
Date

ANNEXURE F

Statement showing detail of materials issued to the contractor Shri/M/s.....

t of Contract Agreement/Work Order No.....Dated.....

Name of work;**FREE OF COST**

Sr.No	Stores issue voucher No.	Description of material	Unit	Quantity issued	Quantity required as per data	Quantity consumed in the work	Balance(If any)	Nature of disposal for the balance	Rate chargeable for material not returned Rs.P.	Amount recoverable for material not returned Rs. P	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Total											
Signature of Contractor Date				Signature of Engineer Incharge Date				Signature of Sr. Engineer Date			
Note:Data statement of theoretical consumption should be attached in support of the quantity specified in column 6											

BHARAT HEAVY ELECTRICALS LIMITED

DIVISION.....

.....And Final bill

(Para 4.3.2 Of Works Accounts Manual)

Name of Contractor		Departmental Bill no		Date	
Name of the Work		Division		Division	
Sanctioned Estimate		Date of written order to commence the work			
Contract Agreement/work Order No		Date of commencement of work			
		Due date of completion as per agreement			
		Date of actual completion of the work			

I. ACCOUNT OF WORK EXECUTED

On Account payment for the work not previously measured **												
Total as per last running account bill Rs.	Since last running account bill Rs	Total up to date Rs	Item No of the agreement/work order	Description of work	Quantity as per agreement	Quantity executed up to date	Rate Rs. P	Unit	Payment on the basis of actual measurement up to date Rs P	Quantity since last running account bill	Payment on the basis of actual measurement since last running account bill Rs P	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13

1	2	3	4	5	6	7	8	9	10	11	12	13

Total Value of Work Done up to date	(A)	
Deduct Value of work shown on the last running account bill	(B)	
Net value of work done since last running account bill	(C)	

Rupees (In Words).....Only

II MEMORANDUM OF PAYMENT

		Rs.	P
1	Total Value of work actually measured as per Account no I coloumn 10	(A)	
	Deduct amount of paym,ents already made as per last running account bill No Dated.....		
2	Forwarded to the Accounts Office on	(B)	
3	Payments now to be made { (A) - (B)}	(C)	
4	Deduct ammounts recoverable from the contractor on account of :	Rs	P
	a Material suplied by BHEL vide annexure A attached		
	b Hire of Tools & Plants vide Annexure B attached		
	c Other charges vide Annexure C attached		
	d Income Tax		
	Total deduction		
5	Balance		
6	Refund of 50% of security deposite on completion of work		
7	Net amount to be paid to the Contractor		

III. CERTIFICATE OF THE ENGINEER IN CHARGE

The measurement on which the entries in coulums 7 to 12 of Part I of this bill (Account of work executed) are based were made by

- 1 (Name and designation)
- 2 A statement showing the quantities of stores issued to the contractor (whether free or on recovery basis) and their disposal is attached.

Date:

Signature of Engineer in charge
Designation

IV CERTIFICATE OF THE SENIOR ENGINEER

- 1 Certified that I have personally inspected the work and that the work has been physically completed on the due date in accordance with the terms and
Cretified that the measurements have been check measured to the prescribed extent by
..... (Name & designation). And by the the undersigned at site and relevent entries have been initiated in the measurement book (vide
2 pages.....)
- 3 Certified that the methods of measurement are correct
- 4 Certified that the measurements have been technically checked with reference to contract drawings, deviations etc
- 5 Certified that all the measurements recorded in the measurement book have been correctly billed for at the contract rates or approved rates.
- 6 Certified that all the recoverable amounts in respect of stores, tools and pallant, elwater, electricity charges etc, have been correctly made vide Annexures A
- 7 Certified that the issues of all stores as per statement atytached (whether charged to the contractor or direct to the work) have been technically checked and

Certified for payment of * Rs (Rupees.....) (Only). To be paid in
cash/by cheque in the presence of

ALLOCATION

The expenditure as under and to be included in the accounts for 19

Ledger Head	Debit (Gross Amount)		Credit (Deduction)	
	Rs.	P	Rs.	P
.....				
Total				

* Here specify the net amount payable

Signature of Senior Engineer
Date

V. ENTRIES TO BE MADE IN THE ACCOUNTS OFFICE

Account Bill no..... Dated
 Entered in Journal book vide entry No.....Dated.....
 Passed for.....Rs.....
 Less Deductions.....Rs.....
 (Rupees.....Only)
 Payable to Shri/M/s..... by cheque/cash
 Entered in contractors' Ledger no..... Page

ALLOCATION		Code No
Estimate No:		
Name of the Work		
Ledger Head	Debit	Credit
	(Gross Amount)	(Deduction)
	Rs P	Rs
.....		
Total	.....	.....

Assistant Accountant Accounts officer
 Date: Date: Date:

VI. Received Rs.....(Rupees.....Only) in full and final settlement of all moneys due under this contract and I / we have no further claims of this contract.

Signature of Witness
 Address

Revenue Stamp
 Signature of Contractor
 Date:

VII . ENTRIES TO BE MADE BY TREASURY SECTION

Cash book entry no and date :

Amount Paid Rs.....
 Amount unpaid Rs.....
 Total Rs.....

Signature of Cashier
 Date:

ANNEXURE A

Part I

Statement showing details of material issued to the contractor Shri/M/s..... In respect of Contract Agreement/Work Order No..... Dated

SI No	Stores Issue voucher No and date	Issue voucher No and date alloted by stores to the SIV	description of material issued to the contractor	Quantity issued	Quantity actually incorporated in the work	Whether recoverabl e from the contractor or supplied free	Rate at which recoverable		Amount Recoverabl e		Amount recoverable upto previous bill		Balance Now recovered		Remarks
							Rs	P	Rs	P	Rs	P	Rs	P	
1	2	3	4	5	6	7	8		9		10		11		12

Total

Signature of Contractor
Date

Signature of Engineer in charge
Date

Signature of Senior Engineer
Date

ANNEXURE A

Part II

Statement showing details of material issued to the contractor Shri/M/s..... in respect of Contract Agreement/Work Order No..... Dated and not covered by the agreement

SI No	Stores Issue voucher No and date	Issue voucher No and date alloted by stores to the SIV	description of material issued to the contractor	Quantity issued	Quantity actually incorporated in the work	Issue Rate		Amount Recoverabl e		Amount recoverable upto previous bill		Balance Now recovered		Remarks
						Rs	P	Rs	P	Rs	P	Rs	P	
1	2	3	4	5	6	7		8		9		10		11

Total

Add Departmental Charges

Add Sales Tax (wherever applicable)

Total

Signature of Contractor
Date

Signature of Engineer in charge
Date

Signature of Senior Engineer
Date

ANNEXURE B

Statement showing TOOLS & PLANTS issued to the contractor Shri/M/s..... in respect of Contract Agreement/Work Order No..... Dated and not covered by the agreement

SI No 1	Description of tools & plants issued 2	Period for which issued 3	Rate at which Recivry is to be made 4	Amount recoverabl e Rs P 5		Amount recoverable upto previous bill Rs P 6		Balance Now recovered Rs P 7		Remarks 8

Total

Signature of Contractor
Date

Signature of Engineer in charge
Date

Signature of Senior Engineer
Date

ANNEXURE C

showing detail of other recoveries to be made from the contractor Shri/M/s.....
 nent/Work Order No.....Dated.....

Sr.No	Particulars	Unit	Quantity	Rate Rs. P.	Amount recoverable Rs. P	Amount recovered upto previous bill Rs. P.	Amount now recovered Rs. P.	Remarks
1	2	3	4	5	6	7	8	9
	1 Water Charges							
	2 Electricity Charges							
	3 Seignorage Charges							
	4 Medical Charges							
	Cost of empty gunny bags and empty containers not 5 returned							
	6							
	7							
	8							
	9							
	10							
Total								

Signature of Contractor
Date

Signature of Engineer Incharge
Date

Signature of Sr. Engineer
Date

ANNEXURE D -
DEVIATION STATEMENT :

Name of the Contractor :

Contract Agreement/Work Order No. :

Name of the Work :

Date :

Sl. No.	Description of item	Unit	Quantity as per agreement	Quantity as executed	Rate as per agreement Rs. P.	Rate as executed Rs. P.	Amount as per agreement Rs. P.	Amount as executed Rs. P.	Difference		Reason for the deviation with authority, if any
									Excess	Savings	
1	2	3	4	5	6	7	8	9	10	11	12

Signature of Engineer in Charge

Date :

Signature of Senior Engineer

Date :

ANNEXURE E

Statement showing the consumption of materials issued to the contractor Shri/M/s.....
in respect of Contract Agreement/Work Order No..... Dated.....

Name of the Work :

ON RECOVERY BASIS

Sl. No.	Description of material	Unit	Quantity actually issued	Quantity actually incorporated in the work	Balance	Particulars of disposal of balance	Quantity to be issued as per approved data for work actually done	Variation in consumption (Difference between column 5 and 8)		Rate chargeable for excess/short consumption, if any	Amount recoverable for excess/short consumption, including materials not returned	
								More	Less	Rs. P.	Rs. P.	
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Cement											
2.	Bricks											
3.	Wood.....											
4.	Asbestos Sheet											
5.	Iron Materials											
6.												
7.												
8.												
9.												
10.												

Signature of Contractor

Date :

Signature of Engineer in Charge

Date :

Signature of Senior Engineer

Date :

Note : 1. The quantities shown in columns 4 and 5 above should tally with those shown in columns 5 and 6 respectively of Annexure A (Part I and II).

2. Data statement of theoretical consumption should be attached in support of quantity specified in column 8.

ANNEXURE F

Statement showing detail of materials issued to the contractor Shri/M/s.....

Subject of Contract Agreement/Work Order No.....Dated.....

Name of work;

FREE OF COST

Sr.No	Stores issue voucher No.	Description of material	Unit	Quantity issued	Quantity required as per data	Quantity consumed in the work	Balance(If any)	Nature of disposal for the balance	Rate chargeable for material not returned Rs.P.	Amount recovera ble for material not returned Rs. P	Remarks
1	2	3	4	5	6	7	8	9	10	11	12

Total

Signature of Contractor
Date

Signature of Engineer Incharge
Date

Signature of Sr. Engineer
Date

Note: Data statement of theoretical consumption should be attached in support of the quantity specified in column 6

QUESTIONNAIRE TO BE ANSWERED BY ENGINEER IN CHARGE AND SENIOR ENGINEER	
(Correct particulars and answers to be recorded)	
Name of the work :	
Name of the Contractor :	
Date of commencement of the work:	
Contract agreement/work ordered no. and date:	
Reference to supplementary agreement no,if any :	
Whether administrative approval and technical sanction has been accorded by the competent authority ? If so ,cite reference	
Whether sanction of the competent authority and financial concurrence of the Accounts Department for award of the work has been accorded ? If so,cite reference.	
Whether the work has been completed in time ? If not ,whether penalty has been levied or sanction of the competent authority for extension of time granted and communicated to the Accounts Department with reasons for grant of extension? (Due and actual date of completion of the work and reference to letter no. and date granting the extension of time should be given)	
(a) Whether the rates allowed in the bill have been checked with the contract agreement ? (b) Whether the rates for extra/supplemental items have been approved by the competent authority and the sanction communicated to the accounts Department together with rate analysis? If so,cite reference.	
Whether deviations have been approved by the competent authority? If yes, give reference to the approval; if not, give reasons.	
Whether the rates of recovery of stores issued to the contractor which are not provided for in the Contract Agreement have been settled in consultation with Finance?	
Whether discrepancies pointed out by the Accounts Department in the store statement have been reconciled and accepted by the Accounts Department?	

QUESTIONNAIRE TO BE ANSWERED BY ENGINEER IN CHARGE AND SENIOR ENGINEER	
(Correct particulars and answers to be recorded)	
Whether materials issued to the contractor in excess of the theoretical requirements have been returned to the Stores Department and the no. and date of such returned stores vouchers have been shown in stores statement? If not, whether the cost of such excess material has been recovered at the prescribed rate? Whether consumption statements in respect of materials chargeable to the work have been attached to the bill?	
Whether consumption of materials shown has been technically checked by Senior Engineer?	
Whether materials issued and used in the work is not less than that required for consumption in work according to our specification? If consumption is less, whether necessary recovery has been made in the bill?	
Whether measurements have been checked by the Engineer and Sr. Engineer to the extent required and certificates of check recorded in the measurement books?	
Whether contractor has signed the bill and the measurement books without reservations? If not, whether reasons have been intimated to the Accounts Department?	
Whether arithmetical calculations have been checked and certificate recorded in the measurement books by a person other than the one who calculated initially	
Whether any work was done at the risk and cost of the contractor and whether such cost has been recovered from him? Give particulars.	
Whether all advance payments on running Accounts have been recovered?	
Whether all the recoveries due to services given to the contractor like rent of accommodation, water charges, electricity charges etc. have been recovered and whether payments made by the company on behalf of the contractor have been adjusted?	
Whether the files containing abstracts from measurement books/ standard measurement books have been completed/ updated?	
Whether hire charges of tools and plant have been recovered and the statement of hire charges with full details attached?	

QUESTIONNAIRE TO BE ANSWERED BY ENGINEER IN CHARGE AND SENIOR ENGINEER	
(Correct particulars and answers to be recorded)	
Whether the certificate of workmanship and completion of work according to specifications, drawings etc. is recorded by Engineer/ Sr. Engineer and whether recoveries have been made for defective works, if any?	
Whether all corrections in the bill/measurement books etc. have been neatly made and attested and there are no overwriting?	
Whether final measurements have been taken as soon as possible after completion of work and the certificate of completion issued? If not, whether reasons for delay have been recorded and communicated to Accounts?	
In respect of quantities reduced in the final bill as compared to the running payment, whether adequate reasons have been recorded and communicated to Accounts?	
Whether the expenditure has been classified correctly according to heads of Account recorded in the sanctioned estimate?	
Whether the work has been completed within the estimated cost? If not, what is the percentage of excess over the sanctioned estimate/ administrative approval? In case the excess is beyond the competency of Sr. Engineer, what action has been taken for the obtaining the approval of the authority competent to sanction the excess?	
(a) If the contractor has furnished bank guarantee in lieu of cash security deposit towards proper execution of works and guarantee against defects during the maintenance period, whether the period of currency of the bank guarantee covers the entire maintenance period? (b) If not, whether security deposit has been proposed to be recovered from the final bill?	
Whether all the previous audit objections raised on running Account bills have been settled? If so, cite reference.	
Signature of Engineer in Charge	Signature of Engineer in Charge
Date:	Date:

PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY
(On non-Judicial paper of appropriate value)

Bank Guarantee No.....

Date.....

To

(Employer's Name and Address)

.....

Dear Sirs,

In accordance with the terms and conditions of your Invitation for Bids/Notice Inviting Tender No.....¹(Tender Conditions) M/s. having its registered office at ² (hereinafter referred to as the '**Tenderer**'), is submitting its bid for the work of..... for.....³.(name of the Employer) at ⁴(

The Tender Conditions provide that the **Tenderer** shall pay a sum of Rs as Earnest Money Deposit in the form therein mentioned. The form of payment of Earnest Money Deposit includes Bank Guarantee executed by a Scheduled Bank.

In lieu of the stipulations contained in the aforesaid Tender Conditions that an irrevocable and unconditional Bank Guarantee against Earnest Money Deposit for an amount of ⁵ is required to be submitted by the Tenderer as a condition precedent for participation in the said Tender and the Tenderer having approached us for giving the said Guarantee,,

we, the[Name & address of the Bank] having our Head Office at(hereinafter referred to as the Bank) being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer without any demur, merely on your first demand any sum or sums of Rs. ⁵(*).....without any reservation, protest, and recourse and without the beneficiary needing to prove or demonstrate reasons for its such demand. Any such demand made by the 'Employer' shall be conclusive and binding on us irrespective of any dispute or difference raised by the Tenderer.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the Tenderer shall have no claim against us for making such payment.

We Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Tender or to extend the time of submission of bids from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Tenderer and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Tendered or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Tenderer and notwithstanding any security or other guarantee that the Employer may have in relation to the Tenderer's liabilities.

This Guarantee shall be irrevocable and shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by the Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Tenderer but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms hereof. However, unless a demand or claim under this Guarantee is made on us in writing on or before the ⁷ we shall be discharged from all liabilities under this Guarantee.

We, ... Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁵.....
- b) This Guarantee shall be valid up to ⁶

c) Unless the Bank is served a written claim or demand on or before _____⁷ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of

(Name of the Bank)

Date.....

Place of Issue.....

¹ *Details of the Invitation to Bid/Notice Inviting Tender*

² *Name and Address of the Tenderer*

³ *Details of the Work*

⁴ *Name and Address of BHEL Unit/Division/Region*

⁵ *BG Amount in words and Figures*

⁶ *Validity Date*

⁷ *Date of Expiry of Claim Period*

Note:

1. Units are advised that expiry of claim period may be kept 2/3 months after validity date. As per Works Policy, the Bank Guarantee shall be valid for at least six months.

2. In Case of Bank Guarantees submitted by Foreign Vendors-

- a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.

- b. From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
- b.1** In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter-Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
- b.2** **In case, Foreign Vendors intend to provide BG from** Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
- b.3** The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.
- b.4** The BG should clearly specify that the demand or other document can be presented in electronic form.