

TENDER SPECIFICATION

SI No	Tender Specification Number	Unit Number & Project
1	BHE/PW/PUR/ MANUT-CWP BLOCK I/1505	CW PIPING for Unit 1,2,
2	BHE/PW/PUR/ MANUT-CWP BLOCK II/1511	CW PIPING for Unit 3 & 4

FOR

COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF CW PIPING, INCLUDING BUTTER FLY VALVES, FITTINGS, HANGERS, SUPPORTS ETC & WRAPPING & COATING WITH 4 MM TAPE AS PER IS STANDARDS, FINAL PAINTING (INCLUDING SUPPLY OF PAINT, WRAPPING & COATING) ETC. FOR BLOCK I (UNIT 1 & 2) AND BLOCK II (UNIT 3 &4) OF 4X270 MW MANUGURU THERMAL POWER PROJECT.

AT

4X270 MW MANUGURU TPS TSGENCO

AT

MANUGURU, DISTT. - KHAMMAM, TELANGANA

VOLUME – I

CONSISTING OF:

- Notice Inviting Tender,
- Volume-IA : Technical Conditions of Contract,-
- Volume-IB : Special conditions of Contract,
- Volume-IC : General conditions of Contract
- Volume-ID : Forms & Procedures



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

CONTENTS

Volume No	Description	No. of pages	Hosted in website bhel.com as files titled
NIL	Tender Specification Issue Details	1	(Part of <u>Vol-IA-1505 & 1511</u>)
NIL	Notice Inviting Tender	23	(Part of <u>Vol-IA-1505 & 1511</u>)
I-A	Technical Conditions of Contract	44	<u>Vol-IA-1505 & 1511</u>
I-B	Special Conditions of Contract	47	<u>Vol-IBCD-1505 & 1511</u>
I-C	General Conditions of Contract	29	(Part of <u>Vol-IBCD-1505 & 1511</u>)
I-D	Forms & Procedures	59	(Part of <u>Vol-IBCD-1505 & 1511</u>)
II	Price Bid Specification	3	<u>Vol-II-1505 & 1511</u>

Tender Specification Issue Details

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1	BHE/PW/PUR/ MANUT-CWP BLOCK I/1505	CW PIPING for Unit 1,2,
2	BHE/PW/PUR/ MANUT-CWP BLOCK II/1511	CW PIPING for Unit 3 & 4

COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF CW PIPING, INCLUDING BUTTER FLY VALVES, FITTINGS, HANGERS, SUPPORTS ETC & WRAPPING & COATING WITH 4 MM TAPE AS PER IS STANDURDS, FINAL PAINTING (INCLUDING SUPPLY OF PAINT, WRAPPING & COATING) ETC. FOR BLOCK I (UNIT 1 & 2) AND BLOCK II (UNIT 3 &4) OF 4X270 MW MANUGURU THERMAL POWER PROJECT.

AT

4X270 MW MANUGURU TPS TSGENCO

AT

MANUGURU, DISTT. - KHAMMAM, TELANGANA

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR Refer Notice Inviting Tender
TENDER SUBMISSION .

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING VOLUME-I AND VOLUME- II ARE ISSUED TO:

M/s.

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PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date :

1505
&
1511

NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



NOTICE INVITING TENDER (NIT)
**NOTE: BIDDER MAY DOWNLOAD FROM WEB SITES
OR
PURCHASE TENDERS FROM THIS OFFICE ALSO**

To

Dear Sir/Madam

Sub : **NOTICE INVITING 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.

1.0 Salient Features of NIT

SL NO	ISSUE	DESCRIPTION
i	TENDER NUMBER	BHE/PW/PUR/ MANUT-CWP BLOCK I/1505 & BHE/PW/PUR/ MANUT-CWP BLOCK II/1511
ii	Broad Scope of job	COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF CW PIPING, INCLUDING BUTTER FLY VALVES, FITTINGS, HANGERS, SUPPORTS ETC & WRAPPING & COATING WITH 4 MM TAPE AS PER IS STANDURDS, FINAL PAINTING (INCLUDING SUPPLY OF PAINT, WRAPPING & COATING) ETC. FOR BLOCK I (UNIT 1 & 2) AND BLOCK II (UNIT 3 &4) OF 4X270 MW MANUGURU THERMAL POWER PROJECT FOR UNIT 1 & 2 OF 4X270 MW MANUGURU THERMAL POWER PROJECT.
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> <i>Applicable</i>
b	Volume-IB	<i>Special Conditions of Contract (SCC)</i> <i>Applicable</i>
c	Volume-IC	<i>General Conditions of Contract (GCC)</i> <i>Applicable</i>

BHEL PSWR

Notice Inviting Tender

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 6 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

d	Volume-ID	<i>Forms and Procedures</i>	<i>Applicable</i>
e	Volume-II	<i>Price Schedule (Absolute value).</i>	<i>Applicable</i>
iv	SALES OF TENDER DOCUMENTS	13/08/2015 1to 27/08/2015	<i>Applicable</i>
v	DUE DATE & TIME OF OFFER SUBMISSION	<p>Date : 28/08/ 2015 , Time :15.00Hrs</p> <p>Place : <u>BHEL PS Regional office at :Nagpur</u></p> <p>Tenders being submitted through representative shall be handed over to any of the following BHEL officials after making entry/registration at the reception:</p> <p>Pratish Gee Varghese / Sr. Engineer(Purchase) Shivkesh Meena /Engineer (Purchase) Nirmal P G / AE (Purchase)</p>	<i>Applicable</i>
vi	OPENING OF TENDER	<p>1 hour after the latest due date and time of Offer submission</p> <p>Notes: (1) In case the due date of opening of tender becomes a non-working day, tenders shall be opened on next working day at the same time. (2) Bidder may depute representative to witness the opening of tender</p>	<i>Applicable</i>
vii	EMD AMOUNT	Rs 2,00,000/- (Rupees Two Lakhs Only)	<i>Applicable</i>
viii	COST OF TENDER	Rs 2000/-.	<i>Applicable</i>
ix	LAST DATE FOR SEEKING CLARIFICATION	<p>Date: Atleast 5 days before the due date of offer submission</p> <p>Along with soft version also, addressing to undersigned & to others as per contact address given below</p>	<i>Applicable</i>
x	SCHEDULE OF Pre Bid Discussion (PBD)	Date : Not applicable.	<i>Not applicable.</i>
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)		<i>Not applicable.</i>
xii	Latest updates	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be intimated by Fax/E-mail. Bidders to keep themselves updated with all such information	<i>Applicable</i>

2.0 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, duly signed & stamped on each page, as part of offer. 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.

BHEL PSWR**Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 7 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

- 3.0 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 Nagpur 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 Nagpur, Sundays and second/ last Saturdays
- 4.0 Unless specifically stated otherwise, bidder shall deposit EMD through Demand Draft/Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Nagpur. For other details and for 'One Time EMD' please refer General Conditions of Contract.
- 5.0 **Procedure for Submission of Tenders:** The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:
- PART-I consisting of 'PART-I A (Techno Commercial Bid)' & 'PART-I B (EMD/COST of TENDER)' in two separate sealed and superscribed envelopes (ENVELOPE-I & ENVELOPE-II)
 - PART-II (Price Bid) – in sealed and superscribed envelope (ENVELOPE-III)
 - One set of tender documents shall be retained by the bidder for their reference
- 6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. **(All pages to be signed and stamped)**

Sl no	Description	Remarks
	Part-I A	
	ENVELOPE – I superscribed as : PART-I (TECHNO COMMERCIAL BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:	
	CONTAINING THE FOLLOWING:-	
i.	Covering letter/Offer forwarding letter of Tenderer.	
ii.	Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. Note: a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding. i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender	
iii.	Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria. It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization,	

**BHEL PSWR
Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 8 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

	contact ph no, FAX no, etc.	
iv.	All Amendments/Correspondences/Corrigenda/Clarifications/Changes/ Errata etc pertinent to this NIT.	
v.	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi.	Duly filled-in annexures, formats etc as required under this Tender Specification/NIT	
vii.	Notice inviting Tender (NIT)	
viii.	Volume – I A : Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	
ix.	Volume – I B : Special Conditions of Contract (SCC)	
x.	Volume – I C : General Conditions of Contract (GCC)	
xi.	Volume – I D : Forms & Procedures	
xii.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xiii.	Any other details preferred by bidder with proper indexing.	

	PART-I B	
	ENVELOPE – II superscribed as: PART-I (EMD/COST of TENDER) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:	
	CONTAINING THE FOLLOWING:-	
i.	1. Earnest Money Deposit (EMD) in the form as indicated in this Tender OR Documentary evidence for 'One Time EMD' with the Power Sector Region of BHEL floating the Tender 2. Cost of Tender (Demand Draft or copy of Cash Receipt as the case may be)	

	PART-II	
	PRICE BID consisting of the following shall be enclosed	
	ENVELOPE-III superscribed as: PART-II (PRICE BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:	
	CONTAINING THE FOLLOWING	
i	Covering letter/Offer forwarding letter of Tenderer enclosed in Part-I	
ii	Volume II – PRICE BID (Duly Filled in Schedule of Rates – rate/price to be entered in words as well as figures)	

	OUTER COVER	
	ENVELOPE-IV (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD	

**BHEL PSWR
Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 9 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

	TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING:	
i	<ul style="list-style-type: none">○ Envelopes I○ Envelopes II○ Envelopes III	

SPECIAL NOTE : All documents/ annexures submitted with the offer shall be properly annexed and placed in respective places of the offer as per enclosure list mentioned in the covering letter. BHEL shall not be responsible for any missing documents.

7.0 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.

8.0 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).

9.0 Assessment of Capacity of Bidders:

Bidders 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 'Load' is the sum of the unit wise identified packages (refer Table-1) for contracts with BHEL Regions. The cut off month for reckoning 'Load' shall be the month, two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

(Note: For example if latest bid submission is in Aug 2011, then the 'load' shall be calculated upto and inclusive of June 2011)

- i). Total number of Packages

Total number of Packages in hand = P

Where

- 'P' is the sum of all unit wise identified packages under execution with BHEL Regions as of the cut off month defined above, including packages yet to be commenced, excepting packages which are on HOLD due to reasons not attributable to Bidder..

- II. **PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (**under execution/** executed during the 'Period of Assessment' in all the 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 the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the month two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

(Note: For example if 'latest date of bid submission' is in Aug 2011, then the 'performance' shall be assessed for a 6 month period upto and inclusive of June 2011, for all the unit wise identified packages (refer Table I)

BHEL PSWR

Notice Inviting Tender

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 10 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

- 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:

- a) $P_1, P_2, P_3, P_4, P_5, \dots, P_N$ etc be the packages (**under execution/** executed during the 'Period of Assessment' in all Regions) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (ie $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- b) 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 (ie $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$)
- c) Sum ' S_1 ' of 'Monthly Performance Evaluation' Scores ($S_{1-1}, S_{1-2}, S_{1-3}, S_{1-4}, S_{1-5}, \dots, S_{1-N}$) for similar package P_1 , for the 'period of assessment' ' T_1 ' (ie $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-N}$). 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 (ie ' $S_T = S_1 + S_2 + S_3 + S_4 + S_5 + \dots + S_N$.)
- d) **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):

Aggregate of Performance scores for all similar packages in all the Regions

= -----

Aggregate of months for each of the similar package for which performance should have been evaluated in all the Regions

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

- e) 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**

S l o n o	Item Description	Details for all Regions							Total
		(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	
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 ie Sum (Σ) of columns (iii) to (ix)
2	Number of Months for	T_1	T_2	T_3	T_4	T_5	...	T_N	Sum (Σ) of

**BHEL PSWR
Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 11 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

	which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment for corresponding similar Package (as in row 1)								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₋ T ₁	S ₂₋₁ , S ₂₋₂ , S ₂₋₃ , S ₂₋₄ , ... S ₂₋ T ₂	S ₃₋₁ , S ₃₋₂ , S ₃₋₃ , S ₃₋₄ , ... S ₃₋ T ₃	S ₄₋₁ , S ₄₋₂ , S ₄₋₃ , S ₄₋₄ , ... S ₄₋ T ₄	S ₅₋₁ , S ₅₋₂ , S ₅₋₃ , S ₅₋₄ , ... S ₅₋ T ₅	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 '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:

- a) 'Period of Assessment.
- b) 12 months preceding the cut-off month
- c) 24 months preceding the cut-off month
- d) 36 months preceding 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 \leq 65	0.4
3	> 65 and \leq 70	0.35
4	> 70 and \leq 75	0.25
5	> 75 and < 80	0.2
6	\geq 80	NA

III. 'Assessment of Capacity of Bidder':

BHEL PSWR

Notice Inviting Tender

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 12 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

'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 9.1)

IV. Explanatory note:

- a) Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or CI, 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, CI, 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 (ie Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above
- b) Identified Packages (Unit wise)

Table-1

Table-1

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

**BHEL PSWR
Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 13 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

			xi). Material Handling & Material Management
			kii). Others (Mechanical)

- c) Bidders who have not been evaluated for at least six package months in the last 36 months in the online BHEL system for contractor performance evaluation in BHEL PS Regions, wef July'2010 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

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 'Capacity Evaluation of Bidders'.

- d) 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.
- e) 'Under execution' shall mean works in progress as per the following:
- i. up to Boiler Steam Blowing in case of Steam Generator and Auxiliaries
 - ii. upto Synchronisation in case of all other works excepting sl no (i) and (iii)
 - iii. Upto execution of at least 90% of anticipated contract value in case of Civil & Structures (unit wise), Enabling works and upto 90% of material unloading (in tonnage) as per the original contract in case of MM Package.

Note : BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (i), (ii) and (iii) above, depending upon the balance scope of work to be completed.

- f) 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

10.0 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.

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail, 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.

12.0 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 PSWR
Notice Inviting Tender**

**Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 14 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511**

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BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

- 13.0 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.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall be deemed to be in compliance with tender including PBD.
- 15.0 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 point (1) above.**
- 16.0 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.
- 17.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed 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.
- 18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.
- 19.0 BHEL reserves the right to decide the successful bidder on the basis of Reverse Auction process. In such case all qualified bidders will be intimated regarding procedure/ modality for Reverse Auction process prior to Reverse Auction and price will be decided as per the rules for Reverse Auction. .
- However, if reverse auction process is unsuccessful as defined in the RA rules/procedures, or for whatsoever reason, then the sealed 'PRICE BIDS' will be opened for deciding the successful bidder. BHEL's decision in this regard will be final and binding on bidder.
- 20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
- 21.0 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.
- 22.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
- 23.0 Consortium Bidding (or Technical Tie up) shall be allowed only if specified in Pre Qualifying Requirement (PQR) criteria, and in such a case the following shall be complied with:
- 23.1 Prime Bidder and Consortium Partner or partners are required to enter into a consortium agreement with a validity period of six months initially. In case the consortium is awarded the contract, then the

BHEL PSWR
Notice Inviting Tender

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 15 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

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Consortium Agreement between the Prime Bidder and Consortium Partner or partners shall be extended till contractual completion period including extension periods if any applicable.

- 23.2 'Stand alone' bidder cannot become a **Prime Bidder or a Consortium bidder or Technical Tie up bidder in a consortium (or Technical Tie up) bidding**. Prime bidder shall neither be a consortium partner to other prime bidder nor take any other consortium partners. However, consortium partner may enter into consortium agreement with other prime bidders. In case of non compliance, consortium bids of such Prime bidders will be rejected.
- 23.3 Number of partners for a consortium Bidding (or Technical Tie up) shall be as specified in the PQR
- 23.4 Prime Bidder shall be as specified in the Pre Qualification Requirement, else the bidder who has the major share of work
- 23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical 'Pre Qualifying Requirements' specified for the respective package, (ii) "Assessment of Capacity of Bidder" as specified in clause 9.0
- 23.6 Prime Bidder shall comply with additional 'Technical' criteria of PQR as defined in 'Explanatory Notes for the PQR'
- 23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified
- 23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.
- 23.9 Prime Bidder shall be responsible for the overall execution of the contract
- 23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats
- 23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.
- 23.12 In case the prime Bidder withdraws, the whole contract shall be considered cancelled and short closed.
- 23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of two similar works with the same consortium partner or partners under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'stand alone' bidder for similar works, subject to certification from BHEL about the active involvement of the Prime Bidder for satisfactory execution of the works.
- 23.14 The consortium partner shall submit SD equivalent to 2% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value.
- 23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also

**BHEL PSWR
Notice Inviting Tender**

**Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 16 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511**

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24.0 The bidder shall submit 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.

25.0 The bidder may have to produce original document for verification if so decided by BHEL.

26.0 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

It may please be noted that guidelines/rules in respect of suspension of business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', etc may undergo change from time to time and the latest one shall be followed.

for BHARAT HEAVY ELECTRICALS LTD

AGM (Purchase)

Enclosure

01. Annexure-1: Pre Qualifying criteria.
02. Annexure-2: Check List.
04. Annexure -4: Important Information

**BHEL PSWR
Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 17 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

ANNEXURE - 1

PRE QUALIFYING CRITERIA

JOB	COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF CW PIPING, INCLUDING BUTTER FLY VALVES, FITTINGS, HANGERS, SUPPORTS ETC & WRAPPING & COATING WITH 4 MM TAPE AS PER IS STANDURDS, FINAL PAINTING (INCLUDING SUPPLY OF PAINT, WRAPPING & COATING) ETC. FOR BLOCK I (UNIT 1 & 2) AND BLOCK II (UNIT 3 &4) OF 4X270 MW MANUGURU THERMAL POWER PROJECT OF 4X270 MW MANUGURU THERMAL POWER PROJECT.
TENDER NO	BHE/PW/PUR/ MANUT-CWP BLOCK I/1505 BHE/PW/PUR/ MANUT-CWP BLOCK II/1511

SL NO	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Name and Description of qualifying criteria	Page no of supporting document
A	Submission of Integrity Pact duly signed	APPLICABLE (Bidders shall submit duly filled & Signed Annexure III of NIT)	
D	Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT	APPLICABLE	
B	<p><u>Technical</u></p> <p>Bidder must have, executed Erection Testing & Commissioning of HP/LP/CW Piping works as listed below in the last seven (7) years as on latest date of bid submission (i.e. Bidder must meet B.1 OR B.2 OR B.3 OR B.4)</p> <p>B.1) Similar work(s) for any power plant of one Unit of 190 MW or above.</p> <p align="center">OR</p> <p>B.2) Executed One similar job of value not less than Rs.272 Lakhs or of quantity 1680 MT in any power plant / industry.</p> <p align="center">OR</p> <p>B.3) Executed Two similar Jobs each of 'value not less than Rs. 170 Lakhs' or each of 'quantity 1050 MT' in any power plant / industry</p> <p align="center">OR</p> <p>B.4) Executed Three similar jobs each of 'value</p>		

**BHEL PSWR
Notice Inviting Tender**

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 18 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

	not less than Rs. 136 Lakhs' or each of 'quantity 840 MT' in any power plant / industry		
C	Financial		
C.1	TURNOVER Bidders must have achieved an average annual financial turnover (Audited) of Rs 102 Lakhs or more over last three Financial Years (FY) i.e. i.e. 2012-2013, 2013-14, 2014-15 OR 2011-2012, 2012-2013, 2013-14 if Annual Accounts for FY 2014-15 are not audited.	APPLICABLE	
C.2	NETWORTH Net worth of the Bidder based on the latest Audited Accounts as furnished for 'D1' above should be positive	APPLICABLE	
C.3	PROFIT Bidder must have earned cash profit in any one of the three Financial Years as applicable in the last three years defined in 'D1' above based on latest Audited Accounts.	APPLICABLE	
E	Approval of Customer Note: Names of bidders who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval. Price bid of only those bidders shall be opened who are approved by customer.	APPLICABLE	
F	Consortium criteria	NOT APPLICABLE	
<p>Explanatory Notes for QR <u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u></p> <ol style="list-style-type: none"> 1. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above along with all annexures 2. In case audited Financial statements have not been submitted for all the three years as indicated against C-1 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. 3. C-2:-NETWORTH : Shall be calculated based on the latest Audited Accounts as furnished for C-1 above. Net worth = Paid up share capital + Reserves. (Net worth is required to be evaluated in case of companies) 4. C-3:- PROFIT : shall be NET profit (PAT + Non cash expenditure viz depreciation) earned during any one of the three financial years as in C-1 above 5. 'Additional' Criteria in respect of 'Technical' criteria of PQR (as in 'B' above) for Civil, Electrical, CI, unless otherwise specified : <ol style="list-style-type: none"> 1. Bidder should have executed similar work of any one of the following: <ol style="list-style-type: none"> a. One (1) work of value not less than Rs XXX _____ OR b. Two (2) works of not less than Rs YYY _____ OR 			

BHEL PSWR

Notice Inviting Tender

Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 19 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

~~e. Three (3) works of not less than Rs ZZZ
(Value XXX, YYY, ZZZ shall be as indicated by BHEL~~

~~2. 'Similar' work for criteria 5 above means~~

~~a. Civil or Structures or Civil & Structures or Chimney
respectively as applicable to the tendered scope in
respect of 'CIVIL' Works~~

~~b. Electrical works in respect of 'ELECTRICAL'~~

~~c. CI works in respect of 'CI' Works~~

~~d. Material Handling and/or Management works in
respect of 'MM' works~~

6. Time period for achievement of the 'Technical' criteria of PQR (as in 'B' above) will be the last 7 years ending on the 'latest date' of Bid submission
7. 'EXECUTED' means the Vendor should have achieved the criteria specified in the Technical criteria of PQR (as in 'B' above) even if the Contract has not been completed or closed, Unless otherwise specified, for the purpose of 'Technical' criteria of PQR (as in 'B' above), the word 'EXECUTED' means:
 1. "BOILER LIGHT UP" in respect of Boiler & Aux and ESP
 2. Term 'Commissioning' indicated in PQR refers to 'assistance to commissioning' / 'commissioning'
 3. "SYNCHRONISATION" in respect of STG/GTG and 'SPINNING' in case of HTG
 4. "STEAM BLOWING COMPLETION" in respect of at least Main Steam Line of Power Cycle Piping
 5. "HYDRAULIC TEST" of the system in respect of Structures, Pressure parts/IBR Piping
 6. "CHARGING" in respect of power Transformers, Bus ducts, HT/LT switchgears.
 7. "Completion of RCC Shell and liner (steel or brick as per tendered scope) up to the HEIGHT specified using slip form" in case of RCC Chimney.
 8. Achievement of physical Quantities as per respective PQRs in respect of Civil & Structures and Piling Works
 9. "Readiness for coal Filling" in respect of Bunker Structure Work.
8. Boiler means HRSG or WHRB or any other types of Steam Generator consisting of Boiler structure, Non pressure parts and pressure parts.
9. Critical/Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines
10. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating in terms of MW shall be considered for evaluation.
11. ~~In case the experience/PO/WO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI, unless otherwise specifically indicated in the PQR.~~
12. ~~Scope for capital overhaul of STG shall cover Bearing Inspection work and overhauling of all cylinders of the Turbine unless otherwise specifically indicated in~~

BHEL PSWR

Notice Inviting Tender

**Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & Page 20 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511**

	<p>the PQR.</p> <p>13. In case the tendered scope is not a Pulverised Fuel Boiler, experience of Oil/Gas Fired Boilers also can be considered unless otherwise specifically indicated in the PQR</p> <p>14. The value of work (Experience submitted against PQR B) shall be updated as per the PVC indices for “All India Avg. Consumer Price Index for Industrial Workers” with base month as date of execution (completion of contract/work) and indexed upto two months prior to bid opening month.</p> <p>15. PQR -D - ‘ Assessment of Capacity of Bidder’ shall be evaluated considering ‘LP Piping’ & ‘ Power cycle piping’ as similar Pkg.</p>
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BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

BHEL PSWR
Notice Inviting Tender
Tender Specification No: BHE/PW/PUR/MANUT-CWP BLOCK II/1505 & Page 21 of 73
BHE/PW/PUR/MANUT-CWP BLOCK II/1511

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	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount: Please tick (✓) whichever applicable:- ONE TIME EMD / ONLY FOR THIS TENDER	
		APPLICABILITY	BIDDER REPLY
5	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
6	Whether Audited profit and Loss Account for the last three years submitted	Applicable	YES/NO
7	Whether Copy of PAN Card submitted	Applicable	YES/NO
8	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable	YES/NO
9	Whether duly filed & Signed Integrity Pact (Annexure III of NIT) submitted	Applicable	YES/NO
10	Declaration by Authorised Signatory	Applicable	YES/NO
11	Whether No Deviation Certificate submitted	Applicable	YES/NO
12	Whether Declaration confirming knowledge about Site Conditions submitted	Applicable	YES/NO
13	Whether Declaration for relation in BHEL submitted	Applicable	YES/NO
14	Whether Non Disclosure Certificate submitted	Applicable	YES/NO
15	Whether Bank Account Details for E-Payment submitted	Applicable	YES/NO
16	Capacity Evaluation of Bidder for current Tender	Applicable	YES/NO
17	Tie Ups/Consortium Agreement are submitted as per format	Not Applicable	Not Applicable
18	Whether Power of Attorney for Submission of Tender/Signing Contract Agreement submitted	Applicable	YES/NO
19	Whether Analysis of Unit rates submitted	Applicable	YES/NO

NOTE : STRIKE OFF 'YES' OR 'NO', AS APPLICABLE

DATE :

AUTHORISED SIGNATORY
(With Name, Designation and Company seal)

Registered Office : BHEL House, Siri Fort, New Delhi – 110 049, India
Website : www.bhel.com

ANNEXURE - 3**IMPORTANT INFORMATION**

Sealed Tenders shall be submitted at following address to AGM /Purchase BHEL PSWR NAGPUR:

BHEL PSWR, SRIMOHINI COMPLEX , 345 KINGSWAY, NAGPUR 440001, INDIA

All correspondences regarding this tender shall be addressed to AGM / PURCHASE BHEL PSWR at above address. Bidders may also opt to correspond with following BHEL officials regarding this tender through email at following email ids . However please be informed that sealed tenders shall necessarily be submitted in original at above address:

AGM Purchase, Email id: rajeebc@bhhelpswr.co.in. Ph: +91 - 712 - 3048633

Sr Engineer Purchase, Email: pgv@bhhelpswr.co.in, Ph: +91 - 712 - 3048713

Asst. Engineer Purchase, Email id: nirmalpg@bhhelpswr.co.in , Ph: +91 - 712 - 304832

- a. **The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site (www.bhel.com ---> Tender Notification -> List of Banned Firms)**
- b. **Refer Chapter XII of Volume IB Special Conditions of Contract regarding Suspension of Business Dealings: The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' has now been uploaded on www.bhel.com on "supplier registration page" at the following link: http://www.bhel.com/vender_registration/pdf/Suspension-of-Business-Dealings-with-Supplier-issued-Sept13_abridged.pdf**
- c. **All Statutory Requirements as applicable for this project shall be complied with.**
- d. **Please take note of following Revised Tender Clauses:**
 - i. Notice Inviting Tender: Sl No 9
 - ii. General conditions of Contract: Clause No 1.15.13 (New), Clause No 2.8.3, 2.8.4 and 2.8.5

e. Following Notes are added to Form F- 15 of Volume I D 'Forms & procedures'

- i. It is only indicative and shall be as per the online format issued by BHEL time to time.
- ii. No request will be entertained after specified date of the current month w.r.t the changes requested in the scores of immediate previous month.

f. PRICE VARIATION CLAUSE

Revision in Price Variation Compensation Clause no. 2.17 of Vol I C GCC:

Clause No. 2.17.9 of Vol IC GCC is revised as below:-

PVC shall be applicable only during the extended period of contract (if any) after the schedule completion date for the portion of work delayed / backlog for the reasons not attributable to Contractor. However total quantum of Price Variation amount payable/recoverable shall be regulated as follows:

- i. For the portion of backlog attributable to the contractor and for the portion of backlog due to force majeure condition during contract period, PVC shall not be paid.
- ii. For the period of force Majeure during extended contract period, PVC will be as per the indices applicable at the beginning of the force majeure period.
- iii. void
- iv. The total amount of PVC shall not exceed 20% of the cumulatively executed contract value during the extended contract period. Executed contract value for this purpose is exclusive of PVC, ORC, Supplementary/Additional Items and Extra works.

Clause No. 2.17.5 of is modified as below:-

Base date shall be the calendar month of the (schedule completion date of the contract). Schedule Completion date shall be the actual start date plus contract period as defined in Chapter VI 'Vol IA TCC'

g. OVER RUN COMPENSATION

Modification in Price Variation Compensation Clause no. 2.12 of Vol I C GCC:

Clause No. 2.12 of Vol IC GCC is Revised as below:-

IF THE CONTRACT IS EXTENDED BEYOND THE CONTRACT PERIOD FOR ANY REASON OTHER THAN THOSE ATTRIBUTABLE TO THE CONTRACTOR OR FORCE MAJEURE CONDITIONS, THE CONTRACTOR WILL BE COMPENSATED BY PAYMENT OF OVERRUN CHARGES AT THE RATE OF **RS.1,00,000/- (Rupees One Lakh Only)** PER MONTH. OVERRUN COMPENSATION WILL BE PAID FOR THE EXTENSION ATTRIBUTABLE TO BHEL ONLY. NO OVERRUN

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COMPENSATION WILL BE PAYABLE FOR THE EXTENSION ON ACCOUNT OF REASONS ATTRIBUTABLE TO CONTRACTOR AND/OR FORCE MAJEURE CONDITIONS. OVERRUN COMPENSATION FOR ELIGIBLE PERIOD SHALL BE IN PROPORTION TO THE PROGRESS ACHIEVED AGAINST THE PLAN FOR RESPECTIVE PERIOD.

h. Acceptance of Bank Guarantee (BG)

Revision in Acceptance of Bank Guarantee (BG) Clause no. 1.10.3 (V) of Vol I C GCC:

Clause No. 1.10.3 (V) of Vol IC GCC is revised as below:-

“Bank Guarantee issued by:

- a. Any of the BHEL consortium bank listed below :

State Bank of India
ABN Amro Bank N.V.
Bank of Baroda
Canara Bank
Citi Bank N.A.
Corporation Bank
Deutsche Bank
HDFC Bank Ltd.
The Hongkong and Shanghai Banking Corporation Ltd.
ICICI Bank Ltd.
IDBI Ltd.
Punjab National Bank
Standard Chartered Bank
State Bank of Travancore
State Bank of Hyderabad
Syndicate Bank

- b. Any public sector Bank (other than consortium banks) with a clause in the text of Bank Guarantee that it is enforceable at Nagpur, Maharashtra
- c. Any private sector banks, with a clause in the text of Bank Guarantee that it is enforceable by being presented at any branch of the bank

Note: “Bank Guarantees issued by Co-operative Banks are not acceptable”.

i. VOID

j. Broad Terms & Conditions of Reverse Auction

In continuation to Clause 19.0 of NIT (Notice Inviting Tender) following are the broad terms and conditions of Reverse Auction is given in Annexure V of NIT:

- 10.1. Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).
- 10.2. BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids. In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 10.3. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- 10.4. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit ‘online sealed bid’ in the Reverse Auction. Non-submission of ‘online sealed bid’ by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 10.5. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
- 10.6. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.

-
- 10.7. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
- 10.8. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
- 10.9. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for noncompliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
- 10.10. Reverse auction will be conducted on scheduled date & time.
- 10.11. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
- 10.12. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
- 10.13. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
- 10.14. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the "Business Rules of Reverse Auction", which will be communicated before the Reverse Auction.
- 10.15. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
- 10.16. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.

10.17. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

k. MODALITY FOR AWARD OF VARIOUS CIVIL & STRUCTURAL PKGS AT SUBJECT PROJECT:

11.1

Following 11 packages of Mechanical E&C jobs is envisaged under the Project:

- | | | |
|--|---|---------------------|
| a. <u>Package 1:</u> Boiler U # 1 | } | One combined tender |
| b. <u>Package 2:</u> Boiler U # 2 | | |
| c. <u>Package 3:</u> Boiler U # 3 | | |
| d. <u>Package 4:</u> Boiler U # 4 | | |
| e. <u>Package 5:</u> ESP Unit#1&2 | } | One Combined tender |
| f. <u>Package 6:</u> ESP Unit#3&4 | | |
| g. <u>Package 7:</u> STG Unit#1&2 | } | One Combined tender |
| h. <u>Package 8:</u> STG Unit#3&4 | | |
| i. <u>Package 9:</u> CW Piping Unit#1 & 2 | } | One Combined tender |
| j. <u>Package 10:</u> CW Piping Unit#3 & 4 | | |
| k. <u>Package 11:</u> Misc Pumps and Piping | | |

Subject tender is for **Package 9 and Package 10** at sl no i and j respectively. **Successful tenderer of any of the package above shall not be considered for other packages i.e any bidder who has been awarded any of the package above (listed at Sl No 11.1 a to k), shall not considered in the tender for other packages except for the specific case indicated in Sl No 11.2.6 below. In case more than one package is tendered**

simultaneously, then BHEL reserves the right to open the price bids of any tender in any order.

11.2 MODALITY FOR AWARD OF SUBJECT TENDER

There are 2 Blocks of CW package divided into Block I for UNIT- 1& 2 and Block II for unit 3 &4. Modality for award of work is as detailed below;

1. Tender specification (Volume I) and Volume-II Price Bid Specification are common for Block I & Block II .
- 2. Block I & Block II shall be awarded to separate agencies.**
3. **Price/RATE** for E & C of CW Piping Package for one block has been invited in Volume II price bid specification.
4. Bidders are required to submit their Price / rate for E & C of CW Piping Package for one Block I only in Volume II Price bid Specification.
- 5. L-1 Bidder shall be considered for award of Block-1.**
6. For award of Block II, next bidder in the order of their price competitiveness (i.e. L-2, then L-3 and hence forth) shall be given an option to match awarded Rate of **Block I CW piping Package**. In case the Block II remains un-awarded, then **BHEL may consider awarding that package to the bidder/s who is/are already awarded the job or** opt any other suitable method to finalize that Boiler package.
7. In case after award of job, the agency fails to display satisfactory performance in execution of job and BHEL feels it is necessary to make alternate arrangement to execute balance work or any portion of work on risk purchase basis or otherwise, then BHEL reserves the right to finalize another/additional agency.
- 8. Sub-contractor will be required to work on 24 hour (round the clock) basis.**

1505
&
1511

TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

SI No	DESCRIPTION	Chapter	No. OF PAGES
Volume-IA	Part-I: Contract specific details		
1	Project Information	Chapter-I	1
2	Scope of Works	Chapter-II	2
3	Facilities in the scope of Contractor/BHEL (Scope Matrix)	Chapter-III	7
4	T&Ps and MMEs to be deployed by Contractor	Chapter-IV	2
5	T&Ps and MMEs to be deployed by BHEL on sharing basis	Chapter-V	1
6	Time Schedule	Chapter-VI	2
7	Terms of Payment	Chapter-VII	1
8	Taxes and other Duties	Chapter-VIII	3
9	Specific Inclusion	Chapter-IX	1
10	Specific Exclusion	Chapter-X	1
	Annexures		
	Estimated Weights for Various Systems in Scope of Work	Annexure I	1
Volume-IA	Part-II : Technical Specifications		
11	General	Chapter-XI	6
12	Piping	Chapter-XII	6
13	Welding, Radiography, NDT, PWHT	Chapter-XIII	5
14	Painting	Chapter- XIV	1
15	Testing, Pre-Commissioning, Commissioning	Chapter-XV	3

TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

16	Preservation & Protection of Components	Chapter- XVI	1
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I : Project Information

1.0	Project Information
1.1	BACKGROUND
	TELANGANA STATE GENERATION COMPANY (TSGENCO) is setting up a coal based 4x270 MW Thermal Power Project at Bhadradi, Manuguru, Distt.-Khammam, Telangana. Site is located at a distance of 100 KM from Khammam Railway station.
	Location: 10 Kms from Manuguru Town
	Nearest Railway Station: Manuguru (20 Kms)
	Nearest Airport/ seaport: Vijayawada (220 Kms from site)
	Access By Road/Major Cities: 38 KM from Bhadrachalam, 345 KM from Hyderabad
	Source of Coal: Singareni Coal Mines/Imported Coal
	Source of Water: Godavari River
	Meteorological Data:
	Dry Bulb Temperature (Max/Min): 44.8o C/13oC
	Humidity (Max/Min): 82%/31%
	Average Rainfall: 1250 mm annually
	Wind Speed: Basic wind speed of 44 m/sec as per IS - 875(Part-3)
	Seismic Zone: Zone III

The bidder is advised to visit and examine the site of WORKS and its surroundings and obtain for himself on his own responsibility all information and acquaint himself with the prevailing conditions viz. statutory, mandatory, obligatory etc. that may be necessary for preparing the bid and entering into the CONTRACT. All costs for and associated with site visits shall be borne by the bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II : Scope of work

2.0 SCOPE OF WORK

The work to be carried out under the scope of these specifications is broadly as under:

COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF CW/ACW PIPING, INCLUDING BUTTER FLY VALVES, FITTINGS, HANGERS, SUPPORTS ETC & WRAPPING & COATING WITH 4 MM TAPE AS PER IS STANDARDS, FINAL PAINTING ETC. FOR UNIT- 1 & 2 (BLOCK I) & UNIT- 3&4 BLOCK II OF 4X270 MW MANUGURU THERMAL POWER PROJECT.

2) Erection, alignment, welding, testing & wrapping coating, painting etc. as applicable of:

- ✓ CW Piping erection in between Raw/Intake sump to intake pump house, Internal pump house piping erection, supporting & painting/wrapping/coating.
- ✓ CW Piping from Raw/intake pump house to PT Plant (common for all four units) through clarifier water system. **This will be excluded from Block II scope.**
- ✓ Internal piping of CW, ACW Pump house including butter fly valves & self-cleaning filters etc.
- ✓ CW Supply Piping erection in between CW Pump house to condenser near to 'A' row as per terminal point given in drawing/ shown by BHEL engineer.
- ✓ CW Return piping erection for condenser near A row to cooling tower as per terminal point given in drawing/ shown by BHEL engineer.
- ✓ All the vents of CW/ACW Piping laying about 01 mtr above from 0 meter, Hence vendors to provide workable approach plate form for operation & maintenance of valves.
- ✓ ACW Piping from ACW pump house to near A row for PHE (as per terminal point given in drawing/ shown by BHEL engineer)
- ✓ ACW return piping near A row to CW return line in front of A Row

- ✓ All the associated valves, fittings (counter flange & common tapping point), self-cleaning strainers for ACW, hangers & supports, and tanks and vessels etc
- ✓ Pipes for the above work are covered under PGMA 80-468. However agency has to do other CW/ACW piping work covered in 80-XXX, which is required for the system completion of CW/ACW piping as per instruction of BHEL engineer. Payment for the same will be done on tonnage basis @ quoted price.

All the above CW/ACW piping is of underground & over ground nature (Details drawing attached).

3) Pre-assembly, if any, Pre-erection checks as applicable

4) Non-Destructive Examination & post weld heat treatment

5) Pre-commissioning checks/tests, Trial Runs/Testing and Commissioning

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II : Scope of work

- 6) Surface preparation and Final Painting/wrapping/coating of erected items as applicable. ***Paints for final painting, wrapping and coating materials will be arranged by agency.***
- 7) Making the units ready for PG test and assistance for conductance.
- 8) Completion of all facilities/systems including completion of all pending works / points.

Agency is to refer attached drawing for getting an overall idea of Scope of work of CW/ACW Piping:

a) ***P& ID CW & ACW SYTEM (Drwg PE-DG-411-165-N001)***

b) ***P& ID PLANT WATER SYESTEM (Drwg PE-DG-411-172-N001-R00)***

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1	PART I ESTABLISHMENT			
3.1.1	FOR CONSTRUCTION PURPOSE:			
a	Open space for office (as per availability)	Yes		Location will be finalized after joint survey with owner
b	Open space for storage (as per availability)	Yes		Location will be finalized after joint survey with owner
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Fire fighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
3.1.2	FOR LIVING PURPOSES OF THE BIDDER			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Open space for labour colony		Yes	Contractor has to make their own arrangements for labours accommodation (Labour colony)
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	
3.2.0	ELECTRICITY			
3.2.1	Electricity For construction purposes of Voltage 415/440 V			FREE
a	Single point source	Yes		At a distance of 500 M from site (Distance is only approximate, it may vary upto an extent depending on site condition)
b	Further distribution including all materials, Energy Meter, Cables, switchboards Protection devices and its service etc.		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	Electricity for the office, stores, canteen etc of the bidder			FREE

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Single point source	Yes		At a distance of 500 M from site (Distance is only approximate, it may vary upto an extent depending on site condition)
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc		Yes	Contractor has to make their own arrangement.
a	Single point source		YES	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.3.0	WATER SUPPLY			
3.3.1	For Construction purposes:			FREE
a	Making the water available at single point	Yes		

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.2	<u>Water supply for bidder's office, stores, canteen etc</u>			FREE
a	Making the water available at single point	Yes		
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<u>Water supply for Living Purpose</u>			Contractor has to make their own arrangements
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.4.0	LIGHTING			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

Sl.No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3 At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, post light, mast light, etc during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5.0	COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER			
a	Telephone, fax, internet, intranet, e-mail etc		Yes	
3.6.0	COMPRESSED AIR wherever required for the work		Yes	
3.7.0	Demobilization of all the above facilities		YES	
3.8.0	TRANSPORTATION			
a	For labours and site personnel of the bidder		Yes	
b	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

SI.No	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			
a	Providing the erection drawings for all the equipment covered under this scope	Yes		
b	Drawings for construction methods	Yes		
c	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes		YES	In consultation with BHEL
d	Shipping lists etc for reference and planning the activities	Yes		"
e	Preparation of site erection schedules and other input requirements		Yes	"
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	"
g	Weekly erection schedules based on SI No. e		Yes	"
h	Daily erection / work plan based on SI No. g		Yes	"

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III : Facilities in the scope of Contractor/BHEL

Sl.No	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
i	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every fortnight.		Yes	Special care shall be given from top management of contractor for this fast track project
j	Preparation of preassembly bay		Yes	
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself		Yes	
L	Arranging the materials required for preassembly		YES	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps and MMEs TO BE PROVIDED CONTRACTOR

FOR EACH BLOCK				
SN	DESCRIPTION	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
1	Crawler Crane	75 MT	1	From CW/ACW Piping erection start to HT completion.
2	Mobile Crane/Hydra	18 MT	2	
3	Trailer with Prime Mover	30 MT	1	
4	3-Phase Distribution Board with Complete Set Up for Drawl of Construction Power	As required	As required	
5	Power Cable for drawl of Construction Power	As required	As required	
6	Radiography Arrangement with Radioactive Isotope Source	Cobalt-60	1 set	
7	Welding Generator (Electrical)	300 Ampere rating	20 Nos	
8	Radiography Film Viewer	As required	As required	
9	Baking Oven with thermostat and temperature gauge for welding electrodes	As required	3 Nos	
10	Holding Oven with thermostat and temperature gauge for welding electrodes	As required	2 Nos	
11	Portable Oven for welding electrodes	As required	40 Nos	
12	FILLING PUMP AND PRESSURIZING PUMP FOR HYDRO TEST	As required	01 No EACH	For Hydraulic test of CW, ACW pipelines.
13	De-watering Pump to remove the water from dig for continuously erection	for refractory and other required activities	1 Set	
14	Portable Grinding M/c	As required	As required	
15	Portable Drilling M/c	As required	As required	
16	Chain Pulley Blocks	Up to 15 MT Capacity	As required	
17	Fire retardant Tarpaulins	As required	As required	

BHEL-PSWR

TS No: BHE/PW/PUR/MANUT-CWP BLOCK I/1505 & BHE/PW/PUR/MANUT-CWP BLOCK II/1511

Technical Conditions of Contract –Volume I A (Part I: Contract Specific Details)

Page 42 of 73

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs TO BE PROVIDED CONTRACTOR

18	Calibrated Pneumatic Torque wrench		4 nos.	
19	Spectrometer for metal testing		as required	
20	Alco meter for paint thickness checking		as required	
21	Wooden sleeper 1.5 Mtr length	Since beginning	50 No's	For material storage at site.

B: MEASURING AND MONITORING DEVICES (MMD):

AS PER REQUIREMENT TO BE FINALIZED AT SITE, SHALL MEET THE REQUIREMENTS AS PER FIELD QUALITY PLAN AND OTHER ERECTION, TESTING RELATED ACTIVITIES.

NOTE:

- 1) 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.
- 2) IF ABOVE MENTIONED T & P ARE NOT DEPLOYED IN SPECIFIED TIME BHEL WILL CHARGE TO CONTRACTOR CURRENT MARKET RATE + 30 % OVERHEADS FOR NON AVAILABILITY T&P OR LEVY A DAY WISE PENALTY FOR NON DEPLOYMENT OR DELAYED DEPLOYMENT.
- 3) IF THE WORKS GET DELAYED DUE TO NON-AVAILABILITY OF T&P, BHEL RESERVES THE RIGHT TO GET THE WORK DONE AT THE RISK AND COST OF CONTRACTOR WITHIN PREJUDICE TO RIGHTS OF BHEL AS IN GCC.
- 4) THE MANUFACTURING YEAR OF ALL MAJOR T&P's DEPLOYED BY THE CONTRACTOR SHOULD NOT BE MORE THAN 10 YEARS AS ON DATE OF DEPLOYMENT. IF AT ANY MOMENT OF TIME DURING THE EXECUTION OF WORK, ANY CRANE IS FOUND TO BE NOT IN A GOOD WORKING CONDITION AND NON-PERFORMING AT DESIRED MINIMUM CAPACITY, AS CERTIFIED BY BHEL ENGINEER, THE CONTRACTOR SHALL DEPLOY ANOTHER CRANE IN GOOD WORKING CONDITION WITH MINIMUM DESIRED CAPACITY. IF CONTRACTOR FAILS TO DEPLOY THE SAME WITH IN 10 DAYS, BHEL WILL RECOVER NON-REFUNDABLE PENALTY PER DAY OF DELAY IN THE FOLLOWING MANNER-
 - a) IN RESPECT OF 75 MT CRANE: @ RS. 5,000 / -
 - b) IN RESPECT OF 18 MT CRANE- recovery @ RS 3000/-

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – V: T&Ps and MMEs TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:

LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:

SL NO	DESCRIPTION & CAPACITY OF T&P	QUANTITY	REMARKS
1	Cranes		All cranes (except Contractor scope) required for mentioned work will be arranged by BHEL as per requirement.

Note: For Crane:

Common for All:

1. The cranes may be BHEL owned or may be obtained on hiring basis including operating and maintenance crew.
2. Operator and O&M for BHEL owned crane will be provided by BHEL.
3. Operator and O&M for hired crane will be provided by the hiring agency.
4. Contractor shall provide the fuel for BHEL provided cranes (Hired/owned) for his use.
5. Contractor shall provide necessary manpower assistance for initial and final assembly & dismantling and for subsequent operations of boom extension and reduction during execution of work. Contractor shall also make necessary arrangements like laying of special sleeper beds and steel pates (all arranged by contractor) for movement and operation of the crane.

Cranes provided by BHEL will be on sharing basis with other agencies / contractors of BHEL. The allocation of cranes shall be the discretion of BHEL engineer, which shall be binding on the contractor. Cranes will be deployed at appropriate time as decided by BHEL for suitable duration and intended purpose. Augmentation of BHEL T & P under special circumstances shall be discretion of BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

6.1 TIME SCHEDULE & MOBILIZATION

6.1.1 INITIAL MOBILIZATION

After receipt of fax LOI, Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall mobilize necessary resources within 2 weeks of issue of fax letter of intent or as per the directive of Project Manager / Construction Manager. Such resources shall be progressively augmented to match the schedule of milestones and commissioning.

6.1.2 MOBILIZATION FOR ERECTION, TESTING, ASSISTANCE FOR COMMISSIONING ETC.

The activities for erection, testing etc. shall be started as per directions of Construction Manager of BHEL. Contractor shall mobilize further resources (in addition to those required for activities under clause no. 6.1.1) as per requirement to commence the work of erection, testing etc. of boiler and auxiliaries and progressively augment the resources to match schedule of the project.

6.1.3 COMMENCEMENT OF CONTRACT PERIOD AND TENTATIVE SCHEDULE

Pre-assembly & erection on it's designated foundation / location, of the first major permanent equipment / component / column covered in the scope of these specifications or date to start the work as communicated by BHEL in writing (Whichever is earlier) shall be recognized as "start of contract period".

The Contractor has to subsequently augment his resources in such a manner that following major milestones of erection & commissioning are achieved on specified schedules: According to the contract between BHEL and TSPG CO LTD. the schedule of important milestones is as follows:

SL No.	Milestones	UNIT - 1	UNIT - 2	UNIT - 3	UNIT - 4
1	Boiler Light Up (BLU)	03.11.16	03.11.16	18.11.16	18.11.16
2	EDTA/Detergent flushing/Acid Cleaning	03.12.16	03.12.16	18.12.16	18.12.16
3	Synchronization with oil	03.02.17	17.02.17	28.02.17	15.03.17

The milestones above shown is tentative and may change based on the actual site condition. In order to meet above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, Contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.

11.1.4 CONTRACT PERIOD

The contract period for completion of entire work under scope shall be **12 (Twelve) months for each Block** from the "start of contract period" as specified earlier.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

The period from the commencement of preparatory work for erection till the actual “start of contract period” shall not be reckoned for the above purpose.

Sub-contractor will be required to work on 24 hour (round the clock) basis.

11.1.5 GRACE PERIOD

Grace period of 3 (Three) months beyond the contract period may be provided for this contract at the discretion of BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

The progressive payment for erection, testing and commissioning on accepted price of contract value will be released as per the break up given hereinafter:

SL NO	Contract (Main Package) Identification ---->	PIPING
1.1	ON PRE-ASSEMBLY WHEREVER APPLICABLE (IF NOT APPLICABLE, THIS PORTION SHALL BE CLUBBED WITH PLACEMENT IN POSITION)	20
1.1	PLACEMENT IN POSITION	15
1.2	ALIGNMENT/ WELDING/BOLTING/FIXING	30
1.3	COMPLETION OF NON DESTRUCTIVE EXAMINATION (if not applicable, then this portion to be paid along with welding)	8
1.4	HANGERS & SUPPORTS ETC WHEREVER NECESSARY AS PER DRG	5
1.5	HYDRAULIC TEST OR PNEUMATIC TEST	5
1.6	HOUSEKEEPING & AREA CLEANING	2
1.7	PAINTING/WRAPPING/COATING AS APPLICABLE	10
1.8	MATERIAL RECONCILIATION	3
1.9	COMPLETION OF CONTRACTUAL OBLIGATION	2
	TOTAL FOR PRO RATA PAYMENTS	100

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: TAXES & DUTIES

8.0 TAXES, DUTIES, LEVIES (Consolidated Rev 04 dated 14/05/2015)

8.1. For All types of works excepting works covered under sl no 8.2

8.1.1

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.

However, provisions regarding Service Tax and Value Added Tax (VAT) on output services and goods shall be as per following clauses.

8.1.2 Service Tax & Cess on Service Tax

Contractor's price/rates shall be exclusive of Service Tax and Cess on Services. In case, it becomes mandatory for the contractor under provisions of relevant act/law to collect the Service Tax & Cess from BHEL and pay the same to the concerned tax authorities, such applicable amount will be paid by BHEL at the prevailing Service Tax Rate (presently 14 %) on the admitted bill value.

Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract. Contractor shall submit serially numbered Service Tax and Cess Invoice, signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely,

- 1. The name, address and the registration number of the contractor,**
- 2. The name and address of the party receiving taxable service,**
- 3. Description, classification and value of taxable service provided and,**
- 4. The service tax payable thereon.**

All the Four conditions shall be fulfilled in the invoice before release of service tax payment.

Wherever, more than one route/option are available for discharge of service tax liability under a particular service, (e.g. "works contract Service"), contractor shall obtain prior written consent from BHEL site before billing the amount towards Service Tax.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: TAXES & DUTIES

8.1.3 VAT (Sales Tax /WCT)

As regards Value Added Tax (VAT)/CST on transfer of property in goods involved in Works Contract (previously known as Works Contract Tax) applicable as per local laws, the price quoted by the contractor shall be inclusive of the same and in no case input or output VAT/CST will be reimbursed extra.

In any case the Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the first RA bill. Contractor will submit all the details of VAT/CST paid for the contract in the prescribed format of the respective state VAT laws. Also, the contractor will issue the tax Invoices to BHEL as per the Tax laws of respective state on monthly basis. Contractor shall also be required to furnish to BHEL necessary proof of VAT remittance on monthly basis.

Deduction of tax at source shall be made as per the provisions of law and is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made.

Further, if BHEL, at the instance of customer or otherwise adopts the specific route for discharging output VAT liability itself, benefit of the reduction in liability of the contractor will be passed on to BHEL.

In case, BHEL is forced to pay any VAT liability on behalf of contractor, the same will be recovered from contractor's bill or otherwise as deemed fit

8.2 'Enabling Works'

~~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. (i.e. rates quoted by bidder shall be inclusive of Service Tax, VAT/WCT and all other taxes and duties)~~

~~However, Since the proposed work is in the nature of 'Works Contract service' as per Service tax law, Hence, For non corporate contractors being Individual, HUF, Proprietary Firm, Partnership Firm or Association of Persons (AOP), BHEL shall recover the applicable Service Tax under reverse charge mechanism from the contractor and remit the same with the Government as per the provisions of Law. Necessary advice/confirmation of remittance shall be issued to the contractor. The~~

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: TAXES & DUTIES

~~contractor shall not be eligible for any refund/reimbursement of such service tax from BHEL. It shall be the responsibility of the contractor to submit proper invoice giving all the requisite details as per Service Tax Law for the determination of the service tax liability of BHEL under reverse charge mechanism. BHEL reserves the right to determine such liability based on the invoice submitted by the contractor or otherwise independently and remittance of the same with the Government.~~

8.3 New Taxes/Levies

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.

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.

No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price Variation/Adjustment Clause (PVC) if any. In case PVC is not applicable for the contract, Bidder has to make his own assessment of the impact of future variation if any, in rates of taxes/duties/ levies etc. in his price bid.

8.4 BOCW Cess

The quoted rates shall be exclusive of the BOCW Cess which shall be paid extra by BHEL against Documentary evidence. However, the applicability of the BOCW Cess shall be got confirmed from BHEL in writing, before remitting such Cess/tax.

8.5 GST: As and when GST becomes applicable to this contract, the net differential (negative or positive) financial liability of the bidder to the Authorities (as compared to such liability prior to applicability of GST), if any, shall be to the account of BHEL. For this purpose, all available options under the GST shall be explored, and the decision of BHEL in this regard shall be final and binding on the bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-IX : SPECIFIC INCLUSIONS

Void

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X : SPECIFIC EXCLUSIONS

10.0 EXCLUSIONS

The following works are specific exclusions from the scope of work under erection, testing & commissioning of tender specification-

- i) Civil works is in scope of BHEL.
- ii) **CW Piping from Raw/intake pump house to PT Plant (common for all the four units) will be excluded from Block II Scope.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Annexure-I

APPENDIX -1 LIST OF APPLICABLE PGMA'S

PC CHENNAI SUPPLY

FOR ONE BLOCK (CONSISTS OF 2 UNITS)

SL N	PGMA	DESC	Weights(T)	CAT	Rate identifier
1	80-468	MAIN CIRCULATION PIPING (CW/ACW)	2091.300	LPP	1.1
2	B/F VALVES	B/F VALVES SUPPLIED BY BPL	7.46	LPP	1.1
3	S/C FILTER	S/C FILTER SUPPLIED BY PEM	6.00	LPP	1.1
4	80-923	Hangers & support			

Following are the pipe sizes for LP cooling water outside TG hall & further tentative detail of Piping tonnage is as below (break up of S No-1 PGMA 80-468). *Please refer attached Drawing for detail (P& ID –CW & ACW SYSTEM-PE-DG-411-165-N001-Rev3).*

PIPE SIZE	Approx. Length (mtr) per Unit
PIPE OD2335X18-IS3589-OG (OVER GROUND)	50
PIPE OD-2335X18-IS3589-UG (UNDER GROUND)	1550
PIPE 1626 X16-OG 3589 FE 410 LS/SPIRAL (OVER GROUND)	80
PIPE DIA 813.0X8 -UG; D1=797 (UNDER GROUND)	150
PIPE DIA 600 FOR ACW SYSTEM (UG/OG)	

Above length is only tentative & may vary up to any extent. Payment is to be done on tonnage basis.

Application of wrapping & coating, final painting including supply portion is the scope of vendors. Accepted rate is inclusive of supply and application of Final painting, wrapping & coating with 4mm tape as per IS standards.

Note:

- The weights given above are for two unit only.**
- Besides product groups indicated herein, there is likelihood of addition of new product groups by BHEL' s unit for release of some items, integral to this work. Tenderers' quoted unit rates shall be applicable for such product groups also.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Annexure-I

3. The weights given above are tentative. It may change after detailed engineering is done. Rate quoted by the Contractor shall not change due to variation in weight.
4. Weight of valves, fittings, supports etc. are including in weight of piping of respective scheme / systems of piping. The site welding of site weld joints and NDT/ Non-IBR, CS, piping's/system shall be as per BHEL drawings/documents and site requirement.
5. There will be no payment for consumables like welding electrode /filler wire etc

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI GENERAL

GENERAL REQUIREMENTS – COMMON TO ALL WORK

11.1

The intent of specification is to provide services according to the most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for proper and efficient execution of this work shall not relieve the Contractor of the responsibility of providing such facilities to complete the work without any extra compensation.

11.2

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.

11.3

The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The Contractor and his personnel shall cooperate with personnel of BHEL, BHEL'S Customer, Customer's consultants and other Contractors, coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work of the project as a whole.

11.4

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 & 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.

11.5

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.

11.6

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.

11.7

~~The boiler shall be erected as per relevant provisions of latest Indian Boiler Regulations (IBR) and amendments/addendums thereof, if any.~~

11.8

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI GENERAL

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.

11.9

The Contractor shall perform any services, tests etc, which may not be specified but nevertheless, required for the completion of work within quoted rates.

11.10

All necessary certificates and licenses required for carrying out this work are to be arranged by the Contractor expeditiously.

11.11

The Contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence.

11.12

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.

11.13

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.

11.14

During the course of erection, testing and commissioning certain rework / modification / rectification / repair / fabrication etc. may become necessary on account of feed back / revision of drawing etc. This will also include modifications / re-works suggested by BHEL / customer / other inspection group. Contractor shall carry out such rework / modification / rectification / fabrication / repair etc. promptly and expeditiously. Daily log sheets signed by BHEL engineer and indicating the details of work carried out, man-hours etc. shall be maintained by the Contractor for such reworks. Claim of Contractor if any, for such works will be governed by relevant clauses of 'General Conditions of Contract'.

11.15

All works such as cleaning, leveling, aligning, trial assembly, dismantling of certain equipments / 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.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI GENERAL

11.16

The Contractor shall make all fixtures, temporary supports, steel structures required for jigs & fixtures, anchors for load and guide pulleys required for the work. Contractor shall arrange necessary steel for such usage. ~~Only the steel for making temporary structure (cat head) for drum lifting will be provided by BHEL in random sizes materials available at site.~~

11.17

The Contractor shall take delivery of the components, equipments, 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 equipments after usage shall be submitted to the BHEL and reconciled periodically.

11.18

The distance between storage area and erection site is approx. 3 to 5 KM. Contractor shall plan and transport equipments, components from storage to erection site and erect them in such a manner and sequence that 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 incidental to work.

11.19

Plant materials should not be used for any temporary supports / scaffolding/ preparing pre-assembly bed etc.

11.20

The details of equipments 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 tenderer about the magnitude of the work involved. Actual quantum and type of equipments 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.

11.21

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.

11.22

~~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.~~

11.23

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI GENERAL

Layout of field routed/ small bore piping 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 pipe lines even after completion of erection.

11.24

Welding of necessary instrumentation tapping points, thermo well, thermocouple pad, metal temp pad and clamps, root valve, condensing vessel, flow metering & measurement devices, and control valves to be provided on ~~boiler & its auxiliaries~~ and piping are covered within the scope of this specification. The installation of all the above items will be Contractor's responsibility even if:

- a) Items are not specifically indicated under the respective product groups as given in the technical specifications.
- b) Items are supplied by an agency other than BHEL.

Pre-heating, NDE, and Post weld heat treatment for above shall be done as per the specifications as part of work.

11.25

~~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 equipments. Contractor shall dismount such instruments for calibration and hand over the same to BHEL. C & I erection agency will do storage / re-erection calibration etc.~~

11.26

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.

11.27

Actuators/drives of valves, dampers, gates, powered vanes etc. may have to be serviced, lubricated, before erection, during pre-commissioning & commissioning, including carrying out minor adjustments required as incidental to the work.

11.28

~~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. BHEL will provide the motorized insulation testers.~~

11.29

~~In installation of various equipments 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 equipments to their respective permanent hangers/ suspensions/ supports as incidental to work.~~

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI GENERAL

~~Requisite materials for such temporary arrangements will be provided by BHEL on free returnable basis which shall be returned to BHEL after the use.~~

11.30

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.

11.31

All works such as cleaning, leveling, aligning, trial assembly, dismantling of certain equipments / components for checking and cleaning, surface preparation, fabrication of sheets, tubes and pipes as per the general engineering practice and as per BHEL engineers instructions at site, cutting, weld disposing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scraping, lapping, fitting up etc. as may be applicable in such erection works and which are treated incidental to the erection work and necessary to complete the work satisfactorily shall be carried out by the Contractor as part of the work.

11.32

Interconnection/ hookup, if any, with the existing system shall form part of work. Such interconnections, hookups 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. Contractor's offer shall cover all such contingencies.

11.33

Contractor shall regulate flow of material to and from site in such a manner and sequence that material accumulation at site does not lead to congestion at site. In case it is necessary to shift and restack the materials kept at work areas / site to enable other agencies to carry out their work or further any other reason, it shall be done by the Contractor most expeditiously. No claim for extra payment for such work will be entertained.

11.34

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.

11.35

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.

11.36

BHEL is operating web based computerized site operation management system (SOMS) that includes, inter-alia, issue of materials, daily progress reporting, Contractor's running monthly billing and material reconciliation through a computerized data management system. Contractor shall install necessary hardware to hook-up with the BHEL's system and use the same for his scope of work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI GENERAL

In the event the computerized SOMS is inoperative for any reasons, the Contractor shall take delivery of materials from the storage area/sheds of BHEL/customer after getting the approval of the engineer/customer on standard indent forms to be specified by BHEL/customer. All these records however shall be updated in the SOMS as and when the SOMS is reactivated/normalized.

11.37

Gases like oxygen, acetylene etc. that are required for erection related activities shall be arranged by the Contractor at his cost. ~~For T-91 material site weld joints argon as per grade 3 of is 5760: 1998 with oxygen and water vapor restricted to max 6 ppm each and with argon purity level of minimum 99.99% shall be arranged and used by the Contractor. The supply should accompany test certificate for the batch indicating individual element 'ppm' level and overall purity level.~~

11.38

~~Nitrogen gas, if required, for preservation of boiler and nitrogen capping during chemical cleaning process, will be provided by BHEL free of charge. Contractor shall arrange necessary connector, nipple, regulator, header and piping for usage of such gas from cylinders.~~

11.39

All lubricants required for testing/preservation will be supplied by vendors free of charges.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII PIPING

12.1 Contractor shall specifically note:

12.1.1. There may be sub-systems under the above systems, though not listed here will also form part of work. Similar, any other system though not listed here but is/are required for total work completion shall form part of work. Such works shall also be paid as per relevant terms of payment at applicable item rate for above piping.

12.1.3. Generally civil works for installation of buried piping are specifically excluded from the scope of contractor. However, work pits required in the pipe trenches for making in-situ joints etc shall be made by the contractor. Similarly, to carry out his work, any shoring of trench walls to prevent cave-ins and/ or de-watering of trenches if required shall be done by the contractor as scope of work. All materials and T & P shall be arranged by him.

12.2

The scope of work in piping system will include cutting to required length, edge preparation, laying, fixing and welding of the elbows/fittings/valves of all types and sizes/ strainers (e.g. self cleaning strainers etc)/ duplex filter and any other equipment shown in the drawings/documents etc coming in the pipelines, fixing supports/hangers/shock absorbers/ guides and restraints etc. and carrying out all other activities/works to complete the erection and also carrying out all pre-commissioning/ commissioning operations mentioned in these specifications as per engineer's instructions and/or as per approved drawings.

12.3

Carrying out of piping as per the specifications between equipments constituting terminal points, whether the terminal equipments fall within the scope of this work/specification or not, is within the scope of the work/ specification. The contractor shall complete terminal joints at either ends, with due NDE & PWHT if applicable, for all the piping schemes covered in the scope of work.

12.4

Fit up and welding/bolting/fastening of piping to the terminal points (such as stubs, valves, flanges on terminal points/equipments, stubs on headers, battery limits etc) forming part of the scope of work/specification and stress relieving and radiography of joints so made are also within the scope of work. Permanent fasteners and gaskets will be supplied by bhel.

12.5

All drains / vents piping from the stubs on the piping and equipments etc are covered in the scope of this tender specification.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII PIPING

12.7

The following items of work shall be incidental and forming part of piping fabrication and erection:

- (1) To locate cause of vibrations in equipments/auxiliaries/ pipelines and carrying out necessary corrections. It shall be done free of charge to BHEL in case the same is attributed to the contractor.
- (2) Erection of all types of valves, air &/or steam traps, filters, flow nozzles/ flow indicators/ flow orifices other measuring elements in the piping. These may have been supplied either by BHEL or their customer. This may involve cutting of pipelines, fresh edge preparation and welding with stress relieving wherever applicable.
- (3) Fabrication / making of bends for pipes and tubes of diameter up to 65 mm.
- (4) Matching of all fittings like tees, bends, flanges, reducers valves, socket fittings, etc with pipes for welding.
- (5) Servicing of valves and actuators etc.
- (6) Cleaning of all pipes by wire brushing / blowing by compressed air.
- (7) Welding of root valves with small length of piping to the pressure, flow and level tapping points on piping and/or flow nozzles/ orifices/ metering/ measuring elements fixed on piping.

12.8

Pipelines will be field routed as per schemes/ suggestive layout or as per the instructions of BHEL engineer. Pipes & tubes will be supplied in random lengths and running lengths. The contractor shall have to lay the piping after carrying out the necessary fabrication, edge preparation, routing etc to suit site requirement in best professional manner.

12.9

As far as possible pre-assembly of piping shall be done on ground. The pipe laying shall be carried out from the available terminal point/points or any other area between the terminal points. The erection can be carried out on temporary supports to obtain proper alignment and welding. After fixing the permanent supports, all the temporary supports shall be removed. The alignment, distances and loading of the supports shall be checked and the required settings to be ensured as per requirement.

12.10

Fittings like bends tees, elbows, miter bends, reducers, flanges etc, will be supplied as loose items. Bends of tubes up to OD 65 mm will have to be formed at site as incidental to the work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII PIPING

12.11

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.

12.12

Minor adjustment like removal of ovality in pipes is in the scope of work.

12.13

Normally the butt welded valves will have prepared edges for welding. But, if it becomes necessary, the contractor shall prepare new edges or recondition the edges by grinding or chamfering to match the corresponding tubes and pipes. All fittings like "T" pieces, bends, weld neck flanges, reducers, etc., shall be suitably matched with pipes for welding (this is applicable to piping work also).

12.14

~~Welding of all attachments on casing, non pressure parts, pressure parts/ piping, equipments, tanks, vessels etc. including those required for insulation work is in the scope of work.~~

12.15

It should be ensured that all the terminal point connections are done without transferring any undue load or strain to the other equipments. Necessary protocols have to be prepared for such fit-up along with BHEL /customer representative before connecting. All NDE including radiography of joints so made, post weld heat treatment if any, are also within the scope of work / specification.

12.16

Where pipes are sent as plain pipes the attachments for tapping points and / or supports will be sent as loose items. Site work will involve fabrication, drilling, fitting, welding, NDE as per applicable BHEL documents. Rate quoted shall take account of all these work as no separate payment is envisaged for such work.

12.17

MAIN COOLING WATER PIPING & ACW PIPING

- a) Majority of piping will be laid underground and buried.
- b) While handling these pipes proper soft packing between the sling rope and the pipe shall be provided.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII PIPING

- c) Manufacturer's recommendation in respect of laying of pipes, site joints and all other aspects shall be adhered to.
- d) Any fixtures and other arrangement required to be made for installation shall be part of & incidental to work.
- e) All field quality requirements as per recommendations of manufacturer shall be complied with.
- f) Field hydraulic test of piping as per recommendations shall be conducted. All pumps etc are to be arranged by the contractor. In case of hydraulic testing is to be conducted in stages, 1 set of end caps in each size of pipe shall be provided by BHEL on free returnable basis. Contractor shall use these properly and return to BHEL in proper condition.
- g) In case BHEL avails the supervision services of the manufacturer of pipe for installation, the work shall be executed by the contractor as per their instructions.
- h) Drains, vents and access doors/ manholes with proper approaches should be provided as per drawing/ schemes etc.
- i) Torque wrenches, if required, for fastening of clamps, flanges etc shall be provided by the contractor.

12.19 PROTECTION OF PIPELINES

- A) Buried steel pipes have to be protected from outside by wrapping and coating with protective coat/ anticorrosive tape totaling 4mm thick after due surface preparation, as per specification/ documents/holiday test. Contractor shall provide all materials, consumables, T & P etc required for this work. The coating shall be subjected to tests as specified and all arrangements are to be made by the contractor for such tests.
- b) Over ground Piping shall be painted with specified paint and to required film thickness after due surface preparation after the site welds are completed and cleared for further application. Contractor shall provide the paints etc as per specification.

12.20

While conducting hydraulic test of various pipelines either individually or grouping a few lines or in parts; blanks/spools may have to be put up at

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII PIPING

terminal points, strainers, walls, flanges etc. after conducting the tests, the blanks shall be removed and the lines restored. Contractor shall carry out all such incidental work to satisfactorily conduct the hydro test. Wherever work is involved in the terminal points, contractor shall carryout the same as per instruction of bhel engineer. The decision of BHEL engineer is final and the same is binding on the contractor.

OTHER IMPORTANT POINTS

12.20.1

Supports for piping will be supplied in running/random lengths/ sizes, which shall be fabricated as per drawing and erected as required. Similarly ladders for approaching manhole doors shall also be fabricated from random sized materials provided by BHEL as free issue.

12.20.2

Layout of small-bore piping shall be done as per site requirement. Necessary sketch for routing these lines should be prepared by the contractor and got approved from BHEL. There is a possibility of slight change in routing the above pipelines even after completion of erection; contractor's scope includes such re-routing within the quoted rates.

12.20.3

Welding of necessary instrumentation tapping points, root valves, flow metering & measurement devices, and control valves to be provided on pipe lines covered within the scope of this specification, will also be the responsibility of the contractor and will be done as per the instructions of BHEL site engineer. It may be necessary to cut and remove parts of already erected pipeline for introducing such items. All necessary activities like edge preparation, fit-up, welding, NDE etc. For installation/introduction of all the above items will be contractor's responsibility even if the:

i) Items are not specifically indicated under the respective product groups as given in the technical specifications.

II) Items are supplied by an agency other than BHEL.

NDE for above shall be done as per the specifications as part of work.

12.20.5

Actuators/drives of valves, gates, etc may have to be serviced, lubricated, before erection, during pre-commissioning & commissioning, including carrying out minor adjustments required as incidental to the work.

12.20.6

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII PIPING

For operating CW Vent valves , there should be a bench height above 750 mm from 0 mtr. Vendor is to fabricate & erect the same at different locations. Materials for the above shall be arranged by BHEL (PG 80-921,923)

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- XIII WELDING, RADIOGRAPHY, NDT, PWHT

WELDING, RADIOGRAPHY AND OTHER NON-DESTRUCTIVE TESTING, POST WELD HEAT TREATMENT

13.1 WELDING

13.1.1

Installation of equipment involves good quality welding, NDE checks etc. Contractor's personnel engaged should have adequate qualification on the above works.

13.1.2

The method of welding (viz) arc, TIG or other method will be indicated in the detailed drawing/documents. BHEL Engineer will have the option of changing the method of welding as per site requirement.

13.1.3

Before any welder is engaged on work, he shall be tested and qualified by BHEL/ customer. BHEL reserves the right to reject any welder without assigning any reason. All the expenditure in testing/qualification of the Contractor's welder shall be borne by Contractor.

13.1.4

Unsatisfactory and continuous poor performance may result in discontinuation of concerned welder.

13.1.5

The welded surface shall be cleaned of slag and painted with primer paint to prevent rusting, corrosion. For this consumables like paint /primer etc. will be in the Contractor's scope.

13.1.6

The Contractor shall maintain welding records in the form as prescribed by BHEL containing all necessary details, and submit the same to the BHEL Engineer as required. Interpretation of the BHEL Engineer regarding acceptability of the welds shall be final.

13.1.7

Joint fit up will be a stage of inspection. Where required, joints shall be offered for visual inspection after root run. Subsequent welding should be made only after the approval of root run.

13.2 SOCKET WELDING:

In execution of this work, considerable number of socket weld joints is involved. The exact quantity of such socket welds or probable variation in the quantum cannot be furnished. The tenderer shall take notice of this while quoting as no extra claim on this account will be entertained. Contractor has to adhere to the procedures/specification as indicated in the drawing for socket welding.

13.2.1

Welding electrodes have to be stored in enclosures having temperature and humidity control arrangements. This enclosure shall meet BHEL specifications.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- XIII WELDING, RADIOGRAPHY, NDT, PWHT

13.2.2

Welding electrodes, prior to their use, call for baking for specified period and will have to be held at specified temperature for specified period. Also, during execution, the welding electrodes have to be carried in portable ovens.

13.3 NON DESTRUCTIVE EXAMINATION:

13.3.1

Contractor shall provide all resources and make all arrangements for the radiographic examination of welds for this work. For reasons of safety, invariably the radiography work will be carried out after the normal working hours and close of other site activities only. In this regard, the Contractor has to adhere to the safety rules / regulations laid by bark authorities from time to time.

13.3.2

Radiography inspection of welds shall be performed in accordance with requirements and recommendation of BHEL Engineer. The minimum quantum of radiographic inspection shall be as per provision of BHEL's erection documents. They may, however be increased depending upon the performance of the individual welder at the discretion of BHEL Engineer/Boiler inspecting authority.

13.3.3

The field welded joints shall be subject to Dye-penetrant/MPT/RT/ other non-destructive examination as specified in the respective engineering documents/ as instructed by BHEL.

13.3.4

Wherever required, surface preparation, like smooth grinding of welded area, prior to Radiography shall be done. The Contractor shall take all this into account in his offer. The required NDT method/procedure will be decided by BHEL engineer at site.

13.3.5

The decision of BHEL engineer regarding acceptance / rejecting the joints will be final and binding on the Contractor.

13.3.6

100% radiography of certain sizes in piping has to be taken as per BHEL standards/ drawings.

13.3.7

For carrying out ultrasonic testing of welding joints of large size tubes and pipes, it will be necessary to prepare surface by grinding and buffing a smooth finish and contour as necessary. The Contractor's scope of work includes such preparation as incidental to work.

13.3.8

No separate payment for any NDE activities (including radiography) will be made.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV PAINTING

PAINTING

14.1.1. Detailed painting schedule/specification will be as below (as per Drwg: PE-DG-411-165-N001):

- A) Internal surface (for pipe size > 1000 NB)
 - i) Surface cleaning by wire brush
 - ii) Application of one coat of epoxy resin based red oxide primer followed by adequate no of finish paint of coal tar epoxy based paint to achieve DFT of 150 Micron

- B) External surface
 - i) Surface cleaning by wire brush
 - ii) Application of one coat of red lead primer followed by adequate no of finish paint of synthetic enamel paint to achieve total DFT of 150 Micron

- C) CW/ACW & CW make up /Intake buried portion coming under rail or road shall be concrete incased

- D) CW/ACW & CW make up /Intake buried pipe shall be provided as under (as per IS -10221)
 - i) Surface cleaning by wire brush
 - ii) Apply one coat of coaltar/primer/enamel confirming AWWA-C-203/IS 10221/IS 15337
 - iii) Apply one layer of tape comprising of coal tar application of tape shall conform to AWWA-C-203/IS 15337 (Appendix B) with thickness of tape 4mm.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XV TESTING, PRE-COMMISSIONING, COMMISSIONING

15.1

Testing, pre-commissioning, & commissioning will involve, though not limited to these, various testing e.g. hydro-static pressure, pressure decay tests, leak test, trial runs of equipments; flushing by air, water as applicable; checking/setting various clearances/ parameters, ensuring operation of various equipments free of undue restrictions are some of these activities. All the activities for commissioning of the set, as informed by BHEL from time to time shall be completed.

15.2

All these tests should be repeated till all the equipments satisfy the requirement / obligations of BHEL to their client and also the relevant statutory authority.

15.3

Contractor shall lay / install necessary temporary piping, pumps, valves, blanks, gauges, cables, switches etc. for conduct of hydraulic / pressure test, air blowing etc. this may involve cutting of some portion of existing piping / valves, placing of blanks in the valves and other openings etc. Where required, bends have to be fabricated / formed at site from random length / size of pipes / structural steel. Temporary installation itself has to be tested, tried, and subject to non-destructive examinations as per the instructions of BHEL as part of work.

No payment will be made for temporary installations made for hydraulic testing of various systems & piping. Similarly no payment will be made for electrical installations made for any temporary system.

15.4

All materials, equipments necessary for installation of temporary system as above will be supplied by BHEL as free returnable issue in random sizes / lengths. However, servicing, fabrication, erection, dismantling of the same after completion of the process, and handing over back to BHEL stores will be the responsibility of the Contractor.

In accounting of materials following wastage allowances are provided:

1. Structural items	:	5%
2. Pipes	:	3%

No wastage allowance for valves & other equipment's.

15.5

Fabrication, fit-up, welding, if any, of requisite blanks for conduct of hydraulic test / leakage test is part of work. Similarly, removal of blanks, restoration and normalization of the concerned system / line is to be done as part of work. BHEL will provide the material for blanks free of charge. No separate payment is envisaged for these activities.

15.6

Overhauling, cleaning, servicing of actuators, valves, during erection and commissioning stages are in the scope of work. **Gaskets, packing & spares for replacement will be provided by agency.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XV TESTING, PRE-COMMISSIONING, COMMISSIONING

15.7

During trial runs/ tests, pre-commissioning / commissioning, replacing / changing mechanical / other seals of equipments like pumps, removal and cleaning / replacing of filters etc. is within the scope of work. Replacement spares for this purpose will be provided by BHEL.

15.8

In case any defect is noticed during tests, trial runs of all equipments and their auxiliaries, such as interferences, rubbing, loose components, abnormal noise or vibration, strain on connected equipment etc. the Contractor shall immediately attend to these defects and take necessary corrective measures. Readjustment and/or realignment, if necessary, shall be done as per BHEL engineer's instructions. Claim, if any, for these works shall be governed by relevant clauses of General conditions of contract provided the cause of such work is not attributable to the Contractor.

15.9

- ✓ Contractor shall cut / open / dismantle work, if needed, as per BHEL Engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over.
- ✓ Similarly, during the course of erection, if certain portion of equipments erected by the Contractor has to be undone for enabling other Contractors / agencies of BHEL / customer to carry out their work, Contractor shall carry out such jobs expeditiously and promptly and make good the job after completion of work by other Contractors / agencies of BHEL / customer as per BHEL engineer's / agencies of BHEL / customers instructions. Claims, if any, in this regard shall be governed as clauses of General conditions of contract

15.10

During this period, though BHEL/ client's staff will also be associated in the work, the Contractor's responsibility will be to arrange for complete requirement of men and required tools and plants, consumables, scaffolding and approaches etc. till such time the commissioned unit undergoes trial operations.

15.11

Commissioning activities will continue till the completion of trial operation. During this period Contractor shall make available the services of separate dedicated workforce comprising of suitable skilled and semi-skilled / un-skilled workmen and supervisory staff along with necessary tools and plants, consumables etc.

15.12

The Contractor shall carry out any other tests as desired by BHEL engineer on erected equipment covered under the scope of this contract during testing, pre-commissioning and commissioning, to demonstrate the completion of any part or whole of work performed by the Contractor.

15.13

Commissioning activities will continue till the completion of trial run, trial operation. During this period Contractor shall make available the services of separate dedicated labor force

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XV TESTING, PRE-COMMISSIONING, COMMISSIONING

comprising of suitable skilled and semi/un-skilled hands along with necessary tools and plants, consumables etc.

15.14

Conducting of performance guarantee test is in the scope of work. Contractor shall install all necessary tapping points; instruments etc. and provide necessary assistance in this regard.

In case PG test is getting delayed beyond the contract period (normal plus extension if any) due to reasons not attributable to the Contractor, PG test issue will be mutually discussed and decided. However installation of necessary tapping points, approaches etc. are to be completed by the Contractor.

15.15

The Contractor shall carry out any other tests as desired by BHEL engineer on erected equipment covered under the scope of this contract during testing, pre-commissioning and commissioning, to demonstrate the completion of any part or whole of work performed by the Contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI PRESERVATION & PROTECTION OF COMPONENTS

16.1 PRESERVATION & PROTECTION OF COMPONENTS

At all stages of work, equipments/materials in the custody of Contractor, including those erected, will have to be preserved as per the instructions of BHEL. Necessary preservation agents including the primer & paint, for the above work shall be provided by the Contractor.

16.2

The Contractor shall make suitable security arrangements including employment of security personnel and ensure protection of all materials/ equipment in their custody and installed equipments from theft/fire/pilferage and any other damages and losses.

16.3

Contractor shall collect all scrap materials periodically from various area of work site, deposit the same at one place earmarked at site or shift the same to a place earmarked in BHEL/ client's stores. In case of failure of Contractor in compliance of this requirement, BHEL will make suitable arrangement at Contractor's risk and cost.

16.4

The entire surplus, damaged, unused materials, packaging materials / containers, special transporting frames, gunny bags, etc. shall be returned to BHEL stores by the Contractor.

16.5

The Contractor shall not waste any materials issued to him. In case it is observed at any stage that the wastage/excess utilization of materials is not within the permissible limits, recovery for the excess quantity used or wasted will be effected with departmental charges from the Contractor. Decision of BHEL on this will be final and binding on the Contractor.

16.6

For any class of work for which no specifications have been laid down in these specifications, work shall be executed as per the instructions of BHEL.

