

E-TENDER SPECIFICATION

Sl. No	E-Tender Specification Number
1	BHE/PW/PUR/HON-C&I-R&M/3161

Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India)

VOLUME – I

FOR

VOLUME I – TECHNICAL BID

THIS TENDER SPECIFICATION CONSISTS 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
Volume-IE	Technical Specifications
Volume II	Price Bid

Bharat Heavy Electricals Limited
(A Government of India Undertaking)



Power Sector - Western Region
345-Kingsway, Nagpur-440001

CONTENTS		
Volume No	Description	Hosted in website bhel.com (Briefly) and detailed in BHEL e-Procurement Portal as files titled
NIL	Tender Specification Issue Details	(Part of <u>Vol-IA-3161</u>)
NIL	Notice Inviting Tender	(Part of <u>Vol-IA-3161</u>)
I-A	Technical Conditions of Contract	Vol-I-A-3161
I-A	ANNEXURE-A- MECHANICAL BOM	Vol-I-A-3161
I-A	ANNEXURE-B – C&I BOM	Vol-I-A-3161
I-B	Special Conditions of Contract	Vol-I-BCD-3161
I-C	General Conditions of Contract	(Part of Vol-I-BCD-3161)
I-D	Forms & Procedures	(Part of Vol-I-BCD-3161)
I-E	Technical Specifications	Vol-I-E-3161
II	Price Bid Specification as specified in E-Procurement Portal	Volume-II-3161

E-TENDER SPECIFICATION

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1	BHE/PW/PUR/HON-C&I-R&M/3161

Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India)

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

GM (Purchase)

Place: Nagpur

Date:

3161

NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 5 of 107

Ref: BHE/PW/PUR/HON-C&I-R&M/3161

Date: 11-09-2025

NOTICE INVITING E-TENDER (NIT)

NOTE: BIDDER MAY DOWNLOAD/ UPLOAD THE TENDER/ OFFER FROM/ON BHEL E-PROCUREMENT PORTAL → <https://eprocurebhel.co.in>

To,

Dear Sir/Madam,

Sub : NOTICE INVITING E-TENDER

Sealed offers in two part bid system (National competitive bidding (NCB) ~~or International Competitive Bidding (ICB)~~ are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-1) 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

S No.	ISSUE	DESCRIPTION
i	E-TENDER NUMBER	BHE/PW/PUR/HON-C&I-R&M/3161
ii	Broad Scope of job	Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India)
iii	DETAILS OF TENDER DOCUMENT	
A	Volume-IA	Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc
B	Volume-IB	Special Conditions of Contract (SCC)
C	Volume-IC	General Conditions of Contract (GCC)
D	Volume-ID	Forms and Procedures
E	Volume-IE	Technical Specifications
F	Volume-II	Price Bid as specified in E-Procurement Portal
iv	Issue of Tender Documents	Tender documents will be available for downloading from BHEL website (www.bhel.com) or e-procurement portal (https://eprocurebhel.co.in) as per schedule below: Start 11-09-2025, Time :13:00 Closes : 22-09-2025, Time : 13:00 Brief information of the tenders shall also be available at central public procurement portal. (https://eprocure.gov.in/epublish/app)
v	DUE DATE & TIME OF OFFER SUBMISSION	Date: 22-09-2025, Time : 13:00 Hrs Place: on E-Tender Portal https://eprocurebhel.co.in
vi	OPENING OF TENDER (Techno-Commercial Bid)	Date: 22-09-2025, Time: 17.00 Hrs Notes: (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day. (2) Bidder may depute representative to witness the opening of tender. For e-Tender, Bidder may witness the opening of tender through e-Procurement portal only.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 6 of 107

S No.	ISSUE	DESCRIPTION	
vii	EMD AMOUNT	Rs 2,00,000 (Indian Rupees Two Lakhs Only) <i>Important Note: Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC.</i>	Applicable
viii	COST OF TENDER	Free	
ix	LAST DATE FOR SEEKING CLARIFICATION	One day before due date of offer submission. Along with soft version also, addressing to undersigned & to others as per contact address given below: 1) Name: Varun Vaidya Designation: Manager Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Mobile-9792334127 Email : vvaidya@bhel.in 2) Mr. V K Arya Designation: GM Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Email: vkarya@bhel.in Mob:	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)		Not Applicable
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)	1) Shri Bishwamitra Pandey, IRAS (Retd.) 2) Shri Mukesh Mittal, IRS (Retd.)	Applicable
xii	Latest updates	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendum), Central Public Procurement portal (https://eprocure.gov.in/epublish/app) & on e-tender portal https://eprocurebhel.co.in and not in the newspapers. Bidders to keep themselves updated with all such information.	

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 digitally using Class III DSC & uploaded in E-Procurement Portal, 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.**

3.0 Not Used

4.0 Unless specifically stated otherwise, bidder shall deposit EMD as per clause 1.9 of General Conditions of Contract.

For Electronic Fund Transfer the details are as below:-

NAME OF THE BENEFICIARY

BHARAT HEAVY ELECTRICALS LTD

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

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 7 of 107

ADDRESS OF THE COMPANY	5 th Floor, SHREE MOHINI COMPLEX 345, KINGSWAY,NAGPUR
NAME OF BANK	STATE BANK OF INDIA
NAME OF BANK BRANCH AND BRANCH CODE	SBI,NAGPUR MAIN BRANCH ,CODE-00432
CITY	NAGPUR
ACCOUNT NUMBER	40227423158
ACCOUNT TYPE	MC-C C Clean (C&I)
IFSC CODE OF THE BENEFICIARY BANK BRANCH	SBIN0000432
MICR CODE OF THE BANK BRANCH	440002002

(Note -: In case of E-Tenders, proof of remittance of EMD should be uploaded in the E-Procurement Portal and originals, as applicable, shall be sent to the officer inviting tender within a reasonable time, failing which the offer is liable to be rejected.

5.0 Procedure for Submission of Tenders:

This is an E-tender floated online through our E-Procurement Site (<https://eprocurebhel.co.in>). The bidder should respond by submitting their offer online only in our e-Procurement platform at (<https://eprocurebhel.co.in>). Offers are invited in two-parts only.

Documents Comprising the e-Tender

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

a. Technical Tender (UN priced Tender)

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

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

b. Price Bid:

- i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
- ii. The price should be quoted for the accounting unit indicated in the e-tender document.

Note:

- It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.
- A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

DO NOT'S

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

Digital Signing of e-Tender

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 8 of 107

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

The Requirement:

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

BHEL has finalized the e-procurement service Provider:-
NIC PORTAL (<https://eprocurebhel.co.in>)

For E-PROCUREMENT ASSISTANCE & TRAINING, NIC PORTAL HELPDESK CONTACTS AS PER FOLLOWING:

For any technical related queries, please call at 24 x 7 Help Desk Number
0120-4001 002
0120-4200 462
0120-4001 005
0120-6277 787

1. Peter Raj, NIC, Ph: 9942069052

Email Support: support-eproc@nic.in

Other details/update yourself from : <https://eprocurebhel.co.in>

The process of utilizing e-procurement necessitates usage of **DSC (Digital Signature Certificate) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION)** and you are requested to procure the same immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.

The contact details of the DSC certifying authority:-
please refer <http://www.mca.gov.in/> → MCA SERVICES → DSC SERVICES

Vendors are requested to go through seller manual available on <https://eprocurebhel.co.in>.

~~**Procedure for Submission of Tenders (To be used in case of Paper bid only):** 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)' 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) (To be used in case of Paper bid only):**

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.	

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 9 of 107

	<p>Note:</p> <p>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.</p> <p>b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding.</p> <p style="padding-left: 40px;">i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL</p> <p style="padding-left: 40px;">ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender</p>	
iii. —	<p>Supporting documents/ annexure/ schedules/ drawing etc. as required in line with Pre-Qualification criteria.</p> <p>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, contact ph. no, FAX no, etc.</p>	
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	
	<p><u>ENVELOPE — II superscribed as:</u></p> <p>PART-I (EMD)</p> <p>TENDER NO :</p> <p>NAME OF WORK :</p> <p>PROJECT:</p> <p>DUE DATE OF SUBMISSION:</p> <p><u>CONTAINING THE FOLLOWING:-</u></p>	
	Earnest Money Deposit (EMD) in the form as indicated in this Tender	

	PART-II	
	PRICE BID consisting of the following shall be enclosed	
	<p><u>ENVELOPE-III</u></p> <p>superscribed as:</p>	

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 10 of 107

	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 TENDER NO:- NAME OF WORK:- PROJECT:- DUE DATE OF SUBMISSION:- CONTAINING THE FOLLOWING:	
i	<input type="checkbox"/> Envelopes-I <input type="checkbox"/> Envelopes-II <input type="checkbox"/> Envelopes-III	

- **SPECIAL NOTE: All documents/ annexures to be submitted should be uploaded in respective places in the E-Tender portal as per the list mentioned given in this NIT. BHEL shall not be responsible for any in-complete 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 PERFORMANCE OF BIDDERS:

- 'Monthly Performance' of the bidder for all the package covered under the tendered scope-shall be captured for the packages Under execution'. (refer Table-1)
- The monthly performance rating, shall be calculated as per Online Systems i.e. Contractor Performance Evaluation System (CPES) and Safety Performance Evaluation System (HSEPES). The scores assigned in HSEPES shall be scaled down to 10 and assigned in CPES against the category "HSE" (mentioned in Form F-15).
- **Explanatory note:**
 - Identified Packages (Unit wise) **Table-1**

Civil	Electrical and C&I	Mechanical
i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations	i). Electrical ii). C&I iii). Others (Elect. and C&I)	i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). ESP iv). LP Piping

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 11 of 107

iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)	iv). Electrical Enabling Works	v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Management x). FGD xi). ACC xii). Others (Mechanical)
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- 'Under execution' shall mean works in progress as per the following:
 - (a) Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
 - (b) Up to Steam Blowing in case of Boiler/ESP/Piping Packages
 - (c) Up to Synchronization in all Balance Packages

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

- Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.
- Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 27th of Evaluation Month or 5 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.
- Project on Hold due to reasons not attributable to bidder -
 - **Short hold:** Evaluation shall not be applicable for this period.
 - **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation shall not be considered for this period.

Performance evaluation as specified above in this clause 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 and/or through e-procurement portal, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 12 of 107

- 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. 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 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.**

"Integrity Pact (IP)"

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

Sl. No.	IEM	Email
1.	Shri Bishwamitra Pandey, IRAS (Retd.)	lem2@bhel.in
2.	Shri Mukesh Mittal, IRS (Retd.)	lem3@bhel.in

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

Name:	Varun Vaidya/ Manager (Purchase)
Dept:	Purchase Department
Address:	Floor No. 5 & 6, Shreemohini Complex, 345 Kingsway, Nagpur-440001
Email:	vvaidya@bhel.in
Phone:	9792334127

- 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

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 13 of 107

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 authorized 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 **Reverse Auction:** Applicable. "BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com on "**supplier registration page**".) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

Price Bids of all the techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.

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 for the said contract with a validity period of six months initially. In case bidder becomes L1, Consortium Agreement valid till contractual completion period shall be submitted to BHEL before signing the contract. Consortium Agreement shall be kept valid till scope of work awarded to consortium partner(s) as per contract is completed.

23.2 'Standalone' 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) including Prime Bidder shall be NOT more than 3 (three).

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'.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 14 of 107

- 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 and BHEL shall take necessary action as per extant guidelines. 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 Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL.
- 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 one work with a consortium partner under direct order of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.
- 23.14 The consortium 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. In case there are two consortium partners, then each partner shall submit SD equivalent to 0.5% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. However, Prime Bidder has also option for submission of SD on behalf of consortium partner (s).
- SD submitted by Consortium Partner(s) may be released in case corresponding scope of work of the respective Consortium partner(s) has been completed upto the extent of 80% based on certification by Construction Manager and concurrence by the prime bidder.
- 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.

- 24.0 The bidder shall submit/upload documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
- 25.0 The bidder may have to produce original document for verification if so decided by BHEL.
- 26.0 The consultant / firm (and any of its affiliates) shall not be eligible to participate in tender(s) for the related works or services for the same project, if they were engaged for the consultancy services.
- 27.0 Guidelines/rules in respect of Suspension of Business dealings, Vendor evaluation format, Quality, Safety & HSE guidelines, Experience Certificate, etc. may undergo change from time to time and the latest one shall be followed. The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "**supplier registration page**".
- 28.0 The offers of the bidders who are on the banned/ hold list and also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site www.bhel.com.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 15 of 107

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

28.1.1 Commitment by BHEL:

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

28.1.2 Commitment by Bidder/ Supplier/ Contractor:

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

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

29.0 Micro and Small Enterprises (MSE)

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

Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women Owned)
— Micro			
— Small			

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

a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011-MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration Certificate or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or Udyog Aadhar Memorandum (UAM) & Acknowledgement or EM-II Certificate along with attested copy of a CA certificate (format enclosed as Annexure -3) where deemed validity of EM-II certificate of five years has expired applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. Documents submitted by the bidder may be verified by BHEL for rendering the applicable benefits.

30.0 The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 16 of 107

immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

31.0 PREFERENCE TO MAKE IN INDIA:

For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/Non-Local Supplier and purchase preferences to Class I local supplier, is as defined I Public Procurement (Preference to Make in India), Order 2017 dated 19-07-2024 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

31.1 Compliance to Restrictions under Rule 144 (xi) of GFR 2017

- I. *Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. The Competent Authority for the purpose of this Clause shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).*
- II. *"Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.*
- III. *"Bidder from a country which shares a land border with India" for the purpose of this Clause means: -*
 - a. *An entity incorporated established or registered in such a country; or*
 - b. *A subsidiary of an entity incorporated established or registered in such a country; or*
 - c. *An entity substantially controlled through entities incorporated, established or registered in such a country; or*
 - d. *An entity whose beneficial owner is situated in such a country; or*
 - e. *An Indian (or other) agent of such an entity; or*
 - f. *A natural person who is a citizen of such a country; or*
 - g. *A consortium or joint venture where any member of the consortium or joint venture falls under any of the above*
- IV. *The beneficial owner for the purpose of (III) above will be as under:*
 1. *In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.*

Explanation

 - a. *"Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company.*
 - b. *"Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.*
 2. *In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership.*

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 17 of 107

3. *In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person has ownership of or entitlement to more than fifteen percent of the property or capital or profits of the such association or body of individuals.*
4. *Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;*
5. *In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.*
- V. *An Agent is a person employed to do any act for another, or to represent another in dealings with third person.*
- VI. *The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.*

Note:

- (i) *The bidder shall provide undertaking for their compliance to this Clause, in the Format provided in Annexure-11.*
- (ii) *Registration of the bidder with Competent Authority should be valid at the time of submission as well as acceptance of the bids.*

32.0 Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.
All overwriting/cutting, etc., will be numbered by bid opening officials and announced during bid opening.

33.0 In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/ draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

34.0 The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

35.0 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

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 18 of 107

g. Forms and Procedures —Volume-1D

It may please be noted that guidelines/ circulars/ amendments/ govt. directives issued from time to time shall also be applicable.

For BHARAT HEAVY ELECTRICALS LTD
(General Manager - Purchase)

Enclosure:

01. Annexure-1: Pre Qualifying Requirements.
02. Annexure-2: Check List.
- ~~03. Annexure-3: Certificate by Chartered Accountant~~
04. Annexure-4: Reverse Auction Process Compliance Form
05. Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
06. Annexure-6: RA Price Confirmation and Breakup
07. Annexure-7: Integrity Pact
08. Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR
09. Annexure-9: Declaration reg. Related Firms & their areas of Activities
010. Annexure-10: DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE, 2020 AND SUBSEQUENT ORDER(S)
011. Annexure 11: DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017
012. Annexure 12: Important information
- ~~013. Annexure 13: Bid Security Declaration~~

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 19 of 107

[ANNEXURE - 1](#)

PRE QUALIFYING CRITERIA

JOB	Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India)		
TENDER NO	BHE/PW/PUR/HON-C&I-R&M/3161		
SL NO	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Applicability	
A	Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium / Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder)	Applicable	
B	<p>B1: TECHNICAL PQR</p> <p>Bidder shall essentially meet all the Qualifying Requirements i.e. B.1 or B.2 or B.3 as under, in the last seven years as on latest date of bid submission:</p> <p>B.1 Bidder must have Executed Erection & Commissioning of At least One Boiler (Consisting of "Pressure Parts" & "Structure") of a Unit of rating \geq 50 TPH.</p> <p style="text-align: center;">OR</p> <p>B.2: Bidder must have completed Renovation & Modernization/similar scope of work as that of the tender of At least One Boiler (Consisting of Pressure Parts) of a Unit of rating \geq 50 TPH.</p> <p style="text-align: center;">OR</p> <p>B.3: Bidder must have successfully executed similar scope of work as that of the tender OR Overhauling/E&C of (Boiler Pressure parts or "Boiler Pressure Parts and 'Structure/Non Pressure Parts/ESP/Rotary Machines/Insulation/ Piping/Auxiliaries/ Ducting / any combination of these parts") of rating \geq 50 TPH as per the criteria below:</p> <p>B.3.1) Executed One similar work of value not less than 215.2 Lakhs against single work order.</p> <p style="text-align: center;">OR</p> <p>B3.2) Executed two similar works of value not less than 134.5 Lakhs against maximum two work orders each.</p> <p style="text-align: center;">OR</p> <p>B.3.3) Executed Three similar works each of value not less than 107.6 Lakhs or against maximum three work orders each</p> <p>Note for B.3: 'EXECUTED' means the bidder should have achieved the criteria specified in the Technical criteria of PQR (as in 'B.3' above)</p>	Applicable	
C.1	<p>FINANCIAL TURNOVER:</p> <p>Bidders must have achieved an average annual financial turnover (audited) of Rs 80.7 Lakhs or more over last three Financial Years (FY) i.e. '2020-21, 2021-22 & 2023-24'</p>	Applicable	
C.2	NETWORTH (only in case of Companies)	Applicable	

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 20 of 107

	Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive.		
C.3	PROFIT Bidder must have earned profit in any one of the five Financial Years as applicable in the last five Financial Years (i.e. 2019-2020, 2020-2021, 2021-2022, 2022-2023 & 2023-2024). Bidders to submit audited balance sheets and profit & loss statements for the years as supporting documents.	Applicable	
C-4	Bidder must not be under Insolvency Resolution Process or Liquidation or Bankruptcy Code Proceedings (IBC) as on date, by NCLT or any adjudicating authority/authorities, which will render him ineligible for participation in this tender, and shall submit undertaking (Annexure-8) to this effect	Applicable	
D	Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT (if applicable) The "Assessment of Capacity of Bidders" for this Tender shall be carried out by considering the identified packages i.e. "Others".	Not Applicable	
E	Approval of Customer (if applicable)	Applicable	
F	Price Bid Opening Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E		BY BHEL
G	Consortium tie-ups	Not Applicable	
<p><u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u></p> <p><u>Explanatory Notes for PQR B.1 (Technical)</u></p> <ul style="list-style-type: none"> For the criteria (B.1), actual executed value shall be considered. Value of work is to be updated with indices for "All India Avg. Consumer Price index for industrial workers" and "Monthly Whole Sale Price Index for All Commodities" with base month as per last month of work execution and indexed up to three (3) months prior to the month of latest due date of bid submission as per following formula- $P = R + 0.425 \times R \times \frac{(X_N - X_0)}{X_0} + 0.425 \times R \times \frac{(Y_N - Y_0)}{Y_0}$ <p>Where P = Updated value of work R = Value of executed work X_N = All India Avg. Consumer Price index for industrial workers for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered). X₀ = All India Avg. Consumer Price index for industrial workers for last month of work execution Y_N = Monthly Whole Sale Price Index for All Commodities for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered). Y₀ = Monthly Whole Sale Price Index for All Commodities for last month of work execution</p> <ul style="list-style-type: none"> The evaluation currency for this tender shall be INR. <p><u>Explanatory Notes for Technical Criteria (B2):</u></p> <ol style="list-style-type: none"> VOID Unless otherwise specified, for the purpose of "B2 Technical Criteria", the word 'EXECUTED' means achievement of milestones as defined below - <ol style="list-style-type: none"> "ACHIEVEMENT OF PHYSICAL QUANTITIES" as per PQRs. "READINESS FOR COAL FILLING" of at least one Bunker, in respect of Mill Bunker Structure. 			

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 21 of 107

- c. "CHARGING" in respect of Power Transformers/ Bus Ducts/ "HT/LT Switchgears" / "HT/LT Cabling".
 - d. For C&I works: "SYNCHRONISATION" in case of power project / "WORK EXECUTION of the value as defined in PQR" in case of industry.
 - e. "BOILER LIGHT UP" in respect of Boiler / CFBC / ESP.
 - f. "CHARGING OF ATLEAST ONE PASS" in respect of ESP(R&M)
 - g. "GAS IN" in respect of HRSG.
 - h. "STEAM BLOWING" in respect of Power Cycle Piping.
 - i. "HYDRAULIC TEST"/ ANY OTHER EQUIVALENT TEST LIKE "100% RT/UT OF WELDED JOINTS" of the system in respect of Pressure parts/ LP Piping/CW Piping.
 - j. "FULL LOAD OPERATION OF THE UNIT" in respect of Insulation work.
 - k. "SYNCHRONISATION" in respect of STG / GTG.
 - l. "SPINNING" in respect of HTG.
 - m. "GAS IN" in respect of FGD
- 3. Boiler means HRSG or WHRB or any other types of Steam Generator.
 - 4. Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass.
 - 5. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5 TPH 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 of the same in terms of MW shall be considered for evaluation.

Explanatory Notes for PQR -C (Financial):

C-1:

- i. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above.
- ii. Evaluation of Turnover criteria shall be calculated from the Audited Balance Sheet and Profit & Loss Account for the three Financial Years (FY).
- iii. 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.
- iv. If financial statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by Chartered Accountant.

C-2: Net Worth (Only in case of companies) of the bidder should be positive.

Note: Net worth shall be calculated based on the latest Audited Accounts as furnished for 'C-1' above.

Net worth = Paid up share capital + Reserves

C-3: Bidder must have earned profit in any one of the three financial years as applicable in the last three financial years as furnished for 'C-1' above.

Note: PROFIT shall be PBT earned during any one year of last three financial years as in 'C-1' above.

C-4: Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking to this effect.

Common Explanatory Notes:

- 1. For evaluation of PQR, in case Bidder alone does not meet the pre-qualifying technical criteria B1 above, bidder may utilize the experience of its Parent/ Subsidiary Company along with its own experience, subject to following:
 - a. The parent company shall have a controlling stake of $\geq 50\%$ in the subsidiary company (as per Format-1).
 - b. The Parent Company/ Subsidiary Company of which experience is being utilized for bidding shall submit Security Deposit(SD) equivalent to 1% of the total contract value
 - c. The parent/ subsidiary company and bidder shall provide an undertaking that they are jointly or severally responsible for successful performance of the contract (as per Format-2).

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 22 of 107

- d. In case Bidder is submitting bid as a Consortium Partner, option of utilizing experience of parent/subsidiary Company can be availed by Prime Bidder only.
 - e. Parent Company/ Subsidiary Company of which experience is being used for bidding, cannot participate as a 'Standalone Bidder' or as a 'Consortium bidder'.
2. Completion date for achievement of the technical criteria specified in the 'B' above should be in the last 7 years ending on the 'latest date of Bid Submission' of Tender irrespective of date of the start of work. Completion date shall be reckoned from the " Financial Year quarter of bid submission". (for e.g. -Work completed on 01.01.2014 shall be considered even if latest date of bid submission is 20.03.2021).
3. "Executed" means the bidder should have achieved the technical criteria specified in the Common QR even if the Contract has not been completed or closed.
4. In case the Experience/PO/WO certificate enclosed by bidders do not have separate break up of prices for the E&C portion for Electrical and C&I works (i.e. the certificates enclosed are for composite order for supply and erection of Electrical and C&I and other works if any), then value of Erection & Commissioning for the Electrical and C&I portion shall be considered as 15% of the price for supply & erection of Electrical and C&I.
5. Following shall be complied with in case of consortium:
- a. The Prime Bidder and Consortium Partner(s) are required to enter in to a consortium agreement and certify to BHEL regarding existence and validity of their consortium agreement in line with validity period mentioned in NIT.
 - b. Prime Bidder and Consortium partners shall be approved by Customer for being considered for the tender (applicable if customer approval is required).
 - c. Number of partners including prime Bidder shall be NOT more than 3 (three).
 - d. Prime Bidder alone shall necessarily comply with "B1Technical Criteria" except for mechanical package where B1 criteria is not applicable.
 - e. Prime Bidder and Consortium Partner shall together comply with the 'Pre-Qualification Requirements' specified for the respective category of technical requirement as per "B2 technical criteria".
 - f. Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified.
 - g. All other conditions shall be read in conjunction with clause no 23.0 of NIT.
 - h. Prime Bidder shall be the Bidder who has a major share of work.
 - i. Prime Bidder shall be responsible for the overall execution of the Contract.
 - j. Performance shall be evaluated for Prime Bidder and the Consortium partner for their respective scope of work.
 - k. In case the Consortium partner backs out, another consortium partner meeting the QRs, has to be engaged by Prime Bidder and if not, the respective work will be withdrawn and executed on risk and cost basis of the prime bidder.
 - l. In case Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL
 - m. After successful execution of one work with a consortium partner under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.
 - n. The Consortium 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.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 23 of 107

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

Credentials submitted by the bidder against "PRE QUALIFYING CRITERIAS" shall be verified for its authenticity. In case, any credential (s) is/are found unauthentic, offer of the bidder is liable to the rejection. BHEL reserves the right to initiate any further action as per extant guidelines for Suspension of Business Dealings.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 24 of 107

Format-1

Certificate for relationship between Parent Company / Subsidiary Company and the bidder

To,

.....
.....

Dear Sir,

Sub: Bid for NIT Nodated..... for "....." (name of the tender).

We hereby certify that M/s..... is Parent Company/ Subsidiary Company of M/s.....(the bidder) and details of equity holding of the Parent Company in Subsidiary Company as on(not earlier than seven days prior to the Bid Submission Date) are given as below:

Name of Parent Company	Name of Subsidiary Company	Percentage of Equity Holding of Parent Company in Subsidiary Company

(Insert Name and Signature of Statutory Auditor or practicing Company Secretary of the Bidder)

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 25 of 107

Format-2

Undertaking from the Parent Company/ Subsidiary Company of the bidder
(On the Letter Head of Parent Company/ Subsidiary Company, as applicable)

From,
Name:
Full Address:

Telephone No.:
E-mail address:
Fax/No.:

To,

Dear Sir,

We refer to the NIT No dated for "....." (name of the Tender).

"We have carefully read and examined in detail the NIT/Tender Terms and Conditions, including in particular, Clause of the NIT/Tender, regarding submission of an Undertaking, as per the prescribed Format 1 of the NIT/ Tender.

We confirm that M/s.....(the Bidder) has been authorized by us to use our Technical capability for meeting the Technical Criteria as specified in Clause.....of the PQR of the NIT/Tender referred above.

We agree to submit the Security Deposit equivalent to 1% of the total contract value in addition to Security Deposit to be submitted by Bidder as per Clause.....of the NIT/Tender for fulfillment of all obligations in terms of provisions of the contract, in the event of(the Bidder) being selected as the Successful Bidder.

We confirm that we along with M/s.....(the bidder), are jointly or severally responsible for successful performance of the contract.

We confirm that our company shall not participate in the above tender as a 'Standalone Bidder' or as a 'Consortium bidder' and also shall not authorize any other bidder to use our Technical capability for the above tender.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the referred NIT/Tender.

Signature of Managing Director/Authorized signatory of Parent/ Subsidiary Company

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 26 of 107

[ANNEXURE - 2](#)

CHECK LIST

NOTE: - Tenderers are required to fill in the following details and no column should be left blank

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount: <u>Please tick (√) whichever applicable:-</u> ONE TIME EMD / ONLY FOR THIS TENDER	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Audited profit and Loss Account for the last three years	Applicable/ Not Applicable	YES/NO
8	Copy of GST & PAN Card	Applicable/ Not Applicable	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc. are read understood and signed	Applicable/ Not Applicable	YES/NO
10	Integrity Pact	Applicable/ Not Applicable	YES/NO
11	OFFER FORWARDING LETTER / TENDER SUBMISSION LETTER	Applicable/ Not Applicable	YES/NO
12	Declaration by Authorized Signatory	Applicable/ Not Applicable	YES/NO
13	No Deviation Certificate	Applicable/ Not Applicable	YES/NO
14	Declaration confirming knowledge about Site Conditions	Applicable/ Not Applicable	YES/NO
15	Declaration for relation in BHEL	Applicable/ Not Applicable	YES/NO
16	Non-Disclosure Certificate	Applicable/ Not Applicable	YES/NO

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 27 of 107

17	Bank Account Details for E-Payment	Applicable/ Not Applicable	YES/NO
18	Capacity Evaluation of Bidder for current Tender	Applicable/ Not Applicable	YES/NO
19	Tie Ups/Consortium Agreement are submitted as per format	Applicable/Not Applicable	YES/ NO
20	Power of Attorney for Submission of Tender/Signing Contract Agreement Power of Attorney of Consortium Partner.	Applicable/ Not Applicable	YES/NO
21	Analysis of Unit rates	Applicable/ Not Applicable	YES/NO
22	Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process	Applicable/ Not Applicable	YES/NO
23	Annexure-6: RA Price Confirmation and Breakup	Applicable/ Not Applicable	YES/NO
24	Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR	Applicable/ Not Applicable	YES/NO
25	Annexure-9: Declaration reg. Related Firms & their areas of Activities (x) Other Tender documents as per this NIT.	Applicable/ Not Applicable	YES/NO
26	Annexure-10 Declaration regarding minimum local content	Applicable/ Not Applicable	YES/NO
27	Annexure-11: Declaration regarding compliance to restrictions under rule 144 (xi) of GFR 2017	Applicable/ Not Applicable	YES/NO
28	Annexure-13 Bid Security Declaration	Not Applicable	YES/NO

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

DATE :

AUTHORISED SIGNATORY
(With Name, Designation and Company seal)

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 28 of 107

ANNEXURE-3

Certificate by Chartered Accountant on letter head

(applicable upto 31st March'2021 in line with MSME notification no. S.O. 2119 (E), dated 26th June'2020)

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
..... is registered under MSMED Act 2006, (Entrepreneur
Memorandum No. (Part - II)/ Udyam Registration Certificate No.
..... dtd:, Category:
..... (Micro/Small/Medium)). (Copy enclosed).

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

1. ~~For Manufacturing Enterprises:~~ Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No. S.O.1722(E) dated October 5, 2006:
Rs..... Lacs
2. ~~For Service Enterprises:~~ Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the **MSMED** Act, 2006:
Rs..... Lacs
3. ~~For Enterprises~~ (having EM-II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum): Investment in plant and machinery or equipment is Rs..... Lacs and turnover is Rs. Lacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)
4. ~~For Enterprises~~ (having EM-II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum): Investment in plant and machinery or equipment is Rs..... Lacs and turnover is Rs. Lacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)

~~(Strike off whichever is not applicable)~~

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

~~Or~~

~~The enterprise has been graduated upward from its original category (micro/small/medium) (strike off which is not applicable), the enterprise shall maintain its prevailing status till expiry of one year from the close of year of registration, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.~~

~~Or~~

~~The enterprise has been reverse graduated from its original category (micro/small/medium) (strike off which is not applicable), the enterprise will continue in its present category till the closure of the financial year and it will be given the benefit of the changed status only with effect from 1st April of the financial year following the year in which such change took place, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.~~

Date:

(Signature)

Name:

Membership Number:

Seal of the Chartered Accountant

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 29 of 107

[ANNEXURE-4](#)

Reverse Auction Process Compliance Form

(The bidders are required to print this on their company's letterhead and sign, stamp before RA)

To

- M/s. {Service provider}
- Postal address}

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{ [BHE/PW/PUR/HON-C&I-R&M/3161](#)} dt. {.....}

This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per [Annexure - 6](#) within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 30 of 107

[ANNEXURE – 5](#)

Authorization of representative who will participate in the on line Reverse Auction Process:

1	NAME OF THE BIDDER	
2	NAME & DESIGNATION OF OFFICIAL	
3	POSTAL ADDRESS (COMPLETE)	
4	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
5	E-MAIL ADDRESS	
6	NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

[ANNEXURE – 6](#)

Reverse Auction price confirmation and breakup
(To be submitted by L1 bidder after completion of Reverse Auction)

To
- M/s. Service provider

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 31 of 107

- *Postal address*

CC: M/s BHEL POWER SECTOR WESTERN REGION, Nagpur

Sub: **Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

Rs. _____ (in value) &
_____ (in words)

for item(s) covered under tender enquiry No. **BHE/PW/PUR/HON-C&I-R&M/3161**

~~Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST, E.D., C.S.T., freight and insurance charges up to {.....} District, {.....} State and Type Test Charges etc., (exclusive of service tax), other as per NIT}~~

as our final landed prices as quoted during the Reverse Auction conducted today {date _____} which will be valid for a period of {~~in nos. & in words~~} days. as mentioned in the subject tender.

Yours sincerely,

For _____

Name:

Company:

Date:

Seal:

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 32 of 107

[ANNEXURE – 7](#)

INTEGRITY PACT

Between

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

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for **Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India) (E Tender No : BHE/PW/PUR/HON-C&I-R&M/3161)** The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

- 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- 1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 33 of 107

to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

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

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

Section 4 - Compensation for Damages

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

Section 5 - Previous Transgression

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

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 34 of 107

6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.

8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.

8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.

8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.9 IEM should examine the process integrity; they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.

8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 35 of 107

8.12 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.

9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.

10.2 Changes and supplements as well as termination notices need to be made in writing.

10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.

10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

For & On behalf of the Principal

(Office Seal)

Place-----

Date-----

For & On behalf of the Bidder/ Contractor

(Office Seal)

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 36 of 107

Witness: _____

Witness: _____

(Name & Address) _____

(Name & Address) _____

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 37 of 107

[ANNEXURE – 8](#)

UNDERTAKING

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

To,

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Dear Sir/Madam,

Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS

Ref: NIT/Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

I/We, _____ declare
that, I/We am/are not under insolvency resolution process or liquidation or Bankruptcy Code Proceedings (IBC) as on date,
by NCLT or any adjudicating authority/authorities, which will render us ineligible for participation in this tender.

**Sign. of the AUTHORISED SIGNATORY
(With Name, Designation and Company seal)**

Place:

Date:

[ANNEXURE – 9](#)

DECLARATION

Date: _____

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 38 of 107

To

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Sub: **Details of related firms and their area of activities**

Dear Sir/ Madam,

Please find below details of firms owned by our family members that are doing business/ registered for same item with BHEL, _____ (NA, if not applicable).

1	Material Category/ Work Description	
	Name of Firm	
	Address of Firm	
	Nature of Business	
	Name of Family Member	
	Relationship	
2	Material Category/ Work Description	
	Name of Firm	
	Address of Firm	
	Nature of Business	
	Name of Family Member	
	Relationship	
.....		

Note: I certify that the above information is true and I agree for penal action from BHEL in case any of the above information furnished is found to be false.

Regards,
(_____)

From: M/s _____
Supplier Code: _____

Address: _____

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 39 of 107

ANNEXURE – 10

**DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE, 2020 AND
SUBSEQUENT ORDER(S)**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 04th June, 2020 and subsequent order(s).

Ref : 1) NIT/Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161,
2) All other pertinent issues till date

We hereby certify that the items/works/services offered by..... *(specify the name of the organization here)* has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017-Revision dated 04.06.2020 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

...

Thanking you,
Yours faithfully,

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

**** - Strike out whichever is not applicable.**

Note:

1. Bidders to note that above format Duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practicing chartered accountant (in respect of suppliers other than companies).
3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.)

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 40 of 107

ANNEXURE – 11

DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

GM-PURCHASE, BHEL-PSWR,
Floor No. 5&6, Shri Mohini Complex
345, KINGSWAY, NAGPUR-440001

Dear Sir,

Sub: Declaration regarding compliance to Restrictions under Rule 144 (xi) of GFR 2017

Ref : 1) NIT/Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161,
2) All other pertinent issues till date

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries. I certify that _____ *(specify the name of the organization here),*

(a) is not from such a country / ☐

(b) has been registered with the Competent Authority *(attach valid registration by the Competent Authority, i.e., the Registration Committee constituted by the Dept. for Promotion of Industry and Internal Trade (DPIIT));* ☐

and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. *(attach relevant valid registration, if applicable)*

I hereby certify that we fulfil all requirements in this regard and is eligible to be considered.

Thanking you,
Yours faithfully,

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

Note: Bidders to note that in case above certification given by a bidder, whose bid is accepted, is found to be false, then this would be a ground for immediate termination and for taking further action in accordance with law and as per BHEL guidelines.

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 41 of 107

ANNEXURE – 12

IMPORTANT INFORMATION

E -Tender for this work is invited by BHEL PSWR NAGPUR and offer shall be submitted through BHEL e-procurement portal only. All correspondences regarding this tender shall be through E-procurement portal.

Postal Address:

AGM /Purchase BHEL PSWR,
SRIMOHINI COMPLEX, Floor No. 5 & 6, 345 KINGSWAY, NAGPUR 440001, INDIA

Following are the concerned BHEL officials to whom bidders can contact in case of any difficulty:

Manager Purchase, Email: vvoidya@bhel.in

Sr Manager/Purchase, email: biraj@bhel.in,

GM Purchase, Email: vkarya@bhel.in. Ph: +91 – 712 – 2858 – 633

1. Refer the abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' which is available at www.bhel.com on "supplier registration page" at the following link: https://www.bhel.com/sites/default/files/suspension_guidelines_abridged.pdf

2. All Statutory Requirements as applicable for this project shall be complied with.

3. Following clause shall form part of the HSE documents issued under Chapter IX of Volume IB 'Special Conditions of Contract'

"In case of any financial deduction made by Customer for lapses of safety other than what is provided elsewhere in the contract, the same shall be charged on back-to-back basis on the defaulting contractor without prejudice to any other right spelt anywhere in the tender /contract"

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

5. "Pradhan Mantri Kaushal Vikas Yojna: The contractor shall, at all stages of work deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/Industrial Training Institute/ National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/ Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs.100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding".

6. Conflict of Interest among Bidders/ Agents:

"A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. **The bidder found to have a conflict of interest shall be disqualified.** A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

a) they have controlling partner (s) in common; **or**

b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; **or**

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 42 of 107

- c) they have the same legal representative/agent for purposes of this bid; **or**
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; **or**
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; **or**
- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:
1. The principal manufacturer directly or through one Indian agent on his behalf; **and**
 2. Indian/foreign agent on behalf of only one principal;
- or**
- g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; **or**
- h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business."

Treatment of cases regarding conflict of interest:

The bidder notes that a conflict of interest would said to have occurred in the tender process and execution of the resultant contract, in case of any of the following situations:

- i) If its personnel have a close personal, financial, or business relationship with any personnel of BHEL who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of BHEL directly or indirectly;
- ii) The bidder (or his allied firm) provided services for the need assessment/ procurement planning of the Tender process in which it is participating;
- iii) Procurement of goods directly from the manufacturers/ suppliers shall be preferred. However, if the OEM/ Principal insists on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. In case bids are received from both the manufacturer/ supplier and the agent, bid received from the agent shall be ignored. However, this shall not debar more than one Authorised distributor (with/ or without the OEM) from quoting equipment manufactured by an Original Equipment Manufacturer (OEM) in procurements under a Proprietary Article Certificate.
- iv) A bidder participates in more than one bid in this tender process. Participation in any capacity by a Bidder (including the participation of a Bidder as a partner/ JV member or sub-contractor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party. However, this does not limit the participation of an entity as a sub-contractor in more than one bid if he is not bidding independently in his own name or as a member of a JV.

The Bidder declares that they have read and understood the above aspects, and the bidder confirms that such conflict of interest does not exist and undertakes that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s), in this regard. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, the same

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 43 of 107

will be considered as a violation of the tender conditions, and suitable action shall be taken by BHEL as per extant policies/guidelines

7. Acceptance of Bank Guarantee (BG)

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

Clause No. 1.10.3 (iii) 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”.

8. 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:

“BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) (<https://www.bhel.com/guidelines-reverse-auction-2024>) for this tender. RA shall be conducted among the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.”

Note:-

1. Reverse Auction will be conducted if two or more bidders are techno-commercially qualified .
2. Wherever RA is opted in a tender, the techno-commercially qualified H1 will not be allowed to participate in RA. In case more than one H1 bidder quote the same rate, the Price Offer received last, as per the time log of the Portal, shall be removed first, on the principle of last in, first out by the system.
3. However, H1 will be allowed to participate in RA in the following cases:

BHEL PSWR
Notice Inviting Tender

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 44 of 107

-
- a) If number of techno-commercially qualified bidders are only 2 or 3.
- b) In case Primary product of only one OEM is left in contention for participation in RA on elimination of H1.
- c) For cases where there are more than 3 techno-commercially qualified bidders, if lowest bidder in sealed price bid is non-MSE and H-1 is eligible MSE and H-1 price is coming within price band of 15% of Non-MSE lowest bidder.
- d) For cases where there are more than 3 techno-commercially qualified bidders, if lowest bidder in sealed price bid is non-MII and H-1 is eligible MII and H-1 price is coming within price band of 20% of Non-MII lowest bidder.
9. Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC
10. **Clause no. 2.24 of GCC PERFORMANCE GUARANTEE FOR WORKMANSHIP:** Performance Guarantee of Workmanship/negligence/omission for the work done / Defect liability period shall be as per 2.24 of GCC with the amendment in Cl 2.24.1 as 12 months commencing from the date of Installation/ commissioning against defect arising due to faulty workmanship.
If any defect observed during the defect liability period, then same shall be repaired/make good within reasonable time as per clearance from ONGC without any extra cost.
11. Overrun Compensation (Clause no. 2.12 of GCC) shall not be applicable
12. Price Variation Compensation (Clause no 2.17 of GCC) shall not be applicable
13. LIQUIDATED DAMAGES/PENALTY: 2.7.9 of GCC with the amended of Liquidated Damage/Penalty at the rate of 0.5% of the contract value, per day of delay or part thereof subject to a maximum of 10% of the contract value.
14. Interest bearing recoverable advances- Cl no. 2.13 of GCC, is not applicable
15. Bonus clause is not envisaged in this tender.
16. Limitation of Liability in Clause 2.22 of General Conditions of contract for services/works has been amended as below:
“Notwithstanding anything to the contrary in this Contract or LOA or Work Order or any other mutually agreed document between the parties, the maximum liability, for damages, of the contractor, its servants or agents, shall under no circumstances exceed an amount equal to the Price of the Contract or the Work Order. Neither party shall be liable to the other for any indirect or consequential loss or damage, including but not limited to loss of use, loss of profits, or loss of contracts, or special, punitive, exemplary losses whatsoever, arising out of or in connection with this contract. This shall not be applicable on the recoveries made by Customer from BHEL on account of Contractor, any other type of recoveries for workmanship, material, T&P etc. due from the contractor.”
This shall be the part of General Conditions of Contract for this tender

**BHEL PSWR
Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/HON-C&I-R&M/3161

Pg 45 of 107

[ANNEXURE-13](#)

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

To,

GM/Purchase
BHEL PSWR
Floor No. 5 & 6, Shree Mohini Complex,
345-Kingsway, Nagpur-440001

Dear Sir/Madam,

Sub: Bid Security Declaration

E-Tender Spec No: BHE/PW/PUR/HON-C&I-R&M/3161

JOB Description :

Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India)

1. I/We Mr/ Ms..... authorised person to sign the bid documents for tender pertaining to the captioned scope do hereby declare that I/We have gone through the entire tender documents including terms and condition mentioned in the tender documents and undertake to comply with them.
2. I/We further declare that we will not withdraw our bid or modify our offer during the period of validity of the bid after the deadline for submission of such documents.
3. If I/we withdraw or modify the bids during the period of validity, or if I/We are awarded the contract and fail to sign the contract, if applicable or to submit security deposit as defined in the tender document/LOA, we will be suspended for the period of time as specified in the tender document from being eligible to submit bids/proposals to BHEL.

**Signature of the Authorised Signatory
(With Name, Designation and Company seal)**

Place:

Date:

3161

TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

SI No	DESCRIPTION	Chapter
Volume-IA	Part-I: Contract specific details	
1	Project Information	Chapter-I
2	Scope of Works	Chapter-II
3	Special Terms and Other Conditions	Chapter-III
4	T&Ps and MMEs to be deployed by Contractor	Chapter-IV
5	Quality Requirements	Chapter-V
6	Time Schedule	Chapter-VI
7	Terms of Payment	Chapter-VII
8	Taxes and other Duties	Chapter-VIII
9	BOM for HRSG Revamp work	Chapter-IX
10	Schedule of Rates and Quantities	Chapter-X

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: PROJECT INFORMATION

1.0	Project Information
	<p>1) Purchaser : M/s. ONGC Hazira (Surat)</p> <p>2) Project Title : Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials for Revamping of HRSG#2 Hazira, ONGC Hazira Plant, ONGC Nagar, Surat, Gujarat (India)</p> <p>3) Railway Station : Surat</p> <p>4) Nearest airport : Surat</p>

The Bidder shall visit site and get acquainted himself with the conditions prevailing at site before submission of the bid. The information given here in under are for general guidance and shall not be contractually binding on BHEL/ Owner. All relevant site data/information as may be necessary shall have to be obtained /collected by the Bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

The work under the scope of these specifications is broadly as follows.

PRE SHUTDOWN WORK

1. Mobilization of site.
2. Arranging Gate pass, Insurance & Accommodations to the contract personnel.
3. Shifting of material and T&Ps at site.
4. Shifting of special T&Ps to working floor.
5. Contractor shall visit the Site, for assessment of the nature & quantum of the job at Site.
6. Contractor shall arrange all lifting & shifting tools & tackles, mobile Cranes, fork lifters, chain pulleys, wire ropes & Belts, D-Shackles, jig & fixtures etc. for shifting & handling of the material before commencement of the job at Site.

TECHNICAL SPECIFICATIONS

Equipment Name	HRSG-II
Tag No.	24- X – 001
Type	Horizontal, Natural Circulation, bottom supported, Bi-Drum furnace fired, Dual Pressure, Water Tube Boiler.
Make	BHEL
Operating Conditions	Saturated High Pressure Steam: Quantity: 18.5 tph Saturated Low Pressure Steam: Quantity: 105 tph

SCOPE OF WORK

A. UNLOADING OF MATERIAL, PRESERVATION & STORAGE (APPROX. 125 MT)

1. Receipt of 1st consignment/supply is estimated in Oct-2025. Supplies will be completed progressively by December 2025. This is tentative.
2. Materials supplied/unloaded will be as per BOM as mentioned under clause A.1.
3. Bidder to arrange Manpower and make arrangement for T&P receipt and unloading of materials.
4. Required T&Ps for Material Management work: 12/14 T Faranna Pick and Carry Crane: 1 no. (This is only indicative. Arrangement of any other T&P for the work is in contractor's scope).
5. All the T&Ps should be load tested and should be with valid load test certificate.
6. The bidder has to make arrangements for tarpaulins to cover the insulation and electronics items. Entire materials /spares/items shall be provided rain protection packing at site. BHEL/ONGC shall indicate the place at site for storing the material. Provided area for storage will be secured by BHEL (Security of material will be in BHEL's scope). All the materials to be stored most likely in the vicinity of HRSG.
7. Elevated platform with tarpaulin protection, if required for the storage of insulation, to be built by the bidder.
8. Bidder shall arrange required Wooden sleepers.
9. Storage space will be provided by ONGC/BHEL. Unloading of Material is in the scope of the contractor. Preservation of the material is in the scope of the contractor.
10. Cleaning & maintaining of storage space will be in scope of contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

11. Minor repair of 2 no's of BHEL Porta cabin including covering of the same with tarpaulin's will be in bidder's scope for the storage of electrical & C&I items.

A.1. BOM for HRSG Revamp work

- 1.1.1 Burner assembly items (as per attached annexure I)
- 1.1.2 Fuel firing items (as per attached annexure II)
- 1.1.3 Fuel firing valves (as per attached annexure III)
- 1.1.4 Mechanical items (as per attached annexure IV)
- 1.1.5 De-aerator items (as per attached annexure V)
- 1.1.6 Feed system valves (as per attached annexure VI)
- 1.1.7 E&I BOQ (as per attached annexure IX)

The Mechanical and C&I items list is attached separately as Annexure – X and Annexure – XI. In case of any variation in quantity under clauses (A.1) 1.1.1 to 1.1.7, the higher quantity shall be considered for Material Handling and Erection & Commissioning (E&C) purposes, without any additional cost.

B. DISMANTLING: - (APPROX. DISMANTLING WEIGHT – 100 MT) * THE DISMANTLING WEIGHT IS INDICATIVE ONLY

1. Tentative time of start of work will be in Jan 2026, after completion of supplies and intimation from ONGC.
2. Positive isolation of the respective boiler has to be ensured by contractor before dismantling of the boiler.
3. Existing burner assembly:
 - Existing pneumatic power cylinders, each for primary and secondary to be dismantled.
 - The link and pin arrangements of the power cylinder to be restored.
 - Old existing burners in the burner panel to be removed.
 - Burner panel attachments with pressure parts to be removed.
 - Existing flame igniters and scanner to be removed.
 - Connected piping's.
 - Any other instrument/part required to be permanently or temporarily removed for the replacement of burner assembly is to be considered.
4. Scanner air fans
 - Existing scanner air fans are to be dismantled along with removal of power cable termination.
 - Existing foundation of the scanner fans to be dismantled
 - Existing scanner air pipe, if required, for the removal of the fan to be removed.
5. Wind box connecting duct
 - Removal of 8 nos of hanger tie rod support of the wind box connecting duct.
 - Temporary support, wherever necessary, to be provided to the ducts
6. Level gauges of HP and LP drums
 - 1 no's hydrastep and 2 no's DWLG to be dismantled from both the HP and LP drum
7. Drum Internals
 - All the drum internals from HP and LP drum needs to be dismantled.
 - Necessary arrangement for removal of the internals to be made.
 - Temporary covers to be made for covering the down comer openings.
8. Metallic expansion Joints
 - Necessary approach arrangements to be made before cutting and removal of MEJ.
 - 1 no's MEJ at GT exhaust to HRSG to be cut and removed.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

- 1 no's of MEJ at HRSG outlet to chimney to be cut and removed.
- 9. GT exhaust ducting
 - The GT exhaust ducting from diverter damper to HRSG inlet to be cut and removed.
 - The existing insulation along with cladding to be removed.
 - The cladding sheet to be retained after removal.
- 10. Feed water system & MS system
 - The isolation valve along with its bypass valve in the feed control station of the HP and LP system to be cut and remove.
 - Removal of the old flow elements of feed water of MS and feed water system of HP and LP system.
- 11. PDC
 - Removal of the old PDC damper along with all its instruments, supports and fixtures.
- 12. HRSG
 - Cutting and removal of old drain header of the HRSG
- 13. Removal of old system/equipment /instrument /spares for installation & commissioning of new equipment/instrument as per proposed scope of work.
- 14. Dismantling of structure/platforms/Structural supports wherever required to facilitate the replacement of old system with new one.
- 15. Dismantling tonnage may vary as it may require dismantling & restoration of items to facilitate erection & welding of newly supplied materials.
- 16. **Dismantling of existing C&I and electrical items as per site requirement for erection of new C&I and electrical items.**
- 17. Recording of measurements / clearances / operational parameters are to be noted by the contractor before dismantling the unit and same are to be maintained after erection & commissioning of the HRSG # 2.

C. ERECTION: - (APPROX. ERECTION WEIGHT- 125 MT) * THE ASSEMBLY WEIGHT IS INDICATIVE ONLY

MECHANICAL:

1. Existing burner assembly:

- New pneumatic power cylinders, each for primary and secondary to be erected.
- The link and pin arrangements of the power cylinder to be restored.
- Installation of new low NOx burners (4 no's) along with its attachment welding with pressure parts.
- Refractory and insulation of the burners. Application of refractory as per procedure.
- New flame igniters with IFM (4 no's) provision to be installed. New pilot gas line from main line to be tapped off. New line of pilot gas from tap off point to flame ignitors to be erected.
- Air line for flame ignitors to be modified and erected where ever required for the newly installed flame ignitor.
- All connected piping's.
- Installation of UV type flame scanners and its cooling airline. Any modification in cooling air line will be in bidder's scope.
- Any further work, not mentioned here, in order to complete the replacement work of burner assembly will be in scope of bidder.

2. Seal air fans & Scanner air fans:

BHEL-PSWR

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 51 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

- Existing foundation of the scanner fans to be modified or new foundations to be constructed.
- New fans: (1x100% AC Seal air fan and one Emergency DC + one AC Scanner air fan) envisaged. Seal Air Fan will cater to all the requirement of cooling air / seal air for Fuel firing systems during normal operation. Scanner Air Fan will provide emergency scanner cooling during blackout conditions using DC power. Same shall be installed near existing boiler front area.
- New scanner air fans to be erected and aligned.
- Terminal connection of the scanner fans with discharge pipes.
- Any modification in discharge pipe required for completion of job will be in bidder's scope.
- Testing of electrical motors is in bidder's scope.

3. **Wind box connecting duct:**

- 8 Nos. of Hanger Rod Dia. 40 mm with Carbon Steel material for Wind-Box connecting duct CLH shall be provided
- Any minor cutting and welding/modification required for replacement of the hanger will be in bidder's scope.
- Erection of aerofoil of FD fan.

a. **Level gauges of HP and LP drums:**

- 1 no's hydrastep and 2 no's DWLG of both the HP and LP drum to be erected.
- All the isolation valves in the system to be erected and welded as per EWS. NDT to be followed.
- All the required welding for the job to be carried out.

b. **Drum Internals**

- All the drum internals in HP drum and LP drum to be erected as per drawing.
- All the locks of nuts of the separator clamping arrangement to be welded as per drawing.
- Fitting and welding of Baffle plates for drum, drum internals and other attachments, supports etc. as per drawings. And restoration of system to its original shape & size.

c. **Metallic expansion Joints**

- MEJ at GT exhaust to HRSG to be erected.
- MEJ at HRSG outlet to chimney to be erected.
- Total 5 nos' of MEJ to be erected as per drawing **0-00-561-U4333-REV-0 (REFER ANNEXURE VIII)**
- Welding of MEJ as per drawing and required NDT to be completed.
- 02 No's of NMEJ to be replaced.

d. **GT exhaust ducting**

- The GT exhaust ducting from diverter damper to HRSG inlet to be erected.
- Shifting of duct plates to the erection location.
- Fabrication of duct.
- Duct will be supplied in form of plates, ducts to be erected, welded along with external in internals supports, channels in situ.
- Temporary support to be provided where ever required.
- Welding and NDT of the duct as per FQP
- Application of Insulation and cladding on the duct.
- Erection and welding of the duct support structure.
- Scope of work is as per drwg No. 0-00-561-U4333-REV-0

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

e. Feed water system & MS system

- The feed control station of the HP and LP system to be erected (as per drawing and BOM) and welded as per welding procedure. HP feed station drwg No. 1-24-300-U0087-01/ LP feed station drawing No. Quest_1-24-300-U0088-1-0
- Erection and welding of new flow elements of MS and feed water system of HP and LP system.
- Replacement of control valve and associated isolation valves and bypass with new one.
- Necessary NDT to be performed as per FQP.
- Any extra joint cutting and welding, if required, for completion of the job will be in bidder's scope.

f. PDC

- Complete replacement of PDC damper along with required instruments and cables. For operation of PDC dampers; complete instrumentation systems like Pneumatic Actuator and its accessories shall be supplied.

g. HRSG

- Erection and welding of HRSG drain header station along with the valves.
- NDT of the joints as per FQP.
- Application of Insulation and cladding of the drain line.
- Erection of support of the drain station.
- Necessary work for hydro test facilities for Drums (Piping's etc.)

h. Provision of Steam Dumping Facility shall be provided by the bidder as per drawing. (1-24-200-U0089-00)

i. DE-AERATOR

- De-aerator control valves: replacement of de-aerator control valves along with its welding and NDT is in bidder's scope. Bidder also have to carry out impulse tubing, cabling and finally commissioning of the control valve.
- Flow meter in Return Condensate line and Flow meter in DM water to Deaerator line shall be erected, welded and NDT to be carried out as per FQP.

j. FUEL GAS FIRING SYSTEM

- Fuel Gas firing system shall be provided in line with proposed. All new piping along with instrumentation for remote operation for firing are to be provided by the Contractor.
- Nitrogen gas line for the purging of the gas lines to be erected and welded along with valves and instruments.
- All the necessary EWS and NDT to be followed.
- Restoration of removed structures, ducts, floor grills, air lines, etc.
- Dismantling of all temporary arrangements made for the job execution and area clearing.
- Removal and re-installation of any other component in order to the complete the job is in bidder's scope.
- All the support as per drawing to be installed.
- Any minor modification required to complete the job is in bidder's scope.
- Any other work required to complete the job will be in bidder's scope

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Electrical Scope:

1. LT Motor for seal and scanner air fans (4 Nos.)
2. Local push button stations for LT motors (4 Nos.)
3. DC starter box for scanner air fan (1 No.)

CONTROL & INSTRUMENTATION:

1. Erection of Local gauges for pressure and temperature measurements in Fuel system.
2. Erection and hooking up of Thermocouple for measuring fuel temperature.
3. Erection of Impulse pipes along with fittings for instruments supplied as per instrument schedule and BOM (SS316 material).
4. Installation and Commissioning of Pressure & Temperature transmitters for fuel system (as per BOM) and furnace pressure transmitters (as per existing Air and Flue Gas P&ID Drwg. No. 1-97-700-80005) shall be in bidder's scope.
5. Installation and Commissioning of Differential pressure transmitters for measuring FD fan air flow (as per existing Air and Flue Gas P&ID Drwg. No. 1-97-700-80005) & Fuel flow (as per BOM).
6. Installation and Commissioning of Flow elements for measuring Fuel flow (1 no.), Main Steam Flow (1 No. each for HP & LP MS Flow) and Feed water flow (1 no. each for HP & LP FW Flow) along with impulse tubing and erection of transmitter.
7. Erection and commissioning of Tubing along with fitting of SS316 grade for Instrument air supply system.
8. New Instrumentation cables laying and termination from upcoming new field instruments to DCS/PLC panels.
9. Cabling along with JB erection shall be for the additional field instruments (Primary and secondary air dampers, ionic flame monitoring system, furnace pressure transmitters, fuel pressure transmitters, exhaust pressure transmitters, Burner ignition system cables and any other new field instrument not specifically mentioned here).
10. Power & control cables, cables for 110V AC supply to Flame, Power cable and signal cables for additional instruments.
11. Erection of Local Junction boxes. Suitable FRP canopy to be provided for JB for additional instruments supplied.
12. Erection of Cable trays for additional instruments/items supplied.
13. Existing main cable tray wherever feasible can be used for cables from Field to control room.
14. Installation of In-situ type Oxygen analyser: power cable and signal cable.
15. **Local burner control panel:** Cables from PLC to local burner control Panel shall be installed by the contractor.
16. Electronic water level indicator for LP drum and HP drum. laying of the cables required from control room to the instrument shall be done by the contractor.
17. Installation and commissioning of O2 analyser-01 No. no of Zirconia O2 Analyser.
18. For operation of PDC dampers; complete instrumentation systems like Pneumatic Actuator and laying of cables from field to PLC/DCS marshalling cabinet.
19. Installation and Commissioning of two level Transmitters for Deaerator Level Monitoring and Control. De-aerator Level measurement
20. Bidder have to carry out impulse tubing, cabling and finally commissioning of the control valve
21. Laying and termination of Power & control cables for newly installed electrical actuators.
22. Electrical testing of scanner air fan motors and cable termination and commissioning of fans.
23. Earthing of all the electrical instruments and its connection up to nearest earthing point is in vendor's scope.
24. Cabling and termination of all the newly installed remote instruments up to nearest JB and from JB to control panels will be in vendor's scope. Vendor to carry out all the required loop testing and power up of the instrument.
25. Manpower support for upgradation of BMS PLC and DCS system.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

- Removal and re-installation of insulation, arrangements of scaffolding /Temporary platforms, wherever required. Also insulation and scaffolding material i.e. wooden planks, pipes and special Hydraulic jacks to carry out dismantling /erection/alignment and welding of duct and piping are to be arranged by contractor. However, electrical power arrangement shall be made by ONGC and all FLP lighting working fixtures (24/110 1230 V) has to be arranged by contractor. All tools &tackles including special tools required for successful completion of job shall be arranged by contractor only.
- Restoration of exhaust duct along with dampers, FD side duct & dampers, drum internals & all other associated area of the boiler to its original shape & size
- Installation/modification of any platform/structure after erection of material.
- Installation of all the parts as per the design and drawings.
- Application of Insulation and cladding as per requirement and complete the duct
- Painting of structures modified shall be carried out as per applicable standards.
- Final touch-up painting along with paints.
- **Machining /fabrication of any component (if required) shall be done by contractor. BHEL/ONGC shall not provide any machining facility or operator/fitter etc. at site.**
- After completion of the job in all respects the boiler has to be pressure tested at required pressure hydraulically. The hydraulic test is to be witnessed by the inspector of boilers and test certificate is to be obtained from The Director (Steam Boilers). **Any statutory fees to be remitted for the above certification will be done by the Contractor.** All transportation for bringing the Boiler Inspector to ONGC Site and back will be in the Scope of the Contractor.
- Any welding defects, leakages and other abnormalities observed during Hydraulic Testing shall be promptly attended by the Contractor before commissioning of HRSG without loss of time
- Manpower supports for Commissioning activities.
- Any work not specifically mentioned in the scope of work but required to be carried out for successful completion of work will be in bidder scope.
- Materials, Radiography, MPI, NDT (DP & RT) & SR Tests and other required formalities pre & post job execution including on-going job activities that requires approval from IBR Authorities shall be done by the contractor at their risk & cost.
- Testing of the boilers and trial run for 72 hours. If any abnormality is observed within the boiler, the reason for the same is to be established and remedial action is to be taken to the satisfaction of BHEL/ONGC without any additional cost & loss of time to ONGC. Performance test run is to be carried out within the site job completion period of 120 days. Satisfactory operation of 72 hrs. For better performance or equivalent to MCR rating shall be ensured by the contractor.

SPECIAL NOTE:

1. Total no. of HP joints size 60 NB & less – 414
 - i. HP joints size 60 NB and above – 137
2. These are approximate number of joints & may vary as per actual. Also, the number of joints may increase due to cutting of other links or pipes at suitable location for facilitation of erection & welding purpose.
3. RT will be for 20% of joints/welder/shift for 60 NB or lower size joints. For higher size joints of 60 NB and above, RT will be 100%. However, Actual quantity of RT will be as per EWS.
4. Any Minor civil work required for movement of material or equipment or crane will be bidders scope.
5. All the dial gauges & flash back arrestors of Gas cylinder should be ISI marked. Test certificates of all the gas cylinders should be available.
6. All the scaffolding pipes should be in good condition and all the planks should be metallic with hooks for coupling with tubes or scaffolding coupler pipes.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

7. All the lifting and shifting equipment's should have valid test certificate by competent authority of Gujarat state.
8. Pipe bending machine for bending 1" and 2" pipes to be arranged by bidder.
9. Normally Hot work is permitted on Working Days, from 0930 to 1800 hrs Extended working hour permission up to 2000 hrs and Holiday working permission can be granted on minimum two-day prior intimation.
10. Contractor has to arrange Welding Sets, Cutting Sets, Portable Grinding Machine, Hydraulic Jacks and other required tools & Tackles to complete the job at Site including flameproof connection points as per ONGC safety norms. Welding Electrodes are to be used confirming to AWS / IBR Standards. All welding jobs shall be executed by IBR approved welder holding valid certificate during execution of the job and copy of the Certificate is to be submitted before commencement of the job at Site. Under any circumstances, no other Welder (without IBR Welder Certificate) will be allowed to do any welding job.
11. Contractor shall follow all rules and regulation with regard to safety & security prevailing in ONGC, Hazira Plant. Contractor is fully responsible for the safety of his workman and necessary insurance has to be obtained and submit to the ONGC Engineer In-charge or representative.
12. The test certificate issued by inspectorate of Boiler after hydraulic test is to be submitted to BHEL by contractor.
13. Minor repair of 2 no's of BHEL Porta cabin including covering of the same with tarpaulin's will be in bidder's scope for the storage of electrical & C&I items.
14. If agency not deploying required capacity of crane, then BHEL will deploy the crane from other sources and suitable penalty shall be imposed as per BHEL norms.

Statutory and regulatory Requirements –

- All coordination & liaising with IBR authorities and obtaining approvals wherever required including remittance of fee. All logistic arrangement for arranging site visit /boiler internals/materials of IBR inspections authority shall be in scope of contractor.
- Contractor has to obtain vessel entry permission from the local statutory authorities as per Gujarat factory rules 1963 & subsequent amendments and remit the concerned fees to them.
- Contractor should possess valid certificate issued by directorate of factories/Boiler for carrying out the subject job.
- Contractor should obtain formal statutory clearance from chief inspector of Boilers to carry out erection & welding of piping/Pressure parts under IBR purview. Arrangement for the visit of Boiler Inspector for field inspection, hydraulic test etc. is in the scope of contractor, and necessary drawing/details only will be given by BHEL.
- All necessary certificates and licenses, permits & clearances required including IBR certificates / license/clearance 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.
- Necessary police verification forms for all the labours, supervisors and engineers of the contractor and sub-contractors are to be submitted as per Proforma supplied by security section of Hazira Plant from time to time and observe all the security norms.

2.3.0 Brief description of Electrical and C&I work

2.3.1 Installation of Cable trays/cable ducts (If applicable)

2.3.1.1 Various types of sheet metal, galvanized cable tray, i.e. Perforated, ladder type, seal metal duct, solid bottom tray, shall be provided in standard lengths along with accessories like hardware, bends, reducers, coupler plate, tray covers and tray clamps etc.

2.3.1.2

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Installation of cable tray/cable duct shall include cutting, laying, jointing, supporting, drilling holes in the support, providing tees/reducers/bends/clamps as per tray route layout, fabrication of bends/tees/reducers from straight length, fixing of tray covers, welding of tray on support, cleaning and application of cold galvanising paint on weld joints (supply of paint is in the scope of contractor). *Installation of tray/duct covers, wherever provided, will be done as a part of tray erection and no extra rates will be payable.*

2.3.1.3

In case cable trays are required to be fabricated from structural steel and installed, unit rate applicable for fabrication and installation of structural steel shall be applicable in such instance.

2.3.1.4

Cable trays/ducts have to be routed underground in cable trench, over head on structure, valves, floors etc. for various applications such as cable laying, copper tubes, conduits, thermocouple, temperature gauge capillary etc.

2.3.1.5

Installation of Copper tubes/SS tubes/copper pipes shall include cutting into required length, laying, bending, cleaning, brazing wherever required, fixing of brass fittings like compression fittings/tees/end connectors/straight connectors/bulk heads/valves etc., supporting clamping including supply of clamps and hardware, flushing and conducting leak test.

2.4.0 Cable laying (power / control / instrumentation shielded / unshielded cables / plug-in cables / coaxial / UTP / STP / data highway, armoured / un-armoured, single / multi-core, PVC/HR PVC/FRLS/TEFLON/XLP insulation, optical fibre)

2.4.1

Cable laying includes cutting to the required length, laying in overhead/underground cable trench/through pipes/flexible conduits, dressing/clamping in tray, drilling of holes in gland plates in panels and junction box, glanding, splicing, dressing of spliced wire inside the panel and JB's, providing PVC numerical/alphabetical / printed ferrules, termination by using crimp type copper tinned/aluminium lugs, insulated/un-insulated, termination (crimp, soldering, etc.), plug-in connections with insert type crimping, providing identification PVC/aluminium cable tags (at both the ends and at 15 m intervals throughout the route length and also at each bend), continuity checking, insulation resistance checking, high voltage test on HT cables.

Laying, etc of Optical fibre cables on cable trays /cable trench shall necessarily be done using flexible conduit

2.4.2

Entry to the panels and JB's may be at top, sides or bottom. All cables are required to be properly supported and clamped near to the JB/panel.

2.4.3

Wherever cable glanding is not possible, either due to the gland plate size limitations or more number of cable entries, prefab plug-in cables, etc., for such cases cables may have to be lifted inside the panel by either making cut-out in gland plate and providing rubber profile for sharp edge protection or alternatively, providing 4" or 6" PVC pipe coupling gland and these pipe coupling gland shall be supplied by contractor within the quoted rate of cable laying.

2.4.4

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Copper tinned lugs of various types (pin, ring, fork, snap-on) upto 4 sq.mm, PVC cable ties, PVC ferrules, PVC button and tapes, cable identification tag of PVC/metallic, clamping and dressing material with hardware, PVC sleeves etc. shall be supplied by the contractor within the quoted rates for cable laying. The quality of material shall be got approved from BHEL engineer prior to their use on job.

2.4.5

All care should be taken to avoid abrasion, tension, twisting, kinking, and stretching of cables during installation.

2.4.6

Cable shielding – all signal cables are supplied with bare shielded copper wire/with braided wire shield. Generally, shield wire is kept isolated at instrument/field device end and continuity is maintained through JB's and grounded at panel end only. While terminating the shield wire either in panel or JB's, PVC sleeves are to be used to avoid two-point earthing.

2.4.7

Wherever cables run through ducts, conduits, valves, etc., they shall be sealed using fire/weather proof compound. In addition to this, cable entry in panels, MCCs, instruments, electrical actuators etc., are also required to be sealed. The required material for doing so shall be included by contractor in the cabling scope.

2.4.8

Many of the cable trays and cables have to be laid in cable trenches. For this purpose, the cover of the trenches have to be opened for working in site and whenever the cables are to be laid in existing cable tray, all safety precautions have to be observed.

After completing the work, the trenches have to be cleaned and covers put back into position. Contractor shall also carry out de-watering from the trenches if required and arrange pumps etc., at his cost.

2.4.9

Looping wire at terminal block of panels and electrical actuator as shown in the inter-connection diagrams or as required is to be done by contractor at no extra cost.

2.4.10

Contractor shall carefully plan the cutting schedule of each cable drum in consultation with site engineer such that wastages are minimized.

2.4.10.1

The erection contractor shall make every effort to minimize wastage during erection work. In any case, **the wastage shall not exceed the following limits;**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Sl. No.	Item	% Wastage on issued Qty
1.	Fabrication steel	2
2.	Each size of power cables	1
3.	Each size of control/Instrument cables	2
4.	Impulse pipe/tubes/GI pipes/copper tube	1

If however, the bidder quotes for more wastage than specified above, the excess portion will be considered for adjustment during the tender evaluation at the quoted supply rate of material.

If the actual wastage be more than the specified figure, then equivalent price of the excess portion will be deducted from the contractor's bill.

2.4.11

Existing/old cables are to be disconnected from old Panels and re-connected to the new Panels. If the existing cables are short in length, same has to be joined by straight lugs of various types (pin, ring, fork, snap-on) upto 4 sq.mm and reconnected to the new DCS Panels.

2.5.0 Junction Boxes:

2.5.1 Different types of junction boxes are to be erected by the contractor like junction boxes below 48 ways and above 48 ways. The junction boxes are to be located at the locations jointly decided at site during erection. The junction boxes are to be erected on the frames fabricated at site.

2.6.0

Laying of pipes and tubes (impulse pipe & instrument air pipe)

2.6.1

Root valves are generally provided on process pipe line by other agencies. Prior to starting impulse pipe, contractor to identify the process point with respect to PIDs.

2.6.2

Installation of impulse pipe of CS/AS/SS material shall include cleaning, air flushing, cutting to length from running meter, edge preparation, cold bending, welding of sockets / reducers / tee / cross / isolating valves / union, nut and tail pieces / nipples, condensing and other pots, etc., mounting of SS/CS valve manifolds and compression fittings, providing supports, clamping, conducting leak test / hydraulic pressure test, painting as per colour code (primer and two coats) and erection and commissioning of other standard accessories as per instrument hook-up diagram.

Piping works shall involve either arc or TIG welding. Paint, primer etc supply is in the scope of the contractor. Colour codes for impulse piping, etc will be as per standard codes. Contractor to follow the BHEL supplied welding schedule and welding procedures. The decision of BHEL engineer will be final in this regard.

2.6.3

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

If applicable, IBR certified welders shall be deployed for welding of impulse pipe and contractor shall take approval for welder and welding consumables from BHEL site engineer.

2.6.4

Laying of GI pipe for instrument airline shall include air blowing, cutting from the running meter length, threading, installation of elbows/tee/reducer /moisture traps/auto drain pot/check valves/isolating valves, supporting clamping, conducting leak test and also seal welding of threaded joints, if required.

2.6.5

Threaded joints of airline shall be made leak proof by using Teflon tapes or sealing compound. All consumables shall be in the scope of contractor.

2.6.6

All fittings and accessories for impulse pipe and airline shall be provided by BHEL. Quoted rate for piping shall include cost of installation of such fittings and no separate rates are envisaged.

2.6.7

Contractor shall provide GI “U” clamps for impulse pipe and GI pipes within the quoted rates for installation of the same.

2.6.8

Impulse pipes (as per paint schedule) shall be applied with one coat of primer red oxide paint and two coats of synthetic enamel of prescribed shade of final paint. BHEL may prescribe a time gap between first coat and second coat of final paint.

2.7.0 Structural steel fabrication and installation

2.7.1

Structural steel material like MS angles, channels, beams, flats, plates etc. shall be used for fabrication of panel base frame, cable tray supports, canopies, instrument and junction box frames, impulse pipe/instrument air pipe supports and instruments etc. **Supply of Structural Steel- the material shall be as per specifications mentioned as per BOQ will be in Bidder's/ Contractor's scope along with material test certificate for the supplied material.**

2.7.2

This shall include cutting into size, conduiting of end connections, if required, welding, grinding of excess weld deposits, drilling of holes for mounting of device/instrument, installation at location, levelling, alignment, providing bracings, painting etc. No gas cut holes will be permitted. Contractor to follow the BHEL supplied welding schedule and welding procedures.

2.7.3

All the fabricated supports/frames shall be applied with one coat of primer red oxide paint before installation and two coat of synthetic enamel of prescribed shade of final paint,. If required, BHEL shall prescribe time gap between first and second coat of final paint. Supply of paint, primer etc. are in contractor's scope.

2.7.4

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Frame installation/cable tray accessories' installation at site may involve mounting either on concrete floor by grouting/using anchor fasteners or on steel structure by welding etc. *All consumables including anchor fasteners shall be arranged by the contractor.*

2.7.5

In certain packages, galvanised members of junction box frames and instrument racks shall be supplied in cut to sizes and frame assemblies are required to be done as per drawing by bolting/welding. The installation rate as quoted shall include the assembling of the frames.

2.7.6

Gas cutting of tray/impulse pipe support and gas cut holes in frame shall be avoided. Only drilled hole shall be permitted in frame etc.

2.8.1 Installation of panels

Electrical control panels, electronic control panels, etc., are normally supplied in suite of either one/two/three/four/five or loose shipping sections with integral base frame or loose supplied.

These panels may have to be installed as stand alone or in groups consisting of number of panels in each row, depending upon the plant layout and foundation arrangement.

2.8.2

Installation of panel shall include **construction/ fabrication of base frame**, levelling, alignment, fixing of anti-vibration pads, removal of side covers, fixing of cubicle interconnection hardware, bus bar jointing, wiring interconnection, welding and grouting of panels and base frames, mounting of panel canopy wherever supplied as part of panel, drilling of gland plates and sealing of cable entries. In certain case where canopies are not supplied but have to be fabricated out of MS sheets **(to be arranged by the Bidder)**, **payment will be done on square meter basis after all requisite documents**

2.8.3

Panels have to be shifted to their locations through floor openings, temporary openings like floor grills, door etc. which shall be part of work and no claim whatsoever will be entertained with regard to non-availability of opening as per shortest route etc. Panel have to be erected at different locations and elevation in boiler, TG, GTG hall, LT & HT switchgear room, unit control room, ESP control room etc.

2.8.4

Panel and instruments once erected in position should be properly protected using necessary care to prevent ingress of dust/moisture. This will have to be periodically cleaned and surroundings have to be kept tidy. Necessary canopies for Instruments and JB's shall be provided.

2.8.5

Wherever the panels to be mounted on cable trenches, channel supports have to be provided across the cable trench over which the base frame of panel shall be mounted. For such work, structural steel fabrication, installation rates shall be applicable.

2.8.6

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

Normally the panels shall be supplied with instruments, relays, meters, electronic modules etc. mounted and pre-wired. However, if these are supplied loose / separately for safety in transit, contractor shall mount/wire such devices as part of the panel installation work and no separate rates shall be applicable unless otherwise *specifically* listed in the rate schedule.

2.8.7

No separate payment shall be made for replacement of any devices like electronic modules, relays, conductors, terminal block, push buttons etc. which are found defective during pre-commissioning / post-commissioning of any equipment / item.

2.8.8

For the panels erected by other agencies, commissioning/calibration work and troubleshooting has to be carried out by the contractor as part of testing and commissioning work as per the quoted rates.

2.8.9

Associated civil works like drilling, chipping, punching holes and opening in concrete floors, slabs and brick walls, grouting, related to Rack, support fabrication and installation, associated civil works required for installation of control panels, Junction boxes etc., shall be included in the erection cost of such items. Also all associated civil works like chipping away and making good as necessary in floor slab/wall for cabling / earthing etc., as required are included in the scope for which no separate payment is applicable. The scope also includes supply of grouting material, if any. Mechanical works as per BOQ is also in the scope of the contractor.

2.8.10

Supplier's instruction manuals, packing slips, door keys etc. received along with the panels should be promptly handed over to BHEL's engineer on opening of the panels.

2.11.0 Field instrumentation

2.11.1

Various type of primary/secondary indicating/recording instrument for pressure, temperature, flow, level and analytical measurement shall be supplied either loose or mounted along with the equipment.

2.11.2

Scope of work under erection/calibration/testing/commissioning shall include calibration, setting, adjustment, writing instrument tag number with paint, report making, installation, servicing, minor repairs/servicing, putting instrument into service, signal checking from field up to the functional group panels and remote indicating instrument, functional checks, interlock and protection/alarm checks by simulating the field devices, troubleshooting during pre-commissioning/post-commissioning till system is handed over to the customer.

2.11.3

It is the responsibility of contractor to make erection, calibration/testing protocols for various C&I equipment/devices and they should get duly certified by customer/BHEL engineer and should be submitted to BHEL engineer regularly. However, sample formats will be given by BHEL and have to be printed by contractor in adequate numbers.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORK

2.11.4

Contractor shall establish calibration laboratory with adequate facilities and they should arrange standard test instruments duly calibrated from recognized agencies and calibration report of the same to be submitted prior to start of calibration of the field instruments/devices.

2.11.5

Wherever thermowells are supplied along with temperature gauges, thermocouples, temperature switches, thermostats, etc., the bidder has to fix the thermowells on the pipeline. However, actual fixing of thermowells on pipeline and seal welding shall be done by the bidder.

2.11.6

Installation of instrument shall also include drilling of holes and tapping for mounting of instrument and local instrument frames/panels and supply of hardware for mounting of the instrument.

2.11.7

Some devices line solenoid valves, position feedback transmitters, limit switches, air filter regulators, airlock relays, positioners etc., are supplied assembled along with mechanical equipments like pneumatic control valves, power cylinders, trip valves, dampers, motorised actuators, etc. These will need removal, calibration/testing, re-fixing, adjustment, etc., and commissioning. Separate payment shall not be made for this. The rates quoted for the commissioning of these equipments (viz., pneumatic control valves, power cylinders, trip valves, dampers, etc.) should take care of the above. Also, the contractor shall remove such devices prior to erection either at site or at store to avoid damages/pilferages and keeping in safe custody and the same shall be installed prior to commissioning of such equipment.

2.11.7.1

Transmitter enclosure / open racks for various packages which are to be erected and commissioned at various locations of the Boiler, turbine and outdoors, shall be supplied with internal tubing, air filter regulators, rotameters, provision of continuous or intermittent purging arrangements wherever required, etc. The quoted rates for these racks / enclosures shall include the erection and commissioning of all such items inside these racks / enclosures.

2.11.8 Void

2.11.9

For the very few cases where required, the contractor shall carry out re-orientation of bottom/top entry arrangement for process connection if needed due to site condition in existing instrument rack/enclosure/JB and re-location of existing instrument including removing of the existing tubing and re-installation of the same at appropriate location due to any change in grouping of the instrument and no extra payment shall be applicable.

2.11.10

In certain cases, instruments / devices are supplied on equipment or drawn by other agencies as part of mechanical package. The same are to be received or to be collected from other agencies for keeping in safe custody to avoid damages. The same are to be erected back after calibration for which unit rate shall be applicable for erection and calibration. Contractor shall maintain record of such instrument duly certified by BHEL engineer. However, for removal of such instrument, no separate rate/payment shall be applicable.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

3.1 SPECIAL TERMS AND CONDITIONS:

1. **Bidder has to follow all the guidelines issued by local authorities & customer regarding COVID 19.**
2. **Medical Fitness Certificate of each worker from a registered Hospital to be submitted.**
3. **All expenses related to above situation shall be borne by bidder; no separate compensation shall be entertained by BHEL.**
4. The bidder shall submit following documents to the BHEL Engineer in charge before starting of the work at site: -
 - a) Valid labour license of total Nos. of labours.
 - b) Valid labour Insurance policy to cover all the workers. The Contractor shall necessarily take Workmen Compensation Policy and if required Third Party Liability Policy shall be taken by bidder.
 - c) Pradhan Mantri Suraksha Bima Yojana (PMSBY) and Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) (If applicable). Contractor shall, ensure that all his/ its personnel deployed under this contract have obtained additional insurance coverage under the Pradhan Mantri Suraksha Bima Yojana (PMSBY) and Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) through the participating banks and submit the proof of such insurance coverage to the satisfaction of BHEL /ONGC
 - d) A photocopy of employment card issued to each worker as per format prescribed in factory rules.
 - e) List of safety appliance provided by the contractor to their workers with receipt.
 - f) Valid test certificate issued by competent authority as per factory rules for the T&P (like pulling / lifting devices, slings, machines etc.) to be utilized at site. All tools and tackles are to be load tested by a competent authority of Gujarat state. Load test certificate of other states are not valid.
 - g) List of personnel's and workers deputed / deployed along with their full address proof, Police verification etc., shall be get done of his workers by the contractor.
 - h) Submission of Indemnity Bond.
5. Machining of any component (if required) shall be done by Bidder.
6. Subcontractor should assure that the modification work covered in the scope of this offer will be conducted with the best of skills and know how available with Subcontractor and in conformance with the tolerances set forth in manufacture's drawing instruments and other information's furnished to Subcontractor.
7. Bidder shall visit site well in advance for identification & to ensure availability of required special T&P as well as other infrastructure required for carrying out the work.
8. **All consumables required for the job will be in bidder's scope.**
9. **All consumables and welding electrodes as per EWS required for the job will be in bidder's scope.**
10. The various setting, adjustments and benchmarks will be restored to the extent possible during modification to the condition as per the erection and commissioning log sheets available with customer. If, however we are not able to produce erection / commissioning log sheets, efforts will be made to attend the best possible parameter or the conditions as observed at the time of dismantling of the equipment in consultation with BHEL Engineer.
11. Subcontractor must prepare PERT CHART/BAR CHART. Daily monitoring will be done jointly and log sheets of important activities should be noted down and signed jointly.
12. Daily work planning, scheduling & reviewing of work will be done by the party every morning & evening and program must be submitted on daily basis to EIC.
13. All the works shall be carried out as per the instructions and to the satisfaction of the Engineer In-charge.
14. The contractor will attend contributory to faulty and poor workmanship during commissioning and trial run of the equipment.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

15. It is the responsibility of contractor to keep the plant, equipment, machinery and surrounding area clean.
16. Removal of insulation and through cleaning of subjected area is in the scope of bidder. The same to be shifted to nearest marked area by customer.
17. The names of working persons like Site in-charge, supervisors, foreman, main fitters to be deployed during the job with full details has to be submitted stating their area of work and experience and specialization of the work to site in-charge before the start of work. BHEL may ask to change/delete the person not found suitable for the work at any point of time during execution of job. For any addition and deletion of the working person prior permission from BHEL shall be taken.
18. Subcontractor has to ensure that all the key persons must continue till completion of job i.e. until the completion of Demonstration Test. Subcontractor manpower (adequate) should remain at site for a period of **03 days after** completion of Demonstration Test.
19. Mobilization of full strength shall be done within **07 days on receipt of LOI & Intimation from BHEL.**
20. Work distribution sheet for all the workers/supervisors deployed shall be submitted to BHEL one day in advance on daily basis.
21. Subcontractor should mobilize additional resources such as plant, equipment's, material as may be required by site in-charge to improve the progress of the work if the progress of the work is not satisfactory.
22. Party has to quote lump sum rate for all activities mentioned in the price bid as the actual quantities may vary during execution of modification work of the unit for which the contractor is not permitted to raise any dispute or claims. Items mentioned as optional will be taken up depending on condition, availability of spares and requirement.
23. Radiography, NDT, pre-heat, DPT, UT and stress relieving of the joints are in the scope of the contractor and to be performed as per Erection welding schedule/Quality plan.
24. Removals of insulation are in the scope of the contractor.
25. Scrap & insulation etc. is to be shifted to scrap disposal area as indicated by the Site-in-charge.
26. One administrative personnel to control the resources and attendance of the workers to be ensured.
27. Contractor shall arrange certified HP welder for welding job as required whose welding test will be conducted.
28. Argon, Oxy- Acetylene gas shall be arranged by the contractor with cutting/welding set / argon welding set and other welding appliances. Welding Sets, Cutting Sets, Portable Grinding Machine, Hydraulic Jacks and other required tools & Tackles to complete the job at Site including flameproof connection points as per ONGC safety norms.
29. If the duration of work continues beyond stipulated period due to any reason, no claim for compensation will be entertained.
30. The work details are brief & for Subcontractor knowledge only. Subcontractor will have to do all the related works as per requirement.
31. The contractor will be responsible to pay the damages to the property of Board or individual caused by his worker during the course of contract. If the contractor fails to pay the same it will be recovered from his bill.
32. No compensation claimed for idle labor for any reason will be entertained by BHEL.
33. **No charges for mobilization & demobilization shall be paid by BHEL.**
34. All general tools and plants for execution of the work will have to be arranged/ maintained by the contractor at his own cost & risk.
35. In normal course, the interpretation of the under signed on any matter or decision given by him on any disputable points will be final and binding on the contractor.
36. Successful bidder is to obtain labor license before the start of the work.
37. Successful bidder is to obtain necessary "No Dues" certificate before de-mobilization from site.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

38. LAP-TOP with latest configuration, DVD/CD writer/pen drive, its peripherals including printer-scanner and one USB Modem for Internet connectivity to be provided for BHEL site office.
39. Sufficiently adequate man power T&P and other resources should be mobilized by the contractor progress with standby technicians to be deployed immediately if need arises. Offer should be submitted considering these requirements.
40. **Scaffolding pipes, clamp, are to be arranged by Sub-contractor for various platforms and Safety will be taken on priority basis. ALL THE TEMPORARY PLATFORMS ARE TO HAVE TOE GAURDS AND PLANKS SHOULD HAVE HOOKS FOR COUPLING WITH TUBES/SCAFFOLDING PIPES & COUPLERS.**
41. Contractor reconciles the material and submits along with the bill. To credit the balance spares worn out articles/spares and scrap in the main store.
42. Contractor shall clean the surrounding working area within three days immediately after completion of work/ Machine taken onto barring.
43. Give proper assistance to maintain the readings at site for the protocol.
44. Adequate numbers of tarpaulin are to be arranged by the sub-contractor for covering of various equipment during insulation removal / application.
45. Ultrasound test kit, DP Test kit of standard makes like ITW SIGNODE / CHECK MATE / ORION 400 ml Aerosol cans and suitable color paint to repaint the weld joint after DP test along with required accessories and consumables
46. Transportation of material required during works from central work shop to site is in the scope of bidder. Mobile crane/ Pick and carry crane and Tractor/ trailer/Truck with operator for transporting, / loading/ Unloading of materials is to be arranged by the bidder.
Required Diesel for the above shall be in bidder's scope.
47. **CONTRACTOR SHOULD ENGAGE AT LEAST 02 QUALIFIED Certified SAFETY OFFICER DURING THE CONTRACT PERIOD IN CONSULTATION WITH BHEL SITE-IN-CHARGE. SAFETY OFFICER SHOULD BE QUALIFIED FROM APPROVED INSTITUTE.**
48. Contractor should engage 01 quality Engineer for the entire work duration.
49. **Accommodation** for the sub-contractor's manpower will be in bidder's scope.
50. **Electrical supply will be provided by customer. Contractor has to install a Panel board for required rating for supply distribution. Panel board should have RCCB. All the welding machines should have RCCB and individual sockets should have MCB.**
51. **24 V lighting arrangement to be done for local area and confined space by the bidder.**
52. Electrical power arrangement shall be made by ONGC and all FLP lighting/ working fixtures (24/110 /230 V) has to be arranged by contractor.
53. **All tools & tackles including special tools required for successful completion of job shall be arranged by contractor only.**
54. ONGC shall provide free Service Water, Air and Electricity nearer to the HRSG Boiler; further any power cable extension required for the site job shall be arranged by the Contractor by arranging requisite size & type of Power Cables, Hoses etc.
55. **Safety penalties and inspection of all T & Ps to be as per ONGC. All daily formats and inspection related to safety are to be complied with as per customer safety policy.**
56. Contractor shall arrange vehicle for his manpower transportation.
Contractor's Vehicle Entry to Plant
 - i. Entry of automotive vehicles within plant premises is prohibited unless authorized by Fire & Safety Permit issued by competent authority.
 - ii. Vehicle shall be in good condition, and ONGC Safety Section is satisfied with its condition.
 - iii. All documents of the Vehicle, viz. Registration, Fitness (if applicable), Insurance, PUC etc. are available in original.
 - iv. Person proposed to drive it, is having valid Driver License for the type of the vehicle proposed to be used, and shall also have valid ONGC Plant Entry gate Pass.
 - v. Vehicle is fitted with approved Spark Arrestor in its Exhaust.
 - vi. Vehicle is used strictly as per the instruction for use inside the plants and only on the route permitted.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

- vii. Contractor shall apply in the prescribed format along with copy of all of the vehicle documents, and present original for verifications.

57. Work Permit System:

There are two types of work Permit being followed at ONGC Hazira plant, viz., Cold Work Permit and Hot Work Permit.

Cold work Permit is required for any work inside the Hazira Plant. Cold work Permit will be issued by the Area In-charge, for a period of 07 days, for a normal working time from 0845 hrs to 1815 hrs on each workday. The Work Permit will have to be renewed by signing in each shift, by Issuer (Area In-charge), Executer (Engineer In-charge), and shift In-charge of the Control Room. It will be contractor's responsibility to get the above signatures and keep the Work Permit available at the work site, for inspection of any authority.

Extended working hour permission up to 2000 hrs and Holiday working permission can be granted on minimum two-day prior intimation.

Hot Work Permit is required for any welding, cutting, grinding, chipping work and also for work on heights above 2 meters from the ground level. Hot work Permit shall be issued by the Area In-charge, for a period of Seven Days, and has to be signed by Safety & Fire Departments also. ONGC Hazira Fire Team shall remain present at work site, during execution of the Hot Work. Normally Hot work is permitted on Working Days, from 0930 to 1800 hrs. It is also to be renewed every shift, in the same way as Cold Work Permit

NOTE:

1. The specific (minor) work which is not mentioned in the scope of work but required to be carried out for completion of subject work is in the bidder's scope.
2. Decision of BHEL site in charge regarding interpretation of the scope of work shall be final.

LIAISON WITH ALL STATUTORY AUTHORITIES:

- Compliance of statutory provisions, whether mentioned in this contract or not shall be binding on the contractor.
 - a) If there is any change in labour laws after the contract has been awarded, then the new law shall automatically be binding on the contractor.
 - b) No additional financial compensation shall be paid by BHEL to the contractor on account of increased expenditure caused by a) and b) above.
 - c) Liaisoning with local commercial tax dept. to obtain Coml. Tax exemption certificate.

PAYMENT TO WORKERS:

- Payment to workers shall be done in the presence of BHEL representative or through bank account only.
 - a) The contractor shall intimate the day of payment at least three days in advance in writing along with copy of the pay sheet and attendance cards.
 - b) All workmen shall be covered by PF Rules irrespective of their period of employment.
 - c) Payment shall be made inside the plant premises and during office hours.

SUBMISSION OF DOCUMENTS:

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

- The contractor shall submit following documents at appropriate time either before or during the execution of the work and as directed by Site in-Charge.
- 1. Test certificates of Pulling and Lifting machines and appliances.
- 2. Details of workers to be deployed with name, address, category.
- 3. Details of supervisory staff to be deployed.
- 4. Authorization for receipt of materials and for signing of Measurement Books etc,
- 5. Labour license specific to the contract.
- 6. List of T&P brought into plant premises along with their serial numbers and dates/years of purchase.
- 7. All the Staff/Workers deputed for the Job should have Insurance Cover and document in this regard should be submitted along with 1st RA Bill.
- 8. List of consumables brought into plant premises along with their serial numbers and dates/years of purchase, along with test certificates wherever applicable.
- 9. Insurance policy for the workers to be deployed in this contract.
- 10. Safety undertaking.
- 11. Copy of ESI certificate to be furnished.
- 12. Proof of Payment of GST.

(Sl.No.11 to 12 are required before final bill is processed).

The contractor shall submit following documents in report form within 15 days from commissioning of unit after the overhaul/shut down work is completed:

- Details of work executed.
- Measurements against different schedules in compiled form.
- Material issue details.
- Material consumption details.
- Material returns details.
- Details of retrenchment benefits given to workmen.
- Details of issue of PF slip to workmen.
- Details of settlement of accident benefits if any to workmen
- Copies of pay sheets to workmen.
- Details and proof of remittance of PF to workmen (before final bill).
- No dues clearance from different stores of customer
- Valid labour license

Statutory Inspection

- Please refer General and Special Conditions of Contract. In addition to it the scope includes getting the approvals from the statutory authorities (like IBR, smoke nuisance inspector, anti-pollution authorities, labour officials). This includes arranging for inspection visits of such authorities periodically as per requirement, submitting documents etc. and payment of fees connected with it.

3.6 Safety:

Contractor should engage at least One Qualified Engineer in each shift during the contract period. Strict Safety measures have to be followed at Site. Contractor shall also adhere to all the safety provisions of our customer. In case violation of any provision

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

at site fine of Rs.500/- to Rs.2000/- at the discretion of our site in-charge shall be imposed for each of such occasion and shall be recoverable from the contractor's bill.

1. The contractor should ensure the use of 24 volt hand lamps and 24 volt transformer by his workers. The all electrical gadgets shall have plug top & proper earthing.
2. All T&P like pulling and lifting machine, chain pulley blocks, slings, D-shackles should be maintained in proper working condition. Necessary test certificate has to be submitted by contractor for lifting tools & tackles.
3. The contractor shall be fully responsible for the safety of his workers.
4. The Use of ISI mark safety helmet, ISI mark safety shoes, Goggles, hand gloves, ear plugs and nose mask is a must. In addition to this, a full body (safety) harness, face shield must be provided to workers carrying out work at height & cutting/ welding/ grinding respectively. Gas cutting set with flash back arrester etc. should be provided by the contractor and should ensure the use of these safety equipment's, all PPE by his worker while working.
5. Scaffolding should be erected properly and strong enough with hand rails and it should not be used before getting it checked by Engineer-in-charge.
6. The contractor shall be solely responsible for the safety of his workers & employees. The contractor must ensure that the persons working in nature jobs/ skilled jobs/ working with the welding machines, grinders, cutting set & other special T&P shall be having experience & expertise to perform that job. Contractor should engage physically and mentally fit manpower. The electrical connection / repair jobs shall be done only by the electricians.
7. The contractor shall ensure that prior to start of work all his workers shall get the safety training.
8. The contractor shall also take care for the safety of the equipments & persons working in the vicinity.
9. Customer at its own discretion may decide to recheck / retest some or all of the T&P / machines of the contractor inside the plant premises.
10. The helmets, safety shoes and safety belts issued by the contractor shall be conforming to relevant IS standards.
11. The contractor shall maintain the first aid box at site.
12. In case of any penalty levied on BHEL by customer due to any safety violation/lapses by sub-contracting agency, the same will be debited to the sub-contracting agency.

PROVISION OF PPEs

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

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

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

Relevant is-codes for personal protection

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

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

NOTE: All employee of vendor should wear company uniform along with company logo at work place.

3.7 Important Safety Conditions:–Agency has to ensure utmost safety at all associated workplace/s. Penalty for non-compliance of safety rules each time.

- i. Non using safety shoes per person per occasion –Rs.1000
- ii. Non using safety helmet per person per occasion –Rs.1000
- ion using safety belt per person per occasion –Rs.1000

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3.8 OTHER TERMS AND CONDITIONS

- 1.0 Successful bidder has to extend manpower assistance for minor cleaning/scrapping, etc.
- 2.0 ~~A copy of tender document with each page duly signed and stamped shall be submitted along with your offer as a token of your unconditional acceptance to this tender condition.~~ Also any deviation to the tender conditions shall be submitted in a separate paper duly signed by the bidder, any overwriting / correction by the bidder on the tender will not be recognized and the offer may be rejected on this ground.
- 3.0 General and special conditions of contract' enclosed herewith will be fully applicable, except otherwise stated in this enquiry. In case of any conflict, the conditions specified in this enquiry letter will prevail over that of the 'General and special conditions of contract'.

2. SAFETY INSTRUCTIONS FOR CONTRACTORS

Emergency procedures

Any abnormality, incident, near miss, minor or major accident inside the plant must be intimated to concerned immediately.

3. Instructions to Contractor on Health Safety & Environment (HSE):

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

While at ONGC Hazira Plant, everyone (employees of all kind including contractual, and visitors) has to:

1. Adhere to Acts, Rule and Regulations issued by Central & State Government (i.e Govt. of India and Govt. of Gujarat) e.g. Petroleum Act, Factories Act, Environment Protection Act; Labour Act etc.
2. Follow ONGC's HSE policy which is issued by the Chairman & Managing Director ONGC
3. Follow Health, Safety & Environment practices as per national and international benchmarks. ONGC Hazira plant has been certified for Quality, Health, Safety & Environment (QHSE) Integrated Management System consisting of ISO 9001 :2008, ISO 14001 :2004 and OHSAS 18001:2007.
4. Adhere to Standards & Codes for products and work practices followed at ONGC Hazira Plant as per national and international benchmarks. E.g. IS, API, NEMA, ASTM etc.
5. Adhere to the specific rules and procedures followed at Hazira plant for ensuring safety e.g.

- ✓ Gate pass for entry in plant/office,
- ✓ Vehicle entry permit for entry of vehicles in plant and in process area
- ✓ Permit To Work system for carrying out Hot jobs, Entry to confined spaces, working at heights, Excavation, Cold works, Electrical lock out, Radiography
- ✓ Incident reporting system for reporting any undesirable incident
- ✓ Change Management system for carrying out any change /modification in the plant
- ✓ Personal Protective Equipment to be strictly used while working
- ✓ Tool Box Talk before commencement of any job.

B. The contractor has to particularly ensure the following:

4. **Medical examination** – Medical fitness of the employees for undertaking a particular kind of job should be ascertained before employment. The employees deputed at Hazira for work should undergo medical examination (pre-employment & periodical). ONGC to provide any minor / preventive medical facility needed by BHEL Personnel during execution of work.
5. **Lifting machines, chains, ropes, and lifting tackles** – The use/ inspection/ certification of lifting machines, chains, ropes, and lifting tackles should be as per' provisions of ONGC safety norms/ Gujarat Factories Rules:
6. **Vehicle Entry Permit** – Only the vehicles having valid permit are allowed inside the plant. The contractor shall ensure that the vehicles intended for entry in the plant fulfill the requirements of Vehicle Entry Permit. This requires that the vehicle should be in roadworthy condition, and must be fitted with PESO approved spark arrestor. Some of the necessary documents are driver license for the appropriate class of vehicle, load test certificate for the cranes, fitness certificate from RTO, permission for carrying of hazardous chemicals, insurance, PUC, registration etc. Please note that with such vehicle entry permit, the vehicle can move in white areas/roads of the plant. For entry in process area, separate permission from shift in-charge shall be obtained.
7. **Scaffolding** - the material should be of industrially accepted high standard. It should be of adequate strength and erected by scaffolding professionals. Each *scaffolding* should be inspected and certified for use daily. Record of such inspection is to be maintained.
8. **Temporary electrical connections** – The wiring should be such that, there is no scope of electrocution and burning / sparking. The earthing/ bonding and the insulation should be proper and of adequate rating. The cable and the fittings should be of proper rating. Protective relays should be installed wherever required. The electrical fittings/panels shall be weather proof /

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

flameproof depending on the place of its location. Plant's hazardous area classification shall be referred for this purpose.

9. **Barricading** – If a hot job is to be carried out within the battery limits of running unit or within hazardous area; adequate barricading in form of welding booth or barricade made from tin/asbestos sheets should be provided.
10. **Simultaneous operations** – Operations which are potentially hazardous must not be undertaken simultaneously. For example; blinding/de-blinding of hydrocarbon pipelines should not be done when other hot job (cutting/welding) is going on in the near vicinity.
11. **Hand tools** – The hand tools used must be of standard make and fit for use. If work is to be done within the battery limits of running unit or within hazardous area; utmost care shall be taken for prevention of spark while using the hand tools. The hammers and scrapers in such case should be of brass.

9.Environment protection – The contractor while working in the plant area shall ensure that their activities / operations do not contravene with the Environment Protection Act 1986 and the rules therein. The contractor shall ensure that the hazardous waste generated by him is disposed of safely as per GPCB requirements.

10.Gas detection system -There is an existing gas (Hydrocarbon) detection system in the plant. In case of longer duration works; the contractor shall install his own hydrocarbon gas detection system with suitable number of detectors, annunciator panel and hooter within his work area. For short duration works, regular monitoring by portable gas detectors shall be done. Also, in case of any gas/fire alarm or siren from the plant or contractor's work area, all hot jobs must be stopped immediately.

11.Excavation/Trenching/ Road cutting – As a part of excavation permit, it is required to obtain clearance from electrical, instrumentation & infocom departments. Care shall be taken for avoiding caving in of the dug up trench. This may require providing additional supports or temporary supporting structure on the inside walls or proper angle to the side walls. Adequate bank slope shall be made as per soil type.

The excavated soil, stock pile or heavy equipment should be kept at least one meter away from the trench. Safe means of getting in and out of the trench should be made near to work area. In case any job requires 'road cutting', special permission from Plant Manager shall be obtained before start of the work.

12.Confined space entry/ Vessel Entry – No person shall enter the vessel/confined space without a valid vessel entry permit. The permit requires testing of air sample in the confined space/vessel. The air in the confined space/vessel must be suitable /safe for human consumption. No person shall be allowed to work in the confined space/vessel for a longer duration. Record must be maintained for personnel entry and exit from the confined space/vessel.

12. **Radiography** – Only authorized persons shall handle the radioactive materials. The area must be cordoned off properly.
13. **Working at height** – All works above two meters height must be done with a valid Hot Work Permit. Persons must work with proper safety belt and harness secured properly. It also should be ensured that there is no other simultaneous work going on just below the work at height.
14. **Hot works** – Any job involving naked flame or any job involving/ creating spark or high heat are termed as Hot Works and a valid Hot Work Permit must be obtained for such jobs. This is required to be renewed in every shift.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND CONDITIONS:

16. Gas cylinder- All gas cylinders must have a valid test certificate. The contractor must use only the certified gas cylinder within their validity period. The contractor must adhere to Explosives Act 1884/ Gas Cylinder rules 2004 while using gas cylinders in the plant.

17. Machine tools – Machine tools e.g. grinders, cutter etc must be ISI certified/ standard make and safe for use.

15. **Housekeeping** – The contractor shall maintain proper housekeeping in their work area in order to ensure safety and good environment.

19. Illumination – It should be ensured that, all the works are carried out in adequate light for proper visibility.

20. Training – The contractor employees should undergo safety briefing, tool box talk and formal training in safety (in-house or external). In case of contractors, involving a large number of persons, an adequate number of persons must be trained in first aid.

21. Security – The contractor must employ personnel only after police verification. The personnel must have valid gate pass for entry in the plant. It also must be ensured that, their employees leave the plant premise after duty hours.

22. PPE – The contractor must provide appropriate Personal Protective Equipment to his workmen before start of the work and ensure that they wear it while working.

23. Accident/ Incident reporting – All minor/major accidents/ incidents shall be reported /recorded as per existing procedure at ONGC Hazira Plant.

Contractor must depute supervisor at the site who should be the in charge of the workmen and should be responsible for implementation of all the safety precautions.

All guidelines mentioned above must be followed as applicable by all contractors. Appropriate action will be taken on contractor if any of the above condition is being violated

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

4. LIST OF MANPOWER REQUIRED

Sl.No	Manpower	Category	No. of Persons per Unit
1.	Site-in charge	Highly Skilled	1
2.	Foreman	Highly Skilled	2
3.	Supervisor	Skilled	4
4.	Store Keeper	Skilled	2
5.	HP Welder	Highly Skilled	4
6.	Welder (Non-IBR)	Skilled	7
7.	Gas cutter	Skilled	7
8.	Millwright Fitter	Highly Skilled	3
9.	Sarang	Highly Skilled	3
10.	Fitter	Skilled	8
11.	Electrician	Skilled	8
12.	Helper For Electrician	Un-Skilled	8
13.	Jr. Fitter	Semi-Skilled	10
14.	I L/Carpenter	Semi-Skilled	3
15.	Grinder Man	Skilled	7
16.	Rigger	Semi-Skilled	5
17.	Office boy	Semi-Skilled	2
18.	Helper/Cutter	Un-Skilled	25
19.	Material Handling	Un-Skilled	5
20.	Quality Engineer (Certified)	Skilled	1
21.	Safety Engr (Certified)	Skilled Safety officer	2
22.	ARRANGEMENT OF HRSG EXPERTS: One (01) No Expert of HRSG & associated areas is to be deployed by the contractor for during replacement in consultation with BHEL Site-In-Charge.		

This is an indicative list; the sub-contractor shall deploy adequate manpower to carry out the work round the clock and as per requirement of the site during execution of the Job.

Note: Site in-charge should be qualified Engineer, B.E. (Mechanical) and all the supervisors should have diploma in engineering.

Successful bidder has to arrange suitable mobile communication facility for BHEL site-in charge

Man power & T&P:

- Adequate manpower along with T&P should be deployed at site. All the T&P required for the work shall be arranged by the contractor and all T&P should reach the site immediately as machine is under shutdown. All the measuring instruments shall be duly tested / calibrated and valid certificate to that effect should be submitted to our Site In-charge before start of the work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

2. A deployment plan along with experience and name of the Site In-charge, Engineers, Supervisors, Foreman and main technicians to be submitted on per shift basis.
3. LAPTOP with latest configuration, DVD/CD writer, its peripherals including printer-scanner and one USB Modem for Internet connectivity to be provided for BHEL site office.
4. One office boy in each shift is to be provided for BHEL site office.
5. **ARRANGEMENT OF HRSRG EXPERTS: One (01) No Expert of HRSRG & associated areas is to be deployed by the contractor for during replacement in consultation with BHEL Site-In-Charge.**

4.2 LIST OF TOOLS AND PLANTS TO BE ARRANGED BY CONTRACTOR

01. Winch arrangement of Suitable capacity is to be arranged by Subcontractor of items supplied, as per instruction of BHEL during replacement activities. Bidder to assess the site and see if any other T&P is required for the completion of job.
02. Truck/Tractor/Trailer of suitable capacity: 1 no. during replacement activities for shifting of material.
03. Required diesel/fuel for bidder's crane would be provided by the bidder. Operation and maintenance will be in the bidder's scope.
04. Hydro-test pump of capacity 100-150 kg/cm² for hydro test to be arranged by bidder.
05. Truck/Tractor/Trailer of suitable capacity: 1 no. during replacement
06. 1 no. Faranna Pick and carry crane of suitable capacity (12/14/15 MT) for shifting of materials, as per instruction of BHEL.
07. Feeler gauge sets, feeler strips.
08. Vernier calipers, (150 and 300 mm), measuring steel tapes and 5 meters' steel rulers.
09. 2 sets of D.E. and Ring spanners (6-36mm).
10. Allen keys of various sizes (from 2mm. onwards).
11. D.P. Test Kit (with consumables).
12. Crowbars tin cutters, pliers (cutting plier, nose plier grip plier circlip-outside and inside).
13. Screw drivers and sledge hammers – 10 lbs – 1 lbs.
14. Adjustable wrenches, pipe wrenches and heck saws.
15. Single ended spanners (36 Mm and above).
16. Files flat round, half round and square, rough and smooth (sizes 6", 9" and 12").
17. Bench Grinders, straight grinders GQ4 and GQ6, Angle grinders.
18. Drilling machine with magnetic stand upto –60 mm with drill bits.
19. Flexible grinders with grinding stones and cutters of different Shapes and sizes, Angles Grinders and Sander machine.
20. Number punch, letter punch, centre punch and hole punches etc.
21. Tap and die sets 6 to 36 mm.
22. Torch light/hand lamps with cables, 230/24 V transformer.
23. Torque wrench and torque multiplier.
24. Hand glover-asbestos, Manila rope, asbestos cloth leather and Rubber gloves.
25. Air blower – electric.
26. Electric drills – ¼", ½", and 5/8".
27. Gas cutting and heating set with torches regulators, hoses and cylinder minimum two sets).
28. Arc welding generator/rectifiers with regulator, cables, Electrode holders and shields, TIG welding holders.
29. Hose pipes for compressed air.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

30. Electric switchboards and flood light arrangements with fuse boxes and isolating switches, Plugs and sockets.
31. In addition to above T and P contractor will be required to fabricate fixtures such as pullers etc. for removal of any other equipments related to the scope of work.
32. Gas cutting/welding goggles, grinding goggles.
33. Tarpaulin.
34. Any other T and P as per requirement and as per our General and special conditions of Contracts.
35. Digital Multimeter
36. Scaffolding materials
37. heating torch-4 nos,
38. Thermal chauk.
39. Steel wire brushes, wire brush wheels, nylon wire brushes and Painting bushes.
40. Lifting devices eye bolts, D-shackles, slings of various sizes Guide rods etc.....
41. Chain pulley blocks upto 5 tons, 2 tons, 1 tons, hook chuck, pull/lift.
42. In addition to above T and P contractor will be required to fabricate fixtures such as pullers etc. for removal of any other equipments related to the scope of work.

Electrical and C&I T&Ps

List of major testing & measuring equipment/ tools and tackles to be arranged/ brought by contractor.

S. No.	Description	UoM	Qty
1	Dead weight tester rated 400 kg/ cm ² and with weights and test gauge facility. Make 'Budenberg' or 'Ravika'	Nos.	2
2	Decade resistance box	Sets	2
3	Digital Tong tester AC 5/ 10 and 25/ 60/ 300 A of reputed make	Nos. Each	2
4	Digital Tong tester DC 30/ 60/ 300 A	Nos.	1
5	Earth Resistance Tester	Nos.	1
6	Equipment and consumables for LPI/ MPI test on impulse pipes	Sets	2
7	Ferrule printing machine	Nos.	2
8	Fire proof tarpaulin		As required
9	Function Generator	Nos.	1
10	Insulation Tester Hand Operated 250V/ 500V/ 1000V rated mains/ battery operated	Nos.	2
11	Insulation Tester Hand Operated 250V/ 500V/ 1000V rated mains/ battery operated	Nos. Each	2
12	Manometers (+/-) 500 mm mercury column with hand bulb for lab and small manometer for field purpose.	Nos.	2
13	Multimeters		
	A) Digital, 3 1/ 2 digit Motwane/ HIL/ Fluke or any reputed make	Nos.	4
	B) Digital, 4 1/ 2 digit Motwane/ HIL/ Fluke or any reputed make	Nos.	4

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

14	Oil temperature bath suitable to calibrate the instruments range 0 – 200 °C with standard temperature gauges and thermostatic control	Nos.	4
15	Rheostat	Nos.	3
16	RTD/ Pt 100 source	Nos.	4
17	Single Phase Variac 250 V, 8 A	Nos.	2
18	Soldering iron “Soldron” make 25 W	Nos.	7
19	Standard milliamps/ millivolts source of reputed make. Range 0 to 60 mA and 0 to 100 mV	Nos.	3
20	Temperature Gun Digital Type	Nos.	1
21	Three Phase Variac 05 A	Nos.	2
22	Cable Rollers		As required
23	Copper tube bender and cutter sizes 6mm, 8mm, 1/ 2”, 1/ 4”	Nos. Each	2
24	Crimping tool up to all sizes of Cables under scope of work	Nos. Each	6
25	Die sets for threading up to 2” pipe.	Nos.	4
26	Distribution boards with power cable complete as required		As required
27	Drilling machines 1/ 4”, 1/ 2”, 3/ 4” & 1”	Nos. Each	2
28	Electrician tool kit	Sets	16
29	Electrode drying ovens		As required
30	Fire extinguishers (Type: as required)	Nos.	5
31	Grinding machine	Nos.	12
32	Personal computer and accessories, Printer	Sets	1
33	Pipe bending machine – 2” size	Nos.	6
34	Spirit level	Nos.	4
35	Tap sets for both BSP and MPT threads up to 1” each	Sets Each	2
36	TIG Welding Set	Nos.	4
37	Welding Generators		As required
38	Welding Transformers		As required

NOTE:

- The above list is only indicative for work in one unit; and not exhaustive. Arrangement for any other T and P required for completion of the job shall be the responsibility of the contractor and shall be arranged by bidder.
- All the tools and tackles/measuring instruments shall be duly tested/calibrated and valid certificate to that effect should be submitted to our site in-charge before the start of work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

4.3 CONSUMABLES TO BE ARRANGED BY CONTRACTOR

(The list is indicative only and not exhaustive)

01. Welding electrodes & filler wires as per EWS (Make: BHEL approved vendor)
02. Kerosene oil.
03. Grease/Graphite Grease.
04. Waste cloth/Cotton.
05. Emery papers/Rolls.
06. Grinding wheels.
07. D. P. test chemicals.
08. Gas Cylinders for cutting/welding.
09. Insulation tape, Johnson Tapes.
10. Electric fuse wire, cables for the connections
11. Buffing wheel
12. plastic sheet general purpose electrodes for welding purpose, industrial oxygen, acetylene, Nitrogen gas cylinder,
13. Rustolene.
14. Petrol/white Petrol/Benzene/CRC/CTC.
15. Hacksaw Blades.
16. Marking/lint free cloth/Muslin.
17. Asbestos cloth/Asbestos cord.
18. Carborandum grinding paste coarse/fine/Diamond lapping paste.
19. Cutoff wheels.

Electrical and C&I Consumables

- a) Lugs up to 4 sq. mm size.
- b) Paint, primer and consumables.
- c) LT cable straight through jointing Kits.
- d) Cable ferruling printing machine along with ferrule rolls.
- e) Identification tags PVC/ Metals with tying/ fixing material, sleeve and clamps with hardware. PVC ties, Ferrule, Buttons and tap for cables at both end & field instruments.
- f) Cable Markers.
- g) Trefoil Clamps

NOTE:

The above list is only indicative for work in one unit & not exhaustive. Arrangement for any other consumables required for completion of the job shall be the responsibility of the contractor & shall be arranged by him.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: Quality Requirements

QUALITY REQUIREMENT

- Various inspection/ quality control / quality assurance procedure/ methods at various stages will be as per BHEL/ customer quality control procedure/ codes/ IBR and other statutory provisions and as per BHEL Engineer's instructions.
- Preparation of quality assurance log sheets and protocols with customer's engineers, welding logs, other quality control and quality assurance documentation as per BHEL Engineer's instructions, is within the scope of work/ specification.
- A daily log book should be maintained by Area In-charge of contractor on the job incorporating erection / alignment / welding clearance /radiography / progress of work etc. and the same shall be submitted to BHEL. Also, daily reports shall be submitted to BHEL.
- All the important measurements like pre-assembly checking of alignment leveling/ centering work etc. shall be recorded in the daily log book with sketches based on BHEL drawings indicating readings/ measurements actually taken and signed by BHEL/ Customer/ Contractor representatives.
- The inspection/measuring and testing equipments should be of brand, quality and accuracy, as specified by BHEL engineer and should have valid calibration certificates traceable to national/international standards.
- Total quality is the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He will follow the instructions as per BHEL drawings and quality standards.
- The welder's performance will be reviewed from time to time as per the BHEL/ IBR standards and any welder not performing to the standards set by BHEL/ IBR standards will be removed from working, Contractor shall arrange for the alternate welders immediately.
- **STAGE INSPECTION BY BHEL / CUSTOMERS ENGINEERS**
Apart from day-to-day inspection/ stage inspection of equipments by BHEL engineers, the equipments may be checked at various stages by customer's engineers and quality assurance teams. Contractor shall arrange all labour, tools/tackles etc. for such inspections free of cost.

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/BHEL Site in charge regarding mobilization. A Full-fledged team with T&P shall be mobilized within 07 days on receipt of LOI / BHEL intimation.

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

The activities of Modification shall be started as per directions of Site In charge 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 Revamping of HRSG#3 at ONGC Hazira.

TIME IS THE ESSENCE OF THIS CONTRACT. SUBCONTRACTOR SHOULD COMPLETE:

Activity	Completion Period
1. Material receipt, unloading, preservation & handling during supply period	Tentatively from Oct-2025 to December 2025 i.e. as per the supply schedule, as per BHEL's instruction.
2. Dismantling, Erection, C&I and commissioning activities.	WITHIN 120 DAYS FROM THE START OF DISMANTLING (START OF DISMANTLING AS INSTRUCTED BY BHEL) TO COMPLETION OF E&C AND PERFORMANCE TEST RUN (72 Hrs) IN ALL RESPECT OF TIGHT SCHEDULE.
3. Material reconciliation & site clearance	ADDITIONAL 60 DAYS AFTER COMPLETION OF E&C AND PERFORMANCE TEST RUN (72 Hrs) TRIAL RUN

Note: - Start date shall be confirmed & certified by BHEL Site-In charge.

Validity of contract period - from the date of order to 31.12.2026

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: TERMS OF PAYMENT

7.1 Payment Terms

- 1) 2.5 % after mobilization of manpower and required T&P for material handling of 1st consignment. Documents like Insurance & Labour License if required to be submitted along with bill.
- 2) 2.5 % after unloading of last consignment (i.e. on receipt of all the supplies). Documents like Insurance & Labour License if required to be submitted along with bill.
- 3) 30% of lump sum value on completion of dismantling work. Documents like Insurance & Labour License to be submitted along with bill.
- 4) 45% of lump sum value after Project commissioning activities, Site acceptance Test and successful trial run for 72 hrs. Documents like Insurance & Labour License to be submitted along with bill.
- 5) 5% on completion of project commissioning activities, Site acceptance Test and successful trial run for 72 hrs and completion of all safety compliances at site and submission of safety clearance from ONGC/BHEL.
- 6) 15 % on completion of pending/punch points, payment of all dues and submission of all the documents like No Dues certificate from Customer, HR clearance if required. EPF challan, Insurance, Labour License, Labour Payment sheets, proof of payment of GST, Indemnity Bond to be submitted along with final bill etc.

Note:

1. **Penalty of 0.5 % per day of the total contract value will be levied for improper mobilization of man power and 0.5 % per day for T & P and consumables separately subject to maximum 5% of the contract value shall be deducted from contractor 's bill**
2. Any delay that may take place in erection, testing & commissioning activities beyond contractual cutoff date/stipulated period in the order shall be subjected to penalty at the rate of ½% of the contract price/order price per week or part thereof subject to a maximum of 5% of the total contract value.
3. While submitting the invoices, Vendor should mention their Bank Account No. on each of their invoices for the purpose of making e-payment.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: TAXES AND DUTIES

8. TAXES, DUTIES, LEVIES (Rev 14 dated 09/10/2020)

1. All taxes excluding GST, GST Cess & BOCW Cess **but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.**
2. Any increase of the taxes excluding GST, GST Cess & BOCW Cess, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.
3. **GST** :
The successful bidder shall furnish proof of GST registration. GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.
4. GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
5. E-invoicing under GST has been implemented with effect from 1st October 2020 for all the taxable persons having turnover more than the threshold limit in any preceding financial year from 2017-18 onwards. Therefore, for all the taxable persons falling under the purview of E-invoice, it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from E-Invoicing portal of the Government for the purpose of issuing a valid Tax Invoice. Only an E-invoice issued in the manner prescribed under rule 48(4) of CGST Rules shall be treated as valid invoice for reimbursement of GST amount.
If the successful Bidder is not falling under the purview of E-Invoicing then he has to submit a declaration in that respect along with relevant financial statements.
6. Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below:
BHEL GSTN – As per **Annexure -1**
NAME -- Bharat Heavy Electricals Limited
ADDRESS -- Site address
7. Bidder to immediately intimate on the day of removal of Goods (in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-
Email id ---- to be intimated later on.
In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.
8. In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.
9. Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from the vendor along with interest levied / leviable on BHEL, as the case may be.
10. Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: TAXES AND DUTIES

reversed subsequently as per GST Law , GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviable on BHEL.

11. Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

The Bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit/ Way Bill, if required, shall be arranged by the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.

12. **New taxes and duties:**-Any New taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period including extension, if the same is not attributable to you, shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.

Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.

In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

13. For transportation work, bidder shall declare in his quotation whether he is registered under GST, if yes, whether he intends to claim GST on forward charge basis. In absence of this declaration, BHEL will proceed further with the assumption that bidder intends not to claim GST on forward charge basis. However, in case of GST registered transporter, the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Further, transporter shall issue tax invoice which inter alia includes gross weight of the consignment, name of the consigner and the consignee, registration number of vehicle in which the goods are transported, details of goods transported, details of place of origin and destination, GSTIN of the person liable for paying tax whether as consigner, consignee or goods transport agency, and also containing other information as mentioned under rule 46.

14. **TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.**

15. **TDS under GST shall be deducted at prevailing rates on applicable value from the running bills.**

16. **TCS under Income Tax 1961 has been implemented with effect from 1st October 2020 for every seller having turnover more than threshold limit during financial year immediately preceding financial year in which the sale of goods is carried out, who receives any amount as consideration for sale of any goods of the value or aggregate of such value exceeding threshold limit other than export of goods or who is already covered under other provision of section 206C, collect from the buyer, TCS as per applicable rates of the sale consideration exceeding threshold limit subject to following conditions**

B

- i. Buyer shall be as per clause (a) of section 206C- (1H)
- ii. Seller shall be as per clause (b) of section 206C- (1H)

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: TAXES AND DUTIES

- iii. No TCS is to be collected, if the seller is liable to collect TCS under other provision of section 206C or the buyer is liable to deduct TDS under any provision of the Act and has deducted such amount.

If Successful Bidder is falling under the purview of TCS then he has to submit a declaration in that respect along with relevant financial statements before the start of work or if bidder is falling under preview of TCS during the work in progress then bidder is compulsorily required to submit relevant financial statement in the beginning of the respective FY.

For TCS claim, vendor has to submit relevant documents required as per Income Tax Act.

17. Refer Annexure – 2 for BOCW Act & Cess Act.

ANNEXURE-1

State wise GSTIN no.s of BHEL

Sl. No	Projects under state	GSTIN
1	Andhra Pradesh	37AAACB4146P7Z8
2	Bihar	10AAACB4146P1ZU
3	Chhattisgarh	22AAACB4146P1ZP
4	Gujarat	24AAACB4146P1ZL
5	Jharkhand	20AAACB4146P5ZP
6	Madhya Pradesh	23AAACB4146P1ZN
7	Maharashtra	27AAACB4146P1ZF
8	Orissa	21AAACB4146P1ZR
9	Telangana	36AAACB4146P1ZG

TECHNICAL CONDITIONS OF CONTRACT (TCC)

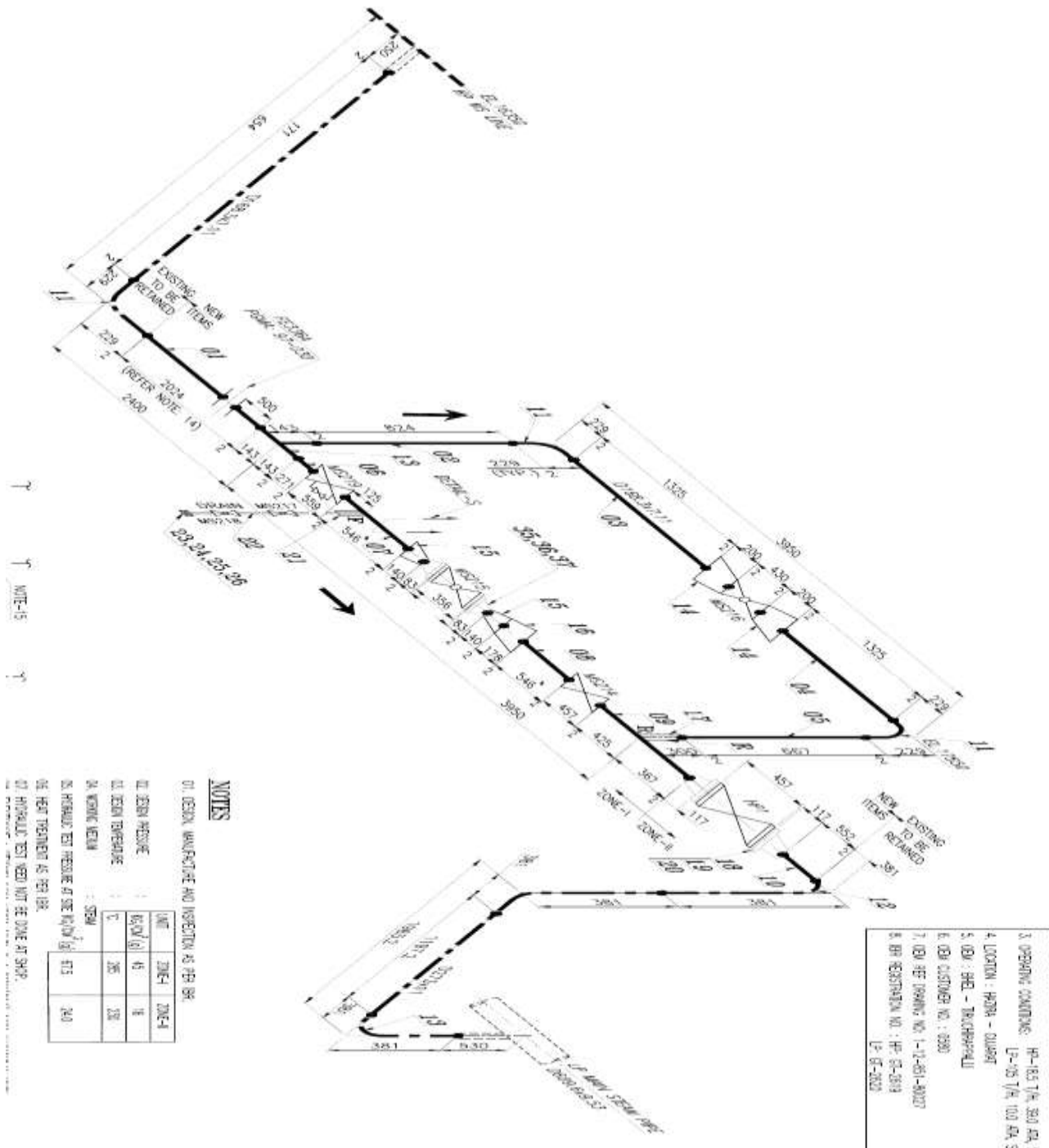
Chapter-IX : BOM for HRSG Revamp work

SW EQ TEE 2"

NO

12.000

24.120



DRWG NO. 1-24-200-U0089-00

HP feed station drwg No. 1-24-300-U0087-01

BHEL-PSWR

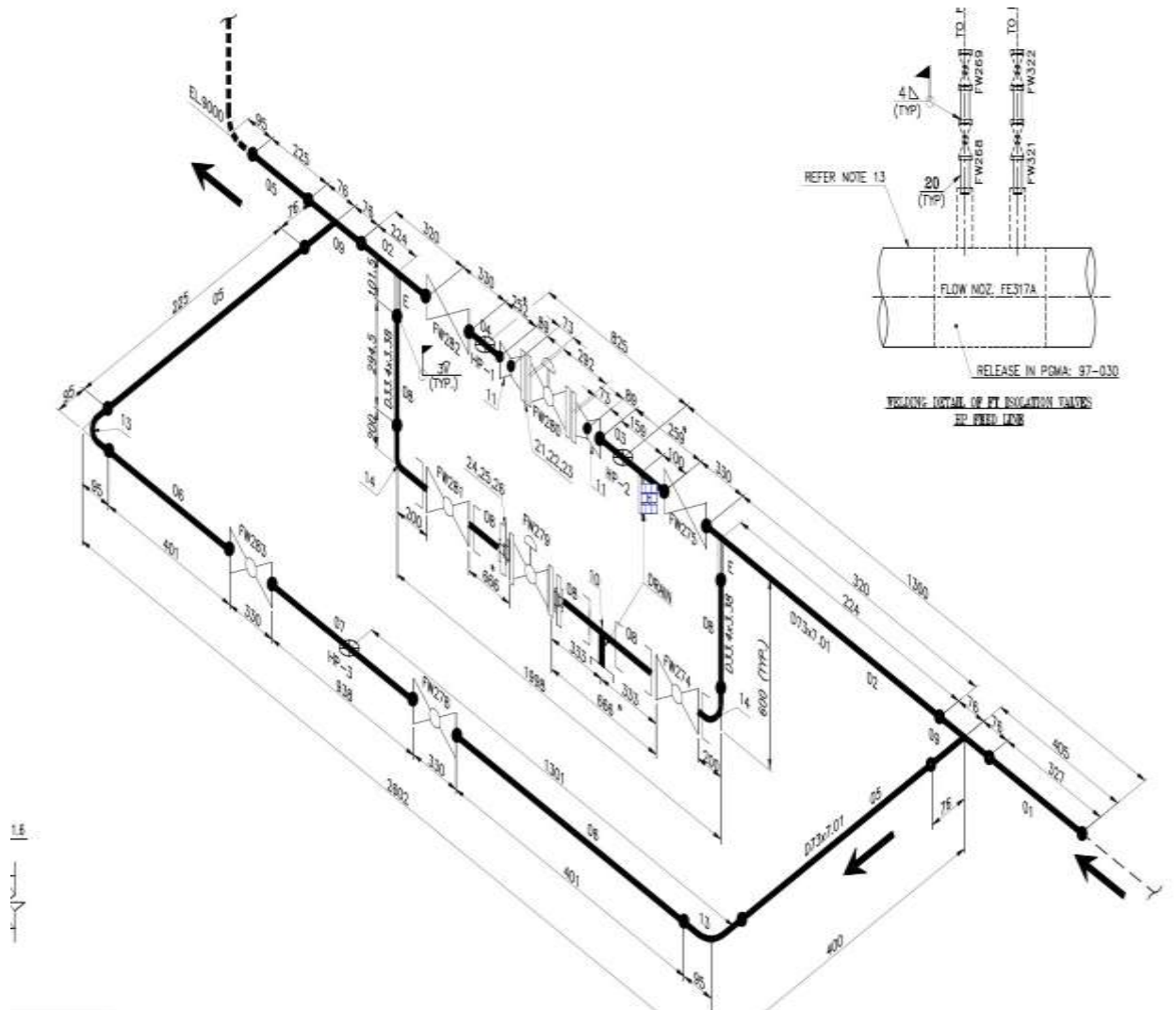
Technical Conditions of Contract –Volume I A (Part I: Contract Specific Details)

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 85 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work



LP feed control station drwg No 1-24-300-U0088-01

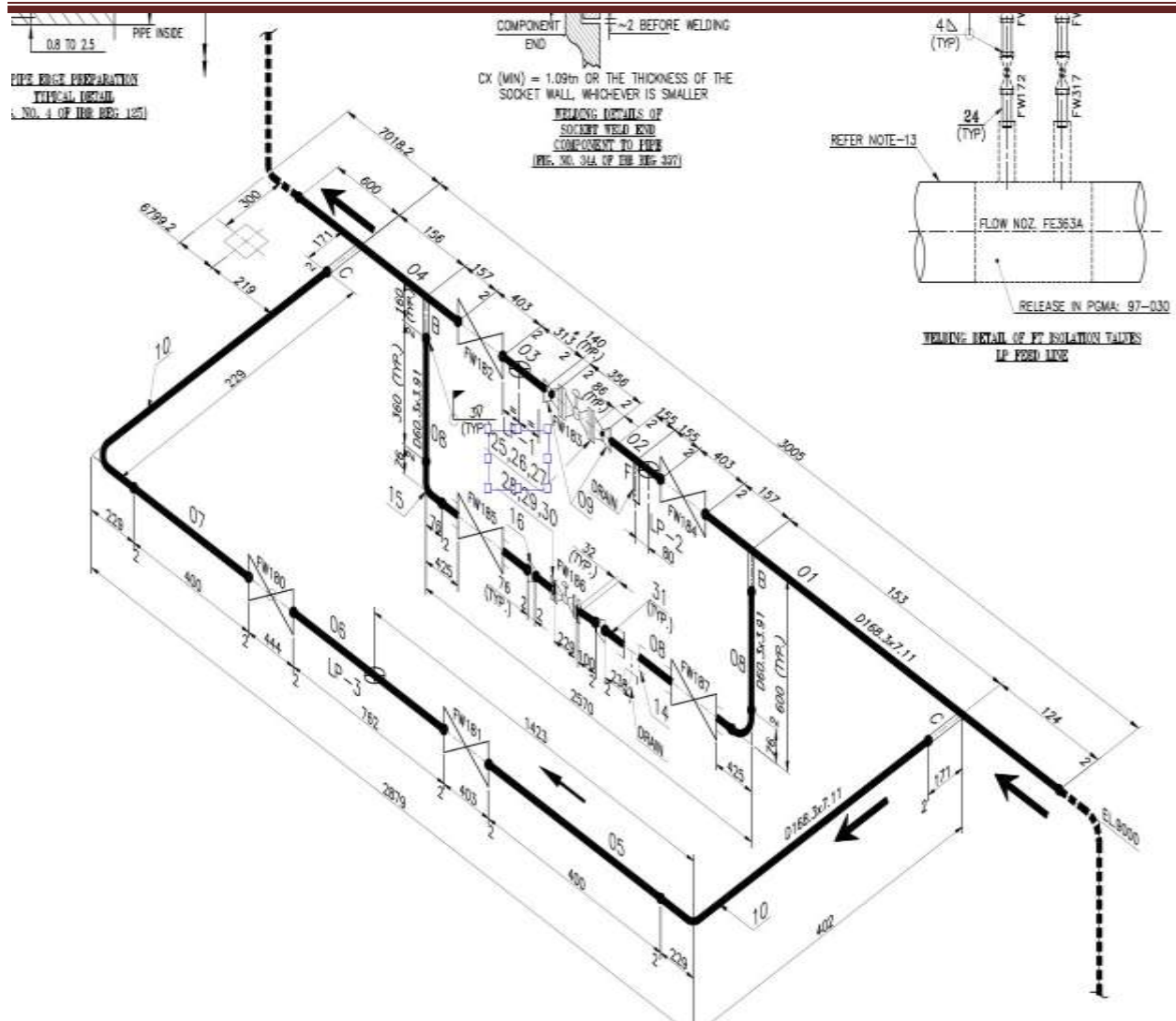
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Page 86 of 107

Chapter-IX : BOM for HRSG Revamp work



TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

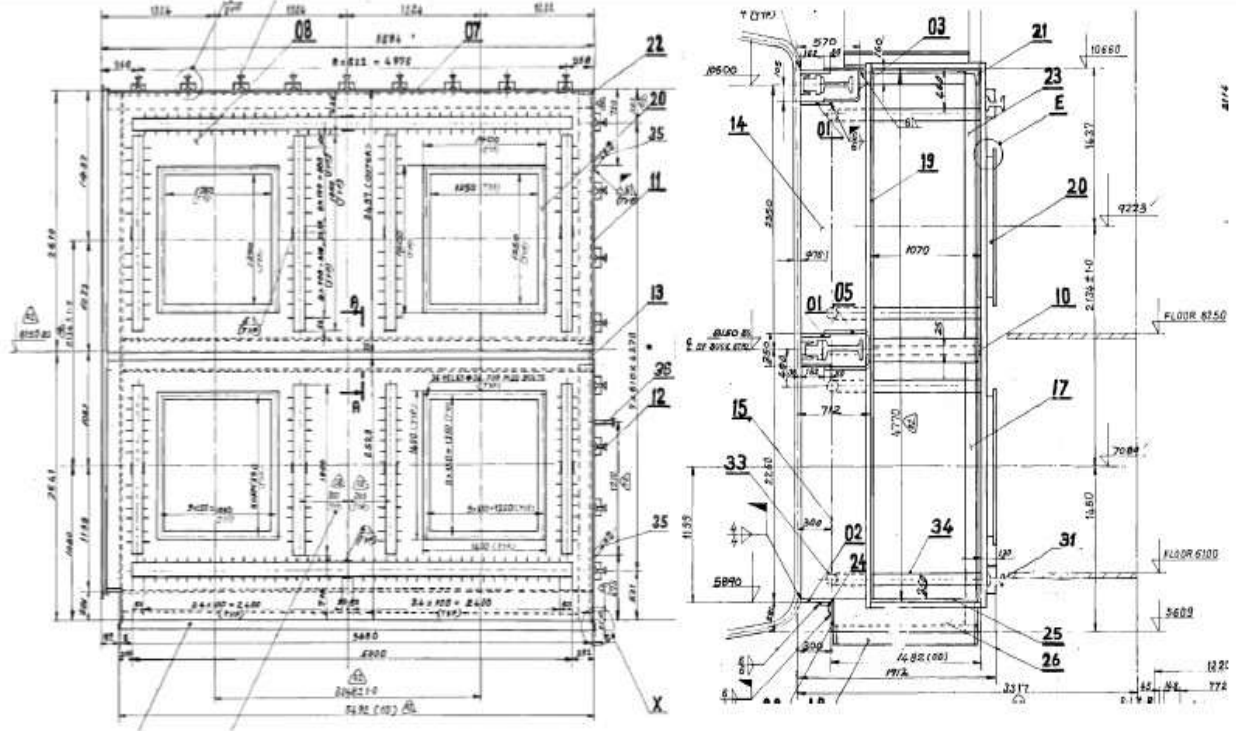


FIG-1: FRONT AND SIDE ELEVATION VIEW of BURNER WINDBOX

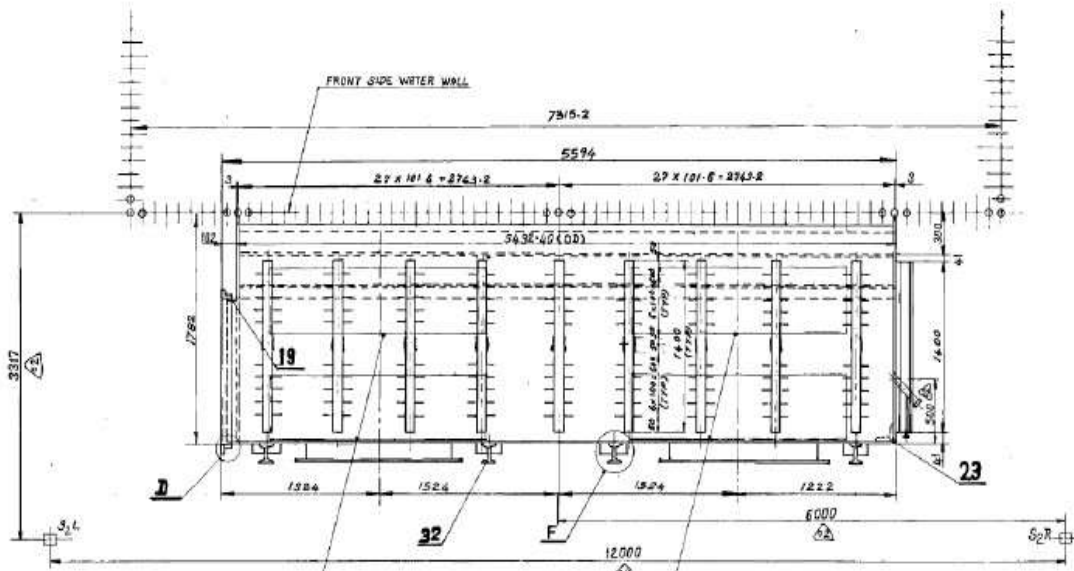


FIG-2: TOP VIEW OF BURNER WINDBOX INDICATING WINDBOX DEPTH & WIDTH

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

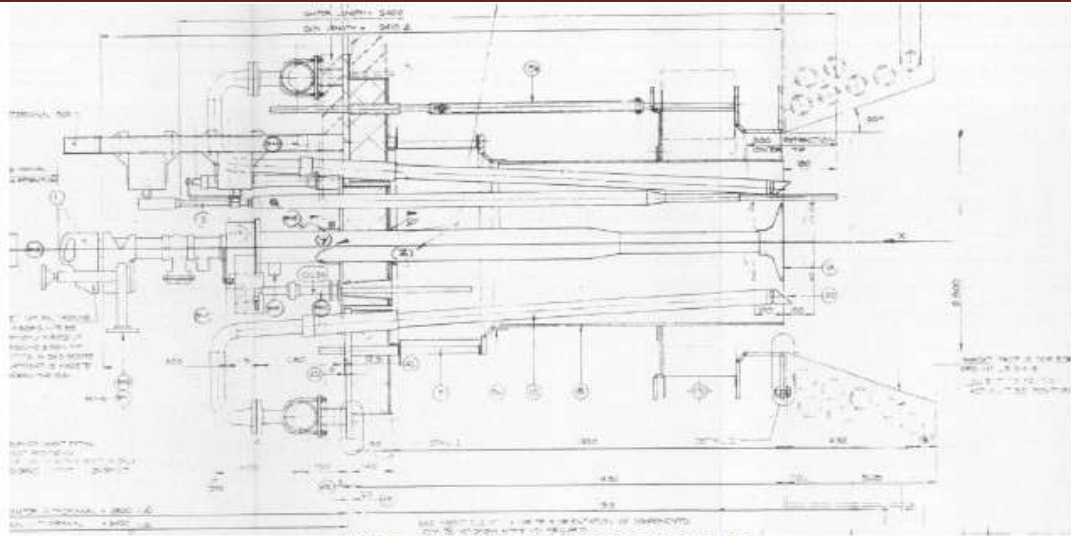


FIG-3: GA OF EXISTING BURNER

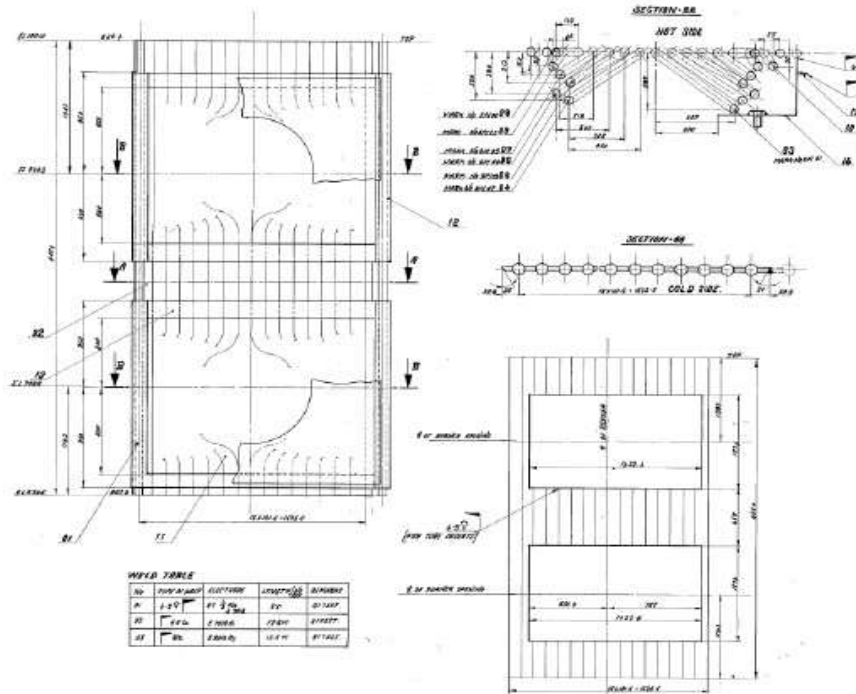


FIG-4: BURNER PANEL ARRANGEMENT

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

BOM

Annexure I

Item No	Description	Unit	Quantity	Weight (KG)
01	LOW NOX OIL GAS BURNER ASSY.		1.000	
01	LOW NOX OIL GAS BURNER ASSY	NO	4.000	
01	GAS CHAMBER ASSY	NO	4.000	576.432
01	GAS CHAMBER INNER RING ASSY	NO	4.000	159.060
01	INNER RING; PL6X137X2456	NO	4.000	60.900
02	GUIDE SOCKET ASSY	NO	24.000	98.160
01	GUIDE SOCKET(PIPE OD73 X 9.52-265L)	NO	24.000	73.512
02	INLET TUBE DIA51X5; 161L	NO	24.000	24.648
02	OUTER RING; PL6X137X3248L	NO	4.000	83.832
03	SIDE PLATE-I; PL12XOD1026	NO	4.000	123.324
04	SIDE PLATE-II; PL12XOD1036/ID790	NO	4.000	132.936
01	INLET PIPE; DIA108X8; 243L	NO	4.000	19.176
02	FLANGE; PL75XDIA230	NO	4.000	26.460
03	BLIND FLANGE; PL32XDIA230	NO	4.000	25.416
04	HEX HD BOLT M16X70-4.6	NO	32.000	4.448
05	HEX NUT M16	NO	32.000	0.960
06	PUNCHED WASHER A 18	NO	64.000	0.640
07	CAF JOINTING GR O/2-2 MM	NO	4.000	0.180
02	FRONT PLATE; PL12 X DIA1540	NO	4.000	375.240
03	CONICAL RING; PL6X540X1385L	NO	4.000	140.904
04	REAR PLATE PL12XDIA1309	NO	4.000	482.136
01	PIPE D127X8; 950L	NO	4.000	89.208
02	HEX HD SCRU M12X25-4.6	NO	12.000	0.444
03	HEX NUT M12	NO	12.000	0.240
06	GUSSET-II; PL6X75X200	NO	16.000	8.000
07	DISTANCE PIECE-1; PIPE D127X8; 160L	NO	4.000	15.024
08	SUPPORT PLATE-1; PL12X200X300	NO	8.000	45.216
01	STUFFING SOCKET; ROUND D80X37L	NO	16.000	7.600
02	KNURLED CAP; ROUND D100X25L	NO	16.000	5.024
03	SPLIT SPACER; PL5;OD60/ID28	NO	32.000	2.848
04	PACKING ROPE LGA SQ 10 X500L	NO	32.000	3.200
10	SLAG WOOL	KG	120.000	120.000
11	COVER PLATE; PL12XD774	NO	4.000	156.040
01	VIEW GLASS HOLDER; TUBE D76.1X7.1; 130L	NO	4.000	7.040
02	CAP; ROUND D90; 30L	NO	4.000	0.736
03	HEAT RESISTANT GLASS 70 ODX2.5T	NO	4.000	0.080
	DUCT			
04	SH1X D71/D63	NO	8.000	0.080
01	TUBE 33.4X4.55; 230L	NO	12.000	8.928
02	ROUND D40X30L	NO	12.000	1.440
03	HEX HD SCRU M20X45-4.6	NO	12.000	2.004
14	DIST. PIECE-III; PIPE D76.1X7.1; 160L	NO	4.000	8.212

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 90 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

15	DIST. PIECE; PIPE D60.3X3.91; 160L	NO	24.000	20.856
01	PRIMARY AIR DRUM; PL6X640X1866	NO	4.000	183.488
02	INNER CONE; PL6X545X1444	NO	4.000	152.428
03	GUIDE LUG-1; PL16X107X230	NO	16.000	46.064
04	AIR SHIELD GUIDE(PRI); ROUND D32X1090	NO	16.000	42.800
01	SEC. SWIRLER INNER CASING; PL6X392X1552	NO	4.000	114.620
02	SEC. SWIRLER VANE;SH3.15X91.5X140	NO	128.000	40.576
01	PRIMARY SHIELD; PL6X390X1919	NO	4.000	144.872
02	STIFFNER RING; PL10XD667	NO	8.000	266.120
03	SLIDE BLOCK(PRIMARY); PL40X30X85L	NO	32.000	25.088
04	CONNECTING(SLICE)LUG;PL40X55X60L	NO	8.000	5.504
01	ROUND D32; 1067L	NO	8.000	36.736
02	LUG PLATE-I; PL12X40X90	NO	8.000	1.808
02	DIFFUSER HUB(TUBE DIA 88.9X5.6- 100L)	NO	4.000	4.996
01	PIPE D88.9X4; 2252L	NO	4.000	75.396
02	GUIDE PIECE(PIPE OD 108 X 12.5-150L)	NO	8.000	8.000
03	STUB D60.3X3.91; 63L	NO	4.000	1.500
01	GAS PIPE; TUBE OD 47.63 X 4.00; 1186L	NO	24.000	133.848
02	ADAPTOR; TUBE OD 60.30 X 10.00; 70L	NO	24.000	22.608
03	NOZZLE HOLDER; ROUND D50X32L	NO	24.000	8.688
04	GAS NOZZLE; ROUND D50X62L	NO	24.000	13.104
01	SWIRLER OUTER HUB; SH3.15X112X952	NO	4.000	10.172
02	SWIRLER INNER HUB; PIPE D108X8; 100L	NO	4.000	7.892
03	PRIMARY VANE; SH.3.15X102X143	NO	48.000	12.096
04	HEX NUT M12 P CL-8	NO	12.000	0.216
05	HEX HD SCRU M12X30	NO	12.000	0.492
10	NUT HEX GR.C M24X2	NO	8.000	0.880
01	AIR DRUM; PL6X779X3122	NO	4.000	458.192
02	CONE; SH3.15X1090X1567	NO	4.000	57.448
03	FLANGE D1180; PL16XD1180	NO	4.000	189.400
04	END COVER PL12XD1180	NO	4.000	182.316
05	AIR SHIELD GUIDE ROUND D32X1276L	NO	24.000	127.632
01	OUTER CYLINDER PL6X355X2170	NO	4.000	149.140
02	RIB PL8X95X125	NO	32.000	16.416
03	FLANGE PL10XD970	NO	4.000	111.544
01	AIR SHIELD PL6X450X3175	NO	4.000	276.768
02	STFFENERRING(AIRSHIELD)PL10XD1016XD1066	NO	8.000	699.184
01	DIA 50.0 MM - SA479TP304	NO	32.000	10.048
02	SS PLATE 36 - SA240TY304	NO	32.000	4.160
03	ROUND DIA 16 - (IS 1364-P1)	NO	32.000	0.896
04	ROUND DIA 16 - SA479TY304	NO	32.000	0.160
05	SS SHEET 1.6 - SA240TY304	NO	32.000	0.064
06	PLATE 40.0 MM -IS2062E250B(FE410W)	NO	32.000	23.040
04	SLIDE LUG(AIR DRUM) PL50X42X135	NO	8.000	17.800
01	ROD ROUND D32X1563L	NO	8.000	78.896
02	HEX THIN NUT M24-5	NO	16.000	0.928
03	LEVER CAM PL10X175X32	NO	8.000	0.800
04	CLEVIS PLATE PL10X40X54	NO	8.000	1.120
05	FLANGE PL10XD85	NO	8.000	2.800
06	HEX SOC HD CAP SCRU M6X20-8.8	NO	16.000	0.112

BHEL-PSWR

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 91 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

01	CHANNEL 200 X 75; 860L	NO	8.000	153.784
02	PL8X60X170	NO	16.000	10.080
16	POWER CYLINDER - SEC. AIR O/C	NO	8.000	320.000
01	BUSH ROUND D80X30L	NO	8.000	4.256
02	SUPPORT PLATE PL16X65X85	NO	8.000	3.184
03	ANGLE 50 X 50 X 6 ; 197L	NO	8.000	7.088
18	YOKE BUSH; ROUND D16X 140	NO	8.000	7.584
19	HAND WHEEL D 250	NO	8.000	18.400
20	HEX THIN NUT M39X3	NO	16.000	4.016
21	SLOT GRB SCR U C M10X12-22H	NO	8.000	0.040
22	HOLDER PL.10X70X118	NO	32.000	15.840
01	FLANGE PL10XD1540	NO	4.000	125.844
02	DISTANCE PIECE PL8X120X4297	NO	4.000	129.528
24	STABILIZER PLATE; PL.5XD487	NO	4.000	13.720
25	PIN D16 X 60L ROUND D32X60L	NO	8.000	1.040
26	PIN D16 X 55L ROUND D32X55L	NO	8.000	0.944
27	LOCK NUT DIA 70 X 15L	NO	24.000	5.328
28	KEY ROUND D16 X 25L	NO	8.000	0.320
01	CHANNEL 100 X 50; 1440L	NO	8.000	110.128
02	CHANNEL 100 X 50; 1300L	NO	20.000	248.560
03	CHANNEL 100 X 50; 725L	NO	8.000	55.448
04	CHANNEL 100 X 50; 400L	NO	8.000	30.592
05	CHANNEL 100 X 50; 605L	NO	8.000	46.264
06	CHANNEL 100 X 50; 430L	NO	4.000	16.392
07	CHANNEL 100 X 50; 195L	NO	4.000	7.452
08	ANGLE 65 X 65 X 6; 310L	NO	8.000	14.384
09	ANGLE 65 X 65 X 6; 1750L	NO	8.000	81.200
10	ANGLE 65 X 65 X 6; 545L	NO	4.000	12.644
11	ANGLE 65 X 65 X 6; 494L	NO	16.000	45.840
12	PL.8X250X250	NO	8.000	15.840
13	PL.12X150X295	NO	16.000	66.688
14	PL.8X44X150	NO	32.000	13.248
15	PL.8X100X845	NO	4.000	21.224
16	PL.8X100X910	NO	4.000	22.856
17	PL.10X100X100	NO	8.000	6.280
18	PL.10X88X100	NO	8.000	5.520
19	PIPE CLAMP ROD TYPE CS NB80	NO	4.000	1.800
20	HEX HD BOLT M12X50	NO	40.000	2.400
21	HEX NUT M12	NO	40.000	0.680
22	PUNCHED WASHER A 14(ID)	NO	40.000	0.400
23	CHANNEL 75 X 40 -IS2062E250A(FE410W)	NO	4.000	742.560
01	TUBE OD 76.10 X 5.00 - SA213TP304H	NO	4.000	16.964
02	ANGLE 75 X 75 X 6-IS2062E250A(FE410W)	NO	4.000	32.096
03	PLATE 6MM-(520 X 432)	NO	4.000	42.324
04	TUBE OD 63.5 X 4 - SA213T22	NO	4.000	12.500
05	HEX HD SCR U-M16X40 -8.8-IS1364P2	NO	8.000	0.736
06	NUT -M16 -CL8-IS1364P3	NO	8.000	0.240
07	PLATE 6MM-(165 X 105)	NO	4.000	3.264
30	FINFLAT 12.7 X 6 ; 1000L	NO	4.000	2.392
31	PUNCHED WASHER A 14(ID)	NO	464.000	4.640

BHEL-PSWR

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 92 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

32	HEX HD SCRU M12X40-8.8	NO	464.000	23.200
33	HEX NUT M12 P CL-8	NO	368.000	6.256
34	SPLIT PIN 4X36MM	NO	16.000	0.064
35	PUNCHED WASHER A 18(ID)	NO	184.000	1.840
36	GASKET; CAF JOINTING GR O/2-3 MM	NO	4.000	9.736
37	GASKET; CAF JOINTING GR O/2-3 MM	NO	4.000	7.328
38	LIMIT SWITCH - SEC. AIR O/C	NO	16.000	32.000
01	TUBE OD 63.5 X 3.2 - SA192	NO	4.000	35.004
02	PLATE 12.0 MM - IS2062E250A(FE410W)	NO	4.000	2.916
03	HEX SCREW PLUG 1/4" NPT (30L)	NO	4.000	0.156
04	ROUND DIA 22.0 MM (80L)	NO	4.000	0.120
01	PIPE OD 48.3 X 3.68; 1818L	NO	8.000	58.896
02	FLANGE PL.10XD140	NO	8.000	9.600
03	THREADED STUB D30; 35L	NO	8.000	0.880
04	FLANGE PL.8XD100	NO	8.000	2.952
42	HEX HD SCRU M16X40	NO	96.000	8.832
43	HEX NUT M16	NO	96.000	2.880
01	PIPE OD 21.3 X 3.73; 180L	NO	12.000	2.880
02	CAP NUT M20X1.5 (30L)	NO	12.000	2.040
03	PLUG M20X1.5 (35L)	NO	12.000	1.440
04	GASKET D32/D22; SH2XD32	NO	12.000	0.120
05	PL.4XD21.3	NO	12.000	0.720
45	PUNCHED WASHER A 12	NO	16.000	0.160
46	PLATE 6 X 1000 X 1000	NO	4.000	188.400
48	GASKET	NO	24.000	0.288
49	PLUG DIA 125 X 80L	NO	24.000	79.440
50	FELPRO C-100 COMPOUND	NO	8.000	8.000
01	ROUND DIA 63.0X50L	NO	8.000	4.744
02	PL.12X45X153.5	NO	8.000	4.400
52	PUNCHED WASHER A 26	NO	8.000	0.240
53	NUT -M20 -CL6-IS1364P3	NO	8.000	0.520
54	CHANNEL 125 X 65 MM -IS2062E250A(FE410W)	NO	4.000	393.000
55	ANGLE 75 X 75 X 6-IS2062E250A(FE410W)	NO	4.000	435.200
01	ROUND DIA 40 (80L)	NO	8.000	6.488
02	ROUND DIA 16 (53 L)	NO	8.000	0.688
03	SPLIT PIN-4X25 -IS:549	NO	16.000	0.048
02	4-WAY SOLENOID VALVE	NO	8.000	24.000
03	AIR SET 0-3.5 1/4" NPT	NO	8.000	16.024
04	HEAT RESISTANT GLASS70 ODX 2.5 T	NO	4.000	0.320
05	FELPRO C-100 COMPOUND	NO	8.000	8.000

ANNEXURE II

Sl.No	Size	kg/m	Matl. Spec.	Unit		41-100	42-076	42-156	43-002	TOTAL (in Kgs)
1	Pipe 8"sch40	42.52	SA106Gr.B	MR			4	3		297.64
2	Pipe 6"sch40	28.26	SA106Gr.B	MR		6	20	25	30	2289.06

BHEL-PSWR

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 93 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

3	Pipe4"sch40	16.0 7	SA106Gr.B	MR		10	17	10	10	755.29
4	Pipe3"sch40	11.2 9	SA106Gr.B	MR		15	6	1	25	530.63
5	Pipe2"sch40	5.43	SA106Gr.B	MR		10	10	30	30	434.4
6	Pipe1.5"sch40	4.05	SA106Gr.B	MR		15			30	182.25
7	Pipe1"sch40	2.5	SA106Gr.B	MR			10	6	40	140
8	Pipe0.5"sch40	1.26 6	SA106Gr.B	MR		20	20	10	15	82.29
9	PIPD OD 108 X 8	19.7 3	SA335 P22	MR		2				39.46
10	SS TUBE OD 76 X 5	9.59 5	SA213TYP304H	MR		5				47.975
11	TUBE OD 47.63 X 4.00	4.07 3	SA213TP304H	MR		50				203.65
12	SS Plate - 6mm THICK		A167TY309	KG		210				210
13	SS Plate - 6mm THICK		A240TY304	KG		450				450
14	SS Plate - 10mm THICK		A167TY309	KG		40				40
15	SS SHEET 3.15 THICK		A240TY310S	KG		60				60
16	SS ROD DIA 32		A479TY304	KG		100				100
17	SS ROD DIA 50		A479TY304	KG		50				50
18	SS ROD DIA 80		A479TY304	KG		5				5
19	FLANGES ANSI 300#			KG		150	75 0			900
20	TEES, ELLS ANSI			KG			25 0	20 0	30 0	750
21	STRUCTURALS/PLATES		IS2062	KG		150 0	70 0	20 0	15 0	2550
22	FASTENERS			KG		250	25 0	50	15 0	700
	TOTAL WEIGHT			KG						10818

Sl. No.	DESCRIPTION	Matl.code		UNIT		42-076	Total
1	REG Globe valve 3",300#	9602110		NO		1	1
2	REG Globe valve 0.5",800#	5525933		NO		5	5

BHEL-PSWR

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 94 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

3	Spring loaded check vlv1"	3525105		NO		10	10
	TOTAL						16

ANNEXURE III

Sl.No.	DESCRIPTION	UNIT	41-100	41-450	42-276	43-202
01	GAS IGNITOR	NO		4		
02	REGULATING POWER CYLINDERS 3" BORE X 520MM STROKE	NO	8			
03	HEAT RESISTANT GLASS D 70	NO	12			
04	BALL VALVES - MANUAL - 6"	NO			5	
05	BALL VALVES - MANUAL - 8"	NO			1	
06	BALL VALVES - MANUAL - 4"	NO			8	
07	BALL VALVES - MANUAL - 3"	NO			2	
08	BALL VALVES - MANUAL - 2"	NO			2	
09	BALL VALVES - 1"(PNEUMATIC)	NO			20	10
10	BALL VALVES - 0.5"(PNEUMATIC)	NO			40	5
11	BALL TYPE FUEL GAS TRIP VALVE - 4"(PNEUMATIC)	NO			9	
12	BALL TYPE TRIP VALVE - 1"(PNEUMATIC)	NO			5	
13	BALL TYPE TRIP VALVE - 1/2"(PNEUMATIC)	NO			9	
14	FLOW TRIP VALVE - 6"(PNEUMATIC)	NO			1	
15	FLOW CONTROL VALVE - 6" (PNEUMATIC)	NO			1	
16	FLOW CONTROL VALVE - 3" (PNEUMATIC)	NO			1	
17	SELF ACTUATING VALVE - 2" (PNEUMATIC)	NO			1	
18	SELF ACTUATING VALVE - 1/2" (PNEUMATIC)	NO			1	
19	SOLENOID VALVE - 1/2"	NO			5	
20	SCANNER AIR FAN WITH DC MOTOR (5.0 kw)	NO				1
21	SCANNER AIR FAN WITH AC MOTOR (5.0 kw)	NO				1
22	SEAL AIR FAN WITH AC MOTOR (5.0 kw)	NO				2
23	SWING CHECK VALVE NB80	NO				1
24	SWING CHECK VALVE NB50	NO				1
25	SS HOSE NB 100 ; 1000 L ; ANSI 300#	NO			4	

BHEL-PSWR

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

E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161

Page 95 of 107

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

26	SS FLEX HOSE - 1/2" X 1000 L	NO	4		4	16
27	SS FLEX HOSE - 1" X 1000 L	NO			4	16

ANNEXURE IV

SI No		Qty per HRSG (Nos)	Estimated Weight (Total) per HRSG	Production Drawing no
1	Hanger Rod Dia 40 mm	8	150 kg	3-48-425-80943
2	MEJ style 3 (ID 3500x4000	2 nos + 1 spare wall on 3500 side, and 1 spare wall 4000 side	900 kg	0-48-424-80100
	MEJ (ID approx. 3600x2000) and two spare wall)	2 nos + 1 spare wall on 5487 side, and 1 spare wall 1067 side	800 kg	0-48-424-80109
		ISA 50x50	200 kg	
	Plate 5 & 8	Patch plate and stiffeners required for erection	1000 kg	
		Cladding sheet	3000 kg	
3	HP - DRUM Internals	Complete SET	2000 kg	9-04-114-80015
4	LP - DRUM Internals	Complete SET	3000 kg	0-04-116-80020
5	Drain header piping modification with valves	Complete SET	2000 kg (CS)/ 3000 kg (AS)	
7	Aero Foil Assy.	1 No. Assy	2000 kg	0-48-012-80117
8	Feedwater Station	Complete SET		
9	HRSG Inlet Duct	From HRSG Inlet MEJ to PDC Damper	10000 kg	
10	Insulation Wool	Outer Insulation of Duct	5000 kg	
11	GI Sheets and Fixing Pin		2000 kg	
12	Misc. Structural Steel for Canopies, Platforms for additional Fans and Local Push buttons	Channels, Angles, Plates and chequered Plates	5000 kg	
13	HP MS: FE 333A (1 No.) HP FW: FE 317A (1 No.) LP MS: FE 267A (1 No.) LP FW: FE 363A (1 No.)	4 Nos Flow elements with 3 Flow Transmitters per element (total 12 Flow transmitters)		
14	Steam Dumping Facility	1 Complete Set		

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

15	MEJ s in FG duct to windbox to be considered - 2 Nos		400 Kgs each	0-48-425-80124
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ANNEXURE V

Sl.No.	DESCRIPTION	UNIT	
01	DEAERATOR LEVEL TRANSMITTER WITH GAUGES	NO	2
02	FLOW METER FOR CONDENSATE	NO	1
03	FLOW METER FOR DM WATER	NO	1
04	DEAERATOR FLOW CONTROL VALVE	NO	1

ANNEXURE VI

41	MS 158	Motor operated valve (MOV's) LP header per HRSG	1
42	MS 233	Motor operated valve (MOV's) HP header HRSG	1
47	FW 274	Isolation & Bypass valve of HP feed control valve for Both HRSG	1
48	FW 275	Isolation & Bypass valve of HP feed control valve for Both HRSG	1
49	FW 278	Isolation & Bypass valve of HP feed control valve for Both HRSG	1
50	FW 281	Isolation & Bypass valve of HP feed control valve for Both HRSG	1
51	FW 282	Isolation & Bypass valve of HP feed control valve for Both HRSG	1
52	FW 283	Isolation & Bypass valve of HP feed control valve for Both HRSG	1
53	FW 180	Isolation & Bypass valve of LP feed control valve for Both HRSG	1
54	FW 181	Isolation & Bypass valve of LP feed control valve for Both HRSG	1
55	FW 182	Isolation & Bypass valve of LP feed control valve for Both HRSG	1

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

56	FW 184	Isolation & Bypass valve of LP feed control valve for Both HRSG	1
57	FW 185	Isolation & Bypass valve of LP feed control valve for Both HRSG	1
58	FW 187	Isolation & Bypass valve of LP feed control valve for Both HRSG	1

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

ANNEXURE VII

ERECTION AND COMMON NOTES

ZMED-CS/8062-LU-011-1-24-600-00-B

A) Valves for HP& LP Feed Control Station:

DU No.	TAG No.
001	FW275, FW278 & FW282
002	FW283
003	FW274 & FW281
004	FW181, FW182 & FW184
005	FW180
006	FW185 & FW187
007	FW268, FW269, FW321, FW322, FW172, FW173, FW317, FW318
008	FW272, FW273, FW270, FW308 FW176, FW177, FW174, FW175

B) Valves for Boiler Drain Header:

DU No.	TAG No.
009	BL-100A, BL-100B, BL-101A, BL-101B BL-106A, BL-106B
010	HT-001
011	HT-002
028	BL-102A, BL-102B, BL-103A, BL-103B
029	BL-104A, BL-104B, BL-105A, BL-105B

C) Valves for DWLG & EWLI Isolation:

DU No.	TAG No.
012	MS126, MS127, MS103, MS104, MS165, MS166, MS188, MS189
013	MS105, MS106, MS107, MS108 MS174, MS175, MS172, MS173
014	MS163, MS164, MS191, MS192 MS129, MS130, MS101, MS102
015	MS110, MS111, MS168, MS169

D) Valves for Deaerator LT Isolation:

DU No.	TAG No.
016	DEL-05, DEL-06, DEL-07, DEL-08

Spare:

DU No.	TAG No.
017	DEL-01, DEL-02, DEL-03, DEL-04

E) Valves for FT isolation over FO in DM Water to Deaerator:

DU No.	TAG No.
018	CR-003 & CR-004

F) Valves for FT isolation over FO in Condensate line to Deaerator:

DU No.	TAG No.
019	CR-001 & CR-002

G) Valves for drain line near control valve in LP Steam to Deaerator line:

DU No.	TAG No.
020	LPSD-01 & LPSD-02

H) Valves for drain line near control valve in return condensate line to

Deaerator:

DU No.	TAG No.
021	CSD-01 & CSD-02

I) Valves for drain line near control valve in Makeup Heater to Deaerator line:

DU No.	TAG No.
022	DMW-01

J) Upstream Valve to CV for Steam Dumping Line:

DU No.	TAG No.
023	MS219 (HP7)

K) Downstream Valve to CV for Steam Dumping Line:

DU No.	TAG No.
024	MS214 (HP3)

L) Bypass Valve to CV for Steam Dumping Line:

DU No.	TAG No.
025	MS216 (HP8)

M) Steam Dumping control station isolation valve:

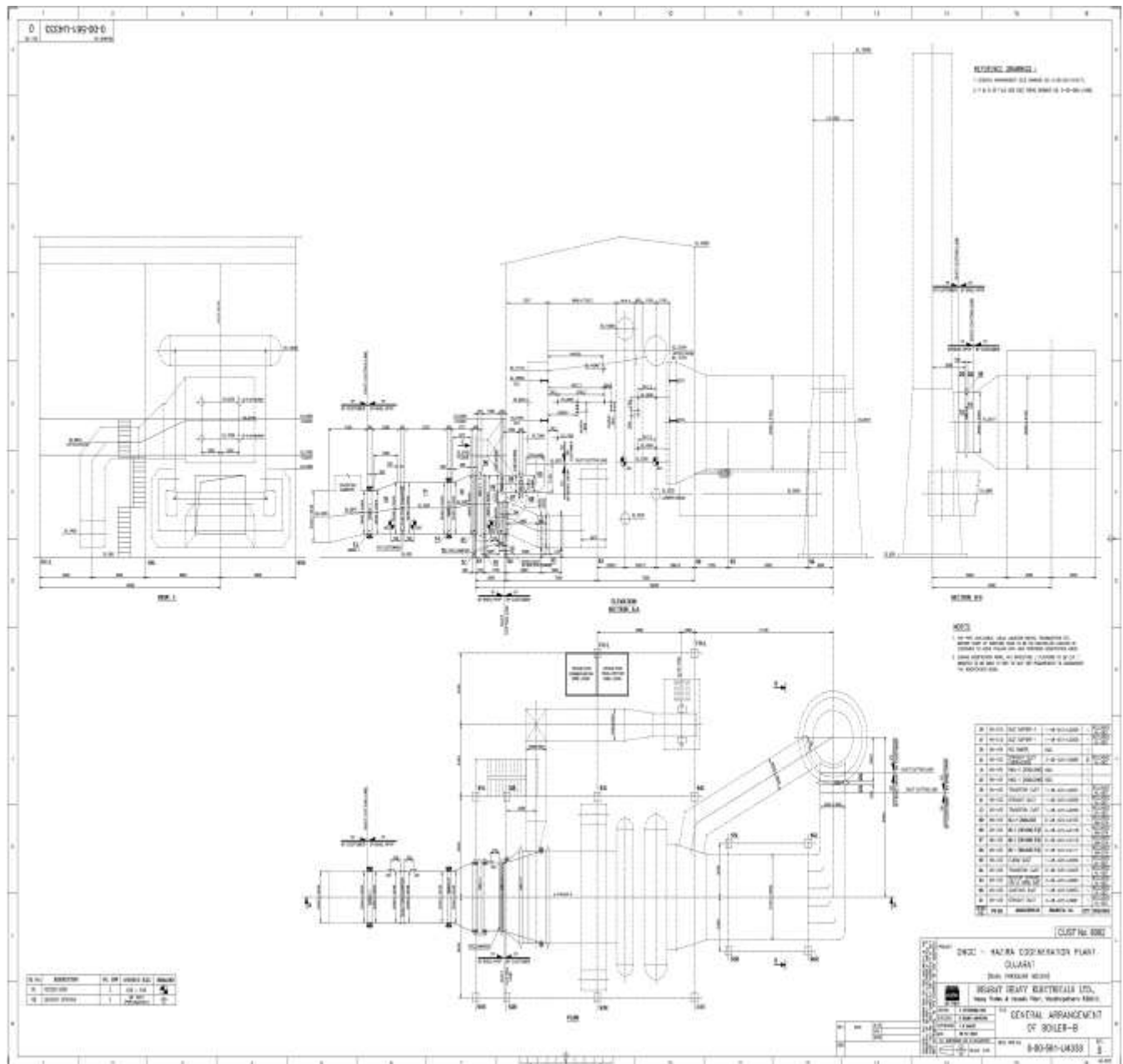
DU No.	TAG No.
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

026 HP1
N) Steam Pumping control station Drain valves:
DU No. TAG No.
027 MS217, MS218
O) Spare valves:
DU Nos. 030, 031, 032, 033
P) FCS PG Isolation Valves:
DU No. TAG No.
034 FW276A, FW276B, FW279
Q) HP MS Line Stop Valve (MOV):
DU No. TAG No.
035 MS 233
R) LP MS Line Stop Valve (MOV):
DU No. TAG No.
036 MS 158
S) Valves for PT isolation valves over FO in HP & LP MS Line:
DU No. TAG No.
037 MS 180, MS 181, MS 235, MS 236,
MS 259, MS 260, MS 257, MS 258,
038 MS 220, MS 221, MS 255, MS 256

ANNEXURE VIII



Drwg No. 0-00-561-U4333-REV-0

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

ANNEXURE IX

BOQ - Electrical & Instrumentation for HRSG UNIT#2 at ONGC Hazira Site (S.O.8062).				
ITEM NO	DESCRIPTION	QTY	UNITS	Remarks
A	INSTRUMENTATION BOQ			
1.0	Instruments:		Details as Below	
1.1	Pressure gauges	11	Nos	
1.2	Draft Pressure gauges	3	Nos	
1.3	Smart type Pr. Transmitters -	18	Nos	
1.4	Smart type Temp. Transmitters -	3	Nos	
1.5	Smart type DP. Transmitters -	15	Nos	
1.7	Temperature Element and Thermocouples -	3	Nos	
1.8	Manifolds 2 Way and 3 Way Manifold for PGs, PTs and DPTs	50	Nos	
2.0	Control and ON/OFF Valves		Details as Below	
2.1.1	Control valves along with Smart Positioner / I/P Convertors, SOVs, limit Switches, Air filter regulator etc. -	10	Nos	
2.1.2	Deaerator Pressure Control Valve, Valve Size: 6"	1	Nos	
2.1.3	Make up water Flow Control Valve, Valve Size: 3"	1	Nos	
2.1.4	Return condensate Flow Control Valve PASS-1, Valve Size: 4"	1	Nos	
2.1.5	Return condensate Flow Control Valve PASS-2, Valve Size: 3"	1	Nos	
2.1.6	FUEL GAS FLOW CONTROL VALVE, Valve Size: 6"	1	Nos	
2.1.7	LP FEED WATER 100% FLOW CONTROL VALVE, Valve Size: 4"	1	Nos	
2.1.8	LP FEED WATER 30% FLOW CONTROL VALVE, Valve Size: 2"	1	Nos	
2.1.9	HP FEED WATER 100% FLOW CONTROL VALVE, Valve Size: 1"	1	Nos	
2.1.10	HP FEED WATER 100% FLOW CONTROL VALVE, Valve Size: 2"	1	Nos	
2.1.11	HP - LP BYPASS FLOW CONTROL VALVE, Valve Size: 4"	1	Nos	
2.2	Main Fuel Gas Trip valves & Pilot Gas trip valve with SOV and limit switches -		Details as Below	
2.2.1	Fuel Gas main trip Valves, Valve Size: 6"	1	Nos	
2.2.2	Burner trip Valves, Valve Size: 4"	8	Nos	
2.2.3	Pilot Gas main trip Valves, Fuel and Pilot gas vent trip valves, Burners vent trip valves Valve Size: 1"	7	Nos	
2.2.4	Self actuated control valve, size: 1"	1	Nos	
2.3	Online solenoid valves, 1/2"	4	Nos	
2.4	Flow Elements		Details as Below	
2.4.1	Fuel Gas flow orifice, size: 6"	1	Nos	
2.4.2	Make up water Flow orifice, size: 4"	1	Nos	
2.4.3	Return condensate pass-1 flow orifice, size: 6"	1	Nos	
2.4.4	Return condensate pass-2 flow orifice, size: 6"	1	Nos	
2.4.5	Pegging steam flow orifice, size: 8"	1	Nos	
2.4.6	HP Main steam flow nozzle, 6"	1	Nos	
2.4.7	HP-LP Bypass steam flow nozzle, 6"	1	Nos	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

BOQ - Electrical & Instrumentation for HRSG UNIT#2 at ONGC Hazira Site (S.O.8062).				
ITEM NO	DESCRIPTION	QTY	UNITS	Remarks
2.4.8	LP Main steam flow nozzle, 24"	1	Nos	
2.4.9	HP Feed water, flow nozzle, size: NB 65	1	Nos	
2.4.10	LP Feed water flow nozzle, size: 6"	1	Nos	
2.5	Level Elements		Details as Below	
2.5.1	EWLI along with pressure vessel, electronic control unit and remote indicators. Remote indicators to be installed in control room	2	Sets	1 Set each for HP Drum and LP Drum
2.5.2	Direct water level gauges,	4	Sets	2 Sets each for HP Drum and LP Drum
2.6	Dampers along with pneumatic actuators.		Details as Below	
2.6.1	PDC Regulating Damper along with pneumatic actuator (Refer Mechanical BOM for details)	1	Nos	
2.6.2	Burner ON/OFF Dampers along with pneumatic actuator (Refer Mechanical BOM for details)	4	Nos	
2.7	Analysers:		Details as Below	
2.7.1	O2 ANALYZER Zirconia TYPE, 4"(1.8mtrs probe length) consisting of sample probe with remote electronic control unit, Auto calibration unit, Inter connecting cabling (approx. 60 mtrs). Calibration cylinder (2 Nos) as per manufacturer drawing :	1	Set	
3.0	LOCAL PANELS		Details as Below	
3.1	Burner Local PANEL : (Tag No. LCP) EX-Proof Local BMS PANEL Consisting of Indication Lamps, Push Buttons, Selector switches etc. Approx. Size: 900mm (W)X800mm (H)X 250mm (D)	1	Nos	
3.2	Burner Local PANEL : (Tag No. LCP) EX-Proof Local BMS PANEL Consisting of Indication Lamps, Push Buttons, Selector switches etc. Approx. Size: 400mm (W)X 300mm (H)X 250mm (D)	4	Nos	
4	Ignitor control box, with interconnecting cable(15 mtrs) to ignitor rod with its accessories	4	Nos	
5	Flame scanners, with interconnecting cable(15 mtrs) to flame scanner with 01- No PDB(common for 4 Nos flame scanners) and individual Flame scanner JBS	4	Nos	
6	Cables		Details as Below	
6.1	6PX 1.5 MM2 FRLS, OUTER SHEATH LIGHT BLUE	500	Mtrs	
6.2	6P X 1.5 MM2, FRLS, OUTER SHEATH BLACK	2000	Mtrs	
6.3	12PX 1.5 MM2, FRLS, OUTER SHEATH BLACK	2000	Mtrs	
6.4	12PX 1.5 MM2 FRLS, OUTER SHEATH LIGHT BLUE	5000	Mtrs	
6.5	3C X 2.5 MM2, FRLS, OUTER SHEATH BLACK	2000	Mtrs	
6.6	12C X 2.5 MM2, FRLS, OUTER SHEATH BLACK	500	Mtrs	
6.7	2P X 1.5 MM2, FRLS, OUTER SHEATH BLACK	1500	Mtrs	
6.8	2PX 1.5 MM2, FRLS, OUTER SHEATH LIGHT BLUE	5000	Mtrs	
6.9	2P KX X 16 AWG KX EXTENSION CABLE	500	Mtrs	
6.10	6P X 2.5 MM2, FRLS, OUTER SHEATH BLACK	500	Mtrs	
6.11	1P X 2.5 MM2, FRLS, OUTER SHEATH BLACK	500	Mtrs	
6.12	SINGLE TRIAD X 1.5 MM2, FRLS, OUTER SHEATH BLK	500	Mtrs	
6.13	12C X 1.5 MM2, FRLS, OUTER SHEATH BLACK	1000	Mtrs	
6.14	3C X 6 MM2, FRLS, XLPE SHEATH BLACK	350	Mtrs	
6.15	3C X 10 MM2, FRLS, XLPE SHEATH BLACK	500	Mtrs	
6.16	4C X 120 MM2, FRLS, XLPE SHEATH BLACK	350	Mtrs	
7	Cable trays:		Details as Below	
7.1	300 MM WIDTH LADDER TYPE CABLE TRAY	400	Mtrs	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

BOQ - Electrical & Instrumentation for HRSG UNIT#2 at ONGC Hazira Site (S.O.8062).				
ITEM NO	DESCRIPTION	QTY	UNITS	Remarks
7.2	150MM GI PERFORATED CABLE TRAYS	160	Mtrs	
7.3	100MM GI PERFORATED CABLE TRAYS	300	Mtrs	
7.4	50MM GI PERFORATED CABLE TRAYS	160	Mtrs	
7.5	CABLETRAY COVERS SUITABLE TO 300MM TRAYS	200	Mtrs	
7.6	CABLETRAY COVERS SUITABLE TO 150MM TRAYS	160	Mtrs	
7.7	CABLETRAY COVERS SUITABLE TO 100MM TRAYS	260	Mtrs	
7.8	CABLETRAY COVERS SUITABLE TO 50MM TRAYS	160	Mtrs	
8	Junction Box (Die Cast Aluminium) - Size: 400mm(W) X 350(H) X 200(D) Scope of work Includes: Installation of following types of junction Boxes (with double compression type cable glands and plugs) on suitable supports, welding, bolting as required. Scope includes fabrication and erection of supports and anchor fasteners, U clamps, Bolts, nuts etc.as required for JB erection. Earthing of Junction Boxes with 6 AWG G.I wire to the nearest earth flat.	20	Nos	
9	DC Starter panel - Size:1500mm(W) X 2100(H) X 550(D) Scope of work Includes: Installation in MCC room (with double compression type cable glands and plugs) on suitable supports, welding, bolting as required. Scope includes fabrication and erection of supports and anchor fasteners, U clamps, Bolts, nuts etc.as required for erection. Earthing of Junction Boxes with 6 AWG G.I wire to the nearest earth flat.	1	Nos	
10	BMS PLC:-		Details as Below	
10.1	Scope includes providing manpower for installation of DI/DO/AI/AO cards-24 Nos, installation of barriers 75 Nos, relays : 90 Nos, carrying out wiring with in the panel for the components installed.	1	Lot	
10.2	Scope includes cable glanding, termination of main cables at PLC cabinet field terminal board			
10.3	Note: Supervision of above works will be done by Honeywell, manpower support along with supply of cable lugs and ferrules as required shall be considered in the scope of erection contractors..	1	Lot	
10.3	Dismantling of 1 PLC cabinet, dimensions 1500mm(W) X 2100(H) X 550(D) and removal of instrumentation cables from PLC system to Field in existing cable trays.	1	Lot	
11	DCS-		Details as Below	
11.1	Scope includes providing manpower for installation of DI/DO cards-2 Nos, installation of barriers 20 Nos, relays : 64 Nos, carrying out wiring with in the panel for the components installed.	1	Lot	
11.2	Scope includes cable glanding, termination of main cables at DCS cabinet field terminal board			
11.3	Note: Supervision of above works will be done by Yokogawa, manpower support along with supply of cable lugs and ferrules as required shall be considered in the scope of erection contractors..	1	Lot	
12	Motor Operated Valves		Details as Below	
12.1	HP Main steam MOV, Size: 6" (Refer Mechanical BOM for details)	1	Nos	
12.2	LP Main steam MOV, Size: 24" (Refer Mechanical BOM for details)	1	Nos	
13	Erection Hardware		Details as Below	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

BOQ - Electrical & Instrumentation for HRSG UNIT#2 at ONGC Hazira Site (S.O.8062).				
ITEM NO	DESCRIPTION	QTY	UNITS	Remarks
13.1	Air Subheader with 12 Outlets:	2	Nos	
13.2	Air Subheader with 6 Outlets:	6	Nos	
13.3	Gate Valves-SA105 1/2"X800#	180	Nos	
13.4	Globe Valves-SA105 1/2"X800#	20	Nos	
13.5	PLATE 6MM - IS2062E250A (FE410W) 4Mtr x 4Mtr	16	m2	
13.6	ANGLE 65 X 65 X 6 - IS2062E250A(FE410W)	400	Mtrs	
13.7	CHANNEL 100 X 50 - IS2062E250A(FE410W)	250	Mtrs	
13.8	1/2" Sch160, ASTM A106 Gr B, B36.1, pipe	400	Mtrs	
13.9	1/2" Sch160, ASTM A106 Gr B, B36.1, pipe, IBR Required.	400	Mtrs	
13.10	1/2"OD X 0.049"THK A269 TP316L	500	Mtrs	
13.11	WP FRP CANOPIES SUITABLE TO JB	25	Nos	
13.12	WP FRP CANOPIES SUITABLE TO TRANSMITTER	50	Nos	
13.13	CS SYPHON 1/2"X1/2", S80, A106, NPTMXPL IBR	5	Nos	
13.14	CONDENSATE POT S105, 1/2", SWXSW, C6000 IBR	30	Nos	
13.15	FEMALE CONNECTORS SS316 1/2"NPTF X 1/2"OD	30	Nos	
13.16	MALE CONNECTORS SS316 1/2"NPTM X 1/2"OD	75	Nos	
13.17	TUBE UNIONS SS316 1/2" OD X 1/2" OD	36	Nos	
13.18	MALE CONNECTR SS316 1/2"NPTF X 1/2"OD	50	Nos	
13.19	MALE CONNECTR SS316 1/2"NPTM X 1/2"OD	50	Nos	
13.20	ELBOW 1/2"X1/2"X1/2", 6000#, SA105, SWXSW	80	Nos	
13.21	TEE 1/2"X1/2"X1/2", 6000#, SA105, SWXSWXSW	75	Nos	
13.22	PIPE CAP 1/2", 6000#, SA105, NPT (F)	90	Nos	
13.23	PIPE NPL 1/2"NB SCH160 150LG SA106GB	90	Nos	
13.24	NIPPLE TOE 1/2"NPTMX150LG SCH160 A106GB	140	Nos	
13.25	SWG NPL 3/4"PLX1/2"NPT(M)X150LG SA106GRB	60	Nos	
13.26	COUP 1/2"SW X 1/2"SW A105 3000#	15	Nos	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX : BOM for HRSG Revamp work

BOQ - Electrical & Instrumentation for HRSG UNIT#2 at ONGC Hazira Site (S.O.8062).				
ITEM NO	DESCRIPTION	QTY	UNITS	Remarks
13.27	90DEG ELBOW 1/2"SW X1/2"SW A105 3000#	100	Nos	
13.28	TEE:1/2"SWX1/2"NPT(F)X1/2"SW A105 3000#	80	Nos	
13.29	PIPE CAP 1/2",6000#,SA105,NPT(F) IBR	50	Nos	
13.30	PIPE NPL 1/2"NB SCH160 150LG SA106GB IBR	90	Nos	
13.31	NIPPLE TOE 1/2"NPTMX 150LG SCH160 IBR	80	Nos	
13.32	SWG NPL 1.5"PLX1/2"NPTMX75LG SCH160 A106	50	Nos	
13.33	COUPL 1/2"NPT(F)X1/2"NPT(F) SA105,3000#	50	Nos	
B	ELECTRICAL WORKS:			
1	LCS for scanner air fans, seal air fans (Refer Mechanical BOM for further details)	4	Nos	
2	Seal air fan motors, scanner air fan motors (Refer Mechanical BOM for further details)	4	Nos	
3	Cable glanding and termination at MCC feeders for scanner air fans, seal air fans , HP and LP Mains steam MOV feeders. Internal wiring if necessary shall be carried out in the MCC feeders	1	Lot	
4	Equipment earthing		Details as Below	
4.1	Installation of 50 x 6 mm 40x6 G.I Strip	300	Mtr	
4.2	Installation of 8 SWG G.I wire SOLID (above ground)	200	Mtr	
4.3	Installation of 25 x3 mm G.I Strip. Strip for earthing of motors,electrical equipment and further connection to nearest grid.	100	Mtr	

- Notes:
1. Supply of ferrules and cable glands shall be considered by E&I contractors
 2. Erection hardware, cables, cable trays, Junction boxes quantities are subjected to variation based on site conditions
 3. Handing of spares for E&I items shall be considered in the scope of E&I contractor.

- ❖ The Mechanical and C&I items list is attached separately as Annexure – A and Annexure – B. In case of any variation in quantity under clauses (A.1) 1.1.1 to 1.1.7, the higher quantity shall be considered for Material Handling and Erection & Commissioning (E&C) purposes, without any additional cost.

Annexure- A & B will be the part of this tender and attached herewith.

BHEL-PSWR

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


E-Tender Specification Number: BHE/PW/PUR/HON-C&I-R&M/3161


Page 106 of 107


TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X : Schedule of Rates and Quantities

Sl no.	Description of Activity	Weightage Factor (X) w.r.t Total lump-sum value quoted by the bidder
1	Work of Dismantling, Erection, C&I and commissioning activities including Loading, Unloading & storage of materials	100%


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-116				REVISION '00'
DPN-NS 013-1		JOB NOS	8062				NETWORK 6007578
		T. WT	1415 (KG) DU RANGE 001 - 039				PAGE 001 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PANEL			NO	4.000	79.528	
002	PANEL			NO	4.000	41.256	
003	PANEL			NO	4.000	41.536	
004	PANEL			NO	4.000	85.272	
005	PANEL			NO	4.000	16.852	
006	END COVER			NO	2.000	24.800	
007	BENT PLATE			NO	8.000	3.200	
008	BENT PLATE			NO	16.000	8.000	
009	BENT PLATE			NO	8.000	3.200	
010	HEX. SCREW M12X30			NO	200.000	8.200	
011	HEX NUT M12			NO	200.000	13.000	
012	WASHER M12			NO	400.000	2.000	
013	PRIMARY SCREEN BOX ASSY. (FOR IND. BOILER)			NO	23.000	250.424	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		G DEMUDU	
				APPROVED & ISSUED BY		A N V KRANTHI KISHOR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-116				REVISION '00'
DPN-NS 013-1		JOB NOS	8062				NETWORK 6007578
		T. WT	1415 (KG) DU RANGE 001 - 039				PAGE 002 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	SECONDARY SCREEN BOX ASSY.FOR IND.BOILER			NO	22.000	459.448	
015	FEED TUBE			NO	1.000	4.696	
016	FEED HEADER			NO	1.000	57.298	
017	BLOW DOWN HEADER			NO	1.000	30.303	
018	END SHEET			NO	1.000	5.594	
019	U ROD			NO	15.000	4.050	
020	U ROD			NO	8.000	3.392	
021	ANGLE			NO	8.000	8.704	
022	ANGLE			NO	6.000	6.342	
023	ANGLE			NO	2.000	5.000	
024	ANGLE			NO	2.000	4.600	
025	END SHEET			NO	1.000	5.538	
026	END COVER			NO	1.000	8.965	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		G DEMUDU	
				APPROVED & ISSUED BY		A N V KRANTHI KISHOR	


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.04-116	REVISION '00'
DPN-NS 013-1	JOB NOS	8062	NETWORK 6007578
	T. WT	1415 (KG) DU RANGE 001 - 039	PAGE 003 / 003


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	TUBE D44.5			NO	4.000	10.780	
028	BENT PLATE			NO	1.000	10.528	
029	BENT PLATE			NO	1.000	10.528	
030	BENT PLATE			NO	2.000	22.738	
031	ANGLE			NO	1.000	30.780	
032	BENT PLATE			NO	1.000	20.215	
033	BENT PLATE			NO	1.000	20.257	
034	BENT PLATE			NO	2.000	43.598	
035	CHEMICAL DOSING HEADER			NO	1.000	30.303	
036	ANGLE			NO	4.000	6.400	
037	SCREW M12X30			NO	400.000	16.400	
038	NUT			NO	400.000	6.800	
039	PUNCHED WASHER M12			NO	800.000	4.800	
***** SHIPPING LIST COMPLETED *****							


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	G DEMUDU
	APPROVED & ISSUED BY	A N V KRANTHI KISHOR


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-176				REVISION '00'
DPN-NS 014-1		JOB NOS	8062				NETWORK 6007579
		T. WT	2143 (KG) DU RANGE 001 - 057				PAGE 001 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PANEL I			NO	4.000	137.420	
002	PANEL II			NO	1.000	13.259	
003	PANEL III			NO	1.000	13.259	
004	PANEL IV			NO	1.000	12.177	
005	PANEL V			NO	4.000	52.852	
006	PANEL VI			NO	1.000	31.552	
007	PANEL VII			NO	2.000	68.562	
008	PANEL VIII			NO	1.000	4.077	
009	PANEL IX			NO	2.000	8.870	
010	BENT PLATE			NO	27.000	16.821	
011	BENT PLATE			NO	11.000	5.621	
012	END SHEET			NO	1.000	23.735	
013	END SHEET			NO	1.000	23.613	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		ANVKK	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-176				REVISION '00'
DPN-NS 014-1		JOB NOS	8062				NETWORK 6007579
		T. WT	2143 (KG) DU RANGE 001 - 057				PAGE 002 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	SCREW M12X30			NO	400.000	16.400	
015	NUT			NO	400.000	7.200	
016	PUNCHED WASHER M12			NO	800.000	8.000	
017	PANEL X			NO	1.000	12.251	
018	PANEL XI			NO	1.000	31.738	
019	PANEL XII			NO	1.000	4.100	
020	PRIMARY SCHEEN BOX TYPE-D			NO	23.000	318.780	
021	SECONDARY SCREEN BOX TYPE-D			NO	22.000	439.516	
022	FEED TUBE			NO	1.000	17.456	
023	FEED HEADER			NO	1.000	173.205	
024	BLOW DOWN HEADER			NO	1.000	30.178	
025	END SHEET (TOP LEFT)			NO	1.000	8.458	
026	END SHEET (TOP RIGHT)			NO	1.000	8.458	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		ANVKK	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-176				REVISION '00'
DPN-NS 014-1		JOB NOS	8062				NETWORK 6007579
		T. WT	2143 (KG) DU RANGE 001 - 057				PAGE 003 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	U-ROD			NO	40.000	10.800	
028	U-ROD			NO	10.000	13.590	
029	ANGLE			NO	10.000	16.000	
030	ANGLE			NO	10.000	10.570	
031	ISA 50X50X6			NO	2.000	6.000	
032	CHEMICAL DOSING HEADER			NO	1.000	30.115	
033	END SHEET (BOTTOM LEFT)			NO	1.000	8.880	
034	END SHEET (BOTTOM RIGHT)			NO	1.000	0.767	
035	TUBE D44.5			NO	2.000	7.644	
036	SCREW M12X30			NO	700.000	28.700	
037	NUT M12			NO	700.000	12.600	
038	PUNCHED WASHER M12			NO	1500.000	15.000	
039	ANGLE			NO	1.000	15.379	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		ANVKK	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-176				REVISION '00'
DPN-NS 014-1		JOB NOS	8062				NETWORK 6007579
		T. WT	2143 (KG) DU RANGE 001 - 057				PAGE 004 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
040	ANGLE			NO	1.000	15.379	
041	BENT SHEET			NO	1.000	41.052	
042	BENT SHEET			NO	1.000	41.052	
043	BENT SHEET			NO	1.000	21.423	
044	BENT SHEET			NO	1.000	21.573	
045	ANGLE			NO	10.000	16.320	
046	NUT M16			NO	20.000	0.600	
047	PUNCHED WASHER M16			NO	20.000	0.220	
048	ISA 50X50X6			NO	2.000	6.400	
049	PLATE 6THK.			NO	46.000	7.820	
050	PLATE 6THK.			NO	10.000	1.830	
051	PLATE 6THK.			NO	20.000	10.000	
052	BENT PLATE I			NO	1.000	132.874	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		ANVKK	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.04-176			REVISION '00'	
DPN-NS 014-1		JOB NOS	8062			NETWORK 6007579	
		T. WT	2143 (KG) DU RANGE 001 - 057			PAGE 005 / 005	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
053	CURVED BAR			NO	2.000	4.886	
054	END PLATE			NO	1.000	5.601	
055	END PLATE			NO	1.000	5.601	
056	BENT PLATE II			NO	1.000	47.046	
057	BENT PLATE III			NO	1.000	99.434	
<p style="text-align: center;">***** SHIPPING LIST COMPLETED *****</p>							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		ANVKK	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-200				REVISION '00'
DPN-NS 009-1		JOB NOS	8062				NETWORK 6007574
		T. WT	1410 (KG) DU RANGE 001 - 087				PAGE 001 / 007
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	8" PIPE WITH 1" HALFCOUPLING			NO	1.000	8.850	
002	PIPE OD 33.4 X 4.55 - SA106GRB			NO	1.000	1.620	
003	CS CON REDU 200/100 SA234 WPB			NO	1.000	1.000	
004	BW CON RED 273X9.27/114.3X6.02 SA234WPB			NO	1.000	26.800	
005	4"FL WNRF125AA 300# A105 PTHK:6.02MM IBR			NO	4.000	44.800	
006	SPW SS316 GF CS OR SS316 IR 100NB 300#			NO	4.000	1.076	
007	STUD +2NUTS M20X110 LG SA194 GR.7			NO	16.000	6.192	
008	SW RF FLANGE NB25 CL300 SA105			NO	1.000	1.400	
009	BLIND RF FLANGE NB25 CL300 SA105			NO	1.000	1.400	
010	SPW GRPHT FLD WITH SS316 I/O-1" 300#			NO	2.000	0.260	
011	S+2HXN-M16X2.0PX80LG SA193GRB7/194GR2H			NO	4.000	0.448	
012	6" PIPE WITH 3/4" HALF COUPLING			NO	1.000	9.478	
013	PIPE OD 26.7 X 5.56 - SA106GRB			NO	1.000	5.800	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	24-200	REVISION '00'
DPN-NS 009-1	JOB NOS	8062	NETWORK 6007574
	T. WT	1410 (KG) DU RANGE 001 - 087	PAGE 002 / 007


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	BW RED 168.3X7.11/114.3X6.02 SA234WPB			NO	2.000	6.320	
015	CS WN FLANGE 100NBX150# RF SA105 - IBR			NO	4.000	4.000	
016	GSK, SS316, SPWD, GF, CS OR, SS316-100NB, 150#			NO	4.000	1.320	
017	STUD+2NUTS M16X90 LG SA193-B7, 194-2H			NO	16.000	3.136	
018	WN FLNG, 20NB, #150, SA105, R F IBR			NO	2.000	1.600	
019	CS BLIND FLANGE 20NB X 150 RF SA105 IBR			NO	2.000	0.500	
020				NO	4.000	0.400	
021	SWD.SS316+GRAFIL+SS316 I/O RING 150#3/4"			NO	8.000	1.040	
022	4" PIPE WITH 3/4" HALF COUPLING			NO	1.000	2.064	
023	PIPE (SMLS) 26.7 X 3.91 SA312GRTP304			NO	1.000	0.663	
024	SS CON REDUCER OD114.3X3.05/88.9X3.05			NO	2.000	8.400	
025	SS WN FLANGES SA 182 F304 80NBX 150#			NO	4.000	19.600	
026	80NB 150# SS316 SPW GSKT+GRAFOIL+IN RING			NO	4.000	0.592	

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	SMG NAIDU
	APPROVED & ISSUED BY	TARAKESH KANAKALA

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-200				REVISION '00'
DPN-NS 009-1		JOB NOS	8062				NETWORK 6007574
		T. WT	1410 (KG) DU RANGE 001 - 087				PAGE 003 / 007
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	S+2HXN-M16X2.0 PX90LG SA193GRB8/194GR8			NO	8.000	0.928	
028	SS WN FLG SA182F304 20NB150#RF BORE18.88			NO	1.000	0.800	
029	SS BLD FLG. TO SA 182 F304, 20 NBX150#			NO	1.000	0.700	
030	SWD.SS316+GRAFIL+SS316 I/O RING 150#3/4"			NO	2.000	0.200	
031	S+2HXN-M14X2.0 PX70LG SA193GRB8/194GR8			NO	4.000	0.520	
032	PIPE OD 21.3 X 4.78 - SA106GRB			NO	1.000	2.925	
033	PIPE DIA 21.3 X 3.73 A312TP304L			NO	1.000	1.630	
034	CS WN FLANGE 80NBX150# RF SA105			NO	4.000	18.000	
035	80NB 150# SS316 SPW GSKT+GRAFOIL+IN RING			NO	4.000	0.592	
036	STUD+2NUTS M16X90 LG SA193-B7,194-2H			NO	8.000	1.568	
037	PIPE OD 114.30 X 6.02 - SA106GRB			NO	1.000	32.160	
038	PIPE OD 88.90 X 5.49 - SA106GRB			NO	1.000	2.258	
039	6" PIPE WITH 3/4" HALF COUPLING			NO	1.000	9.478	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-200				REVISION '00'
DPN-NS 009-1		JOB NOS	8062				NETWORK 6007574
		T. WT	1410 (KG) DU RANGE 001 - 087				PAGE 004 / 007
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
040	PIPE (SMLS) 114.3 X 3.05 SS A312GRTP304			NO	1.000	8.360	
041	BW REDUCER 6X3"SCH40 ANSIB16.9 SA234WPB			NO	2.000	8.000	
042	BW CON. REDUCER 4X3"SCH40 B16.9 SA234WPB			NO	2.000	2.900	
043	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	48.042	
044	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	57.198	
045	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	23.286	
046	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	37.444	
047	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	37.444	
048	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	18.849	
049	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	7.658	
050	6" PIPE WITH 1" STUB			NO	1.000	15.641	
051	PIPE DIA 273.0 X 9.27 X 6500 SA106GRB			NO	1.000	32.929	
052	10" PIPE WITH 6" STUB			NO	1.000	52.994	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-200				REVISION '00'
DPN-NS 009-1		JOB NOS	8062				NETWORK 6007574
		T. WT	1410 (KG) DU RANGE 001 - 087				PAGE 005 / 007
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
053	PIPE DIA 273.0 X 9.27 X 6500 SA106GRB			NO	1.000	33.291	
054	BW 90D LR ELL 6"SCH40 ANSIB16.9 SA234WPB			NO	3.000	31.500	
055	BW LR 90DEG ELL 273 X 9.27 SA234WPB			NO	1.000	37.000	
056	CS EQ. TEES 150NB,BW,SCH40 SA234WPB-IBR			NO	1.000	25.600	
057	BW RED 168.3X7.11/114.3X6.02 SA234WPB			NO	2.000	6.320	
058	6"BWX3"BW RED A234 GRWPB SH:STD X STD			NO	2.000	4.000	
059	CS BW CON. REDUCER 10"X6" SCH: STDXSTD			NO	1.000	30.000	
060	WN FLANGE NB 250 CL300 SA105			NO	2.000	90.000	
061	SPW SS316 GF CS OR SS316 IR 250NB 300#			NO	4.000	3.080	
062	STD+2HX NUT M27X3.5PX160L A193B7/194GR2H			SET	32.000	38.400	
063	PIPE OD 33.4 X 4.55 - SA106GRB			NO	1.000	3.240	
064	CS SW FLANGE 25NBX600# RF SA105			NO	1.000	1.800	
065	BLIND RF FLANGE NB25 CL600 SA105			NO	1.000	1.800	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	24-200	REVISION '00'
DPN-NS 009-1	JOB NOS	8062	NETWORK 6007574
	T. WT	1410 (KG) DU RANGE 001 - 087	PAGE 006 / 007

DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
066	SW GASKET 1" 600# SS316 OR+GRAFOIL+IR			NO	2.000	2.000	
067	STUD 2 NUTS M16X100- SA193B7/A1942H-DHYB			NO	4.000	1.088	
068	PAD PLATE OD. 168.3X7.11 THK.			NO	2.000	8.478	
069	PLATE 12.0 MM - IS2062E250A(FE410W)			NO	2.000	3.486	
070	EYE HANGER NB150-7740- 1830 (VAR.03) IS2062			NO	2.000	0.632	
071	SUSPENSION BOLT DIA 20X600LG			NO	2.000	3.580	
072	NUT -M16 -CL4-IS1363P3			NO	4.000	0.120	
073	PIPE OD 21.3 X 4.78 - SA106GRB			NO	1.000	5.850	
074	PIPE OD 168.30 X 7.11 - SA106GRB			NO	1.000	42.390	
075	PIPE DIA 610.0 X 9.53 SA 672 GR B60 CL12			NO	1.000	370.000	
076	WN FLANGE NB 80 CL600 SA105			NO	4.000	32.680	
077	SPW SS316 GF CS OR SS316 IR 80NB 600#			NO	4.000	0.800	
078	S+2N M20X2.5 PX125LG SA193GRB7/194GR2H			NO	16.000	2.336	

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	SMG NAIDU
	APPROVED & ISSUED BY	TARAKESH KANAKALA


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-200				REVISION '00'
DPN-NS 009-1		JOB NOS	8062				NETWORK 6007574
		T. WT	1410 (KG) DU RANGE 001 - 087				PAGE 007 / 007
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
079	PIPE DIA 21.3 X 2.77 SA106GRB			NO	1.000	0.015	
080	PIPE OD 48.3 X 5.08 - SA106GRB			NO	1.000	0.069	
081	PIPE DIA 33.4 X 3.38 SA106GRB			NO	1.000	0.025	
082	BW CON REDUCER 1X0.5" SCH40 SA234WPB			NO	8.000	0.880	
083	PIPE DIA 33.4 X 3.38 SA106GRB			NO	1.000	10.000	
084	PIPE OD 48.3 X 5.08 - SA106GRB			NO	1.000	17.238	
085	PIPE DIA 60.3 X 3.91 SA106GRB			NO	1.000	16.290	
086	SW UNEQ TEE 2X1"CL3000 ANSIB16.11 SA105			NO	1.000	1.440	
087	PIPE CLAMP ROD TYPE OD 168.3; (GAL)			NO	2.000	3.142	
***** SHIPPING LIST COMPLETED *****							
***** ERECTION NOTES FOLLOWS *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	


ERECTION AND COMMON NOTES


ZMED-CS/8062-LU-009-1-24-200-00-B


The spool length in Item no. 42 (2000 mm) in the drawing
(1-24-200-U0090) is split into two parts 300 mm (Item No. 42; DU
No.039)


+ 1700 mm (Item No. 46; DU No.43).


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-300				REVISION '00'
DPN-NS 010-1		JOB NOS	8062				NETWORK 6007575
		T. WT	555 (KG) DU RANGE 001 - 053				PAGE 001 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PIPE OD 73 X 7.01			NO	1.000	3.931	
002	2.5" PIPE WITH 1" BYPASS STUB			NO	2.000	8.020	
003	2.5" PIPE WITH 1" DRAIN STUB			NO	1.000	3.276	
004	PIPE OD 73 X 7.01			NO	1.000	3.029	
005	PIPE OD 73 X 7.01			NO	3.000	8.115	
006	PIPE OD 73 X 7.01			NO	2.000	9.640	
007	PIPE OD 73 X 7.01			NO	1.000	11.276	
008	PIPE DIA 33.4 X 3.38			NO	1.000	20.000	
009	CS BW EQUAL TEE 2.5"; SCH 80			NO	2.000	6.000	
010	SW EQ TEE 1" (25NB), 3000#;			NO	1.000	0.652	
011	BW CON. REDCR 2.5"X2.0"			NO	2.000	6.000	
012	CS 90DEG ELBOWS 73X7.01; SCH 80			NO	2.000	3.420	
013	90 DEG PIPE BEND DIA 33.4 X 3.38			NO	2.000	1.784	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-300				REVISION '00'
DPN-NS 010-1		JOB NOS	8062				NETWORK 6007575
		T. WT	555 (KG) DU RANGE 001 - 053				PAGE 002 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	SPARE PIPE OD 73 X 7.01			NO	1.000	60.105	
015	PLATE 10 MM			NO	5.000	3.925	
016	PLATE 10 MM			NO	3.000	5.298	
017	PIPE DIA 60.3 X 3.91			NO	1.000	4.072	
018	PIPE DIA 33.4 X 3.38			NO	1.000	6.250	
019	PIPE DIA 21.3 X 2.77			NO	2.000	3.810	
020	6" PIPE WITH 6" & 2"NOZZLES			NO	1.000	16.504	
021	6" PIPE WITH 1" DRAIN STUB			NO	1.000	8.949	
022	PIPE OD 168.30 X 7.11			NO	1.000	8.845	
023	6" PIPE WITH 6" & 2"NOZZLES			NO	1.000	30.040	
024	PIPE OD 168.30 X 7.11			NO	1.000	11.304	
025	PIPE OD 168.30 X 7.11			NO	1.000	21.534	
026	PIPE OD 168.30 X 7.11			NO	1.000	11.304	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-300				REVISION '00'
DPN-NS 010-1		JOB NOS	8062				NETWORK 6007575
		T. WT	555 (KG) DU RANGE 001 - 053				PAGE 003 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	PIPE DIA 60.3 X 3.91			NO	1.000	21.760	
028	BW RED 168.3X7.11/114.3X6.02			NO	2.000	6.320	
029	BW 90D LR ELL 6"; SCH40			NO	2.000	21.000	
030	SW UNEQ TEE 2X1"CL3000			NO	1.000	1.440	
031	CS 90DEG ELBOWS 60.3X3.91			NO	2.000	1.300	
032	BW CON.REDUCER 2X1.5"SCH40			NO	2.000	0.744	
033	SPARE PIPE OD 168.30 X 7.11			NO	1.000	56.520	
034	PIPE DIA 60.3 X 3.91			NO	1.000	10.860	
035	PIPE DIA 33.4 X 3.38			NO	1.000	12.500	
036	PLATE 10 MM			NO	4.000	3.140	
037	PLATE 10 MM			NO	3.000	5.298	
038	PLATE 10 MM			NO	1.000	3.140	
039	PIPE (SMLS) 114.3 X 6.02			NO	1.000	16.070	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-300				REVISION '00'
DPN-NS 010-1		JOB NOS	8062				NETWORK 6007575
		T. WT	555 (KG) DU RANGE 001 - 053				PAGE 004 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
040	PIPE DIA 21.3 X 2.77			NO	1.000	1.270	
041	2"FL WNRF125AA 600# A105 PTK:5.54MM IBR			NO	4.000	16.000	
042	SS316 SPW GRPHT FLD WITH SS I/O-2" 600#			NO	4.000	2.000	
043	S+2N M16X2.0 PX110LG SA193GRB7/194GR2H			NO	16.000	2.208	
044	CS SW FLANGE 25NBX600# RF SA105			NO	4.000	7.200	
045	SW GASKET 1" 600# SS316 OR+GRAFOIL+IR			NO	4.000	4.000	
046	STUD+2NUTS M16X90 LG SA193-B7,194-2H			NO	8.000	8.000	
047	4"FL WNRF125AA 300# A105 PTHK:6.02MM IBR			NO	4.000	44.800	
048	SPW SS316 GF CS OR SS316 IR 100NB 300#			NO	4.000	1.076	
049	STUD +2NUTS M20X110 LG SA194 GR.7			NO	16.000	16.000	
050	SW RF FLANGE NB40 CL300 SA105			NO	4.000	10.800	
051	SPW SS316 GF SS OR SS316 IR 40NB 300#			NO	4.000	0.100	
052	S+2N M20X2.5 PX90LG SA193GRB7/194GR2H			NO	8.000	2.760	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-600			REVISION '01'	
DPN-NS 011-1		JOB NOS	8062			NETWORK 6007576	
		T. WT	4053 (KG) DU RANGE 001 - 038			PAGE 001 / 003	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	CS GATE VALVE 65NB HO 600# BW ENDS; IBR		01	NO	3.000	201.000	
002	REG.GLOBE VALVE 65NB HO 600# BW ENDS;IBR		02	NO	1.000	50.000	
003	CS GLOBE VALVE-25NB-800#-SW ENDS; IBR		03	NO	2.000	6.800	
004	CS GATE VALVE 150NB HO 300# BW ENDS; IBR		04	NO	3.000	414.000	
005	REG.GLOBE VALV 150NB HO 300# BW ENDS;IBR		05	NO	1.000	135.000	
006	CS GATE VALVE-50NB-800#-SW ENDS; IBR		06	NO	2.000	16.800	
007	CS GLOBE VALVE-15NB-800#-SW ENDS; IBR		07	NO	8.000	12.800	
008	CS GLOBE VALVE-25NB-800#-HO-SW ENDS; IBR		08	NO	8.000	27.200	
009	CS GLOBE VALVE-25NB-800#-SW ENDS; IBR		09	NO	6.000	20.400	
010	CS GLOBE VALVE-25NB-800#-HO-SW ENDS; IBR		10	NO	1.000	3.400	
011	CS CHECK VALVE-25NB-800#-SW ENDS; IBR		11	NO	1.000	2.300	
012	CS GLOBE VALVE-40NB-800#-SW ENDS; IBR		12	NO	8.000	58.400	
013	CS GLOBE VALVE-25NB-800#-SW ENDS; IBR		13	NO	8.000	27.200	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-600			REVISION '01'	
DPN-NS 011-1		JOB NOS	8062			NETWORK 6007576	
		T. WT	4053 (KG) DU RANGE 001 - 038			PAGE 002 / 003	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	CS GATE VALVE-25NB-800#-SW ENDS; IBR		14	NO	8.000	28.800	
015	CS GATE VALVE-15NB-800#-SW ENDS; IBR		15	NO	4.000	7.600	
016	CS GLOBE VALVE-20NB-800#-HO-SW ENDS; IBR		16	NO	4.000	7.200	
017	CS GLOBE VALVE-25NB-800#-HO-SW ENDS; IBR		17	NO	4.000	13.600	
018	SS GLOBE VALVE-15NB-800#-SW ENDS; IBR		18	NO	2.000	3.200	
019	CS GLOBE VALVE-15NB-800#-SW ENDS; IBR		19	NO	2.000	3.200	
020	CS GLOBE VALVE-25NB-800#-HO-SW ENDS; IBR		20	NO	2.000	6.800	
021	CS GLOBE VALVE-20NB-800#-HO-SW ENDS; IBR		21	NO	2.000	3.600	
022	SS GLOBE VALVE-20NB-800#-HO-SW ENDS; IBR		22	NO	1.000	1.800	
023	CS GATE VALVE 150NB HO 600# BW ENDS; IBR		23	NO	1.000	191.000	
024	CS GATE VALVE 250NB HO 300# BW ENDS; IBR		24	NO	1.000	378.000	
025	REG.GLOBE VALV 150NB HO 600# BW ENDS;IBR		25	NO	1.000	191.000	
026	CS GATE VALVE 250NB HO 300# FL ENDS; IBR		26	NO	1.000	435.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.			CREATED BY		SMG NAIDU		
			APPROVED & ISSUED BY		TARAKESH KANAKALA		

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-600			REVISION '01'	
DPN-NS 011-1		JOB NOS	8062			NETWORK 6007576	
		T. WT	4053 (KG) DU RANGE 001 - 038			PAGE 003 / 003	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	CS GLOBE VALVE-25NB-800#-HO-SW ENDS; IBR		27	NO	2.000	6.800	
028	CS GLOBE VALVE-40NB-800#-SW ENDS; IBR		28	NO	4.000	29.200	
029	CS GLOBE VALVE-50NB-800#-SW ENDS; IBR		29	NO	4.000	44.400	
030	CS GLOBE VALVE-15NB-800#-SW ENDS; IBR		30	NO	4.000	6.400	
031	CS GLOBE VALVE-20NB-800#-HO-SW ENDS; IBR		31	NO	2.000	3.600	
032	CS GLOBE VALVE-25NB-800#-SW ENDS; IBR		32	NO	4.000	13.600	
033	CS GLOBE VALVE-40NB-800#-SW ENDS; IBR		33	NO	2.000	14.600	
034	CS GLOBE VALVE-15NB-800#-HO-SW ENDS; IBR		34	NO	3.000	4.800	
035	150NB MOTOR OPERATED GATE VALVE-600#; IBR		35	NO	1.000	253.000	
036	600NB MOTOR OPERATED GATE VALVE-300#; IBR		36	NO	1.000	1411.000	
037	CS GLOBE VALVE-15NB-800#-SW ENDS; IBR		37	NO	8.000	12.800	
038	CS GLOBE VALVE-15NB-800#-HO-SW ENDS; IBR		38	NO	4.000	6.400	
***** SHIPPING LIST COMPLETED *****							
***** ERECTION NOTES FOLLOWS *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU	
				APPROVED & ISSUED BY		TARAKESH KANAKALA	

ERECTION AND COMMON NOTES

ZMED-CS/8062-LU-011-1-24-600-00-B

A) Valves for HP& LP Feed Control Station:

DU No.	TAG No.
001	FW275, FW278 & FW282
002	FW283
003	FW274 & FW281
004	FW181, FW182 & FW184
005	FW180
006	FW185 & FW187
007	FW268, FW269, FW321, FW322, FW172, FW173, FW317, FW318
008	FW272, FW273, FW270, FW308 FW176, FW177, FW174, FW175

B) Valves for Boiler Drain Header:

DU No.	TAG No.
009	BL-100A, BL-100B, BL-101A, BL-101B BL-106A, BL-106B
010	HT-001
011	HT-002
028	BL-102A, BL-102B, BL-103A, BL-103B
029	BL-104A, BL-104B, BL-105A, BL-105B

C) Valves for DWLG & EWLl Isolation:

DU No.	TAG No.
012	MS126, MS127, MS103, MS104, MS165, MS166, MS188, MS189
013	MS105, MS106, MS107, MS108 MS174, MS175, MS172, MS173
014	MS163, MS164, MS191, MS192 MS129, MS130, MS101, MS102
015	MS110, MS111, MS168, MS169

D) Valves for Deaerator LT Isolation:

DU No.	TAG No.
016	DEL-05, DEL-06, DEL-07, DEL-08

Spare:

DU No.	TAG No.
017	DEL-01, DEL-02, DEL-03, DEL-04

E) Valves for FT isolation over FO in DM Water to Deaerator:

DU No.	TAG No.
018	CR-003 & CR-004

F) Valves for FT isolation over FO in Condensate line to Deaerator:

DU No.	TAG No.
019	CR-001 & CR-002

G) Valves for drain line near control valve in LP Steam to Deaerator line:

DU No.	TAG No.
020	LPSD-01 & LPSD-02

H) Valves for drain line near control valve in return condensate line to

Deaerator:

DU No.	TAG No.
021	CSD-01 & CSD-02

I) Valves for drain line near control valve in Makeup Heater to Deaerator line:

DU No.	TAG No.
022	DMW-01

J) Upstream Valve to CV for Steam Dumping Line:

DU No.	TAG No.
023	MS219 (HP7)

K) Downstream Valve to CV for Steam Dumping Line:

DU No.	TAG No.
024	MS214 (HP3)


L) Bypass Valve to CV for Steam Dumping Line:


DU No.	TAG No.
025	MS216 (HP8)


M) Steam Dumping control station isolation valve:


DU No.	TAG No.
--------	---------

026 HP1
N) Steam Dumping control station Drain valves:
DU No. TAG No.
027 MS217, MS218
O) Spare valves:
DU Nos. 030,031,032,033
P) FCS PG Isolation Valves:
DU No. TAG No.
034 FW276A, FW276B, FW279
Q) HP MS Line Stop Valve (MOV):
DU No. TAG No.
035 MS 233
R) LP MS Line Stop Valve (MOV):
DU No. TAG No.
036 MS 158
S) Valves for FT isolation valves over FO in HP & LP MS Line:
DU No. TAG No.
037 MS 160, MS 161, MS 235, MS 236,
MS 259, MS 260, MS 257, MS 258
038 MS 220, MS 221, MS 255, MS 256

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.24-673			REVISION '00'	
DPN-NS 042-1		JOB NOS	8062			NETWORK 6007608	
		T. WT	830 (KG) DU RANGE 001 - 003			PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	DWLG WITH ACCESSORIES-18" VISIBILITY		01	SET	2.000	400.000	
002	DWLG WITH ACCESSORIES-15 1/2" VISIBILITY		02	SET	2.000	400.000	
003	DWLG COMMISSIONING SPARES		03	LOT	1.000	30.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		A HARI PRASAD	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG					SHIPPING LIST		
		PGMA	.24-992					REVISION '00'	
DPN-NS 012-1		JOB NOS	8062					NETWORK 6007577	
		T. WT	22 (KG) DU RANGE 001 - 002					PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS		
					QTY.	WT. (KG.)			
001	ER70SA1 GTAW ROD DIA 1.6MM			01	KG	20.500	20.500		
002	ER308H GTAW ROD DIA 1.6MM			02	KG	1.500	1.500		
***** SHIPPING LIST COMPLETED *****									
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		SMG NAIDU			
				APPROVED & ISSUED BY		TARAKESH KANAKALA			

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.32-010				REVISION '04'
DPN-NS 004-1		JOB NOS	8062				NETWORK 6007569
		T. WT	2670 (KG) DU RANGE 001 - 026				PAGE 001 / 002
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	AL. CASING SUPPORT		01	NO	400.000	60.000	
002	AL. CASING SUPPORT		02	NO	40.000	7.840	
003	BL HEXBOLT M8X1.25X30 PCL4.6 GRC IS:1363		03	NO	100.000	2.000	
004	BOLT-M 8X40 -4.6-IS1363P1		04	NO	16.000	0.320	
005	CARBON FIBRE/CERAMIC FIBRE CLOTH-3MM		05	KG	6.000	6.000	
006	CERAMIC FIBRE PAPER 3 X1000X500 MM AKLP		06	M2	94.000	64.860	
007	CHS HD SCRU-M4X20 -4.8-IS1366		07	NO	1600.000	3.200	
008	DIA 10MM-IS2062FE410GRA SAE1010/SAE1018		08	NO	7.000	26.040	
009	FLAT 50 X 6 - IS2062GRA		09	KG	250.000	250.000	
010	HEX HD SCRU-M10X25 -4.6-IS1363P2		10	NO	80.000	2.080	
011	NUT -M 4 -CL8-IS1364P3		11	NO	1695.000	1.695	
012	NUT -M 8 -CL4-IS1363P3		12	NO	510.000	2.550	
013	NUT -M10 -CL4-IS1363P3		13	NO	266.000	2.660	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.			CREATED BY		T. RAVI KISHORE		
			APPROVED & ISSUED BY		PABITRA KUMAR SAHOO		

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.32-010				REVISION '04'
DPN-NS 004-1		JOB NOS	8062				NETWORK 6007569
		T. WT	2670 (KG) DU RANGE 001 - 026				PAGE 002 / 002
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	PUN WASHER-M 8 -IS:2016-A		14	NO	158.000	0.316	
015	PUN WASHER-M10 -IS2016-A		15	NO	470.000	4.700	
016	ROD D 6.0 MM-IS2062GRA SAE1010/SAE1018		16	NO	75.000	99.900	
017	SEALING COMPOUND		17	KG	60.000	60.000	
018	SHEET 1.6 MM - IS513 # D		18	KG	150.000	150.000	
019	SM CLAMP		19	NO	2412.000	144.720	
020	SM CLAMP TYPE B		20	NO	475.000	38.475	
021	SNAP HD RIVET 3X8 GR 1 IS:2998		21	NO	3506.000	3.506	
022	TAPSCREW-ST 4.2X13C DRG4-28-700-00627/00		22	NO	54975.000	54.975	
023	WELD MESH 50X50 WIRE DIA 3MM-IS1566		23	KG	63.000	63.000	
024	WIRE SS 1.02 MM AISI304		24	KG	100.000	100.000	
025	PLAIN ALUM SHT 0.711MM IS737/19000H2		25	KG	1500.000	1500.000	
026	DIA 6 - SA479TY304		26	NO	500.000	21.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		T. RAVI KISHORE	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	





		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.32-010			REVISION '04'	
DPN-NS 004-1		JOB NOS	8062			NETWORK 6007569	
		T. WT	2670 (KG) DU RANGE 001 - 026			PAGE 003 / 002	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
	*****	ERECTION NOTES FOLLOWS			*****	*****	
NOTE: 1. Where item number is not available use mark number for identifying.			CREATED BY		T. RAVI KISHORE		
2. When * is marked in Drawing Number column separate erection drawing will follow.			APPROVED & ISSUED BY		PABITRA KUMAR SAHOO		


ERECTION AND COMMON NOTES


ZMED-CS/8062-LU-004-1-32-010-00-E

Nore : ROD 6 MM IS 2062 TO BE CUT AT SITE AS PER THE FOLLOW
INSULATION
THICKNESS

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.33-021			REVISION '00'	
DPN-NS 005-1		JOB NOS	8062			NETWORK 6007570	
		T. WT	12065 (KG) DU RANGE 001 - 002			PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	60THK ROCKWOOL 150 KG/M3, SS304 DSW NET		01	M2	1560.000	10140.000	
002	50THK ROCKWOOL 150 KG/M3, SS304 DSW NET		02	M2	350.000	1925.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		T. RAVI KISHORE	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG					SHIPPING LIST	
		PGMA	.36-391				REVISION '01'	
DPN-NS 016-1		JOB NOS	8062				NETWORK 6007581	
		T. WT	6531 (KG) DU RANGE 001 - 039				PAGE 001 / 003	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS	
					QTY.	WT. (KG.)		
001	ISA75X75X6- IS2062E250A (FE410W) PLATE 10 MM-IS2062E250A (FE410W) BEAM 200 X 100 -IS2062E250A (FE410W) CHANNEL 150 X 75 -IS2062E250A (FE410W) CHANNEL 125 X 65 MM -IS2062E250A (FE410W) ROUND 22MM SA 105	1-36-820-U0076	01	M	21.000	142.800		
002			02	NO	3.000	235.500		
003			03	M	20.000	508.000		
004			04	M	20.000	336.000		
005			05	M	20.000	262.000		
006			06	NO	4.000	17.904		
007			45	NO	2.000	52.396		
008			47	NO	2.000	64.152		
009			07	M	102.000	315.486		
010			08	M	52.000	244.920		
011				NO	1.000	4.180		
012				NO	1.000	20.250		
013				NO	18.000	225.000		
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		PK SAHOO		
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO		


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.36-391				REVISION '01'
DPN-NS 016-1		JOB NOS	8062				NETWORK 6007581
		T. WT	6531 (KG) DU RANGE 001 - 039				PAGE 002 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	PIPE (SMLS) 26.7 X 3.91 SA312GRTP304			NO	1.000	11.000	
015	PIPE OD 21.7 X 3.7THK SA312 TP304			NO	9.000	74.385	
016	REDUCER B16.9 BW(105X405)ASTMA403GRW P304			NO	5.000	14.000	
017	HALF CPLNG SS (A182F304) 1.5" CL3000 SW			NO	4.000	2.440	
018	SS REDUCERS - 50NBX25NBX3000			NO	4.000	56.800	
019	SS REDUCERS - 50NBX25NBX3000			NO	1.000	14.200	
020	SS SW EQ.TEE. 1" 3000# SA182F304			NO	6.000	4.116	
021	SS SW EQ.TEE. 1" 3000# SA182F304			NO	4.000	2.744	
022	SS SW RED.TEE. 1"X3/4" 3000# SA182F304			NO	5.000	1.700	
023	SS UNEQUAL TEE 1"X1/2"X3000# SA182F304			NO	5.000	5.000	
024	SS PIPE CAP 1" NPT(F) A182F316 3000#			NO	5.000	5.000	
025	90D ELBOW 1"SW X1"SW A182 F304 3000#			NO	25.000	15.000	
026	SS EQUAL TEES SA182F304 15NBX3000#			NO	5.000	5.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		PK SAHOO	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.36-391	REVISION '01'
DPN-NS 016-1	JOB NOS	8062	NETWORK 6007581
	T. WT	6531 (KG) DU RANGE 001 - 039	PAGE 003 / 003


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	90D ELBOW 1/2"SW X1/2"SW A182 F304 3000#			NO	10.000	4.000	
028	SCRF END CAP 15NB 3000# SA182 GR.F316			NO	5.000	0.250	
029	SS SW/SO FLG TO SA182 F304, 40NBX150#			NO	2.000	3.400	
030	BALL VALVE 25NB SW 800# ASTM A182 GRF304			LOT	8.000	1200.000	
031	GATE VALVE 25NB SW 800# ASTM A182 GRF304			LOT	5.000	750.000	
032	GATE VALVE 20NB SW 800# ASTM A182 GRF304			LOT	2.000	300.000	
033	GATE VALVE 15NB SW 800# ASTM A182 GRF304			LOT	2.000	300.000	
034	BALL VALVE 15NB 800# SW ASTM A182GRF304			LOT	3.000	450.000	
035	FLAT 50 X 6 - IS2062GRA			NO	15.000	34.125	
036	SS U-CLAMP 4 NUTS 25NB			NO	40.000	20.000	
037	SS U-CLAMP 4 NUTS 15NB			NO	20.000	20.000	
038	SS PLATE 10 MM - SA240TY304			NO	30.000	605.250	
039	ISA75X75X6- IS2062E250A (FE410W)			NO	30.000	204.000	
***** SHIPPING LIST COMPLETED *****							


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	PK SAHOO
	APPROVED & ISSUED BY	PABITRA KUMAR SAHOO


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG					SHIPPING LIST		
	PGMA	.37-010				REVISION '00'		
DPN-NS 006-1	JOB NOS	8062				NETWORK 6007571		
	T. WT	1000 (KG) DU RANGE 001 - 001				PAGE 001 / 001		
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS	
					QTY.	WT. (KG.)		
001	CASTABLE REFRACTORY GR C			01	KG	1000.000	1000.000	
***** SHIPPING LIST COMPLETED *****								
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		2210630		
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO		


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.41-100			REVISION '00'	
DPN-NS 017-1		JOB NOS	8062			NETWORK 6007582	
		T. WT	3000 (KG) DU RANGE 001 - 004			PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	FUEL GAS BURNER ASSLY WITH ACCESSORIES		01	NO	4.000	2800.000	
002	COMMISSIONING SPARES		02	NO	1.000	50.000	
003	MANDATORY SPARES		03	NO	1.000	100.000	
004	E&C SUPERVISION & ASSITANCE IN SITE TEST		04	NO	1.000	50.000	
<p style="text-align: center;">***** SHIPPING LIST COMPLETED *****</p>							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.42-156				REVISION '01'
DPN-NS 018-1		JOB NOS	8062				NETWORK 6007583
		T. WT	3259 (KG) DU RANGE 001 - 035				PAGE 001 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PIPE (SMLS) 168.3 X 7.11 CS A106GRB			NO	10.000	1554.300	
002	CS 90DEG ELBOW 150NB 40SCH SA234WPB			NO	20.000	20.000	
003	CS EQ. TEES 150NB, SCH40 SA234WPB			NO	10.000	164.800	
004	SOW FLG 6"- CL150SA1			NO	14.000	106.400	
005	CS FORGED SPEC BLND 150NBX150# B16.48			NO	1.000	5.400	
006	3.2TKNON-ASBTS GSKT-CNAF (HIGH TEMP SERVI			NO	1.000	19.500	
007	PIPE CLAMP ROD TYPE CS NB150			NO	20.000	28.920	
008	PIPE OD 26.7 X 3.91 - SA106GRB			NO	1.000	26.400	
009	CS 90DEG ELBOWS 20NBX6000			NO	3.000	0.750	
010	CS HALF COUPLING 20NBX6000# SW SA105			NO	15.000	6.000	
011	PIPE OD33.4X4.55TK SA106GRB (CERTIFIED)			NO	10.000	180.000	
012	CS 90 DEG ELBOWS 25NBX3000# SA105			NO	35.000	16.100	
013	PIPE CLMP ROD TYPE CS NB25 IS2062FE410WA			NO	30.000	24.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.42-156				REVISION '01'
DPN-NS 018-1		JOB NOS	8062				NETWORK 6007583
		T. WT	3259 (KG) DU RANGE 001 - 035				PAGE 002 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	SO &SW FLS25NB X150#SA105			NO	20.000	16.000	
015	3.2TKNON-ASBTS GSKT-CNAF(HIGH TEMP SERVI			NO	1.000	3.250	
016	SPIRAL WOUND GASKET 1" 150#			NO	10.000	0.400	
017	CS HALF COUPLINGS 25NBX3000# SW SA105			NO	25.000	5.500	
018	PIPE OD 48.3 X 5.08THK SA106GRB (CERT)			NO	1.000	5.460	
019	CS HALF COUPLING 40NBX3000# SW SA105			NO	2.000	2.660	
020	PIPE DIA 114.3 X 6.02 SA106GRB			NO	1.000	241.050	
021	EQUAL TEES 25NBX3000# SA105			NO	25.000	16.300	
022	CS REDUCER TEE 25NBX20NBX6000# SA105			NO	6.000	27.600	
023	PIPE OD 21.3 X 4.78 - SA106GRB(CERT)			NO	1.000	9.750	
024	CS 90DEG ELBOWS 15NBX6000# SA105			NO	10.000	4.800	
025	CS REDUCING TEE 25NB/15NBX6000# SA105			NO	3.000	6.600	
026	S+2HXN-M14X2.0PX90LG			NO	60.000	9.960	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.42-156				REVISION '01'
DPN-NS 018-1		JOB NOS	8062				NETWORK 6007583
		T. WT	3259 (KG) DU RANGE 001 - 035				PAGE 003 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	S+2HXN-M20X2.5PX120LG SA193GRB7/194GR2H			NO	80.000	33.600	
028	CHANNEL 100 X 50 - IS2062E250A(FE410W)			NO	6.000	286.800	
029	ANGLE 50 X 50 X 6 -IS2062E250A(FE410W)			NO	5.000	112.500	
030	PLATE 10 MM-IS2062E250A(FE410W)			NO	1.000	117.750	
031	CS HALF COUPLING 15NBX6000# SW SA105			NO	3.000	0.900	
032	CS CON REDUCER 168.3X114.3			NO	4.000	158.000	
033	CS BLIND FL 25NBX150#, SA105			NO	16.000	14.400	
034	CS BL FLG. 150NB 150# SA105			NO	2.000	22.600	
035	PIPE CLAMP ROD TYPE CS NB100			NO	10.000	10.640	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.42-170				REVISION '01'
DPN-NS 019-1		JOB NOS	8062				NETWORK 6007584
		T. WT	310 (KG) DU RANGE 001 - 013				PAGE 001 / 001
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PIPE DIA 114.3 X 6.02 SA106GRB			NO	2.000	160.700	
002	PIPE CLAMP ROD TYPE CS NB100			NO	8.000	8.512	
003	PIPE OD33.4X4.55TK SA106GRB (CERTIFIED)			NO	2.000	36.000	
004	3.2TKNON-ASBTS GSKT-CNAF (HIGH TEMP SERVI			NO	1.000	6.500	
005	S+2HXN- M14X2.0PX90LGSA193GRB7 /194GR2H			NO	16.000	2.656	
006	CS HALF COUPLINGS 25NBX3000# SW SA105			NO	6.000	1.320	
007	PIPE OD 26.7 X 3.91 - SA106GRB			NO	1.000	6.600	
008	CS HALF COUPLING 20NBX6000# SW SA105			NO	10.000	4.000	
009	CHANNEL 100 X 50 - IS2062E250A (FE410W)			NO	1.000	57.360	
010	ANGLE 50 X 50 X 6 -IS2062E250A (FE410W)			NO	1.000	9.000	
011	PLATE 10 MM-IS2062E250A (FE410W)			NO	4.000	9.420	
012	S+2HXN- M16X2.0PX120LGSA193GRB 7/194GR2H			NO	16.000	2.688	
013	PIPE CLMP ROD TYPE CS			NO	6.000	4.800	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.42-170			REVISION '01'	
DPN-NS 019-1		JOB NOS	8062			NETWORK 6007584	
		T. WT	310 (KG) DU RANGE 001 - 013			PAGE 002 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
	NB25 IS2062FE410WA						
	***** SHIPPING LIST COMPLETED *****						
NOTE: 1. Where item number is not available use mark number for identifying.				CREATED BY		S VIJAY	
2. When * is marked in Drawing Number column separate erection drawing will follow.				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.42-184				REVISION '01'
DPN-NS 020-1		JOB NOS	8062				NETWORK 6007585
		T. WT	377 (KG) DU RANGE 001 - 014				PAGE 001 / 002
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PIPE OD33.4X4.55TK SA106GRB (CERTIFIED)			NO	2.000	48.000	
002	CS 90 DEG ELBOWS 25NBX3000# SA105			NO	12.000	5.520	
003	EQUAL TEES 25NBX3000# SA105			NO	5.000	3.260	
004	CS HALF COUPLINGS 25NBX3000# SW SA105			NO	4.000	0.880	
005	SO &SW FLS25NB X150# SA105			NO	6.000	4.800	
006	SPEC. BLIND: 1"-150#-FF/125AARH- SA105			NO	1.000	0.200	
007	3.2TKNON-ASBTS GSKT-CNAF (HIGH TEMP SERVI			NO	2.000	3.250	
008	S+2HXN- M14X2.0PX90LGSA193GRB7 /194GR2H			NO	12.000	1.992	
009	PIPE CLMP ROD TYPE CS NB25 IS2062FE410WA			NO	6.000	4.800	
010	CS REDUCER TEE 25NBX20NBX6000# SA105			NO	3.000	13.800	
011	PIPE OD 26.7 X 3.91 - SA106GRB			NO	1.000	4.400	
012	CHANNEL 100 X 50 - IS2062E250A (FE410W)			NO	1.000	191.200	
013	ANGLE 50 X 50 X 6 -IS2062E250A (FE410W)			NO	1.000	90.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.42-200	REVISION '00'
DPN-NS 023-1	JOB NOS	8062	NETWORK 6007588
	T. WT	86 (KG) DU RANGE 001 - 002	PAGE 001 / 001


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	ITEM	UNIT	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	SS SAMPLE BOMB ASSEMBLY (500 ML)		01	NO	4.000	16.000	
002	FUEL GAS Y-TYPE STRAINERS		02	NO	2.000	70.000	
	*****	SHIPPING LIST COMPLETED	*****	*****			
	*****	ERECTION NOTES FOLLOWS	*****	*****			


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	S VIJAY
	APPROVED & ISSUED BY	PABITRA KUMAR SAHOO


ERECTION AND COMMON NOTES

ZMED-CS/8062-LU-023-1-42-200-00-B

DU-001 OUT OF 4NO SAMPLE BOMBS 1 NO ONLY TO BE DISPATCHED TO SITE


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.43-002				REVISION '01'
DPN-NS 021-1		JOB NOS	8062				NETWORK 6007586
		T. WT	4210 (KG) DU RANGE 001 - 034				PAGE 001 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PIPE SA106 GR.B 219.1 X 8.18			NO	6.000	1331.400	
002	ELBOWS ASTMA 234 GR.WPB, 200NB			NO	14.000	14.000	
003	CS EQUAL TEE ASTMA 234 GR.WPB, 200 N			NO	2.000	46.800	
004	CRDCR CS 8"X6" STD X STD BW			NO	2.000	13.000	
005	CS CON REDUCER 168.3X114.3			NO	2.000	79.000	
006	CS HALF COUPLING 20NBX6000# SW SA105			NO	8.000	3.200	
007	PIPE OD 26.7 X 3.91 - SA106GRB			NO	2.000	17.600	
008	CS 90DEG ELBOW 150NB 40SCH SA234WPB			NO	4.000	4.000	
009	PIPE (SMLS) 168.3 X 7.11 CS A106GRB			NO	6.000	847.800	
010	CS HALF COUPLINGS 25NBX3000# SW SA105			NO	30.000	6.600	
011	PIPE OD 60.3 X 5.54 - SA106GRB, CERT			NO	2.000	89.760	
012	CS 90 DEG ELBOWS 4"XSCH 40 SA234WPB			NO	4.000	4.000	
013	PIPE CLMP ROD TYPE CS NB25 IS2062FE410WA			NO	20.000	16.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.43-002				REVISION '01'
DPN-NS 021-1		JOB NOS	8062				NETWORK 6007586
		T. WT	4210 (KG) DU RANGE 001 - 034				PAGE 002 / 003
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	PIPE CLAMP ROD TYPE CS NB 50			NO	10.000	1.840	
015	PIPE CLAMP ROD TYPE CS NB150			NO	20.000	28.920	
016	PIPE CLAMP ROD TYPE CS NB200			NO	20.000	40.400	
017	CHANNEL 100 X 50 - IS2062E250A (FE410W)			NO	10.000	478.000	
018	ANGLE 50 X 50 X 6 -IS2062E250A (FE410W)			NO	10.000	225.000	
019	PLATE 10 MM-IS2062E250A (FE410W)			NO	1.000	235.500	
020	PLATE 6MM- IS2062E250A (FE410W)			NO	1.000	47.100	
021	CS WN FLG. 100NB 150# SA105			NO	5.000	34.000	
022	CS BLD FLG 100NBX150# SA105			NO	5.000	34.000	
023	SPIRAL WOUND GASKET 4" 150#			NO	10.000	2.000	
024	S+2HXN- M16X2.0PX120LGSA193GRB 7/194GR2H			NO	48.000	8.064	
025	CS W.N FL 50NBX150#, SA105			NO	6.000	15.600	
026	CS BLIND FL 50NBX150#, SA105			NO	6.000	14.400	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		S VIJAY	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.43-002	REVISION '01'
DPN-NS 021-1	JOB NOS	8062	NETWORK 6007586
	T. WT	4210 (KG) DU RANGE 001 - 034	PAGE 003 / 003

DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	ITEM	UNIT	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	SW GSKT 50NBX150# SS316 (GRPHT+SSIR+CSOR)			NO	8.000	4.000	
028	STUD+2NUTS M16X90 LG SA193-B7,194-2H			NO	32.000	32.000	
029	3.2TKNON-ASBTS GSKT-CNAF (HIGH TEMP SERVI			NO	1.000	39.000	
030	CS BW TEES 100NBX40SCH			NO	2.000	2.000	
031	PIPE DIA 114.3 X 6.02 SA106GRB			NO	5.000	401.750	
032	PIPE OD33.4X4.55TK SA106GRB (CERTIFIED)			NO	4.000	60.000	
033	CS EQUAL TEES 60.3X5.54TK			NO	4.000	8.800	
034	SHEET 3.15MM-IS1079 D			NO	1.000	24.728	
***** SHIPPING LIST COMPLETED *****							

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	S VIJAY
	APPROVED & ISSUED BY	PABITRA KUMAR SAHOO


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.48-014				REVISION '01'
DPN-NS 003-1		JOB NOS	8062				NETWORK 6007567
		T. WT	1753 (KG) DU RANGE 001 - 004				PAGE 001 / 001
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	SAW TOOTH EXPANSION JOINT 3495X3995			NO	1.000	647.100	
002	SAW TOOTH EXPANSION JOINT 1062X5481			NO	1.000	396.828	
003	SAW TOOTH EXPANSION JOINT 1062X3995			NO	1.000	338.188	
004	SAW TOOTH EXPANSION JOINT 3600X2000			NO	1.000	371.160	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		T. RAVI KISHORE	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	HL-501				REVISION '13'
DPN-NS 001-1		JOB NOS	8062				NETWORK 6007565
		T. WT	20487 (KG) DU RANGE 001 - 021				PAGE 001 / 002
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	STRAIGHT DUCT (3500 X4000)			NO	1.000	544.470	
002	JUNCTION DUCT (3500 X 4000)			NO	1.000	4615.398	
003	BUILT-UP CHANNEL (100 LG. SPOOL DUCT)			NO	1.000	389.768	
004	TRANSISTION DUCT			NO	1.000	1628.632	
005	ELBOW DUCT			NO	1.000	2207.838	
006	TRANSISTION DUCT			NO	1.000	2545.878	
007	STRAIGHT DUCT			NO	1.000	3938.448	
008	TRANSISTION DUCT			NO	1.000	2659.108	
009	STRAIGHT DUCT (3600 X2000)			NO	2.000	623.896	
010	BASE PL.,COL,CAP PL.&SLIDIUNG BEARING PL			NO	1.000	570.276	
011	BOTTOM BEAM -ISM250			NO	2.000	274.420	
012	HANGER ROD			NO	8.000	142.144	
013	FLUE GAS ANALYZER ASSEMBLY			NO	1.000	25.585	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		T. RAVI KISHORE	
				APPROVED & ISSUED BY		PABITRA KUMAR SAHOO	

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	HL-501	REVISION '13'
DPN-NS 001-1	JOB NOS	8062	NETWORK 6007565
	T. WT	20487 (KG) DU RANGE 001 - 021	PAGE 002 / 002


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	ITEM	UNIT	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	TOP BEAM - ISMC 250			NO	1.000	8.550	
015	GUSSET PALTE			NO	4.000	15.700	
016	GUSSET PALTE			NO	2.000	5.182	
017	PIPE 76.1 DIA			NO	4.000	192.928	
018	COLUMN - ISMC 125			NO	2.000	32.042	
019	SUPPORTS - ISMC 75			NO	4.000	43.324	
020	ANGLE			NO	4.000	18.800	
021	CENTER PLATE			NO	4.000	4.224	
***** SHIPPING LIST COMPLETED *****							

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	T. RAVI KISHORE
	APPROVED & ISSUED BY	PABITRA KUMAR SAHOO

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-000	REVISION '00'
DPN-NS 028-1	JOB NOS	8062	NETWORK 6007593
	T. WT	98 (KG) DU RANGE 001 - 005	PAGE 001 / 001


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PRESSURE GAUGES, 0-10 KG/CM2G		01	NO	2.000	10.000	
002	PRESSURE GAUGES, 0-16 KG/CM2G		02	NO	4.000	20.000	
003	PRESSURE GAUGES, 0-1000 MMWCG		03	NO	3.000	18.000	
004	PRESSURE GAUGES, 0-4 KG/CM2G		04	NO	8.000	40.000	
005	PRESSURE GAUGES, 0-400 MMWCG		05	NO	2.000	10.000	
***** SHIPPING LIST COMPLETED *****							


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-010	REVISION '00'
DPN-NS 035-1	JOB NOS	8062	NETWORK 6007600
	T. WT	480 (KG) DU RANGE 001 - 010	PAGE 001 / 001

DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PRESSURE TRANSMITTERS 0-10 KG/CM2G			01 NO	3.000	30.000	
002	PRESSURE TRANSMITTERS 0-1500 MMWCG			02 NO	9.000	90.000	
003	PRESSURE TRANSMITTERS 0-400 MMWCG			03 NO	4.000	40.000	
004	PRESSURE TRANSMITTERS 0-6 KG/CM2G			04 NO	5.000	50.000	
005	DP TRANSMITTERS -1 TO 1 KG/CM2G			05 NO	2.000	20.000	
006	DP TRANSMITTERS 0 TO 200 MMWC			06 NO	3.000	30.000	
007	DP TRANSMITTERS 0-1500 MMWC & 0-2500MMWC			07 NO	10.000	100.000	
008	DP TRANSMITTERS 0-5000 MMWC			08 NO	7.000	70.000	
009	TEMPERATURE TRANSMITTERS,CALRNG:0- 120DEG			09 NO	2.000	20.000	
010	TEMPERATURE TRANSMITTERS,CALRNG:0- 1400			10 NO	3.000	30.000	
***** SHIPPING LIST COMPLETED *****							

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-020			REVISION '01'	
DPN-NS 036-1		JOB NOS	8062			NETWORK 6007601	
		T. WT	4 (KG) DU RANGE 001 - 002			PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	HEATER TUBE SKIN THERMOCOUPLES		01	NO	2.000	2.000	
002	K-TYPE THERMOCOUPLES SS316, 1.5" 300#		02	NO	2.000	2.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-030				REVISION '00'
DPN-NS 027-1		JOB NOS	8062				NETWORK 6007592
		T. WT	452 (KG) DU RANGE 001 - 005				PAGE 001 / 001
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	MAIN STEAM(HP) FLOW NOZZLE ASSY		01	NO	1.000	150.000	
002	MAIN STEAM(LP) FLOW NOZZLE ASSY		02	NO	1.000	150.000	
003	HP-LP BYPASS MAIN STEAM FLOW NOZZLE ASSY		03	NO	1.000	150.000	
004	FLOW ORIFICE PLATE ASSY 3",300#		04	NO	1.000	1.000	
005	FG FLOW ORIFICE ASSY MANDATORYSPARES LOT		05	NO	1.000	1.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-090 INSTRUMENTATION CABLES	REVISION '00'
DPN-NS 031-1	JOB NOS	8062	NETWORK 6007596
	T. WT	23745 (KG) DU RANGE 001 - 015	PAGE 001 / 002

DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	3C X 6 MM2, FRLS, XLPE SHEATH BLACK			01 M	850.000	425.000	
002	4C X 95 MM2, FRLS, XLPE SHEATH BLACK			02 M	350.000	1820.000	
003	6P X 1.5 MM2, OVERALL SHEATH LIGHT BLUE			03 M	500.000	500.000	
004	6P X 1.5 MM2, OVERALL SHEATH BLACK			04 M	2000.000	2000.000	
005	12P X 1.5 MM2, OVERALL SHEATH BLACK			05 M	2000.000	2000.000	
006	12P X 1.5 MM2, OVERALL SHEATH LIGHT BLUE			06 M	5000.000	5000.000	
007	3C X 2.5 MM2, OVERALL SHEATH BLACK			07 M	2000.000	2000.000	
008	12C X 2.5 MM2, OVERALL SHEATH BLACK			08 M	500.000	500.000	
009	2P X 1.5 MM2, OVERALL SHEATH BLACK			09 M	1500.000	1500.000	
010	2P X 1.5 MM2, OVERALL SHEATH LIGHT BLUE			10 M	5000.000	5000.000	
011	2P KX X 16 AWG KX EXTENSION CABLE			11 M	500.000	500.000	
012	6P X 2.5 MM2, FRLS, OUTER SHEATH BLACK			12 M	500.000	500.000	
013	1P X 2.5 MM2, FRLS, OUTER SHEATH BLACK			13 M	500.000	500.000	


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG					SHIPPING LIST	
		PGMA	.97-090 INSTRUMENTATION CABLES				REVISION '00'	
DPN-NS 031-1		JOB NOS	8062				NETWORK 6007596	
		T. WT	23745 (KG) DU RANGE 001 - 015				PAGE 002 / 002	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS	
					QTY.	WT. (KG.)		
014	SINGLE			14	M	500.000	500.000	
	TRIADX1.5MM2,FRLS,OUTE							
	RSHEATH,BLK							
015	12C X 1.5 MM2, FRLS,			15	M	1000.000	1000.000	
	OUTER SHEATH BLACK							
	***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN		
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR		

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-100	REVISION '01'
DPN-NS 030-1	JOB NOS	8062	NETWORK 6007595
	T. WT	7100 (KG) DU RANGE 001 - 012	PAGE 001 / 001


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	300 MM WIDTH LADDER TYPE CABLE TRAY			01 M	400.000	2000.000	
002	150MM GI PERFORATED CABLE TRAYS			02 M	150.000	675.000	
003	100MM GI PERFORATED CABLE TRAYS			03 M	300.000	900.000	
004	50MM GI PERFORATED CABLE TRAYS			04 M	150.000	150.000	
005	CABLETRAY COVERS SUITABLE TO 300MM TRAYS			05 M	200.000	1200.000	
006	CABLETRAY COVERS SUITABLE TO 150MM TRAYS			06 M	150.000	450.000	
007	CABLETRAY COVERS SUITABLE TO 100MM TRAYS			07 M	250.000	750.000	
008	CABLETRAY COVERS SUITABLE TO 50MM TRAYS			08 M	150.000	300.000	
009	COUPLER ASSY SUITABLE FOR 300MM TRAYS			09 SET	500.000	250.000	
010	COUPLER ASSY SUITABLE FOR 150MM TRAYS			10 SET	250.000	125.000	
011	COUPLER ASSY SUITABLE FOR 100MM TRAYS			11 SET	300.000	150.000	
012	COUPLER ASSY SUITABLE FOR 50MM TRAYS			12 SET	300.000	150.000	
***** SHIPPING LIST COMPLETED *****							

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-110 JUNCTION BOXES AND ACCESSORIES	REVISION '00'
DPN-NS 037-1	JOB NOS	8062	NETWORK 6007602
	T. WT	699 (KG) DU RANGE 001 - 019	PAGE 001 / 002


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	DIE CAST AL. EX JB 48WAY CLR:LIGHT GREY		01	NO	4.000	68.000	
002	DIE CAST AL. EX JB 24WAY CLR:LIGHT GREY		02	NO	4.000	40.000	
003	DIE CAST AL. EX JB 48WAY CLR: LIGHT BLUE		03	NO	16.000	272.000	
004	DC CBL GLND NIPLTBR 1.5"NPTM - EXD		04	NO	10.000	5.000	
005	DC CBL GLND NIPLTBR 1 1/4"NPTM- EXD		05	NO	40.000	20.000	
006	DC CBL GLND NIPLTBR 1.5"ETM		06	NO	10.000	7.000	
007	DC CBL GLND NIPLTBR 1 1/4"ETM		07	NO	50.000	25.000	
008	DC CBL GLND NIPLTBR 1"NPTM- EXD		08	NO	20.000	16.000	
009	DC CBL GLND NIPLTBR 1.0"ETM		09	NO	20.000	14.000	
010	DC CBL GLND NIPLTBR 3/4"NPTM-EXD		10	NO	40.000	20.000	
011	DC CBL GLND NIPLTBR 3/4"ETM		11	NO	40.000	32.000	
012	DC CBL GLND NIPLTBR 1/2"NPTM-EXD		12	NO	200.000	100.000	
013	DC CBL GLND NIPLTBR 1/2"ETM		13	NO	20.000	16.000	


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR


	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-110 JUNCTION BOXES AND ACCESSORIES	REVISION '00'
DPN-NS 037-1	JOB NOS	8062	NETWORK 6007602
	T. WT	699 (KG) DU RANGE 001 - 019	PAGE 002 / 002


DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	PLUGS SIZE: 1.0"NPT(M) EX PROOF			14 NO	30.000	24.000	
015	PLUGS SIZE: 0.5"NPT(M) EX PROOF			15 NO	80.000	24.000	
016	PLUGS SIZE: 3/4"NPT(M) EX PROOF			16 NO	20.000	6.000	
017	PLUGS SIZE: 1 1/4"NPT(M) EX PROOF			17 NO	10.000	3.000	
018	PLUGS SIZE: 1.5"NPT(M) EX PROOF			18 NO	10.000	3.000	
019	ADAPTORS SS 1/2"NPTMX3/4"NPTF EXPROOF			19 NO	20.000	4.000	
***** SHIPPING LIST COMPLETED *****							


NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-200				REVISION '00'
DPN-NS 032-1		JOB NOS	8062				NETWORK 6007597
		T. WT	10553 (KG) DU RANGE 001 - 059				PAGE 001 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	PLATE 6MM- IS2062E250A(FE410W)		01	NO	1.000	753.600	
002	1"FL SW RF125 300# A105 PITHK:4.55MM IBR		02	NO	8.000	12.000	
003	1"FL SW RF125AA 300# A105 PITHK:3.38MM		03	NO	30.000	45.000	
004	1.5"FL SWRF125AA 300# A105 PT:5.08MM IBR		04	NO	6.000	1.800	
005	1.5"FL WNRF125AA 300# A182F304 PT:5.08MM		05	NO	6.000	1.800	
006	150NB 300#SS316 SPW GSKT+GRAFOIL+IN RING		06	NO	6.000	3.360	
007	2"FL WNRF125AA 600# A105 PTK:5.54MM IBR		07	NO	6.000	24.000	
008	3"FL WNRF125AA 600# A105 PTK:5.49MM IBR		08	NO	6.000	6.000	
009	4"FL WN RF125AA 300# A105 PTHK:6.02MM		09	NO	32.000	358.400	
010	4"FL WNRF125AA 300# A105 PTHK:6.02MM IBR		10	NO	8.000	89.600	
011	6"FL WN RF125AA 300# A105 PTHK:7.11MM		11	NO	4.000	76.400	
012	ANGLE 65 X 65 X 6 -IS2062E250A(FE410W)		12	KG	2320.000	2320.000	
013	CHANNEL 100 X 50 - IS2062E250A(FE410W)		13	KG	2390.000	2390.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-200				REVISION '00'
DPN-NS 032-1		JOB NOS	8062				NETWORK 6007597
		T. WT	10553 (KG) DU RANGE 001 - 059				PAGE 002 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
014	CS WN FLANGE 100NBX150# RF SA105 - IBR		14	NO	6.000	6.000	
015	CS WN FLANGE 80NBX150# RF SA105		15	NO	6.000	27.000	
016	GSK, SS316, SPWD, GF, CS OR, SS316-100NB, 150#		16	NO	6.000	1.998	
017	NAB M.S.W. GSKT SIZE 2"#600 GRPH-DHYB		17	NO	6.000	0.600	
018	PIPE 21.3 X 4.78 - SA312TP316		18	M	100.000	194.000	
019	PIPE OD 21.3 X 4.78 - SA106GRB (CERT)		19	M	400.000	780.000	
020	PIPE OD 21.3 X 4.78 - SA106GRB		20	M	300.000	585.000	
021	PIPE IS 1239 60.8 X 4.5		21	M	175.000	1025.500	
022	S+2N 5/8" UNCX80LG SA193GRB7/194GR2H		22	NO	100.000	7.800	
023	S+2N 3/4" UNCX90LG SA193GRB7/194GR2H		23	NO	40.000	4.160	
024	S+2N 5/8" UNCX110LG SA193GRB7/194GR2H		24	NO	26.000	2.444	
025	S+2N 5/8" UNCX90LG SA193GRB7/194GR2H		25	NO	48.000	4.128	
026	SPIRAL WOUND GASKET 3" 150#		26	NO	10.000	0.500	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.			CREATED BY		U KIRAN		
			APPROVED & ISSUED BY		Y.PRASANNA KUMAR		


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-200				REVISION '00'
DPN-NS 032-1		JOB NOS	8062				NETWORK 6007597
		T. WT	10553 (KG) DU RANGE 001 - 059				PAGE 003 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
027	SPW GRPHT FLD WITH SS316 I/O-1" 300#		27	NO	30.000	3.900	
028	SPW SS316 GF CS OR SS316 IR 80NB 600#		28	NO	6.000	1.200	
029	SS STUD +2NUTS 3/4"8 UNCX115 LG SA		29	NO	260.000	260.000	
030	SS+2N 3/4" UNCX120LG SA193GRB7M/194GR2HM		30	NO	40.000	4.480	
031	SS+2N 3/4" UNCX125LG SA193GRB7M/194GR2HM		31	NO	26.000	2.964	
032	SSTUBE 1/2"OD X 0.049"THK A269 TP316L		32	M	500.000	175.000	
033	SW GASKET 1.5" 300# SS316L OR+GRAFOIL+IR		33	NO	12.000	1.320	
034	SW GASKET 4" 300# SS316L OR+GRAFOIL+IR		34	NO	36.000	5.040	
035	WN FLANGE: 3"-150#-RF/125AARH- SA182F304		35	NO	8.000	8.000	
036	ELBOW 1/2"X1/2"X1/2", 6000#, S A105, SWXSW		36	NO	80.000	80.000	
037	TEE 1/2"X1/2"X1/2", 6000#, S A105, SWXSWXSW		37	NO	75.000	75.000	
038	PIPE CAP 1/2", 6000#, SA105, NPT (F)		38	NO	90.000	90.000	
039	PIPE NPL 1/2"NB SCH160 150LG SA106GB		39	NO	90.000	90.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-200			REVISION '00'	
DPN-NS 032-1		JOB NOS	8062			NETWORK 6007597	
		T. WT	10553 (KG) DU RANGE 001 - 059			PAGE 004 / 005	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
040	NIPPLE TOE 1/2"NPTMX150LG SCH160 A106GB		40	NO	140.000	140.000	
041	SWG NPL 3/4"PLX1/2"NPT (M) X150L G SA106GRB		41	NO	60.000	60.000	
042	COUP 1/2"SW X 1/2"SW A105 3000#		42	NO	15.000	15.000	
043	90DEG ELBOW 1/2"SW X1/2"SW A105 3000#		43	NO	100.000	60.000	
044	TEE:1/2"SWX1/2"NPT (F) X 1/2"SW A105 3000#		44	NO	80.000	80.000	
045	PIPE CAP 1/2", 6000#, SA105, NPT (F)) IBR		45	NO	50.000	50.000	
046	PIPE NPL 1/2"NB SCH160 150LG SA106GB IBR		46	NO	90.000	90.000	
047	NIPPLE TOE 1/2"NPTMX 150LG SCH160 IBR		47	NO	80.000	80.000	
048	SWG NPL 1.5"PLX1/2"NPTMX75LG SCH160 A106		48	NO	50.000	50.000	
049	COUPL 1/2"NPT (F) X1/2"NPT (F) SA105, 3000#		49	NO	50.000	50.000	
050	FMALE CONNECTORS SS316 1/2"NPTF X 1/2"OD		50	NO	30.000	6.000	
051	MALE CONNECTORS SS316 1/2"NPTM X 1/2"OD		51	NO	75.000	15.000	
052	TUBE UNIONS SS316 1/2" OD X 1/2" OD		52	NO	36.000	3.600	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	


		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-200				REVISION '00'
DPN-NS 032-1		JOB NOS	8062				NETWORK 6007597
		T. WT	10553 (KG) DU RANGE 001 - 059				PAGE 005 / 005
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
053	MALE CONNECTR SS316 1/2"NPTF X 1/2"OD		53	NO	50.000	50.000	
054	MALE CONNECTR SS316 1/2"NPTM X 1/2"OD		54	NO	50.000	50.000	
055	CS SYPHON 1/2"X1/2", S80, A106, NPT MXPL IBR		55	NO	5.000	5.000	
056	CONDENSATE POT S105, 1/2", SWXSW, C6000 IBR		56	NO	30.000	30.000	
057	GATE VLV-SA105 1/2"X800#MINIATURE NONIBR		57	NO	90.000	90.000	
058	GATE VALVES-SA105 1/2"X800#MINIATURE IBR		58	NO	90.000	90.000	
059	GLB VLV-SA105 1/2"X800#MINIATURE NONIBR		59	NO	20.000	20.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-300			REVISION '00'	
DPN-NS 038-1		JOB NOS	8062			NETWORK 6007603	
		T. WT	1 (KG) DU RANGE 001 - 001			PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	DC STARTER PANEL SUITABLE FOR DC MOTOR			01 SET	1.000	1.000	
<p style="text-align: center;">***** SHIPPING LIST COMPLETED *****</p>							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-400			REVISION '00'	
DPN-NS 041-1		JOB NOS	8062			NETWORK 6007606	
		T. WT	130 (KG) DU RANGE 001 - 001			PAGE 001 / 001	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	FLUE GAS OXYGEN ANALYZER ALONG WITH			01 SET	1.000	130.000	
***** SHIPPING LIST COMPLETED *****							
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST		
		PGMA	.97-402			REVISION '00'		
DPN-NS 041-1		JOB NOS	8062			NETWORK 6007607		
		T. WT	300 (KG) DU RANGE 001 - 002			PAGE 001 / 001		
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS	
					QTY.	WT. (KG.)		
001	EWLI ALONG WITH SPARES			01	SET	1.000	150.000	
002	EWLI ALONG WITH SPARES FOR HP DRUM			02	SET	1.000	150.000	
***** SHIPPING LIST COMPLETED *****								
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN		
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR		

		PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG				SHIPPING LIST	
		PGMA	.97-500			REVISION '00'	
DPN-NS 029-1		JOB NOS	8062			NETWORK 6007594	
		T. WT	3452 (KG) DU RANGE 001 - 025			PAGE 001 / 002	
DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	IT EM	UNI T	PER JOB NO.		REMARKS
					QTY.	WT. (KG.)	
001	DEAERATOR PRESSURE CONTROL VALVE PV-269B		01	NO	1.000	300.000	
002	MAKE UP WATER FLOW CONTROL VALVE LV421B		02	NO	1.000	200.000	
003	RETURN CONDENSATE FLOW CV PASS-1 HV-453B		03	NO	1.000	250.000	
004	RETURN CONDENSATE FLOW CV PASS-2 HV-XXXB		04	NO	1.000	200.000	
005	MANDATORY SPARES		05	LOT	1.000	50.000	
006	COMMISSIONING SPARES		06	LOT	1.000	40.000	
007	FUEL GAS FLOW CONTROL VALVE		07	NO	1.000	150.000	
008	HP FEED WATER 100% FLOW CONTROL VALVE		08	NO	1.000	100.000	
009	HP FEED WATER 30% FLOW CONTROL VALVE		09	NO	1.000	100.000	
010	LP FEED WATER 30% FLOW CONTROL VALVE		10	NO	1.000	100.000	
011	LP FEED WATER 100% FLOW CONTROL VALVE		11	NO	1.000	100.000	
012	HP-LP BYPASS FLOW CONTROL VALVE		12	NO	1.000	100.000	
013	MANDATORY SPARES		13	LOT	1.000	70.000	
NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.				CREATED BY		U KIRAN	
				APPROVED & ISSUED BY		Y.PRASANNA KUMAR	

	PROJECT CS/8062 ONGC HAZIRA COGEN PLANT HRSG		SHIPPING LIST
	PGMA	.97-500	REVISION '00'
DPN-NS 029-1	JOB NOS	8062	NETWORK 6007594
	T. WT	3452 (KG) DU RANGE 001 - 025	PAGE 002 / 002

DU NO	MARK NO./ DESCRIPTION	DRAWING NUMBER	ITEM	UNIT	PER JOB NO.		REMARKS	
					QTY.	WT. (KG.)		
014	COMMISSIONING SPARES			14	LOT	1.000	30.000	
015	FUEL GAS MAIN TRIP VALVE			15	NO	1.000	410.000	
016	PILOT GAS TRIP VALVE			16	NO	1.000	25.000	
017	FUEL GAS & PILOT GAS VENT TRIP VALVES			17	NO	2.000	50.000	
018	FUEL GAS BTV-1 TO GAS BTV-4 (HEADER SIDE)			18	NO	4.000	480.000	
019	FUEL GAS BTV-1 TO GAS BTV-4 (BURNER SIDE)			19	NO	4.000	480.000	
020	FUEL GAS VENT VALVE BNR-1 TO GAS BNR-4			20	NO	4.000	100.000	
021	MANDATORY SPARES			21	LOT	1.000	80.000	
022	COMMISSIONING SPARES			22	LOT	1.000	30.000	
023	ONLINE SOLENOID VALVE			23	NO	5.000	5.000	
024	PILOT GAS SELF ACTUATED PR.CONTROL VALVE			24	NO	1.000	1.000	
025	MANDATORY SPARES			25	LOT	1.000	1.000	
***** SHIPPING LIST COMPLETED *****								

NOTE: 1. Where item number is not available use mark number for identifying. 2. When * is marked in Drawing Number column separate erection drawing will follow.	CREATED BY	U KIRAN
	APPROVED & ISSUED BY	Y.PRASANNA KUMAR