

# **TENDER SPECIFICATION**

## **BHEL: PSSR: FEX: 31E**

### **FOR**

Providing services on Turn Key basis for Lifting, Shifting and placement of following equipment on their foundation by means of Strand Jack method at KPCL 1x370MW Yelahanka CCPP, Bangaluru, Karnataka.

1. Gas Turbine (GT Frame 9FB) – 1 No
2. Gas Turbine Generator Stator (GTG) – 1 No
3. Steam Turbine-HP/IP Module --1 No
4. Steam Turbine Generator Stator (STG)-1 No

### **VOLUME –I BOOK – I**

**TECHNOCOMMERCIAL BID - Consists of Book-I & Book-II**

**Book- I Consists of**

**Notice Inviting Tender**

**Volume-IA: Technical Conditions of Contract**

**Book-II consists of**

**Volume-IB : Special conditions of Contract,**

**Rev 01 dated 1st June 2012**

**Amendment 01 dated October 01, 2015**

**Volume-IC: General conditions of Contract**

**Rev 01 dated 1st June 2012,**

**Amendment 03 dated October 01, 2015**

**Volume-ID: Forms & Procedures**

**Rev 01 dated 1st June 2012**

**Amendment 03 dated October 01, 2015**



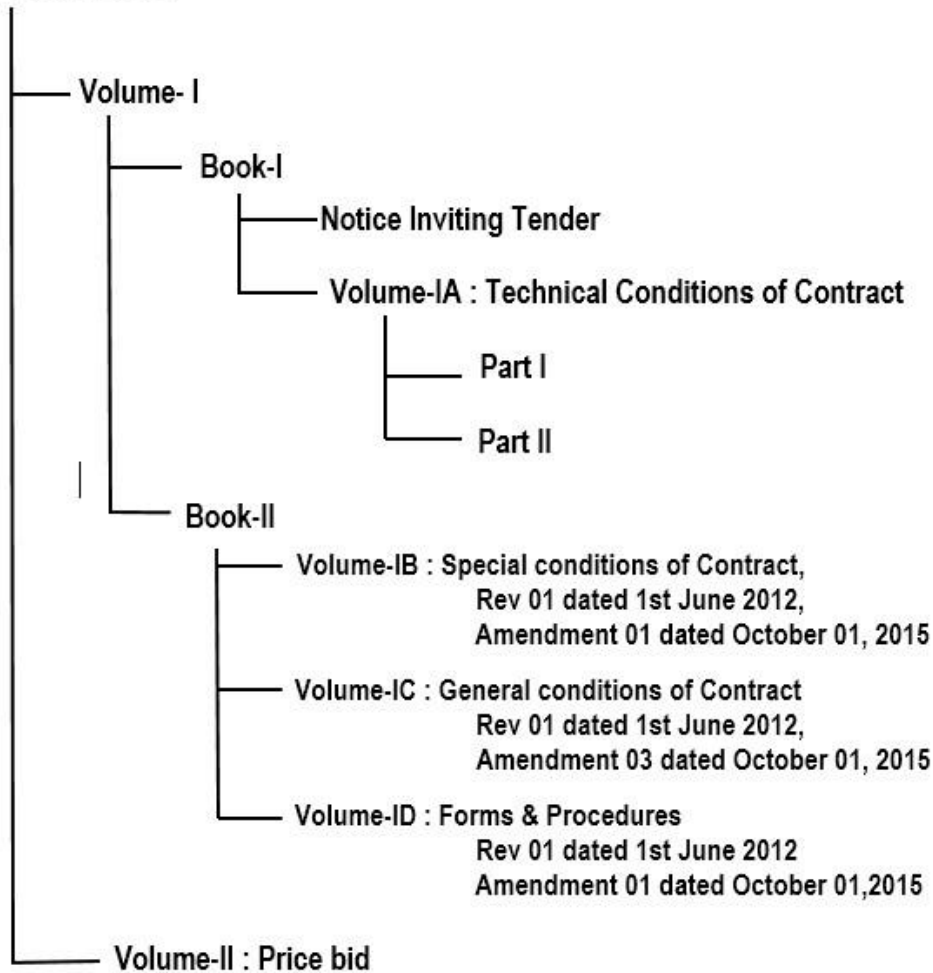
**BHARAT HEAVY ELECTRICALS LIMITED**  
Power Sector Southern Region  
690, Anna Salai, Nandanam, Chennai-35

# NOTICE INVITING TENDER

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## TENDER SPECIFICATION CONSISTS OF

### Tender Specification



# NOTICE INVITING TENDER

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**BHARAT HEAVY ELECTRICALS LIMITED**  
(A Government of India Undertaking)  
Power Sector, Southern Region  
690, Anna Salai, Nandanam, Chennai –600 035

## **Tender Specification No. BHEL: PSSR: FEX: 31**

for

Providing services on Turn Key basis for Lifting, Shifting and placement of following equipment on their foundation by means of Strand Jack method at KPCL 1x370MW Yelahanka CCPP, Bangaluru, Karnataka.

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One set of Tender documents consisting of

TECHNOCOMMERCIAL BID - 2 copies  
PRICE BID - 2 copies

Book SI no .....

Issued to

M/s

Refer NIT for Last date of submission

Please note this tender document is not transferable

For and on behalf of  
Bharat Heavy Electricals Limited

SR. Manager / FEX

Place:Chennai-35

Date:

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Tender Specification No.: BHEL PSSR FEX 31

# NOTICE INVITING TENDER

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## NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



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Tender Specification No.: BHEL PSSR FEX 31

# NOTICE INVITING TENDER

Ref: BHEL PSSR FEX 31

Date: 22.11.2016

## **NOTICE INVITING TENDER (NIT)** **Submission only through E-Procurement Portal** **<https://bheleps.buyjunction.in>**

**Note: However Bidder may download Tender Documents from websites or purchase tenders from this office for their reference**

To

Dear Sir/Madam

### **Sub: NOTICE INVITING TENDER**

Online Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-I) **through EProcurement Portal <https://bheleps.buyjunction.in> only**, for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

#### 1.0 **Salient Features of NIT**

Sl. No	ISSUE	DESCRIPTION	
i)	<b>TENDER NUMBER</b>	<b>BHEL PSSR FEX 31</b>	
ii)	<b>Broad Scope of job</b>	Providing services on Turn Key basis for Lifting, Shifting and placement of following equipment on their foundation by means of Strand Jack method at KPCL 1x370MW Yelahanka CCPP, Bangaluru, Karnataka. 1. Gas Turbine (GT Frame 9FB) – 1 No 2. Gas Turbine Generator Stator (GTG) – 1 No 3. Steam Turbine-HP/IP Module --1 No 4. Steam Turbine Generator Stator (STG)-1 No	
iii)	<b>DETAILS OF TENDER DOCUMENT</b>		
A	Volume-IA	Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	Applicable
B	Volume-IB	Special conditions of Contract, Rev 01 dated 1st June 2012, Amendment 01 dated October 01, 2015	Applicable

Tender Specification No.: BHEL PSSR FEX 31

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C	Volume-IC	General conditions of Contract Rev 01 dated 1st June 2012, Amendment 03 dated October 01, 2015	Applicable
D	Volume-ID	Forms & Procedures Rev 01 dated 1st June 2012 Amendment 01 dated October 01,2015	Applicable
E	Volume-II	Price Schedule (Absolute value).	Applicable
iv)	Issue of Tender Documents	<p><b>1. This is an E-tender floated online through our E-Procurement Portal</b>  <b><u><a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a></u></b></p> <p><b>2. <u>Sale from BHEL PSSR Regional office at :Chennai</u></b>  <b>Start: 22.11.2016</b>  <b>Closes: 09.12.2016</b></p> <p><b>3. From BHEL website (www.bhel.com -&gt; Tender Notifications)</b></p>	Applicable
v)	Due Date & Time of Offer Submission	<p><b>Date: 12.12.2016, Time :15.00 Hrs</b></p> <p><b>Place : The bidder should submit their offer online in e-Procurement portal at <u><a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a></u> only. Offers are invited in two-parts only.</b></p> <p><b>Bidders are requested to upload their offer well in advance in order to avoid last minute congestion at this website.</b></p> <p><b>Hard copy bid or bids through email/ fax shall not be accepted.</b></p>	Applicable
vi)	Technical Bid Opening (Tender)	<p><b>Date:12.12.2016, Time :15.30 Hrs</b></p> <p>Notes:</p> <p>(1) In case the due date of opening of tender becomes a non-working day, tenders shall be opened on next working day at the same time.</p> <p>(2) Bidder may record their presence online, during tender opening. However this being an e-tender it shall be opened online</p>	Applicable

## NOTICE INVITING TENDER

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vii)	EMD Amount	<b>Rs 2,20,000-</b> (Rupees Two Lakhs twenty thousand only) - <b>It is to be noted that proof of remittance for EMD shall be made available at BHEL PSSR Office prior to tender opening.</b> - <b>One time EMD is not applicable. Refer Vol-1A Part-II Chapter-1 for mode of payment of EMD</b>	Applicable
viii)	Cost of Tender	<b>Rs. 2,000/-</b> (Rupees Two Thousand Only)	Applicable
ix)	Last Date For Seeking Clarification	At least 5 days before the due date of offer submission or two days before the scheduled date of pre-bid meeting whichever is earlier along with soft version also, addressing to undersigned & to others as per contact address given below	Applicable
x)	Schedule of Pre Bid Discussion (PBD)	Date:06-12-2016 Time 11:00AM at BHEL:PSSR:Chennai-35	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 ( <a href="http://www.bhel.com">www.bhel.com</a> →Tender Notifications → View Corrigendum's & <b>CPP portal</b> →Tender Notice) & Procurement Site <a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a> and <b>not in the newspapers</b> . 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 & stamped on each page, as part of offer**. Rates / Price including discounts / rebates, if any, mentioned anywhere / in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.

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

**The originals of DD / Proof of remittance for Cost of Tender shall be made available at BHEL PSSR Office prior to tender opening.**

4.0 Refer Vol-1A Part-II Chapter-1 for mode of payment of EMD.

**It is to be noted that proof of remittance for EMD shall be made available at BHEL PSSR Office prior to tender opening. One time EMD is not applicable.**

5.0 **Procedure for Submission of Tenders**: This is an E-tender floated online through our E-Procurement portal <https://bheleps.buyjunction.in>. The bidder should respond by submitting their offer online only in our e-Procurement portal at <https://bheleps.buyjunction.in>. Hard copy bid or bids through email/ fax shall not be accepted.

## **I. Pre-requisite for Offer Submission: -**

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.

The Tenderer should own and use the Digital Signature Certificate (Class 3 – SHA2 – 2048 BIT – Signing & Encryption) (DSC) issued on behalf of their / his - firm/organization/company/proprietor. Tenderer to register with E-Procurement Portal <https://bheleps.buyjunction.in> with their DSC. 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 DSC Certifying Authorities may be obtained from “Bidder Manual”, as available in <https://bheleps.buyjunction.in>**

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## II. Digital Signing of e-Tender

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

### i) The Requirement:

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

## III. E-procurement service Provider:-

### **M/s Mjunction services Limited, Kolkata**

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

The contact details of the service provider are given below:

#### 1. **First level:**

Customer care Help Desk of M/s MJUNCTION SERVICES LIMITED, Kolkata:  
Tel ~ 033 - 66011717 (From 9.30 am to 5.30 pm),  
Mob - 9163348280 / 9163348283 / 9163348284 / 9163348285 / 9163348286 /  
8584008116 / 8336925964 / (From 5.30 pm to 8.30 pm) HELPDESK email:  
[eps.customercare@mjunction.in](mailto:eps.customercare@mjunction.in)

#### 2. **Second Level:**

Mr. Bhaskar Chakraborty - Cell No 08584008205,  
[bhaskar.chakraborty@mjunction.in](mailto:bhaskar.chakraborty@mjunction.in), [harish.ramu@mjunction.in](mailto:harish.ramu@mjunction.in)

#### 3. **Third Level:**

Mr. P.Dhanaraj - Cell No 09500199108, [p.dhanaraj@mjunction.in](mailto:p.dhanaraj@mjunction.in)

## IV. Documents Comprising the e-Tender

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

### i) Technical Tender (Un-priced Tender)

Bidders shall furnish the following information along with technical tender (preferably in pdf format):

# NOTICE INVITING TENDER

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- a. Tender Cost and Earnest Money Deposit (EMD) furnished in accordance with **NIT Clause 3.0 & 4.0**. Alternatively, documentary evidence for claiming exemption **as per clause 29 of NIT**
- b. All Technical details (eg. Eligibility Criteria requested, Technical Conditions of Contract) should be attached in e-tendering module **(As detailed in Clause 6.0 below)**, failing which the tender stands invalid & may be REJECTED.

## **ii) Price Bid:**

- a. Prices are to be quoted as per the Price Bid format attached online on e-tender portal.
- b. The price should be quoted for the accounting unit indicated in the e-tender document.
- c. The item description, Quantity and Unit of measurement, as mentioned in Price bid uploaded by BHEL and subsequent revisions issued by BHEL, shall be binding on the bidder.

## **Note:**

- i). 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.
- ii). 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.
- iii). 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.
- iv). In case offer is sent through hard copy/fax/telex/cable/electronically in place of e tender, same shall not be considered.

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## **V. 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.

**Vendors are also requested to go through seller manual available on [www.bheleps.buyjunction.in](http://www.bheleps.buyjunction.in)**

**6.0 DOCUMENTS TO BE UPLOADED & MODALITY OF UPLOADING in E-PROCUREMENT PORTAL <https://bheleps.buyjunction.in> SHALL BE AS DETAILED BELOW**

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Sl no	Description	Remarks
	<b>Techno-Commercial Bid CONTAINING THE FOLLOWING:-</b>	
i.	Covering letter / Offer forwarding letter of Tenderer.	To be uploaded under “ <b>Add Attachments</b> ”
ii.	<p>Duly filled-in ‘No Deviation Certificate’ as per prescribed format to be placed after document under sl no (i) above.</p> <p><b>Note:</b></p> <p>a. In case of any deviation, the same should be submitted separately for technical &amp; commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be attached along with 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>i).In case of acceptance of the deviations, appropriate loading shall be done by BHEL</p> <p>ii).In case of unacceptable deviations, BHEL reserves the right to reject the tender.</p>	To be uploaded under “ <b>Add Attachments</b> ”
iii.	<p>Supporting documents / annexure / schedules / drawing etc. as required in line with Pre-Qualification criteria. (Technical &amp; Financial)</p> <p>As detailed in Clause No. 25 of NIT, 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 phone no, FAX no, etc.</p>	To be uploaded under “ <b>PREQUALIFICATION</b> ”
iv.	All Amendments / Correspondences / Corrigenda / Clarifications / Changes / Errata etc. pertinent to this NIT.	To be uploaded under “ <b>Add Attachments</b> ”

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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	To be uploaded under “ <b>Add Attachments</b> ”
vii.	Notice inviting Tender (NIT)	To be uploaded under “ <b>Save and go to quotation format</b> ” as “ <b>Technical &amp; Commercial</b> ”
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)	To be uploaded under “ <b>Add Attachments</b> ”
xi.	Volume – I D : Forms & Procedures	
xii.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only ‘QUOTED’ or ‘UNQUOTED’ against each item	To be uploaded under “ <b>Add Attachments</b> ”
xiii.	Any other details preferred by bidder with proper indexing.	To be uploaded under “ <b>Add Attachments</b> ”
<p><b>Caution to Bidders: -</b>  The duly signed &amp; stamped copies of Volume – 1 Book 1 &amp; Volume 1 Book 2 are to be attached in “<b>Save and go to quotation format</b>” as “<b>Technical &amp; Commercial</b>” and not “<b>Price</b>”</p>		

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	<b>PRICE BID</b> consisting of the following shall be attached as mentioned below	
ii	<p>Volume II – PRICE BID (Duly Filled in Schedule of Rates – rate / price to be entered in words as well as figures)</p> <p><b>Caution to Bidders: -</b> Bidders to note that while uploading/entering price bid document, the “<b>Type of Format</b>” in e-tendering module is selected as “<b>Price</b>” and not “<b>Technical &amp; Commercial</b>”</p> <p><b>Any other document uploaded in the price bid, apart from above tender format, shall not be taken into cognizance for evaluation of offer.</b></p>	To be uploaded under “ <b>Save and go to quotation format</b> ” as “ <b>Price format</b> ”

## **SPECIAL NOTE:**

- i. All documents / annexures submitted with the **offer shall be named properly attached / entered / uploaded in the respective sections**. BHEL shall not be responsible for any missing documents.
  - ii. **Your offer & documents submitted along with offer shall be signed & stamped in each page by your authorized representative**. No overwriting/ correction in tender documents by bidders shall be allowed. However, if correction is unavoidable, the same may be signed by authorized signatory.
- 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).

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9.0 **Assessment of Capacity of Bidders: Not used.**

- 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 or clarification-provision available in procurement portal - <https://bheleps.buyjunction.in>, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.
- 12.0 BHEL may decide holding 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.**
- 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--1(as applicable) past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right NOT to consider offers of parties under HOLD.

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- 17.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.
- 18.0 In case BHEL decides on a 'Public Opening', The date & time of opening of the sealed/encrypted PRICE BID shall be intimated to the qualified bidders. Bidder may record their presence online, during price opening. 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.
- 19.0 BHEL reserves the right to decide the successful bidder on the basis of Reverse Auction process. In such case all qualified bidders will be intimated regarding procedure / modality for Reverse Auction process prior to Reverse Auction and price will be decided as per the rules for Reverse Auction.
- 20.0 However, if reverse auction process is unsuccessful as defined in the RA rules / procedures, or for whatsoever reason, then the sealed 'PRICE BIDS' will be opened for deciding the successful bidder. BHEL's decision in this regard will be final and binding on bidder.
- 21.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
- 22.0 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.
- 23.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
- 24.0 Void
- 25.0 The bidder shall submit documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents / proofs, these shall be submitted immediately.
- 26.0 The bidder may have to produce original document for verification if so decided by BHEL.
- 27.0 The offers of the bidders who are under suspension / on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site "[www.bhel.com](http://www.bhel.com) → tender notification".
- 28.0 It may be noted that guidelines / rules in respect of 'Suspension of Business dealings', 'Vendor evaluation format', Quality, Safety & HSE guidelines', etc. may undergo change from time to time and the latest one shall be followed.

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29.0 MSE suppliers can avail the intended benefits only if they submit along with offer, attested copies of either EM II certificate having deemed validity (Five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM II certificate along with attested copy of CA certificate (Format enclosed as per Annexure -6 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 date of bid opening (part 1 in the case of two part bid). Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in 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 gazette officer.

30.0 The Bidder along with its associate/ collaborators/ sub-contractor's/ 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.

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

31.1 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.

31.2 Commitment by Bidder/Supplier/Contractor:

31.2.1 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.

31.2.2 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.

31.2.3 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 price 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/

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contractor as per extant guidelines of the company available on [www.bhel.com](http://www.bhel.com) and/or under applicable legal provisions.

## 32.0 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:**

- i. Amendments / Clarifications / Corrigenda / Errata etc. issued in respect of the tender documents by BHEL
- ii. Notice Inviting Tender (NIT)
- iii. Price Bid
- iv. Technical Conditions of Contract (TCC)—Volume-1A
- v. Special conditions of Contract, Rev 01 dated 1st June 2012, Amendment 01 dated October 01, 2015
- vi. General conditions of Contract, Rev 01 dated 1st June 2012, Amendment 03 dated October 01, 2015.
- vii. Forms & Procedures, Rev 01 dated 1st June 2012, Amendment 01 dated October 01, 2015

For BHARAT HEAVY ELECTRICALS LTD

Sr.Manager/FEX

## **Enclosure**

1. Annexure-1: Pre Qualifying criteria.
2. Annexure-2: Check List.
3. Annexure-3 PQR format
4. Annexure-4 Tender Schedule.
5. Annexure-5 Declaration for Reverse auction
6. Annexure-6 Certificate by Chartered Accountant
7. Other documents as per this NIT

# NOTICE INVITING TENDER

## ANNEXURE - 1

### PRE QUALIFYING CRITERIA

JOB	Providing services on Turn Key basis for Lifting, Shifting and placement of following equipment on their foundation by means of Strand Jack method at KPCL 1x370MW xYelahanka CCPP, Bangaluru, Karnataka. 1. Gas Turbine (GT Frame 9FB) – 1 No 2. Gas Turbine Generator Stator (GTG) – 1 No 3. Steam Turbine-HP/IP Module --1 No 4. Steam Turbine Generator Stator (STG)-1 No
TENDER NO	<b>BHEL PSSR FEX 31</b>

Sl. No.	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Name and Description of qualifying criteria	Page no of supporting document. Bidder must fill up this column as per applicability
A	Submission of Integrity Pact duly signed (if applicable)	Not Applicable	
B	<b><u>Technical</u></b> The bidder should have executed Lifting and placement of any single consignment /equipment weighing 100MT or higher by means of Strand Jack method in a Power Plant or in any Industry in last seven years reckoned from the date of bid opening.  The bidder shall furnish relevant documents for the above, viz , work order and work completion certificate along with their offer.	Applicable	

## NOTICE INVITING TENDER

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C: C-1	<b><u>FINANCIAL</u></b>	Not Applicable	
C-2	<b><u>Net worth</u></b>	Not Applicable	
C-3	<b>Profit</b>	Not Applicable	
D	<b>Assessment of Capacity of Bidder</b>	Not Applicable	By BHEL
E	<b>Approval of Customer (if applicable)</b>	Not Applicable	BY BHEL
F	Submission of all documents as prescribed in the tender including “no deviation certificate”	Applicable	
G	<b>Price Bid Opening:</b> <b><u>Note:</u> Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria B&amp;F</b>	Applicable	BY BHEL
H	<b>Consortium criteria (if applicable)</b>	Not applicable	

**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.**

# NOTICE INVITING TENDER

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## ANNEXURE - 2

### CHECK LIST

**NOTE: - Tenderers are required to either fill in or submit separately the following details. No column should be left blank**

1	Name and Address of the Tenderer	
2	Details about type of the Firm / Company	
3a	Details of Contact person for this Tender: Name : Mr. / Ms. Designation: Telephone No: Mobile No: Fax No: E-mail ID:	
3b	Details of alternate Contact person for this Tender: Name : Mr./ Ms. Designation: Telephone No: Mobile No: Fax No: E-mail ID:	
4	EMD DETAILS <i>(Remittance of EMD should be in line with Mode of Deposit as detailed in Vol 1A,Part-2,Chapter-1)</i>	Mode of Remittance: Ref. No:                      Date: Bank:                              Amount:
5	Validity of Offer	To be valid for six months from due date

## NOTICE INVITING TENDER

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		<b>Applicability (By BHEL)</b>	<b>Bidder Reply</b>
6	Whether the format for compliance with <b>PRE QUALIFICATION CRITERIA (ANNEXURE-I &amp; ANNEXURE-IV)</b> is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Submission of Copy of Balance sheet and Audited profit and Loss Account for the last three years	Not Applicable	YES / NO
8	Submission of Copy of PAN Card	Applicable	YES / NO
9	Whether all pages of the offer documents are signed by the person authorized to sign this offer.	Applicable	YES / NO
10	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable	YES / NO
11	Submission of Integrity Pact	Not Applicable	YES / NO
12	Submission of Declaration by Authorised Signatory	Applicable	YES / NO
13	Submission of No Deviation Certificate	Applicable	YES / NO
14	Submission of Declaration confirming knowledge about Site Conditions	Applicable	YES / NO
15	Submission of Declaration for relation in BHEL	Applicable	YES / NO
16	Submission of Non-Disclosure Certificate	Applicable	YES / NO
17	Submission of Copy Bank Account Details for E-Payment	Applicable	YES / NO
18	Submission of Capacity Evaluation of Bidder for current Tender	Not Applicable	YES / NO

# NOTICE INVITING TENDER

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19	Submission of Tie Ups/Consortium Agreement are submitted as per format	Not Applicable	YES / NO
20	Submission of Power of Attorney for Submission of Tender / Signing Contract Agreement	Applicable	YES / NO
21	Submission of Analysis of Unit rates	Applicable	YES / NO
22	Submission of Unquoted price bid	Applicable	YES / NO
23	Declaration by bidder for price opening through reverse auction (Refer Annexure-7 of Notice Inviting Tender)	Applicable	YES / NO

**NOTE:**

1. STRIKE OFF 'YES' OR 'NO', AS APPLICABLE.
2. TENDER NOT ACCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS** ARE LIABLE TO BE SUMMARILY REJECTED.
3. For Sl. No. 10 to 20 above, the formats are available in "Volume ID of Volume I Book II – Forms and Procedures" of this tender specification.

DATE:

AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

# NOTICE INVITING TENDER

## "Annexure-3 Pre-Qualifying Criteria"

Name of the Bidder: M/s \_\_\_\_\_

**Additional Format to be submitted by Bidders in a separate cover super scribed as "Annexure to Pre-Qualifying Criteria"**

Sl.No	PQR Ref	PQR	Qualifying Experience	Work order Ref with <b>page no</b> in Offer for supporting documents	Completion certificate ref for the referred Work with <b>page no</b> in Offer for supporting documents	Details of work with Project, Unit , Qty & Period	Remarks
1.1	B: Technical	<p>The bidder should have executed Lifting and placement of any single consignment /equipment weighing 100MT or higher by means of Strand Jack method in a Power Plant or in any Industry in last seven years reckoned from the date of bid opening.</p> <p>The bidder shall furnish relevant documents for the above, viz , work order and work completion certificate along with their offer.</p>					

**Non submission of this additional format will make the bid liable for rejection.**

**Note: Indicate the page nos in the respective columns for the enclosed PQR supporting documents in the offer**

Tender Specification No: BHEL PSSR FEX 31

# NOTICE INVITING TENDER

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## ANNEXURE-4

### Tender Schedule

Description	Schedule	Remarks
Technical Bid Opening	As mentioned in Notice Inviting Tender.	
Communication from BHEL for Clarifications, if any, required by BHEL	Within seven days from Tender opening date	
Last date for Bidders to submit the clarifications / documents required	Within eight days from Tender opening date	Bidders to note that their competent representative to be readily available in this week for offering clarifications / submitting the further documents, if any, required.
If Reverse Auction is applicable, then the tentative date for conducting Reverse Auction	Tenth day of tender opening	Exact date of reverse auction shall be informed to the bidders through BHEL's reverse auction agency. Bidders to note that their competent representative to be readily available at one-day notice for Reverse Auction.

**Note:**

1. Bidders to note that the above schedule should be adhered to and no further extension will be given. To adhere to the schedule indicated below, Bidders should ensure the adequacy of the documents submitted in their offer, with proper validation.

# NOTICE INVITING TENDER

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## Annexure 5

### DECLARATION BY BIDDER FOR PRICE OPENING THROUGH REVERSE AUCTION (To be typed and submitted in the Letter Head of the Company/ Firm of Bidder)

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To,

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

Dear Sir,

Sub : Declaration by Bidder for Price opening through Reverse Auction

Ref : 1) NIT / Tender Specification No: .....,  
2) Participation in the Reverse Auction

We have studied and understood the clauses of Reverse auction published in the tender specification.

**Strike out either (1) or (2) of the following whichever is not applicable.**

1. I / We, hereby declare that I / we **shall be** participating in the Reverse Auction in case BHEL opts for opening the price bid through Reverse auction.
2. I / We, hereby declare that I / we **shall not be** participating in the Reverse Auction in case BHEL opts for opening the price bid through Reverse auction.

Yours faithfully,

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

# NOTICE INVITING TENDER

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## Annexure 6

### Certificate by Chartered Accountant on letter head

This is to certify that M/s. \_\_\_\_\_, (hereinafter referred to as 'company') having its registered office at \_\_\_\_\_ is registered under MSMED Act 2006, (Entrepreneur Memorandum No (Part-II) \_\_\_\_\_ dtd. \_\_\_\_\_, Category: \_\_\_\_\_ (Micro / Small)). (Copy enclosed)

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

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

Rs. \_\_\_\_\_ Lakhs

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. \_\_\_\_\_ Lakhs

### **(Strike off whichever is not applicable)**

The above investment of Rs. \_\_\_\_\_ Lakhs is within permissible limit of Rs. \_\_\_\_\_ Lakhs for \_\_\_\_\_ Micro / small (Strike off which is not applicable) category under MSMED Act 2006. Or

The company has been graduated from its original category (Micro / Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is \_\_\_\_\_ (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O.No. 3322(E) dated 01-11-2013 published in gazette notification dated 04-11-2013 by Ministry of MSME.

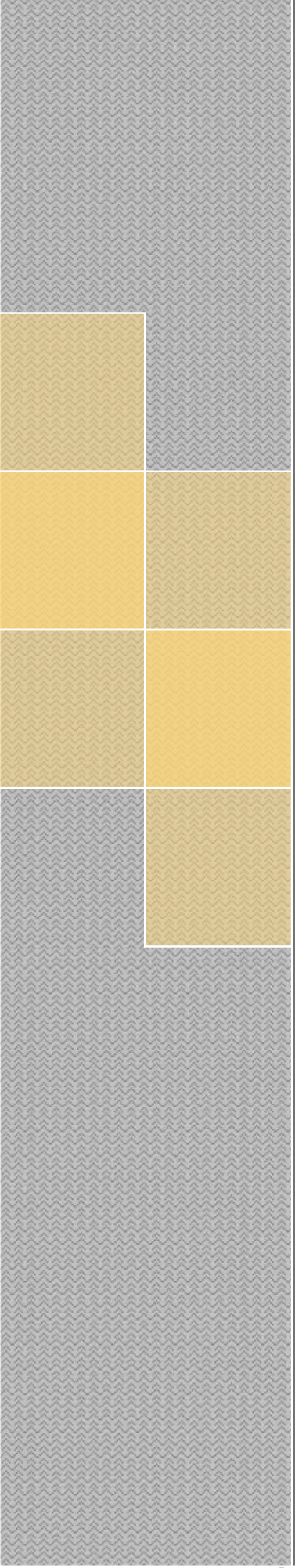
Date:

(Signature)

Name-

Membership number-

Seal of Chartered Account



VOLUME – IA  
Part I & II  
TECHNICAL  
CONDITIONS OF  
CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



Tender Specification No.: BHEL PSSR FEX 31

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SI no	DESCRIPTION	Chapter	No. of Pages
<b>Vol I A</b>	<b>Part-I: Contract specific details</b>		
1.	Project Information	Chapter-I	01
2.	Scope of works	Chapter-II	05
3	Time Schedule	Chapter-III	01
4	Facilities in the scope of BHEL/Contractor	Chapter-IV	03
5.	Terms of Payment	Chapter-v	01
6	Taxes and other Duties	Chapter-VI	07
7	General	Chapter-VII	06
Vol I A	PART-II		
1	Corrections/revisions in General conditions of contract and forms & procedures	Chapter-1	17
2	HSE Plan for site operations by subcontractor (Document No HSEP : 14 Rev 00)	Chapter-II	72

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**CHAPTER – I**  
**PROJECT INFORMATION**

Sl.no	Description	Details
1	PROJECT:	1X370MW Yelahanka CCPP
2	CUSTOMER	M/s. KPCL
3	SITE	This site is located on the Bangalore –Doddaballapur-Hindupur Road
4	NEAREST TOWN	Yelahanka
5	NEAREST RAILWAY STATION	Yelahanka Junction
6	NEAREST AIRPORT	Banglore International Airport, Karnataka at 25KM from site
7	SITE ADDRESS	Yelahanka CCPP Karnataka Power Corporation Limited (KPCL) Singanayakaanahalli Post, Doddaballapura Road, Banglore, Karnataka-560064

## **CHAPTER-II SCOPE OF WORK**

### **1.0 SCOPE OF WORKS**

- 1.1 The Scope of works shall include, but not limited to,
- a. Providing complete design, development of scheme, supply of Steel & structural materials, fabrication & erection of all Temporary structures along with works & services with all Lifting & other accessory equipment as applicable (hydraulic/ Telescopic lifting system, strand jacks, power packs with Centralised control system, modular structural towers, Lifting beams, low & high capacity wire rope slings, steel Plates/ rolled sections for on-site fabrication etc., as may be necessary), all tools & plant (welding machine, cutting sets, Slings, D shackles, wire ropes etc., except cranes for site Handling/ erection/ dismantling etc.), calibrated inspection, measuring and test equipment as required for the work.
  - b. Providing required consumables (electrodes, gases, fuels & other hydraulic jack oils, shims, etc.) for the subject work
  - c. Providing technical, supervisory, skilled manpower for the subject work.
  - d. Providing foundation drawings for the lifting equipment/ modular structural towers/ supporting of temporary structures.
  - e. Site accommodation and transportation for bidders and his crew.
  - f. Communication system for the jacking operations.
  - g. Manufacturers test certificates for each coil of strand.
  - h. Procedure & write up for lifting equipments as above from start to finish.
  - i. Adequate third party insurance cover
  - j. Workmen compensation for bidder and his crew.
  - k. Insurance for bidder's equipment
  - l. Health, Safety & Environment management at site for the construction activities in the scope of work
  - m. Arranging Watch and Ward for their equipment.

- 1.2 All major civil works as Indicated in the approved foundation drawing of the lifting Equipment/ modular structural towers/ supporting of Temporary structures etc. shall be carried out by BHEL. Foundation details for tower footings along with load details of Strand Jack system on foundations & co-ordinates of the lifting and shifting arrangement will be provided by the contractor.
- 1.3 Supply of anchor bolts & plates etc, alignment, Leveling (as required) and grouting using suitable grouting materials, including supply of grouting cement (as required) shall be carried out by the contractor.
- 1.4 Detailed drawings indicating specification, Location, sizes of anchor for this shall be provided by the Contractor, suiting for their lifting Arrangement in accordance to available foundations of the Projects.

## 2.0 SCOPE OF EQUIPMENT TO BE ERECTED

SI.no	Description	Tentative Dimensions (in mm)	Weight (MT)	Tentative Lifting schedule at site	Elevation
1	Gas Turbine (Frame 9FB) GT	12700x5950x6000	310	Jan 2017	0.0 Metre
2	Gas Turbine Generator Stator GTG	7520x4200x4770	220	Jan 2017	0.0 Metre
3	Steam Turbine – HP/IP Module	8000x4300x3500	125	Apr 2017	11.0 metre
4	Steam Turbine Generator Stator STG	9350x4150x3900	195	Apr 2017	11.0 metre

- 2.1 The strand jack equipment may have to be mobilised two times- once for Gas Turbine and GTG Stator and second time for Steam Turbine-HP/IP Module and STG Stator.
- 2.2 The erection of Gas Turbine and Gas Turbine Generator Stator shall be taken up one after the other.
- 2.3 The erection of Steam Turbine-HP/IP Module shall be taken up one after the other.

### **3.0 REFERENCE DRAWINGS:**

FI Following Drawings are enclosed for the bidders to supplement the information given in this tender document. The Bidder is required to study the drawings and propose a complete scheme for Lifting & Placement of the Equipment with the Technical Bid for evaluation/ acceptance of BHEL. These drawings are for the reference purpose only. These drawings or any part thereof are not to be used in any way or referred for any other purpose than the work of this tender.

Reference Drawings:

1. Current Foundation details/drawings
2. Plant GA Drawings
3. Plant elevation Drawings
4. Equipment drawings

### **4.0 GENERAL TERMS AND CONDITIONS**

4.1 The intent of this specification is to provide services for execution of project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation of the equipment shall not relieve the contractor of the responsibility of providing such services/ facilities to complete the work or portion of work awarded to him. The quoted/ accepted rates/ lump sum price shall deem to be inclusive of all such contingencies.

4.2 The customer may depute their representative for checking and supervision of important stages of work at site. The contractor shall be required to provide all facilities for inspection of works at no extra cost to BHEL.

### **5.0 TECHNO-COMMERCIAL TERMS/ CONDITIONS**

5.1 The work shall be executed under the usual conditions prevailing in major power plant construction and in conjunction with numerous other operations at Site. The contractor and his personnel shall cooperate with personnel of BHEL, BHEL's Customer, Customer's Consultants and other contractors, coordinating his works with others and proceed in a manner that shall not delay or hinder the progress of work of the project as a whole.

- 5.2 The Contractor shall handle all materials and equipment with due care and diligence.
- 5.3 Based on the data provided in the Drawings indicated and visit to site, Contractor shall furnish a detailed Method Statement of lifting plan, foundation drawings along with scheme & drawings for the work in their Technical Bid with advance planning and design activities required for the work, taking into account all resources required.
- 5.4 Following award of work, Contractor has to submit a detailed Plan for the job for the Unit, Contractor has to mobilize his Equipment & Personnel to site within a period of 4 (Four weeks) weeks from the Date of Mobilization Clearance Letter from BHEL Site.**
- 5.5 All Equipment/ T&P/ Temporary Supporting Structures/ Slings & Consumables etc. as may be required for the job shall be mobilized on time and Installed/ Erected/ Aligned/ Welded by Contractor at Site, as required to accomplish the tendered work without any liability on BHEL and later dismantled/ demobilized from Site within a period of maximum 2 (Two) weeks after completion of the work, within the quoted Price.
- 5.6 For Heavy Duty Slings including that for handling Turbine/ Generator Stator, valid Test Certificate from Statutory Agencies declaring the sling to be fit for handling the desired load is to be produced by the Bidder prior to use of the same at Site. Contractor shall furnish the necessary Test Certificates for all relevant Lifting Equipment e.g. Strand wires, Lifting Tackles etc.
- 5.7 The responsibility for the Lifting process lies with the Contractor. A certificate confirming the capability and Fitness of the equipment being used has to be submitted by vendor to BHEL engineer before commencement of work.
- 5.8 The Contractor is also required to furnish a confirmatory certification regarding the adequacy of Structural Design and Safety provisions of the Temporary Structures that are proposed for use by Contractor, to handle above loads as detailed above. This confirmation should be included in the Technical Bid during submission of Tender.
- 5.9 Necessary Insurance Coverage for contractor's Staff, Workmen, materials and Equipment is to be obtained by the Contractor (successful bidder of this tender), within quoted/ accepted rates. In addition to insurance under Workman Compensation Act and other insurance as specified above, Employers liability and also group personal insurance for employees are also to be taken by contractor

(successful bidder of this tender), within quoted/accepted rates. These insurance covers have to be taken prior to start of his work at the subject project and he shall make available the Policy to BHEL Site in-charge before commencement of work. However, the sole responsibility to maintain adequate insurance cover for his workmen, T&P, assets etc. at all times during the period of contract shall lie with the contractor. Regarding the aforesaid insurance cover, the contractor shall directly deal with the Insurance Company for all matters regarding the insurance in his scope.

Insurance coverage for BHEL/ customer owned items is not in the scope of contractor.

- 5.10 Contractor is required to assume full responsibility of the safety of the crew/ staff and to comply with the security/ safety conditions of BHEL and Client/ statutory regulations as applicable at site.
- 5.11 Contractor is also required to arrange all required safety precautions/ protective equipment for his working personnel. BHEL shall not be responsible for any accident/ injury to the Contractor's Crew/ Staff at Site.
- 5.12 During handling of the Equipment, utmost care is to be taken by the Contractor with all safety precautions taken to prevent any mishap/ accident to happen and to protect the equipment altogether from any possible damages. However, in case of any plausible eventual damage caused to the Turbine/ Generator Stator or any other Power Plant Equipment during the process of Loading/Lifting/Shifting and Placement, a case is to be lodged to Insurance Co. immediately after occurrence for which all relevant details sought by the Insurance Co. are to be furnished by the Contractor. Under such circumstances, payment due to Contractor may be kept withheld for some time till settlement of the Insurance Case. Moreover, certain deductions may also be effected based on the attribution of responsibility for damages as assigned by the Insurance Co.
- 5.13 In case of poor or non-performance of the Contractor in the job, BHEL reserves the right to withdraw the job in part or full and get it done by other agency at the risk and cost of the Contractor as may be deemed fit.
- 5.14 The agency must confirm, along with technical bid, that the proposed scheme for subject work does not require any hold to be put on major civil works like roof of GTG Hall.
- 5.15 Even though the work will be carried out under supervision of BHEL, the contractor will be responsible for the quality of workmanship, quality of materials/ items and design for which the contractor is responsible.

## CHAPTER-III TIME SCHEDULE

### **6.0 TIME PERIOD FOR THE WORK:**

- 6.1 The Contractor shall mobilise the Strand Jack Equipment, manpower etc. at site within a Notice period of 4 (four) Weeks of receipt of mobilization clearance letter from BHEL Site. The entire job for execution **for un loading from trailer/ Unloading Bay, shifting within TG Hall, Lowering** over Foundation and Final Placement of 1 set of Turbine and Generator shall be completed within a subsequent Period of 4 (four) Weeks from the Date Of Commencement of Work at Site.
- 6.2 Date of Commencement of Work at Site shall be certified by BHEL site-engineer.
- 6.3 Within 7 days of issue of LOI by BHEL, contractor is required to submit procedure for carrying out subject work, to the satisfaction of BHEL site and BHEL's Customer.
- 6.4 Within 14 days of issue of LOI, contractor will submit complete Engineering and required civil inputs to BHEL and will interact with BHEL-PEM for its immediate approval.
- 6.5 Contractor has to complete the erection of Gas Turbine within 4 weeks from the date of entry of Gas Turbine inside plant.
- 6.6 Unit wise Tentative Schedule for Erection of the Turbine/ Generator is indicated under Clause 2.0. These dates are given for guidance purpose only and likely to vary. The contractor has to execute the work as per site requirements.
- 6.7 Way bills/Entry permits for movement of Strand Jack Equipment & other materials are to be arranged by the Contractor

## CHAPTER-IV FACILITIES TO BE PROVIDED BY BHEL/CONTRACTOR

### **7.0 FACILITIES TO BE PROVIDED BY BHEL:**

- 7.1 BHEL site is having 100 MT Capacity crane at Yelahanka Site. In case contractor requires of the above crane for erection as well as handling their T&P/ Structures/ components, BHEL will provide the above crane, free of hire charges and on sharing basis. However, the contractor shall arrange for diesel and crane operator at his cost. **The Bidder has to indicate the tentative requirement of the Cranes (Duration) in the Technical Bid.**
- 7.2 BHEL will provide open space for making office and for pre-assembly yard. All arrangements are to be made by contractor at his own cost.
- 7.3 Contractor's personnel shall comply with the plant security regulations that may be in force at the workplaces in the matter of entry, exit, movement & working inside the plant premises. Contractor shall also ensure that all employees and persons engaged/ authorized by him for the work behave properly with BHEL and their client's officer/ staff on duty. In the event of any reported misbehaviour of any Contractor's personnel with any BHEL Staff/ Officer etc. Contractor shall immediately withdraw such employee/person from work.
- 7.4 Construction Power (3 Phase, 415 V) & Construction Water shall be provided for the work at One Single Point by BHEL on free of cost basis. However, further distribution network for Power & Water by Cables/ Piping shall be arranged by the Contractor at their own cost.
- 7.5 Contractor has to arrange entry gate pass for his crew/ staff at Site. Necessary support in this regard, limited to forwarding of documents etc. shall be extended by BHEL.
- 7.6 All Civil Works as may be required for Foundations of the Lifting Equipment/ modular Structural Towers/ supporting of temporary structures etc. including Casting of Foundations, shall be carried out by BHEL at Site (on free of cost basis to the contractor). Drawings/ QP for this shall be provided by the Contractor. However Alignment, Levelling, Grouting, supply of anchor bolts shall be carried out by the contractor.
- Wooden/ Concrete Sleepers as may be required for execution of this job shall be provided by BHEL. However, the requirement has to be furnished along with Technical Bid.

**8.0 WORK FACILITIES/ INPUTS TO BE PROVIDED BY CONTRACTOR WITHIN QUOTED/ ACCEPTED RATES:**

- 8.1 Based on the Load Criteria and the Job Methodology, Contractor has to Design the Entire System of Lifting with details of all Equipment, All Temporary Structures including Access Platforms, Temporary Wheeled Trolley for Unloading, Power pack, jacks Supporting Structures etc. with supply of Steel etc. and Installation of the same at Site. This has to be discussed with BHEL engineer and approval obtained before commencement of work.
- 8.2 All Fuels, Consumables that are required for operation of all Equipment & Tools & Plant brought by the Contractor are to be arranged by the Contractor at site as a part of his scope.
- 8.3 All Transportation works for Contractor's Men & Equipment/ Structure etc. within or beyond the Job Site are to be organized by the Contractor at his own cost.
- 8.4 MS or any other Plates and Structural Items as may be required for execution of this Job shall have to be arranged by the Contractor.
- 8.5 All kinds of Manpower required for the entire works i.e. Technical Supervision, Technicians and Workmen for Handling/ Assembly/ Fabrication/ Erection/ Installation/ Operation/ Dismantling etc. of their Equipment and Supporting Structures are to be provided by the Contractor at Site.
- 8.6 All Operation of the Lifting Jack and allied Systems are to be manned by Contractor's own Operating Personnel.
- 8.7 Local Accommodation & transport for Contractor's Engineer/ Crew/ Staff personnel during the Works shall have to be arranged by Contractor themselves at their cost. The Contractor shall be responsible for providing all necessary facilities like residential accommodation, sanitation, transport, electricity, water, medical facilities etc. at his own cost as required under various labour laws and statutory rules and regulations framed there under to the personnel employed  
by him. BHEL shall not provide area for labour colony at Yelahanka site. All facilities for their labourers are in the scope of contractor.
- 8.8 All Slings including the ones for Lifting of Equipment are to be provided by Contractor for the Job with appropriate Test Certificate etc.
- 8.9 Hydraulic Jacks as required for facilitating the job shall have to be arranged by the contractor as a part of their scope.
- 8.10 Power Supply Cables with Lugs/ Glands etc. for distribution of Construction Power, adequate illumination and Construction Water

- distribution piping including Laying of the same at Site as per requirement of this job shall be arranged by the Contractor.
- 8.11 All accesses platforms and carriageways for Supporting & Operation of the Equipment brought by the Contractor including approach platform & ladders are to be made by the contractor at their own cost.
  - 8.12 Though construction Power is given free by BHEL, the Contractor has to arrange a standby DG including diesel or other alternate power source at their cost on a mandatory basis for Power pack and other control systems during lifting, to prevent any interruption in lifting owing to power failure etc. BHEL cannot be held responsible for discontinuous availability of the power, if any, and no disruption in lifting should be caused by power failures.
  - 8.13 Supply of anchor bolts, Alignment, Leveling, Grouting, (as required) shall be carried out by the contractor.
  - 8.14 The successful bidder shall make a preliminary visit to site, within one week of LOI, to assess the site condition and discuss with BHEL Site team regarding the procedure/ requirements for carrying out the job successfully.

## **CHAPTER-V TERMS OF PAYMENT**

### **9.0 TERMS OF PAYMENT**

- 9.1 BHEL 'Engineer' will certify regarding the actual work executed in the measurement books and bills, which shall be accepted by the contractor in measurement book.
- 9.2 Contractor shall submit bills for the work completed under the specification, as per terms of payment. The format for billing shall be approved by BHEL before raising invoices.
- 9.3 Subject to any deduction that BHEL may be authorised to make under the contract, the contractor on the certificate of the Engineer at site be entitled for payment as explained hereunder.

#### **ROGRESSIVE PAYMENT ON PRO-RATA BASIS**

On supply of Strand Jack lifting equipment and installation of lifting equipment at site in each unit, as certified by BHEL Engineer, on pro-rata basis	2x10%
On successful placement of equipment onto foundation in each set of Turbine/ Generator Stator, as certified by BHEL Engineer, on pro-rata basis	2x30%
On dismantling and removal of strand jack equipment, area cleaning, reconciliation of materials	2x8%
Fulfilment of contractual obligations and on submission and passing of Final bill	4%

- 9.4 No Overrun charges, Rate revision or Price Variation (ORC, PVC or rate revision etc.) is admissible in this Contract.

### **10.0 CHECK LIST OF DATA TO BE FURNISHED ALONG WITH TECHNICAL BID**

1. Complete scheme for Lifting & Placement of the Equipment
2. A confirmatory certification regarding the adequacy of Structural Design and Safety provisions of the Temporary Structures that are proposed to be used for the subject work.
3. Confirmation that the proposed scheme for subject work does not require any hold to be put on major civil works like roof of GTG Hall.
4. Tentative requirement (Duration) of 100MT Crane
5. Requirement of Wooden/ Concrete Sleepers for execution of this job

## **CHAPTER –VI TAXES AND OTHER DUTIES**

### **11.0 TAXES**

#### **11.1 VAT (Sales Tax/WCT) for the works**

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

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

Deduction of Tax at source shall be made as per the provisions of law and is to be construed as an advance tax paid by the contractor and no reimbursement there of will be made. Further if BHEL at the instance of customer or otherwise adopts the specific route for discharging output VAT liability itself benefit of the reduction in liability of the contractor will be passed on to BHEL.

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

11.3. Deduction of VAT (WCT) at source would be enforced from the running bills at the rates prescribed unless exemption certificate is produced from the concerned authorities. Tax invoice if required under the relevant State VAT Law shall be submitted along with other compliances as per VAT Act

11.4 Rate quoted shall be inclusive of Entry tax if applicable. E-way bills / Transit passes, if required for materials / T&P etc., bought into the project site is to be arranged by the Contractor only.

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## **12.0 Service Tax**

- 12.1 Price quoted shall be exclusive of Service Tax. The service tax as statutorily liveable and payable by the bidder under the provisions of service tax Law / Act shall be paid by BHEL as per bidder claim through various running bills.
- 12.2 The bidder shall furnish proof of service tax registration with Central Excise Department specifying the name of services covered under this contract. Registration Certificate should also bear the endorsement for the premises from where the billing shall be done by the bidder on BHEL for this project.
- 12.3 The bidder shall obtain prior consent of BHEL before billing the service tax amount and shall adopt the service tax billing methodology suggested by BHEL in case more than one method of remittance of Service Tax is available.
- 12.4 Proper cenvatable documents ( ie.,invoice ) are to be submitted to BHEL on time. If in the event of BHEL not being able to avail credit, the service tax claim of the bidder shall not be reimbursed.
- 12.5 BHEL will reimburse the Service Tax on the first bill raised by the contractor. Subsequently, based on production of proof of previous months' Service Tax challans, the same shall be reimbursed. In case, Service tax amount adjusted against the availment of CENVAT credit, Certificate duly signed by Contractor is required to be submitted on monthly basis. Copies of Half Yearly Returns are to be submitted within a week of due date of filing the Return.

## **13.0 Other Taxes & Levies**

- 13.1 Any other taxes and duties (except VAT & Service Tax) if any, as applicable, viz. Entry Tax, Octroi, Licenses, Deposits, Royalty, Stamp Duty, other charges / levies, etc. prevailing / applicable on the date of opening of technical bids and any variation thereof during the tenure of the contract are in the scope of bidder. In case BHEL is forced to pay any such taxes, BHEL shall have the right to recover the same from the bidder either from running bills or otherwise as deemed fit.

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#### **14.0 New Levies / Taxes**

In case Government imposes any new levy / tax after award of the work during the tenure of the contract, BHEL shall reimburse the same at actual on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / tax is applicable to this contract.

#### **15 Statutory variations**

Statutory variations are applicable only in the cases of Value Added Tax and Service Tax, on direct transactions with BHEL against production of proof. The changes implemented by the Central / State Government in the VAT Act / Service Tax during the tenure of the contract viz. increase / decrease in the rate of taxes, applicability, etc. and its impact on upward revision / downward revision are to be suitably paid/ adjusted from the date of respective variation. The bidder shall give the benefit of downward revision in favour of BHEL. No other variations shall be allowed during the tenure of the contract.

15.1 GST - Any new tax structure (like Goods & Services Tax) as and when implemented by the Government shall become applicable in addition to or in lieu of existing tax structure. Decision of BHEL in this regard shall be final and binding on the Contractor.

#### **15.2 Direct Tax**

BHEL shall not be liable towards Income Tax of whatever nature including variations thereof arising out of this contract as well as tax liability of the bidder and their personnel. Deduction of tax at source at the prevailing rates shall be effected by BHEL before release of payment as a statutory obligation, unless exemption certificate is produced by the bidder. TDS certificate will be issued by BHEL as per the provisions of Income Tax Act.

15.3 Bidders are requested to furnish the proof of documents for the following at PSSR- Site

- I. PF Regn No.
- II. Labour License No.
- III. Workmen Insurance Policy No.

15.4 **In addition to the clause 2.8 of General Conditions of Contract (Volume-1C of Book-II) the contractor shall comply with the following.**

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## **16 BOCW Act & BOCW Welfare Cess Act**

The Contractor should Register their Establishment under BOCW Act 1996 read with rules 1998 by submitting Form I (Application for Registration of Establishment) and Form IV (Notice Of Commencement / Completion of Building other Construction Work) to the respective Labour Authorities i.e.,

- a. Assistant Labour Commissioner (Central) in respect of the project premises which is under the purview of Central Govt.–NTPC, NTPL etc.
- b. Inspector of Factories in respect of the project premises which is under the purview of State Govt.
- c. The Contractor should comply with the provisions of BOCW Welfare Cess Act 1996 in respect of the work awarded to them by BHEL
- d. The contractor should ensure compliance regarding Registration of Building Workers as Beneficiaries, Hours of work, welfare measures and other conditions of service with particular reference to Safety and Health measures like Safety Officers, safety committee, issue of Personal protective equipment's, canteen, rest room, drinking water, Toilets, ambulance, first aid centre etc.
- e. The contractor irrespective of their nature of work and manpower (Civil, Mechanical, Electrical works etc.) should register their establishment under BOCW Act 1996 and comply with BOCW Welfare Cess Act 1996.
- f. In case of non-compliance to BOCW Act & BOCW Welfare Cess Act, BHEL reserves the right to effect recoveries as applicable.

## **17. PROVIDENT FUND & MINIMUM WAGES**

- 17.1 The contractor is required to extent the benefit of Provident Fund to the labour employed by you in connection with this contract as per the Employees Provident Fund and Miscellaneous Provisions Act 1952. For due implementation of the same, you are hereby required to get yourself registered with the Provident Fund authorities for the purpose of reconciliation of PF dues and furnish to us the code number allotted to you by the Provident Fund authorities within one month from the date of

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issue of this letter of intent. In case you are exempted from such remittance an attested copy of authority for such exemption is to be furnished. Please note that in the event of your failure to comply with the provisions of said Act, if recoveries therefore are enforced from payments due to us by the customer or paid to statutory authorities by us, such amount will be recovered from payments due to you.

17.2 The contractor shall ensure the payments of minimum labour wages to the workmen under him as per the rules applicable from time to time in the state.

17.3 The final bill amount would be released only on production of clearance certificate from PF / ESI and labour authorities as applicable.

## **18.0 OTHER STATUTORY REQUIREMENT**

18.1 The Contractor shall submit a copy of Labour License obtained from the Licensing Officer (Form VI) u/r 25 read with u/s 12 of Contract Labour (R&A) Act 1970 & rules and Valid WC Insurance copy or ESI Code (if applicable) and PF code no along with the first running bill.

18.2 contractor shall submit monthly running bills along with the copies of monthly wages (of the preceding month) u/r78(1)(a)(1) of Contract Labour Rules, copies of monthly return of PF contribution with remittance Challans under Employees Provident Fund Act 1952 and copy of renewed WC Insurance policy or copies of monthly return of ESI contribution with Challans under ESI Act 1948 (if applicable) in respect of the workmen engaged by them.

18.3 The Contractor should ensure compliance of Sec 21 of Contract Labour (R&A) Act 1970 regarding responsibility for payment of Wages. Incase of “Noncompliance of Sec 21 or non-payment of wages” to the workmen before the expiry of wage period by the contractor, BHEL will reserve its right to pay the workmen under the orders of Appropriate authority at the risk and cost of the Contractor.

18.4 The Contractor shall submit copies of Final Settlement statement of disbursal of retrenchment benefits on retrenchment of each workmen under I D Act 1948, copies of Form 6-A (Annual Return of PF Contribution) along with Copies of PF Contribution Card of each member under PF Act and copies of monthly return on ESI ESI

Contribution– Form 6 under ESI Act 1948 (If applicable) to BHEL along with the Final Bill.

- 18.5. In case of any dispute pending before the appropriate authority under I D act 1948, WC Act 1923 or ESI Act 1948 and PF Act 1952, BHEL reserve the right to hold such amounts from the final bills of the Contractor which will be released on submission of proof of settlement of issues from the appropriate authority under the act.
- 18.6. In case of any dispute prolonged/pending before the authority for the reasons not attributable to the contractor, BHEL reserves the right to release the final bill of the contractor on submission of Indemnity bond by the contractor indemnifying BHEL against any claims that may arise at a later date without prejudice to the rights of BHEL.

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## **CHAPTER-VII GENERAL**

### **19 GENERAL**

#### **19.1 Site Visit by the Bidder**

**The bidder shall, prior to submitting his tender for the work, visit and examine the site of works and its surroundings at his own expense, and obtain and ascertain for himself on his own responsibility all information that may be necessary for preparing his tender and entering into a contract, and take the same into account in the quoted contract price for the work.**

The bidder shall satisfy themselves about the following factors:

- i) Site conditions including access to the site, existing and required roads and other means of transport/communication for use by him in connection with the work including diverting and re-routing of services.
- ii) Requirement and availability of land and other facilities of his enabling works, establishment of his nursery, office, stores etc.
- iii) Ground conditions including those bearing upon transportation, disposal, handling and storage of materials required for the work or obtained therefrom.
- iv) Source and extent of availability of suitable materials, including water etc., and labour (skilled and unskilled) required for work, and laws and regulations governing their use and employment.
- v) Geological, meteorological, topographical and other general features of the site and its surroundings as are pertaining to and needed for the performance of the work.

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- vi) The limit and extent of surface and subsurface water to be encountered during the performance of the work, and the requirement of drainage and pumping.
  - vii) The type of equipment and facilities needed, for and in the performance of the work;
  - viii) The extent of lead and lift required for the work in complete form over the entire duration of the contract, and
  - ix) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost thereof under this contract.
- 19.2. The bidder should note that information, if any, in regard to the local conditions, as contained in these tender documents, has been given to tenderer merely for guidance and is not warranted to be complete.
- 19.3. A bidder shall be deemed to have full knowledge of the site, whether he inspects it or not, and no extra charges consequent on any misunderstanding or otherwise shall be allowed.
- 19.4. The bidder and any of his personnel or agents will be granted permission by the Site-In-Charge or his authorized nominee, on receipt of formal application in respect thereof a week in advance of the proposed date of inspection of site, to enter upon his premises and lands for purpose of such inspection, but only on the express condition that the tenderer (and his personnel and agents) will relieve and indemnify the Employer (and his personnel and agents) from and against all liability in respect thereof and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused which, but for the exercise of such permission, would not have arisen.
- 19.5. Scope of work covered under this specification requires quality workmanship, engineering and green belt management along with the supply of all consumables, tools and tackles and testing instruments. The contractor shall ensure timely completion of work. The contractor shall have adequate tools, measuring instruments etc. in his possession. He shall also have adequate trained, qualified and experienced engineers, supervisory staff

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- and skilled personnel. The manpower deployment identified by contractor shall match with above scope of works.
- 19.6. It is not the intent to specify herein all details of all material. Any item related this work not covered by this but necessary to complete the system will be deemed to have been included in the scope of the work.
  - 19.7. All the necessary certificates and licenses required to carry out this scope of work are to be arranged by the contractor then and there at no extra cost.
  - 19.8. Site testing wherever required shall be carried out for all items / materials installed by the contractor to ensure proper installation and functioning in accordance with drawings, specifications and manufacturer's recommendations.
  - 19.9. The contractor shall carryout additional tests if any, which the Engineer feels necessary because of site conditions and also to meet system specification.
  - 19.10 The work shall be executed under the usual conditions without affecting power plant construction / operation and in conjunction with other operations and contracting agencies at site. The contractor and his personnel shall co-operate with the personnel of other agencies, co-ordinate his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
  - 19.11 All the work shall be carried out as per instructions of BHEL engineer. BHEL engineer's decision regarding the correctness of the work and method of working shall be final and binding on the contractor.
  - 19.12. Wherever Construction sequences are furnished by BHEL, the contractor shall follow the same sequence.
  - 19.13. Contractor shall execute the supply and works as per sequence prescribed by BHEL at site engineer. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the methods of execution of similar job in any other site or for any reasons whatsoever.
  - 19.14. If required by BHEL, the contractor shall change the sequence of his operation so that work on priority sectors can be completed within the projects schedule. The contractor shall afford maximum assistance to BHEL in this connection without causing delay to agreed completion date.
  - 19.15. Contractor shall, transport all materials to site and unload at site / working area for inspection and checking. All material

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- handling equipment required shall be arranged by the contractor.
- 19.16. Contractor shall retain all T&P / Testing instrument / Material handling equipment's etc. at site as per advice of BHEL engineer and same shall be taken out from site only after getting the clearances from engineer in charge.
- 19.17. The contractor at his cost shall arrange necessary security measures for adequate protection of his machinery, equipment, tools, materials etc. BHEL shall not be responsible for any loss or damage to the contractor's construction equipment and materials. The contractor may consult the Engineer-in-Charge on the arrangements made for general site security for protection of his machinery equipment tools etc.
- 19.18. The Contractor may have to execute work in such a place and condition where other agencies also will be under such circumstances. However, completion time for construction, agreed will be subject to the condition that contractor's work is not hampered by the agencies.
- 19.19 Contractor has to work in close co-ordination with other agency at site. BHEL engineer will co-ordinate area clearance. In a project of such magnitude, it is possible that the area clearance may be less / more at a particular given time. Activities and Construction program have to be planned in such a way that the milestones are achieved as per schedule/ plans. Contractor shall arrange & augment the resources accordingly.
- 19.20. The contractor must obtain the signature and permission of the security personnel of the customer / BHEL for bringing any of their materials inside the site premises. Without the Entry Gate Pass these materials will not be allowed to be taken outside.
- 19.21. Contractor shall remove all scrap materials periodically generated from his working area and collect the same at one place earmarked for the same. Load of scraps is to be shifted to a place earmarked by BHEL. Failure to collect the scrap is likely to lead to accidents and as such BHEL reserves the right to collect and remove the scrap at contractor's risk and cost if there is any failure on the part of contractor in this respect.
- 19.22. The contractor shall ensure that his premises are always kept clean and tidy to the extent possible. Any untidiness noted on the part of the contractor shall be brought to the attention of the contractor's site representative who shall take immediate action to clean the surroundings to the satisfaction of the Engineer-inCharge.

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- 19.23. The contractor is strictly prohibited from using BHEL's regular components like angles, channels, beams, plates, pipe / tubes, and handrails etc. for any temporary supporting or scaffolding works. Contractor shall arrange himself all such materials. In case of such misuse of BHEL materials, a sum as determined by BHEL engineer will be recovered from the contractor's bill. The decision of BHEL engineer is final and binding on the contractor.
- 19.24. No member of the already erected structure / buildings, other component and auxiliaries should be removed / modified without specific approval of BHEL engineer.
- 19.25. Contractors shall ensure that all their Staff / Employees are exposed to periodical training programme conducted by qualified agencies/ personnel on ISO 9001 – 2008 Standards.
- 19.26. Some time it may be required to re-schedule the activities to enable other agencies to commence / continue the work so as to keep the overall project schedule.
- 19.27. The terminal points decided by BHEL are final and binding on the contractor for deciding the scope of work and effecting the payment for the work done up to the terminals.
- 19.28. Crane operators deployed by the contractor shall be tested by BHEL before he is allowed to operate the cranes.
- 19.29. On Completion of work, all the temporary buildings, structures, pipe lines, cable etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.
- 19.30. It is the responsibility of the contractor to do the checking, testing etc. if necessary, repeatedly to satisfy BHEL Engineer with all the necessary tools and tackles, manpower etc. without any extra cost. The testing will be completed only when jointly certified so, by the BHEL Engineer.
- 19.31. If any item not covered but requires being executed, same shall be carried out by the contractor. Equivalent or proportional unit rate shall be considered wherever possible from the BOQ. The rates quoted by the contractor shall be uniform as far as possible for similar items appearing in rate schedule.
- 19.32. The contractor's work shall not hinder other work, either underground or over ground, such as electrical, phone lines, water or sewage lines, etc. In areas of overlap, the contractor

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shall work in coordination with other related contractors. Any damage by the landscape contractor's team to such utilities will be penalized and contractor shall be responsible for cost for such damages.

### **19.33. SITE INSPECTION**

The owner / employer or his authorized agents may inspect various stages of work during the currency of the contract awarded to him. The contractor shall make necessary arrangements for such inspection and carry out the rectification pointed out by the owner / employer without any extra cost to the owner / employer. No cost whatsoever such duplication of inspection of work be entertained.

BHEL / Customer will have full power and authority to inspect the works at any time, either on the site or at the contractor's premises. The contractor shall arrange every facility and assistance to carry out such inspection. On no account will the contractor be allowed to proceed with work of any type unless such work has been inspected and entries are made in the site inspection register by customer / BHEL.

Wherever the performance of work by the contractor is not satisfactory in respect of workmanship, deployment of sufficient labour or equipment, delay in execution of work or any other matter, BHEL shall have the right to engage labour at normal ruling rates and get the work executed through other agency and debit the cost to the contractor and the contractor shall have no right to claim compensation thereof. In such a case, BHEL shall have the right to utilize the materials and tools brought by the contractors for the same work.

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# PART – II CHAPTER 1

## **CORRECTIONS / REVISIONS IN GENERAL CONDITIONS OF CONTRACT AND FORMS & PROCEDURES**

### **SI No: 1**

#### **OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT MANAGEMENT/ QUALITY ASSURANCE PROGRAMME**

The following clauses in Occupational Health, Safety & Environment Management / Quality Assurance Programme published in Chapter-IX of Special Conditions of Contract (Volume I Book-II) is revised as under.

#### **Chapter IX Clause 9.1 is modified as below:**

Contractor will comply with HSE (Health, Safety & Environment) requirements of BHEL as per the “HSE Plan for Site Operations by Subcontractor” (Document No. HSEP: 14 Rev (0) enclosed as **chapter-5 in part II of Technical Conditions of Contract (Volume-I Book-I)**).

Chapter IX Clause 9.1.1 to 9.1.25 stands deleted.

Chapter IX Clause 9.2 to 9.62 stands deleted.

**The EARNEST MONEY DEPOSIT (EMD) clause 1.9 published in General Conditions of Contract (Volume I Book-II) is revised as under.**

#### **1.9 EARNEST MONEY DEPOSIT**

1.9.1 Every tenderer must furnish the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.

1.9.2 Modes of deposit of EMD

- i. Cash deposit as permissible under Income Tax Act (before tender opening)
- ii. Electronic Fund Transfer credited in BHEL account (before tender opening)

- iii. Banker's cheque or Pay order or Demand Draft in favour of 'Bharat Heavy Electricals Limited' (along with offer) and payable at Regional HQ issuing the tender.
- iv. Incase total EMD amount is more than Rs.20 Lakh, the amount in excess of Rs. 20 Lakh may be accepted in the form of Bank Guarantee from Scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months from the latest due date of tender submission.
- v. No other form of EMD remittance shall be acceptable to BHEL.

1.9.3 EMD shall not carry any interest.

1.9.4 EMD by the Tenderer will be forfeited as per NIT Conditions, if:

- i. After opening the tender and within the offer validity period, the Tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.
- ii. The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/Contract

1.9.5 EMD given by all unsuccessful tenderers will be refunded normally within 15 days of award of work.

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

1.9.7 EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant" Guidelines on Suspension of Business dealings with suppliers/contactors" and forfeited / released based on the action determined under these guidelines.

1.9.8 Bank details for Electronic fund transfer is as follows.

BHEL-PSSR-Chennai,

Bank Account No:10610819499,

IFSC code: SBIN0000912,

State Bank of India, 690, EVR Periyar Building, Nandanam, Anna Salai, Chennai600035, Email:sbi00912@sbi.co.in

**SI No: 4**

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**SECURITY DEPOSIT The SECURITY DEPOSIT (SD) clause 1.10 published in General Conditions of Contract (Volume I Book-II) is revised as under.**

**1.10 Security Deposit:**

1.10.1 Upon acceptance of Tender, the successful Tenderer should deposit the required amount of Security Deposit for satisfactory completion of work, as given below:

1.10.2 The total amount of Security Deposit will be 5% of the contract value. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

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

1.10.4 Modes of deposit:

1.10.4.1 The balance amount to make up the required Security Deposit of 5% of the contract value may be furnished in any one of the following forms

- i. Cash (as permissible under the extant Income Tax Act)
- ii. Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand

Draft/ Electronic Fund Transfer in favour of BHEL iii. Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Security Deposit shall be in the prescribed formats.

- iv. Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back.

- v. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL and discharged on the back)

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

- 1.10.5 At least 50% of the Security Deposit including the EMD should be deposited in any form as prescribed before start of the work and the balance 50% of the Security Deposit will be recovered by deducting 10% of the gross amount progressively from each running bills of the contractor till the total amount of the required Security Deposit is collected.
- 1.10.6 The recoveries made from running bills (cash deduction towards balance SD amount) will be released against submission of equivalent Bank Guarantee in the prescribed formats, but only once, before completion of work.
- 1.10.7 The Security Deposit shall not carry any interest.
- 1.10.8 If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the excess Security Deposit due the enhancement shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor.
- 1.10.9 The validity of Bank Guarantees towards Security Deposit shall be initially upto the completion period as stipulated in the Letter of Intent/Award + 3 months, and the same shall be kept valid by proper renewal till the acceptance of Final Bills of the Contractor, by BHEL
- 1.10.10 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.

**SI No: 5 Clauses 2.13.1,2.13.6 & 2.13.7 in GCC**

- 5.1 Clauses 2.13.1,2.13.6 & 2.13.7 in GCC is revised as under:
- 5.1.1 Clause 2.13.1 in GCC is revised as "Normally no advance payment shall be payable to the contractor. Mobilization advance payment in exceptional circumstances shall be interest bearing and secured through a Bank Guarantee and shall be limited to a maximum of 5% of contract value. This

'Interest Bearing Recoverable Advance' shall be payable in not less than two installments with any of the installment not exceeding 60% of the total eligible advance”.

- 5.1.2 Clause 2.13.6 in GCC is revised as “The rate of interest applicable for the above advances shall be the Base rate of State Bank of India prevailing at the time of disbursement of the advance + 6%, and such rate will remain fixed till the total advance amount is recovered”.
- 5.1.3 Clause 2.13.7 in GCC is revised as “Unadjusted amount of advances paid shall not exceed 5% of the total contract value at any point of time. Recovery of advances shall be made progressively from each Running Bill such that the advance amounts paid along with the interest is fully recovered by the time the contractor’s billing reaches 90% of contract value.”

## SI No: 6 REVERSE AUCTION

The chapter Reverse auction procedure published in 'Forms and Procedures' of Volume I Book-II is revised as below:

### REVERSE AUCTION

#### **RA 1 REVERSE AUCTION**

- BHEL reserves the right to go for Reverse Auction (RA) instead of opening the
- RA 1.1 sealed envelope price bid / digitally signed price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. **All bidders to give their acceptance for participation in RA (Refer Annexure 7 to Notice Inviting Tender). Non-acceptance to participate in RA may result in non-consideration of their bids in RA.**
- RA 1.2 BHEL may opt for Reverse auction depending on situation as per company policy. In case BHEL opts for RA, then the price bids of bidders who fulfil all the following conditions only shall be opened.
- RA 1.2.1 The bidders should have qualified techno-commercially
- RA 1.2.2 The bidders should have submitted their acceptance to participate in the RA vide enclosed format.

- RA 1.3 In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'online sealed bid' in the Reverse Auction. Non-submission of 'online sealed bid' by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.”
- RA 1.4 The start price intimated by BHEL may be displayed to the bidders during reverse auction bidding process as 'L1 price' or 'start / base price'. In cases where the start price mentioned by BHEL is not displayed as L1 price and no bidder accepts that price, RA is to be treated as failed and sealed envelope price bids / digitally signed price bid of all the techno-commercially qualified bidders shall be opened and the tender processed accordingly. Wherever the techno-commercially acceptable bidder(s) had agreed to participate in the RA and had failed to submit the online sealed bid, the envelope sealed bids / digitally signed price bid of such bidder(s) shall not be entertained

In such cases, no cognizance of online sealed bids shall be taken. In case the L1 bidder of “sealed envelope price bid / **digitally signed** price bid” has quoted a lesser price in the “on-line sealed bid”, cognizance of the same shall be taken for price negotiations.

- RA 1.5 In case BHEL decides not to conduct RA, the envelope sealed price bids / digitally signed price bid of all techno commercially qualified bidders, along with price impact, if any, shall be opened and processed as per company Policy.

## **RA 2 TERMS & CONDITIONS OF REVERSE AUCTION**

Against this enquiry for the subject item / system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

- RA 2.1 For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.

Those bidders who have given their acceptance for Reverse Auction

- RA 2.2 (quoted against

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- this tender enquiry) will have to necessarily submit 'online sealed bid' in the Reverse Auction. Non-submission of 'online sealed bid' by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- RA 2.3 BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
- RA 2.4 In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
- RA 2.5 Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
- RA 2.6 Bidders have to fax the Compliance form (annexure- RA IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
- RA 2.7 In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
- RA 2.8 Reverse auction will be conducted on scheduled date & time.
- RA 2.9 At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
- RA 2.10 The lowest bidder has to fax / e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure- RA VII) as provided on case-to-case basis to Service provider within twenty-four hours of Auction without fail.
- RA 2.11 In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.

- 
- RA 2.12 Bidders shall be required to read the “Terms and Conditions” section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the ‘Business Rules of Reverse Auction’, which will be communicated before the Reverse Auction.
- RA 2.13 If the Bidder or any of his representatives are found to be involved in Price manipulation / cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped / aborted.
- RA 2.14 The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
- RA 2.15 In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) shall not be allowed to participate in further RA process.**  
If any BOQ amendments issued to this NIT by BHEL should be
- RA 2.16 incorporated by the bidders in the on line opening sealed price bid.
- RA 2.17 BHEL reserves the right to cancel Reverse Auction (RA) without assigning any reasons and resort to considering the sealed bids submitted by vendor for processing and finalizing the tender.
- RA 2.18 Any variation between the on-line bid value and signed document (annexure-RA VII) will be considered as sabotaging the tender process and will invite disqualification of vender to conduct business with BHEL as per prevailing procedure.
- RA 2.19 Only those vendors, who participate in the Online Initial Sealed Bid, will be eligible to participate in the subsequent Online English Reverse Auction.
- RA 3 BUSINESS RULES FOR REVERSE AUCTION - TENTATIVE**  
**(The business rules given here are only for information and the authorized rules shall be intimated before reverse auction by service provider)**

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RA 3.1 This has reference to tender no {tender number.... date...}. BHEL shall finalize the Rates for the supply of {item name} through Reverse Auction mode. BHEL has made arrangement with M/s. {Service provider}, who shall be BHEL's authorized service provider for the same. Bidders should please go through the guidelines given below and submit acceptance of the same.

The technical & commercial terms are as per

- (a) BHEL Tender Enq. No. {...} dated {...},
- (b) Bidders "technical & commercial bid (in case of two part bid) and
- (c) Subsequent correspondences between BHEL and the bidders, if any.

RA 3.2 **Schedule for reverse auction:**

The Reverse Auction is tentatively scheduled on {date}:

- **Online Sealed Bid:-**

▮ {Start Time:  
▮ Close Time:}

- **Online Reverse**

**Auction: -**

{Start Time:

▮

Close Time:}

RA 3.3 **Auction extension time:** If a bidder places a bid in the last {...} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {...} minutes, for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto extension will take place only if a bid comes in those last {...} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {...} minutes. In case, there is no bid in the last {...} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.

The above process will continue till completion of Reverse Auction.

Complaints / Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail / fax to M/s. {Service provider} with a copy to BHEL within 15 minutes from the initial closing time of Online Reverse Auction.

RA 3.4 **Bid price:** The Bidder has to quote the F.O.R. destination Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, ED + cess, CST against C-form, Freight (bidder to provide original Freight paid receipt), insurance charges, etc. including loading (if indicated by BHEL due to deviations in commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of Landed cost.

**Note:** For the consideration of L1 bidder, the bid value shall be reduced by loading amount, if applicable.

RA 3.5 **Bidding currency and unit of measurement:** Bidding will be conducted in {Indian Rupees per Unit} of the material as per the specifications {...}

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid in case of two part bid) shall be considered for conversion in Indian Rupees.

RA 3.6 **Validity of bids:** Price shall be valid for {... days} from the date of reverse auction. These shall not be subjected to any change whatsoever.

RA 3.7 **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Online Reverse Auction will be considered as the bidder's final offer to execute the work.

RA 3.8 **Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.

RA 3.9 **Procedure of Reverse Auctioning**

RA 3.9.1 **Online Sealed Bid:** This duration of online sealed bid will be {...} minutes. All bidders to submit their online sealed bids during this period.

RA 3.9.2 **Online Reverse Auction:** The "opening price" i.e. start price for RA and "bid decrement" will be decided by BHEL.

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RA 3.9.3 If BHEL decides the lowest online sealed bid as the starting price, then the lowest bidder in online sealed bid shall be shown as current L1 automatically by the system and no acceptance of that price is required. System shall have the provision to indicate this bid as current L1.

RA 3.9.4 Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become “L1” and this continues as an iterative process.

RA 3.9.5 After the completion of the online reverse auction, the Closing Price (CP) shall be available for further processing.

If no bid is received in the auction system / website within the specified

RA 3.9.6 time duration

of the online RA, then BHEL will scrap the online reverse auction process and proceed with the conventional mode of tendering (opening of the envelope sealed bids / digitally signed price bid earlier submitted by the bidders).

**In cases where no bidder accepts the start price, the RA may be treated as failed and sealed envelope price bids / digitally signed price bid of all the techno-commercially qualified bidders shall be opened and the tender processed accordingly. Wherever the techno-commercially acceptable bidder(s) had agreed to participate in the RA and had failed to submit the online sealed bid, the envelope sealed bids / digitally signed price bid of such bidder(s) shall not be entertained.**

**Wherever, the evaluation is done for individual items of the package, and no bid is received for some of the item(s), RA will be considered as failed for these item(s), re-reverse auction/ retendering will be conducted for these items.**

RA 3.9.7 Only those bidders who have submitted the “online sealed bid” within the scheduled time shall be eligible to participate further in RA process. However, the **H1 bidder (whose quote is highest in online sealed bid) shall not be allowed to participate in further RA process.**

RA 3.9.8 Any commercial / technical loading shall be intimated to bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial / technical loading if any, shall be added by the respective bidder in its price during online sealed bid & Online Reverse Auction. Modalities of loading & de-loading shall be separately intimated to the bidders.

Computerized reverse auction shall be conducted by BHEL (through

RA 3.9.9 M/s {Service

Provider}), on pre-specified date, while the bidders shall be quoting from their own offices / place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

RA 3.9.10 During the RA if a bidder is not able to bid and requests for extension of time by fax / e-mail / phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained.

Despite this extension if bidder fails to upload his prices due to extreme case of failure of Internet connectivity, (due to any reason whatsoever may be) it is the bidders' responsibility / decision to send fax communication immediately to M/s. {Service provider}, furnishing the price the bidder wants to bid online with a request to the service provider to upload the faxed price on line so that the service provider will upload that price on line on behalf of the Bidder. It shall be noted clearly that the concerned bidder communicating this price to service provider has to solely ensure that the fax message is received by the service provider in a readable / legible form and also the Bidder should simultaneously check up with service provider about the clear receipt of the price faxed. It shall also be clearly understood that the bidder shall be at liberty to send such fax communications of prices to be uploaded by the service provider only within the closure of Bid time and under no circumstance it shall be allowed beyond the closure of Bid time / reverse auction. It shall also be noted that the service provider should be given a reasonable required time by the bidders,

to upload such prices online and if such required time is not available at the disposal of the Service provider at the time of receipt of the fax message from the bidders, the service

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provider will not be uploading the prices and either BHEL or the service provider are not responsible for this unforeseen circumstances. In order to ward-off such contingent situation bidders are requested to make all the necessary arrangements / alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

**RA 3.9.11 Proxy bids:** Proxy bidding feature is a pro-bidder feature to safe guard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the amount of a proxy bid.

Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant.

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In case of more than one proxy bid, the system shall bid till it crosses the threshold value of “each lowest proxy bid” and thereafter allow the competition to decide the final L1 price.

Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

RA 3.9.12 Bidders are advised to get fully trained and clear all their doubts such as refreshing of Screen, quantity being auctioned, tender value being auctioned etc.

RA 3.9.13 M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder’s nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the rules related to the Reverse Auction / Business Rules

Document to be adopted along with bid manual. Bidders are required to give their compliance on it before start of bid process.

RA 3.9.14 Successful bidder shall be required to submit the final prices, quoted during the Online Reverse Auction in Annexure - RA VII after the completion of auction to M/s. Service provider besides BHEL, duly signed and stamped as token of acceptance without any new condition other than those already agreed to before start of auction.

RA 3.9.15 Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines in vogue.

RA 3.9.16 Bidders bid will be taken as an offer to execute the work / supplies the item as per enquiry no. {...} dt. {...}. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder’s final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines in vogue.

RA 3.9.17 Bidders shall be assigned a **Unique User Name & Password** by BHEL or M/s. {Service provider}. Bidders are advised to change the Password and edit the information in the Registration Page after the receipt of initial Password

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from BHEL / M/s. {Service provider} to ensure confidentiality. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidder's / bidders' company.

RA 3.9.18 Bidders shall be able to view the following on their screen along with the necessary fields during Online Reverse Auction:

a. Leading (Running Lowest) Bid in the Auction (only total price of package)

b. Bid Placed by the bidder

c. Start Price

d. Decrement value

RA 3.9.19 After receipt of the system report from the Service Provider after completion of the Online Reverse Auction, BHEL will decide upon the winner. BHEL's decision on award of contract shall be final and binding on all the Bidders.

RA 3.9.20 BHEL reserves the right to cancel the Reverse Auction process / tender at any time, before ordering, without assigning any reason.

RA 3.9.21 BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.

RA 3.9.22 Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.

RA 3.9.23 Bidders are required to submit their acceptance to the terms / conditions / modalities before participating in the Reverse Auction in the process compliance Form as per Annexure-RA IV.

RA 3.9.24 BHEL can decide to extend, reschedule or cancel any Auction with prior intimation to all bidders.

RA 3.9.25 **If there is any clash between this business document and the FAQ available, if any, in the web site of M/s. {Service provider} the terms& conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL / service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.**

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**Annexure – RA IV Process Compliance Form**

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

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. {.....} 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 Terms & Conditions 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 email / fax the price confirmation & break up of our quoted price (including that of line items) as per *Annexure – RA VII* 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 honour 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 it to M/s {Service provider} at {.....}  
prior to start of the Event.

- Attach a signed copy of the RFQ document along with the  
Agreement Form/ Process

Compliance form and send to M/s. {Service provider}

**Annexure – RA VII RA price confirmation and breakup**

**To**

- M/s. Service provider

- Postal address

CC: M/s BHEL

{Unit-

-Address-}

Sub: **Final price quoted during Reverse Auction and price  
breakup** Dear Sir,

We confirm that we have quoted.

**Rs. {\_\_\_\_\_} for item covered under tender enquiry No. {...}  
dt. {...}**

Total price of the items covered under above cited enquiries is  
inclusive of {Packing & forwarding, E.D., C.S.T., freight and insurance  
charges upto {.....} 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 {\_\_\_\_\_} days.

The price break-up including that of line items is as given below.

=====

Total - Rs.

=====

Thanking you and looking forward to the valuable order from BHEL.

Yours  
sincerely,  
For

\_\_\_\_\_

**Name:**

**Company:**

**Date:**

**Seal:**



## CHAPTER II

### HSE PLAN FOR SITE OPERATIONS BY BHEL'S SUBCONTRACTORS

#### AT A GLANCE

BEFORE START

<b>SIGNING OF MOU</b>
Agree to comply to HSE requirement- Statutory and BHEL's

<b>HSE ORGANISATION</b>	
<ul style="list-style-type: none"> <li>• <b>Manpower</b></li> <li>1 (one) safety officer for every 500 workers or part thereof</li> <li>• 1(one) safety-steward/ supervisor for every 100 workers</li>   <li><b>Qualification</b></li> <li>As per Cl. 7.1</li> </ul>	<p style="text-align: center;"><b>HSE Roles and responsibilities</b></p> <p style="text-align: center;">Site In-charge- As per clause 7.2.1</p> <ul style="list-style-type: none"> <li>• Safety officer- As per clause 7.2.2</li> <li>•</li> </ul>
<b>HSE Planning</b> for Man , Machinery/Equipment/Tools & Tackles	

<b>HSE INFRASTRUCTURE</b>	
<ul style="list-style-type: none"> <li>• <input type="checkbox"/> PPEs</li> <li>• Drinking Water</li> <li>• Washing Facilities</li> <li>• Latrines and</li> <li>• Urinals Provision of shelter for rest</li> <li>• Medical facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Canteen facilities</li> <li>• Labour Colony</li> <li>• Emergency Vehicle</li> <li>• Pest Control</li> <li>• Scrapyard</li> <li>• Illumination</li> </ul>

<b>HSE TRAINING , AWARENESS &amp; PROMOTION</b>	
<ul style="list-style-type: none"> <li>• <input type="checkbox"/> <b>Training</b></li> <li>Induction training</li> <li>• Height work and other critical areas</li> <li>Tool Box talk &amp; Pep Talk</li> </ul>	<p style="text-align: center;"><b>Awareness &amp; Promotion</b></p> <ul style="list-style-type: none"> <li>• Signage</li> <li>• Poster</li> <li>• Banner</li> <li>• Competition</li> <li>• Awards</li> </ul>

PLAN

PROVIDE

TRAIN

COMMUNICATE

**HSE COMMUNICATION**

**Incident Reporting**

- Accident- Fatal & Major
- Property damage
- Near Miss

**Event Reporting**

- Celebrations
- Training
- Medical camp

**OPERATIONAL CONTROL PROCEDURES**

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

<b>SAFETY DURING WORK EXECUTION</b>	
<ul style="list-style-type: none"><li>• <input type="checkbox"/> Welding</li><li>• Rigging</li><li>• Cylinder- storage &amp; Movement</li><li>• Demolition work</li><li>• T&amp;Ps</li><li>• Chemical Handling</li><li>• Electrical works</li></ul>	<ul style="list-style-type: none"><li>• Fire</li><li>• Scaffolding</li><li>• Height work</li><li>• Working Platform</li><li>• Excavation</li><li>• Ladder</li><li>• Lifting</li><li>• Hoisting appliance</li></ul>
<b>HOUSE KEEPING</b>	
<b>WASTE MANGEMENT</b>	
<b>TRAFFIC MANAGEMENT</b>	
<b>ENVIRONMENTAL CONTROL</b>	
<b>EMERGENCY PREPAREDNESS AND RESPONSE PLAN</b>	

EXECUTE SAFELY

CHECKS

NON CONFORMANCE

HSE AUDITS & INSPECTION	
<ul style="list-style-type: none"><li>• Daily Checks</li><li>• Inspection of PPEs</li><li>• Inspection of T&amp; Ps</li></ul>	<ul style="list-style-type: none"><li>• Inspection of Height work</li><li>• Inspection of Welding and Gas cutting</li></ul>

<ul style="list-style-type: none"><li>• Inspection of Cranes &amp; Winches</li></ul>	<ul style="list-style-type: none"><li>• Inspection of elevators etc</li></ul>
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**HSE PERFORMANCE EVALUATION PARAMETERS**

**PENALTY for NON CONFORMANCE**  
**Refer Clause 16**  
**Incremental penalty**  
For repeated violation by the same person, the penalty would be double of the previous penalty  
For repeated fatal incident in the same Unit incremental penalty to be imposed. The subcontractor will pay 2 times the penalty compared to previously paid in case there are repeated cases of fatal incidents under the same subcontractor for the same package in the same unit.





**HEALTH, SAFETY AND ENVIRONMENT  
PLAN FOR  
SITE OPERATION by SUBCONTRACTORS**

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POWER SECTOR

## 1.0 PURPOSE

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

## 2.0 SCOPE

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

## 3.0 OBJECTIVES AND TARGETS

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

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



**HEALTH, SAFETY AND ENVIRONMENT  
PLAN FOR  
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**HSE TARGETS**

**EXPLOSION**

<b>FATALITY</b>	<b>ZERO</b>
<b>LOST TIME INJURY</b>	<b>ZERO</b>
<b>FIRE</b>	<b>ZERO</b>
<b>VEHICLE INCIDENTS</b>	<b>ZERO</b>
<b>ENVIRONMENTAL INCIDENTS</b>	<b>ZERO</b>

**4.0 BHEL POWER SECTOR HEALTH, SAFETY & ENVIRONMENT POLICY**

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### Power Sector HSE Policy

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


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

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

Sd/-

Date: 01.05.2013

Director (Power)

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**5.0 MEMORANDUM OF UNDERSTANDING:**

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


**Memorandum of Understanding**

BHEL, Power Sector \_\_\_\_\_ Region is committed to Health, Safety and Environment Policy (HSE Policy). M/s \_\_\_\_\_ do hereby also commit to comply with the same HSE Policy while executing the Contract Number \_\_\_\_\_

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

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

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

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

Name :

Place & Date:




## 6.0 TERMS AND DEFINITIONS

### 6.1 DEFINITIONS

#### 6.1.1 INCIDENT

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

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#### 6.1.2 NEAR MISS

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

#### 6.1.3 MAN-HOUR WORKED

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

#### 6.1.4 FIRST AID CASES

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

#### 6.1.5 LOST TIME INJURY

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

#### 6.1.6 MEDICAL CASES

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

#### 6.1.7 TYPE OF INCIDENTS & THEIR REPORTING:

The three categories of Incident are as follows:

##### **Non-Reportable Cases:**

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



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**Reportable Cases:**

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

**Injury Cases:**

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

**6.1.8 TOTAL REPORTABLE FREQUENCY RATE**

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

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

**6.1.9 SEVERITY RATE**

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

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

**6.1.10 INCIDENCE RATE**


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

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

**7.0 HSE ORGANISATION**

**Number of safety officers:**

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

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

#### 7.1 QUALIFICATION FOR HSE PERSONNEL

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




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

##### 7.2.1 SITE IN -CHARGE OF SUBCONTRACTOR

- Shall sign Memorandum of Understanding (MoU) for compliance to BHEL's HSE Plan for Site Operations as per clause 5.0
- Shall engage qualified safety officer(s) and steward (s) as per clause 7.0
- Shall adhere to the rules and regulations mentioned in this code, practice very strictly in his area of work in consultation with his concerned engineer and the safety coordinator.

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

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

#### 7.2.2 HEALTH, SAFETY AND ENVIRONMENT OFFICER OF SUBCONTRACTOR

- Carry out safety inspection of Work Area, Work Method, Men, Machine & Material, P&M and other tools and tackles.
- Facilitate inclusion of safety elements into Work Method Statement.
- Highlight the requirements of safety through Tool-box / other meetings.
- Help concerned HOS to prepare Job Specific instructions for critical jobs.
- Conduct investigation of all incident/dangerous occurrences & recommend appropriate safety measures.
- Advice & co-ordinate for implementation of HSE permit systems, OCPs & MPs.
- Convene HSE meeting & minute the proceeding for circulation & follow-up action.
- Plan procurement of PPE & Safety devices and inspect their healthiness.
- Report to PS Region/HQ on all matters pertaining to status of safety and promotional program at site level.
- Facilitate administration of First Aid
- Facilitate screening of workmen and safety induction.
- Conduct fire Drill and facilitate emergency preparedness
- Design campaigns, competitions & other special emphasis programs to promote safety in the workplace.
- Apprise PS– Region on safety related problems.
- Notify site personnel non-conformance to safety norms observed during site visits / site inspections.

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- Recommend to Site In charge, immediate discontinuance of work until rectification, of such situations warranting immediate action in view of imminent danger to life or property or environment.
- To decline acceptance of such PPE / safety equipment that do not conform to specified requirements.
- Encourage raising Near Miss Report on safety along with, improvement initiatives on safety.
- Shall work as interface between various agencies such customer, package-in-charges, subcontractors on HSE matters



## 8.0 PLANNING BY SUBCONTRACTOR

### 8.1 MOBILISATION OF MACHINERY/EQUIPMENT/TOOLS BY SUBCONTRACTOR

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

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## 8.2 MOBILISATION OF MANPOWER BY SUBCONTRACTOR

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

## 8.3 PROVISION OF PPEs

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

Sl. No	Type of work	PPEs
1	Concrete and asphalt mixing	Nose mask, hand glove, apron and gum boot
2	Welders/Grinders/ Gas cutters	Welding/face screen, apron, hand gloves, nose mask and ear muffs if noise level exceeds 90dB. Helmet fitted with welding shield is preferred for welders
3	Stone/ concrete breakers	Ear muffs, safety goggles, hand gloves
4	Electrical Work	Rubber hand glove, Electrical Resistance shoes
5	Insulation Work	Respiratory mask, Hand gloves, safety goggles
6	Work at height	Double lanyard full body harness, Fall arrestor (specific cases)

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7	Grit/Sand blasting	Blast suit, blast helmet, respirator, leather gloves
8	Painting	Plastic gloves, Respirators (particularly for spray painting)
9	Radiography	As per BARC guidelines

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

**Relevant is-codes for personal protection**

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

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



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

Colour scheme for Helmets:

1. Workmen: Yellow
2. Safety staff: Green or white with green band
3. Electrician: Red
4. Others including visitors: White

- All the PPEs shall be checked for its quality before issue and the same shall be periodically checked. The users shall be advised to check the PPEs themselves for any defect before putting on. The defective ones shall be repaired/ replaced.
- The issuing agency shall maintain register for issue and receipt of PPEs.
- The Helmets shall have logo or name (abbreviation of agency name permitted) affixed or printed on the front.
- The body harnesses shall be serial numbered.


## **8.4 ARRANGEMENT OF INFRASTRUCTURE**

### **8.4.1 DRINKING WATER**

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

### **8.4.2 WASHING FACILITIES**

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

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#### 8.4.3 LATRINES AND URINALS

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

#### 8.4.4 PROVISION OF SHELTER DURING REST

Proper Shed & Shelter shall be provided for rest during break

#### 8.4.5 MEDICAL FACILITIES


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

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

##### 8.4.5.2 FIRST AIDER

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

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

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

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

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


- Height workers



- Drivers/crane operators/riggers
- Confined space workers
- Shot/sand blaster
- Welding and NDE personnel

#### 8.4.6 PROVISION OF CANTEEN FACILITY

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

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#### 8.4.7 PROVISION OF ACCOMODATION/LABOUR COLONY

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

#### 8.4.8 PROVISION OF EMERGENCY VEHICLE

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

#### 8.4.9 PEST CONTROL

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

#### 8.4.10 SCRAPYARD

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

#### 8.4.11 ILLUMINATION

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





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


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

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

**9.0 HSE TRAINING & AWARENESS**

**9.1 HSE INDUCTION TRAINING**

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

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


- Briefing of the Project details.
- Safety objectives and targets.
- Site HSE rules.
- Site HSE hazards and aspects.
- First aid facility.
- Emergency Contact No.
- Incident reporting.

- Fire prevention and emergency response.
- Rules to be followed in the labour colony (if applicable)

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

## 9.2 HSE TOOLBOX TALK

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

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### 9.3 TRAINING ON HEIGHT WORK

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

The training shall include following topics:

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

### 9.4 HSE TRAINING DURING PROJECT EXECUTION

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


OHSMS

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

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

#### 9.5.1 Display of HSE posters and banners

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

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#### 9.5.2 Display of HSE signage

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

#### 9.5.3 Competition on HSE and award

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

#### 9.5.4 HSE awareness programme

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

### 10.0 HSE COMMUNICATION

#### 10.1 INCIDENT REPORTING

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

#### 10.2 HSE EVENT REPORTING

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

### 11.0 OPERATIONAL CONTROL



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

**LIST OF OCPs**

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

**11.1 HSE ACTIVITIES**

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

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

- 1) HSE Procedure for Register of OHS Hazards and Risks




- 2) HSE Procedure for Register of Environmental Aspects and Impacts
- 3) HSE Procedure for Register of Regulations
- 4) Operational Control Procedures
- 5) HSE Procedure for Emergency Preparedness and Response Plan
- 6) Contract documents

## 11.2 WORK PERMIT SYSTEM

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

## 11.3 SAFETY DURING WORK EXECUTION

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

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### 11.3.1 WELDING SAFETY

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


### 11.3.2 RIGGING

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

### 11.3.3 CYLINDERS STORAGE AND MOVEMENT

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

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

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

#### 11.3.4 DEMOLITION WORK

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

- All roads and open areas adjacent to the work site shall either be closed or suitably protected.
- No electric cable or apparatus which is liable to be a source of danger nor a cable or an apparatus used by the operator shall remain electrically charged.
- All practical steps shall be taken to prevent danger to persons employed from the risks of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render them unsafe.

#### 11.3.5 T&Ps


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

#### 11.3.6 CHEMICAL HANDLING

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

#### 11.3.7 ELECTRICAL SAFETY

- Providing adequate no. of 24 V sources and ensure that no hand lamps are operating at voltage level above 24 Volts.

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- Fulfilling safety requirements at all power tapping points.
- High/ Low pressure welders to be identified with separate colour clothings. No welders will be deployed without passing appropriate tests and holding valid welding certificates. Approved welding procedure should be displayed at work place.
- The subcontractor shall not use any hand lamp energized by Electric power with supply voltage of more than 24 volts in confined spaces like inside water boxes, turbine casings, condensers etc.
- All portable electric tools used by the subcontractor shall have safe plugging system to source of power and be appropriately earthed. Only electricians licensed by appropriate statutory authority shall be employed by the subcontractor to carry out all types of electrical works. Details of earth resource and their test date to be given to BHEL safety officer as per the prescribed formats of BHEL


The subcontractor shall use only properly insulated and armored cables which conform to the requirement of Indian Electricity Act and Rules for all wiring, electrical applications at site.

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

#### 11.3.8 FIRE SAFETY

- Providing appropriate fire fighting equipment at designated work place and nominate a fire officer/warden adequately trained for his job.
- Subcontractor shall provide enough fire protecting equipment of the types and numbers at his office, stores, temporary structure in labor colony etc. Such fire protection equipment shall be easy and kept open at all times.

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- The fire extinguishers shall be properly refilled and kept ready which should be certified at periodic intervals. The date of changing should be marked on the Cylinders.
- All other fire safety measures as laid down in the “codes for fire safety at construction site” issued by safety coordinator of BHEL shall be followed.
- Non-compliance of the above requirement under fire protection shall in no way relieve the subcontractor of any of his responsibility and liabilities to fire incident occurring either to his materials or equipment or those of others.
- Emergency contacts nos must be displayed at prominent locations
- Tarpaulin being inflammable should not be used (instead, only non infusible covering materials shall be used) as protective cover while preheating, welding, stress relieving etc. at site.

#### 11.3.9 SCAFFOLDING


- Suitable scaffolds shall be provided for workman for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration of work which can be done safely from ladders.
- When a ladder is used, it shall be of rigid construction made of steel. The steps shall have a minimum width of 45 cm and a maximum rise of 30 cm. Suitable handholds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than ¼ horizontal and 1 vertical.
- Scaffolding or staging more than 3.6 m above the ground floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly bolted, braced or otherwise secured, at least 90 cm above the floor or platform of such scaffolding or staging and extending along the entire length of the out side and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it form saver, from swaying, from the building or structure.

#### 11.3.10 WORK AT HEIGHT:



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

- Wherever necessary, life-line(pp or metallic) and fall arrestor along with Polyamide rope or Retractable lifeline should be provided.
- Safety Net as per IS:11057:1984 should be used extensively for prevention/ arrest of men and materials falling from height. The safety nets shall be fire resistant, duly tested and shall be of ISI marked and the nets shall be located as per site requirements to arrest or to reduce the consequences of a possible fall of persons working at different heights.
- ▣ Reaching beyond barricaded area without lifeline support, moving with support of bracings, walking on beams without support, jumping from one level to another, throwing objects and taking shortcut must be discouraged.

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- Use of Rebar steel for making Jhoola and monkey-ladder (Rods welded to vertical or inclined structural members), temporary platform etc. must be avoided.
- Monkey Ladder should be properly made and fitted with cages.
- Jhoola should be made with angles and flats and tested like any lifting tools before use.
- Lanyard must be anchored always and in case of double lanyard, each should be anchored separately.
- In case of pipe-rack, persons should not walk on pipes and walk on platforms only.
- In case of roof work, walking ladder/ platform should be provided along with lifeline and/ or fall arrestor.
- Empty drums must not be used.
- For chimney or structure painting, both hanging platform and men should be anchored separately to a firm structure alongwith separate fall arrestor. Rope ladder should be discouraged.

#### 11.3.11 WORKING PLATFORM

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

#### 11.3.12 EXCAVATION


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

#### 11.3.13 LADDER SAFETY

Safe means of access shall be provided to all working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 m in the length while the width between side rails in rung ladder shall in no case be less than app. 29.2 cm for ladder upto and including 3 m in length. For longer ladders this width shall be increased at least 1/4" for each additional foot of length.

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

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#### 11.3.14 LIFTING SAFETY

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



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

#### 11.3.15 HOISTING APPLIANCE

- Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safe guards.
- Hoisting appliance should be provided with such means as will reduce to the minimum the risk of any part of a suspended load becoming incidentally displaced.
- When workers employed on electrical installations which are already energized, insulating mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided.
- The worker should not wear any rings, watches and carry keys or other materials which are good conductor of electricity.

#### 11.4 ENVIRONMENTAL CONTROL


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

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

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

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

The subcontractors shall ensure that noise levels generated by plant or machinery are as low as reasonably practicable. Where the subcontractor anticipates the generation of excessive noise levels from his operations the subcontractor

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shall inform to Construction Manager of BHEL accordingly so that reasonable & practicable precautions can be taken to protect other persons who may be affected.

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

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

### 11.5 HOUSEKEEPING


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

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

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

### 11.6 WASTE MANAGEMENT

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

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#### 11.6.1 BINS AT WORK PLACE

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

#### 11.6.2 STORAGE AND COLLECTION

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

#### 11.6.3 SEGREGATION


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

#### 11.6.4 DISPOSAL

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

#### 11.6.5 WARNING AND SIGNS

- Appropriate sign to be displayed at scrap storage area

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

## 11.7 TRAFFIC MANAGEMENT SYSTEM

### 11.7.1 SAFE WORKPLACE TRANSPORT SYSTEM

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

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

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the 15m radius of any working area. Any vehicle, that is required to be at the immediate/near the vicinity, shall be approved by the person in-charge of the site.

#### 11.7.2 TRAFFIC ROUTE FOR PEDESTRIANS

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

#### 11.7.3 WORK VEHICLE


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

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



#### 11.7.4 DAILY CHECK BY DRIVER

- There should also be daily safety checks containing below mentioned points by the driver before the vehicle is used. ○ Brakes. ○ Tires. ○ Steering. ○ Mirrors.

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- Windscreen waters.
- Wipers.
- Warning signals.
- Specific safety system i.e. control interlocks
- Management should ensure that drivers carry out these checks.

#### 11.7.5 TRANSPORTATION OF PERSONNEL AND MATERIALS BY VEHICLES

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

#### 11.7.6 MAINTENANCE

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

#### 11.8 EMERGENCY PREPAREDNESS AND RESPONSE

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



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

## 12.0 HSE INSPECTION

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


### 12.1 DAILY HSE CHECKS

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

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

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

### 12.2 INSPECTION OF PPE

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



### 12.3 INSPECTION OF T&Ps


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

### 12.4 INSPECTION OF CRANES AND WINCHES

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

### 12.5 INSPECTION ON HEIGHT WORKING

- Inspection on height working shall be conducted daily by supervisors before start of work to ensure safe working condition including provision of
  - Fall arrestor
  - Lifelines
  - Safety nets
  - Fencing and barricading
  - Warning signage
  - Covering of opening
  - Proper scaffolding with access and egress.
  - Illumination
- Inspection on height working shall be conducted once in a week by HSE officer as per format no. HSEP:14-F10.
- Medical fitness of height worker shall be ensured.

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- Height working shall not be allowed during adverse weather.

#### 12.6 INSPECTION ON WELDING AND GAS CUTTING OPERATION

- Supervisor shall ensure that no flammable items are available in near vicinity during welding and gas cutting activity.



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

#### 12.7 INSPECTION ON ELECTRICAL INSTALLATION / APPLIANCES

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

#### 12.8 INSPECTION OF ELEVATOR

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

#### 13.0 HSE PERFORMANCE

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



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


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

#### 14.0 HSE PENALTIES

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

#### 15.0 OTHER REQUIREMENTS

- In case of any delay in completion of a job due to mishaps attributable to lapses by the subcontractor, BHEL shall have the right to recover cost of such delay from the payments due to the subcontractor, after notifying the subcontractor suitably.

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

and the subcontractor shall adhere to such instructions.

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

## 16. NON COMPLIANCE

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



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

□ Legend:-

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

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

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



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### 17.0 HSE AUDIT/INSPECTION

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

### 18.0 MONTHLY HSE REVIEW MEETING

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

### 19.0 FORMATS USED(Details available in Annexure-04)

SL. No.	Format Name	Format No.	Rev No.
01	Inspection of First Aid Box	HSEP:13-F01	00
02	Health Check Up	HSEP:13-F02	00
03	HSE Induction Training	HSEP:13-F03	00



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04	Tool Box Talk	HSEP:13-F04	00
05	Monthly Site HSE Report	HSEP:13-F05	00
06	Inspection of PPE	HSEP:13-F06	00
07	Inspection of T&Ps	HSEP:13-F07	00
08	Status of T&Ps	HSEP:13-F08	00
09	Inspection of Cranes and Winches	HSEP:13-F09	00
10	Inspection on Height Working	HSEP:13-F10	00
11	Inspection on Welding & Gas Cutting	HSEP:13-F11	00
12	Inspection on Electrical Installation	HSEP:13-F12	00
13	Inspection on Elevator	HSEP:13-F13	00
14	HSE Penalty	HSEP:13-F14	00
15	Accident /incident / property damage /fire incident report	HSEP:13-F15	00



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

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

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

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

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

(i)	12 small sterilized dressings
(ii)	6 medium size sterilized dressings



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(iii)	6 large size sterilized dressings.
(iv)	6 large size sterilized burn dressings
(v)	6 (15 grams) packets sterilized cotton wool
(vi)	12 pieces of sterilized eye pads in separate sealed packets.

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

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



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Angle $\pm 70^\circ$ from horizontal					
Other					
<b>HOISTS, CRANES AND RIGGING INSPECTION CHECKLIST CUM COMPLIANCE REPORT</b>					
Condition of cables and sheaf OK PROJECT: _____	SUBCONTRACTOR: _____				
Condition of slings, chains, hooks OK					
DATE: _____ OWNER: _____ Inspection & maintenance log maintained					
Outriggers used INSPECTION BY: _____					
Signals observed and understood Note : write 'NA' wherever the items is not applicable					
Qualified operators	Y	N	Remarks	Action	
Others	e	o			
s					
<b>MAINTENANCE, TOOLS &amp; EQUIPMENT</b>					
Waste containers provided and used					
Bafety ways and walkways clear					
Emergency egress of working area					
Inspection and maintenance					
<b>PERSONNEL PROTECTIVE EQUIPMENTS</b>					
<b>VEHICLES AND TRAFFIC</b>					
Road sign regulations observed					
Heavy machinery maintenance					
Respiratory masks etc.					
Safety belts					
<b>TEMPORARY FACILITIES</b>					
<b>EXCAVATIONS / OPENINGS</b>					
Openings properly protected or barricaded					
Excavations shored					
Excavations barricaded					
Overnight lighting provided					
<b>FIRE PREVENTION</b>					
<b>WELDING / CUTTING</b>					
Gas cylinders chained upright					



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Fire extinguishers checked	<b>POWER SECTOR</b>				
No smoking in prohibited areas.					
<del>Cable and hoses not obstructing</del>					
Hydrants					
Fire extinguisher (s) accessible					
Clearance					
Others					
Others					
<b>SCAFFOLDING</b>					
<b>ELECTRICAL</b>					
Fully decked platforms					
Proper wiring					
Guard and intermediate rails in place					
ELCB's provided					
Toe boards in place					
Ground fault circuit interrupters					
Adequate shoring					
Protection against damage					
Adequate access					
Prevention of tripping hazards					
Others					
Others					
<b>LADDER</b>					
<b>HANDLING &amp; STORAGE OF MATERIALS</b>					
Extension side rails 1 m above					
Properly stored or stacked					
Top of landing					
Passageways clear					
Properly secured					
Other					
Other					
<b>FLAMMABLE GASES AND LIQUIDS</b>					
Containers clearly identified					
Proper storage					
Fire extinguisher nearby					



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



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**ANNEXURE 03**

**REFERENCES**

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

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



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(18)	IS:8520 – 1977 (Reaffirmed 2002)	Guide for Selection of Industrial Safety Equipment for Eye, Face and Ear Protection.
(19)	IS:9473:2002	Respiratory Protective Devices-Filtering Half Masks to protect against Particles-Specification.
(20)	IS:9944:1992 (Reaffirmed 2003)	Natural and Man-made Fiber Rope Slings-Recommendations on Safe working loads.
(21)	IS:11057 – 1884 (Reaffirmed 2001)	Specification for Industrial Safety Nets
(22)	IS:12254:1993 (Reaffirmed 2002)	Polyvinyl Chloride (PVC) Industrial Boots-Specification
(23)	IS:13367(Part 1):1992 (Reaffirmed 20030)	Safe Use of Cranes-Code of Practice
(24)	IS:14166:1994 (Reaffirmed 2002)	Respiratory Protective Devices-Full Face Masks Specification
(25)	IS:14746 : 1999 (Reaffirmed 2003)	Respiratory Protective Devices-Half Masks and Quarter Masks - Specification
(26)	IS : 15397 :2003 (Reaffirmed 2008)	Portable Extinguisher Mechanical Foam Type(Stored Pressure)-Specification
(27)	IS: 19011:2002	Guidelines for Quality and/or Environmental Management Systems Auditing



**HEALTH, SAFETY AND ENVIRONMENT  
PLAN FOR  
SITE OPERATION by SUBCONTRACTORS**

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REV: 00


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POWER SECTOR

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

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	<b>HEALTH, SAFETY AND ENVIRONMENT PLAN FOR SITE OPERATION by SUBCONTRACTORS</b>	Doc no.: HSEP: 14
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**POWER SECTOR****INSPECTION OF FIRST AID BOX**

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<b>Name of Site :</b>	
<b>Name of Sub-Contractor :</b>	
<b>Inspected by :</b>	
<b>Date of Inspection :</b>	

**Number of employees on the site:-** \_\_\_\_\_

Sl.No.	Item	No. Available	Remarks
1	No. of small sterilized dressings		
2	No of medium sized sterilized dressings		
3	No of large sized sterilized dressings.		
4	No of large sized sterilized burn dressings		
5	No of (15 grams) packets sterilized cotton wool		
6	No of pieces of sterilized eye pads in separate sealed packets.		
7	No of roller bandages 10 cm wide.		
8	No of roller bandages 5 cm wide.		
9	Whether tourniquet available		
10	Whether supply of suitable splints available.		
11	No of packets of safety pins.		
12	Whether kidney tray available		

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13	Whether sufficient number of eye wash bottles, filled with distilled water or suitable liquid, clearly indicated by a distinctive sign which shall be visible at all times, available.		
14	Whether 4%-xylocaine eye drops, and boric acid eye drops and soda by carbonate eye drops available.		
15	Whether (60ml) bottle containing a two percent alcoholic solution of iodine available		
16	Whether (two hundred ml) bottle of mercurochrome (2 per cent) solution in water available.		

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**INSPECTION OF FIRST AID BOX**

02 OF 02

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Sl.No.	Item	No. Available	Remarks
17	Whether 120ml bottle containing Sal volatile having the dose and mode of administration indicated on the label, available.		
18	Whether roll of adhesive plaster (6 cmX1 meter) available		
19	No of rolls of adhesive plaster (2 cmX1 meter)		
20	Whether snake bite lancet available.		



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21	Whether (30 grams) bottle of potassium permanganate crystals available.		
22	Whether a pair scissors available		
23	Whether copy of the First-Aid leaflet issued by the Director-General, Factory Advice service and labour Institutes, Government of India available.		
24	Whether bottle containing 100 tablets (each of 5 grains) of aspirin available		
25	Whether Ointment for burns available		
26	Whether bottle of a suitable surgical anti septic solution available		

Signature of Subcontractor's Site I/C::



**POWER SECTOR**

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**HEALTH CHECK UP**

01 OF 02

<b>Name of Site :</b>	
<b>Name of Sub-Contractor :</b>	
<b>Name of Employee :</b>	

**NAME:**

History Of Past Illness	H/O Epilepsy
	H/O Drug Allergy
	H/O Diabetics/ Hypertension
	H/O Unconsciousness
Personal History	
<b>EXAMINATION</b> <b>OBSERVATION</b>	
<b>General Physical Examination</b>	
Height	:
Weight	:
BMI	:
Built And nourishment	:
Pallor	:



**POWER SECTOR**

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Temperature	:		
Chest Expansion	:	Inspiration	Expansion
Lymph Node Enlargement	:		
<b>Ear, Nose, Throat</b>	:		
Ear	:		
Nose	:		
Throat	:		

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**HEALTH CHECK UP**

02 OF 02

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



**POWER SECTOR**

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Any Other


:

Clinical Impression

Signature of the examining doctor





Signature of Training co-ordinator :

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

<b>Name of Site :</b>	
<b>Sub-Contractors Name :</b>	
<b>Date :</b>	

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


Signature of Site I/C of Subcontractor :

	<b>POWER SECTOR</b>	FORMAT NO: HSEP:13-F06 REV NO.: 00 PAGE NO. 01 OF 01
	<b>PERSONAL PROTECTIVE EQUIPMENTS</b>	

<b>Name of Site :</b>	
<b>Name of Sub-Contractor :</b>	
<b>Inspected by :</b>	
<b>Date of Inspection :</b>	

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

**Signature of Site I/C of Subcontractor :**



**POWER SECTOR**

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**INSPECTION OF T&Ps**

01 OF 01

<b>Name of Site :</b>		
<b>Name of Sub-Contractor</b>		
Sl.No.	Description	Remarks
1.0	Name of equipment	
2.0	Basic Information of equipment	
2.1	Specification	
2.2	Sr. No. of equipment	
2.3	Make	
2.4	Year of manufacture	
3.0	Major repairs / overhauls(Furnish details of work carried out)	Date(s) of major repair/overhaul
3.1		
3.2		
3.3	Repairs carried out at site	
4.0	Any performance test conducted	Yes/No
5.0	Document Submitted	Yes/No
6.0	Manufacturer's test / guarantee certificate	Available/ Not available
7.0	Performance test	Done/ Not Done

8.0	Acceptance Norms	
9.0	Committee Observations	
10.0	Date of next review (if accepted)	
<b>Signature-Site Safety Officer ( BHEL)</b>		<b>Signature-Subcontractor/ Subcontractor's Safety Officer</b>
:		
<b>Date of Inspection :</b>		



<b>POWER SECTOR</b>
<b>INSPECTION OF CRANES AND WINCHES</b>

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<b>POWER SECTOR</b>
<b>STATUS OF T&amp;Ps</b>

FORMAT NO: HSEP:13-F08 REV  
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<b>Name of Site</b>	
<b>Name of Sub-Contractor</b>	
<b>Date of Inspection</b>	

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

<b>Mobile Cranes</b>				
<b>Hydra Cranes</b>				
<b>Others</b>				

<b>Name of Site :</b>	
<b>Name of Sub-Contractor :</b>	
<b>Inspected by :</b>	
<b>Date of Inspection:</b>	

**Signature of Site I/C of subcontractor :**

01

**Crane Reg. No (Make/Model)** \_\_\_\_\_

**Name of Driver/Operator** \_\_\_\_\_

<b>Sl.no.</b>	<b>Description</b>	<b>Observation</b>	<b>Measures</b>
1	Valid Driving license		
2	Hook & Hook Latch		
3	Over Hoist limit switch		
4	Boom limit switch		
5	Boom Angle Indicator		
6	Boom limit cutoff switch		
7	Condition of Boom		



**POWER SECTOR**

**INSPECTION OF CRANES AND WINCHES**

FORMAT NO: HSEP:13-F09 REV

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8	Condition of ropes		
9	Number of load lines		
10	Size and condition of the slings		
11	Stability of the cranes		
12	Soil Condition		
13	Swing Break And Lock		
14	Proper Break And Lock		
15	Hoist Break And Lock		
16	Boom Break And Lock		
17	Main Clutch		
18	Leakage in Hydraulic Cylinders		
19	Out riggers fully extendable		
20	Tyre pressure		
21	Condition of Battery And Lamps		



**POWER SECTOR**

**INSPECTION OF CRANES AND WINCHES**

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

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

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WINCH

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

FORMAT NO: HSEP:13-F09 REV

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

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

Signature of Site I/C of subcontractor :




**POWER SECTOR**

**INSPECTION OF CRANES AND WINCHES**

FORMAT NO: HSEP:13-F09 REV

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

<b>Name of Site :</b>	
<b>Name of Sub-Contractor :</b>	
<b>Inspected by :</b>	
<b>Date of Inspection:</b>	

Sl. No.	Descriptions	Observation (Yes/No)	Remarks
1	All the workers have been explained safe work method?		
2	An established communication system has been established and explained to the workers.		
3	Adequate illumination has been ensured.		
4	Work area inspected prior to the start of the work.		
5	Area below the work place barricaded, particularly below hot work.		
6	Workers provided with bags /box to carry bolts, nuts and hand tools		
7	Arrangement for fastening hand tools made.		
8	All work platforms ensured to be of adequate strength and ergonomically suitable.		
9	Fabricated makeshift arrangements are checked for quality and type of material welding, anchoring etc.		
10.	Work at more than one elevation at the same segment is restricted.		
	<b>ACCESS/EGRESS</b>		



**POWER SECTOR**

**INSPECTION OF CRANES AND WINCHES**

FORMAT NO: HSEP:13-F09 REV

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1	Walkways provided with handrail, mid-rail and toe guard?		
2	All checkered plates, gratings properly welded/ bolted?		
3	Are ladders inspected and they are in good condition?		
4	Are ladders spliced?		
5	Are ladders properly secured to prevent slipping, sliding or falling?		
6	Do side rails extend 36" above top landing?		
7	Are built up ladders constructed of sound materials?		

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

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**POWER SECTOR****INSPECTION OF WELDING AND GAS  
CUTTING  
INSPECTION OF HEIGHT WORKING**FORMAT NO: HSEP:13-F11  
REV NO: 00  
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<b>Name of Site</b>			
<b>Name of Sub-Contractor</b>			
<b>Inspected by</b>			
<b>Date of Inspection</b>			
5	Proper fall arrest system is deployed at critical workplaces.		
6	Crawler boards/Safety system or works on fragile roof are used.		

**Signature of Site I/C of subcontractor :**

<b>Welding</b>				
Sl.no.	Description	Y e s	N o	Remarks
1	Is electric connection given through 30 mA ELCB/RCCB to welding m/c?			
2	Is electric cable fitted properly in junction box on m/c?			
3	Is electrical cable free from joints?			
4	Are the joints attached firmly & insulated with tape?			

<b>POWER SECTOR</b>	
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5	Is double earthing given to body of m/c?			
6	Is the physical condition of the m/c good?			
7	Is ON/OFF switch connected to the m/c is working and in good condition?			
8	Are indication lamps on m/c working?			
9	Is the electrode holder in good condition?			
10	Are the cables of the welding m/c lugged & tight properly?			
11	Are return lead connected properly (Rod, Angle, Channels shall not be used)			
	Total No of NO			
	Total No of YES			

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**POWER SECTOR****Gas Cutting**

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

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**POWER SECTOR**



**INSPECTION OF WELDING AND GAS  
CUTTING**

FORMAT NO: HSEP:13-F11  
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Signature of Site I/C of subcontractor :

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

FORMAT NO: HSEP:13-F12 REV


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<b>Name of Site</b>	
<b>Name of Sub-Contractor</b>	
<b>Inspected by</b>	
<b>Date of Inspection:</b>	

<b>Sr. No.</b>	<b>Contents</b>	<b>Yes/No</b>	<b>Remarks</b>
<b>A</b>	<b>Cable</b>		
1.	Whether the condition of cable is checked?		
2.	Are cables received from other sites checked for insulation resistance before putting them into use?		
3.	Are all main cables taken either underground / overhead?		
4.	Are welding cables routed properly above the ground?		
5.	Are welding and electrical cables overlapping?		
6.	Is any improper joining of cables/wires prevailing at site?		
<b>B</b>	<b>DBs/SDBs</b>		
1.	Is earth conductor continued upto DB / SDB?		


2.	Whether DBs and extension boards are protected from rain / water?		
3.	Is there any overloading of DBs / SDBs?		
4.	Are correct / proper fuses & CBs provided at main boards and sub-boards?		
5.	Is energized wiring in junction boxes, CB panels & similar places covered all times?		
<b>C</b>	<b>ELCB</b>		
1.	Whether the connections are routed through ELCB?		
2.	Is ELCB sensitivity maintained at 30 mA?		

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	<b>INSPECTION OF ELECTRICAL INSTALLATION</b>	

Sr. No.	Contents	Yes/No	Remarks
3.	Are the ELCB numbered and tested periodically & test results recorded in a logbook countersigned by a competent person?		
<b>D</b>	<b>Grounding</b>		
1.	Is natural earthing ensured at the source of power (main DB at Generator or Transformer)?		
2.	Whether the continuity and tightness of the earth conductor are checked?		
3.	Mention the gauge of the earth conductor used at the site.		
4.	Mention the value of Earth Resistance.		
<b>E</b>	<b>Electrically operated Machines or Accessories.</b>		
1.	Whether the plug top is provided everywhere.		
2.	Are all metal parts of electrical equipment and light fittings / accessories grounded?		

3.	Is there any shed or cover for welding machines?		
4.	Are halogen lamps fixed at proper places?		
5.	Are portable power tools maintained as per norms?		
6.	Any other information:		

Signature of Site I/C of subcontractor :

	<b>POWER SECTOR</b>	FORMAT NO: HSEP:13-F13 REV NO.: 00 PAGE NO. 01 OF 01
	<b>INSPECTION OF ELEVATOR</b>	

<b>Name of Site</b>	
<b>Name of Sub-Contractor</b>	
<b>Inspected by</b>	
<b>Date of Inspection</b>	

--	--

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

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

FORMAT NO: HSEP:13-F14 REV

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**Sub: MEMO for Penalty for non compliances in Safety**

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

**Safety Area**

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


Legend:-

\*:

"Repeated violation" will be counted from subsequent days.

per head. For repeated violation by the same person, the penalty would be double of the previous penalty. Date of

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

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	<b>HSE PENALTY</b>	

Details (if any) related to non- compliance (Name of persons, Nature of deficiency, etc.)

\_\_\_\_\_

Penalty imposed:

1, Rate as per above chart \_\_\_\_\_

2. No. of Persons/ machine/ event/ labour \_\_\_\_\_

3. Total Penalty= 1. X 2. = \_\_\_\_\_


Signature :

Witnessed by: (Sub- Contractor representative) (BHEL Personnel)

Name\_\_\_\_\_

Name\_\_\_\_\_

Distribution: 1 Copy: to Sub- contractor,  
1 Copy to Site Construction Manager(BHEL)

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

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

1	NAME OF SITE		3	ACTIVITY AREA	
2	SCOPE OF WORK		4	NAME OF CONTRACTOR	
			5	NAME & DESIGNATION OF BHEL ACTIVITY I/C	
6	DATE & TIME OF ACCIDENT		7	DATE RESUMED	
8	NO. OF WORK-DAYS LOST BY VICTIM (If duty not resumed, give estimated figure)				
9	NO. OF MANHOURS LOST BY OTHERS				
10	PERSONAL DETAILS OF INJURED AND / OR DETAILS OF MATERIALS / EQUIPMENT / PROPERTY DAMAGED				
NAME			NAME OF MATERIAL / EQUIPMENT / PROPERTY		
PERIOD OF EMPLOYMENT					
AGE	YRS	SEX	MALE/ FEMALE	ESTIMATED COST	ACTUAL COST
MARITAL STATUS		SINGLE / MARRIED			
OCCUPATION			NATURE OF DAMAGE		
PART OF BODY INJURED					
NATURE OF INJURY					
AGENCY ( OBJECT / EQUIPMENT / SUBSTANCE ) MOST RESPONSIBLE FOR CAUSING ACCIDENT / INJURY / DAMAGE					
12	PERSON (NAME & DESIGNATION) WITH MOST CONTROL OVER AGENCY (OBJECT / EQUIPMENT / SUBSTANCE ) CAUSING ACCIDENT INJURY / DAMAGE				
13	DESCRIBE CLEARLY HOW THE ACCIDENT OCCURRED (USE ADDITIONAL SHEET, IF REQUIRED)				
ANALYSIS					

14	WHAT ACTS AND / OR CONDITIONS CONTRIBUTED MOST DIRECTLY TO THIS ACCIDENT	
15	WHAT ARE THE BASIC REASON FOR THE EXISTENCE OF THESE ACTS AND / OR CONDITION ?	
16	WHAT CORRECTIVE ACTIONS HAVE BEEN TAKEN TO PREVENT ACCIDENT RECURRENCE ?	
	DATE :	SIGNATURE OF SITE HSE COORDINATOR
17	COMMENTS OF HEAD / SOX	
	DATE:	SIGNATURE OF HEAD/SOX



# SAFETY WORK CLEARANCE

Permit no. \_\_\_\_\_

Project: \_\_\_\_\_

Emergency Contact Nos: \_\_\_\_\_

Subcontractor: \_\_\_\_\_

## BURNING/WELDING /HOT WORK PERMIT

Area : \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name of Site Engineer (Permit Requesting Authority): \_\_\_\_\_ Sign: \_\_\_\_\_

Name of Work Performing Contractor: \_\_\_\_\_

Name of Package In charge: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_

Description of Work: \_\_\_\_\_

Work Execution Date: \_\_\_\_\_ Time Valid from: \_\_\_\_\_ to \_\_\_\_\_

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

The following precautions are to be taken:

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

Name of Contractor Safety Officer: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

Name: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name of BHEL Safety Representative: \_\_\_\_\_ Sign: \_\_\_\_\_



# SAFETY WORK CLEARANCE

Permit no. \_\_\_\_\_

Project: \_\_\_\_\_

Emergency Contact Nos: \_\_\_\_\_

Subcontractor: \_\_\_\_\_

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

Name of Work Performing Authority: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Permit Cancellation: \_\_\_\_\_

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

Name of Work performing Authority: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

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

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Third Copy : Contractor

## LIFTING ACTIVITY PERMIT

Area : \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name of Site Engineer (Permit Requesting Authority): \_\_\_\_\_ Sign: \_\_\_\_\_

Name of Work Performing Contractor: \_\_\_\_\_

Name of Package In charge: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_

Description of Work: \_\_\_\_\_

Work Execution Date: \_\_\_\_\_ Time Valid from: \_\_\_\_\_ to \_\_\_\_\_

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

The following precautions are to be taken:

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



# SAFETY WORK CLEARANCE

Permit no. \_\_\_\_\_

Project: \_\_\_\_\_

Emergency Contact Nos: \_\_\_\_\_

Subcontractor: \_\_\_\_\_

14.	Safety shoes (non-slip), helmet with chin strap available with employees.		
15.	Others.		

Name of Contractor Safety Officer: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

Name: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name of BHEL Safety Representative: \_\_\_\_\_ Sign: \_\_\_\_\_

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

**Name of Work Performing Authority:** \_\_\_\_\_ **Sign:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_

**Permit Cancellation:**

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

Name of Work performing Authority: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

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

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

<b>Original at BHEL site</b>	<b>Second Copy – BHEL SAFETY</b>	<b>Third Copy : Contractor</b>
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## WORKING AT HEIGHT PERMIT

Area : \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name of Site Engineer (Permit Requesting Authority): \_\_\_\_\_ Sign: \_\_\_\_\_

Name of Work Performing Contractor: \_\_\_\_\_

Name of Package In charge: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_

Description of Work: \_\_\_\_\_

Work Execution Date: \_\_\_\_\_ Time Valid from: \_\_\_\_\_ to \_\_\_\_\_

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

The following precautions are to be taken:

No.	Item	Yes	Not required
1.	All workers on job are medically fit for working at height (Person should not have vertigo)		
2.	Scaffolding with valid tag available for use		
3.	Safety harness with life line support/ fall arrester are checked and in working condition		
4.	Safety shoes ( non-slip), Helmet with chin strip available with employees		
5.	Safety nets are provided as per design and provided 25 ft. below working area & extending 8 ft beyond.		
6.	Horizontal life lines are provided to cater to design specification of 2300kg per person.		



# SAFETY WORK CLEARANCE

Permit no. \_\_\_\_\_

Project: \_\_\_\_\_

Emergency Contact Nos: \_\_\_\_\_

Subcontractor: \_\_\_\_\_

7.	Ladders have been inspected and provided as per BHEL standard/contract.		
8.	All lifting / tightening tools, hand tools/equipment checked and in good condition		
9.	Access and exit marked and without obstruction.		
10.	Lighting arrangement adequate.		
11.	Unwanted and rubbish material removed from working platform.		
12.	Electrical cable, welding Hose/Compressed air hose properly secured and lay down without obstruction.		
13.	Signboards provided on working platforms		
14.	Hazards in the vicinity are identified and communicated to the worker.		
15.	Other		

Name of Contractor Safety Officer: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

Name: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Name of BHEL Safety Representative: \_\_\_\_\_ Sign: \_\_\_\_\_

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

Name of Work Performing Authority: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Permit Cancellation:**

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

Name of Work performing Authority: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

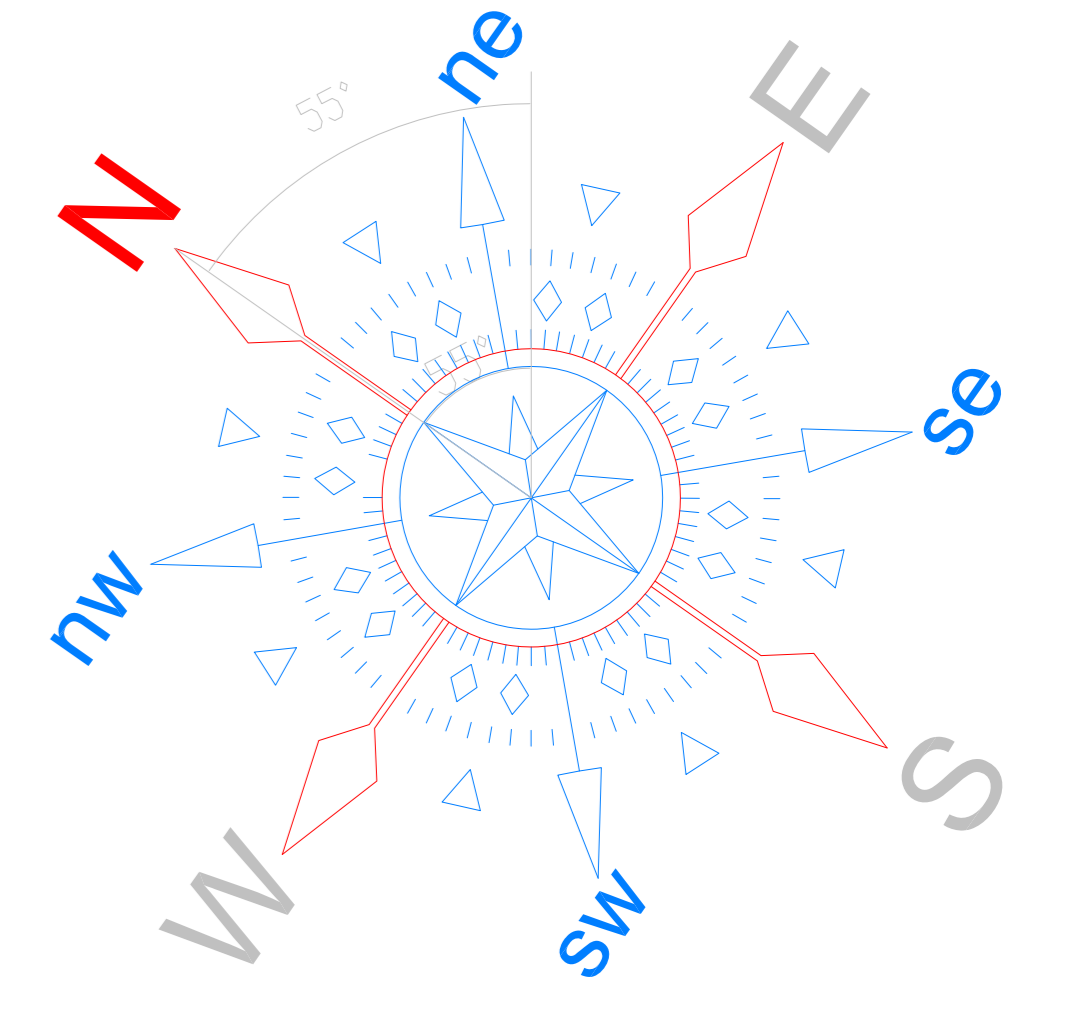
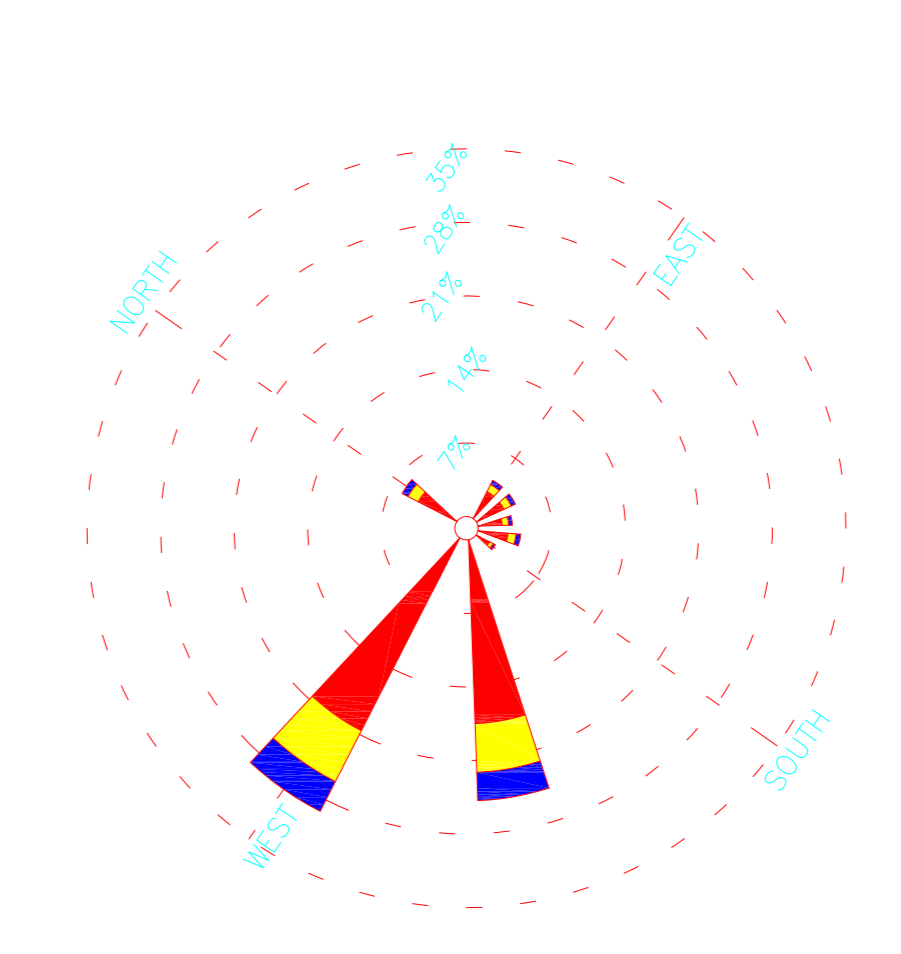
Name of BHEL Site Engr. (Permit Issuing Authority): \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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- LEGENDS:**
- AREA BOUNDARY —
  - ROAD —
  - PIPE/CABLE RACK
  - GREEN BELT —

- BUILDINGS/FACILITIES**
1. GAS TURBINE HALL
  2. STEAM TURBINE HALL
  3. CONTROL & SWITCHGEAR EQUIPMENT BUILDING
  4. HEAT RECOVERY STEAM GENERATOR
  5. BFP BUILDING
  6. DELETED
  7. SERVICE BUILDING
  8. TRANSFORMER YARD
  9. FUEL FILTER SKID
  10. SWITCH YARD
  11. GUARD POND/ETP
  12. RO/DM PLANT
  13. COOLING TOWER
  14. RAW/FIRE WATER RESERVOIR
  15. DG SET
  16. COMPRESSOR BUILDING
  17. CW TREATMENT PLANT
  18. GAS HEATER SKID
  19. CW PUMP HOUSE
  20. RAW WATER PUMP HOUSE
  21. STORAGE/FABRICATION YARD DURING CONSTRUCTION(PROPOSED)
  22. CW OZONATION PLANT
  23. AMBIENT AIR QUALITY MONITORING STATION (01 NO)
  24. OVERHEAD STORAGE TANK
  25. FIRE STATION BUILDING & DRILL TOWER
  26. GAS CYLINDER SHED
  27. AC PLANT
  28. GAS BOOSTER COMPRESSOR ALONG WITH COOLING UNIT
  29. DELETED
  30. CHROMATOGRAPH ROOM
  31. GAS ANALYSER ROOM

✱ EXISTING BUILDING OF IOCL SHALL BE USED FOR WAREHOUSE AND CHEMICAL LAB

SPACE SHOWN FOR EXTENSION UNIT SHALL BE USED FOR RAW MATERIAL STORAGE/FABRICATION PURPOSE.

- NOTES: —**
1. ALL DIMENSIONS AND CO-ORDINATES ARE IN METER UNLESS NOTED OTHERWISE.
  2. a) THE FINISHED GRADED LEVEL (FGL) OF MAIN PLANT AREA (STACK TO TRANSFORMER YARD) SHALL BE RL.900.0M  
 b) FGL FOR COOLING TOWER AND GAS SKID AREA SHALL BE RL 902.0M  
 c) FGL FOR SWITCHYARD AREA SHALL BE RL 899.0M  
 d) FFL(FINISHED FLOOR LEVEL) OF GT/STG BUILDING SHALL BE RL 900.5M WHICH CORRESPONDS TO EL 0.0M FOR ALL REFERENCE.
  3. TERMINAL POINT FOR STORM WATER DRAIN SHALL BE ALONG GRID NO: 400.00 EAST.

JOB No.	409			
STATUS	CONTRACT			
DISTRIBUTION				
REV. NO.	DATE	BY	CHKD	APPD
01	26.04.16	PUNEET	CHD	

	OWNER:	KARNATAKA POWER CORPORATION LIMITED IX370 MW YELAHANKA COMBINED CYCLE POWER PLANT
	OWNER CONSULTANT:	FICHTNER Consulting Engineers (India) Private Limited, Chennai, Bangalore
	EPC CONTRACTOR:	<b>BHARAT HEAVY ELECTRICALS LTD</b> POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA
TITLE		<b>PLOT PLAN</b>
DEPT. CODE	DESIGN NAME	SIGN DATE
M	POWER PANEL	11.01.16
	CHD SKJ	11.01.16
	APPD AJ	11.01.16
DRAWING NO.		PE-DG-409-100-MG01
SHEET		01 OF 01

PROJECT TITLE : 370 MW YELAHANKA COMBINED CYCLE POWER PLANT  
 OWNER : KARNATAKA POWER CORPORATION LIMITED  
 OWNER'S CONSULTANT : FICHTNER CONSULTING ENGINEERS INDIA PVT LTD (FI)  
 EPC CONTRACTOR : BHARAT HEAVY ELECTRICALS LIMITED (BHEL)  
 REVIEW OF : Plot Plan, PE-DG-409-100-MG01 Rev.R0

Sl.No	Document No.	Description	Revision	Reviewer	MARK-UP?	KPCL/FI Comments at 30 & 31.12.2015 (Rev.P0)	MOM Resolution at 30 & 31.12.2015	KPCL/FI Comments at 20.01.16 (Rev.0)	BHEL/REPLY
1	PE-DG-409-100-MG01	Plot Plan	P0	EL	NO	Switchyard is located around 150m away from control and switchgear building. With 2nd Block of 370MW envisaged in future the expected number of 220kv bays will be around 10. For regular monitoring of AIS type of switchyard and well co-ordinated O&M practice it is advisable to have a separate switchyard control building. The necessary infrastructure including DC power for switchyard control room and control / monitoring interface with main control room shall be taken care.	BHEL/TBG Will be revert back	BHEL has not complied with. Pl confirm and incorporate.	it is already confirmed by KPCL that separate switchyard control building is not required.
2	PE-DG-409-100-MG01	Plot Plan	P0	EL	NO	KPCL informed BHEL to update switchyard in plot plan considering provisions for 3 out going bays in switchyard which has been already agreed by BHEL/TBG vide MOM dated 10.12.2015		BHEL has not complied with. Pl confirm and incorporate.	Shown in the revised drawing.
3	PE-DG-409-100-MG01	Plot Plan	P0	EL	NO	Please show the route of power evacuation from switchyard to existing substation	BHEL/TBG Will be revert back	BHEL has not complied with. Pl confirm and incorporate.	BHEL/TBG Will be revert back
4	PE-DG-409-100-MG01	Plot Plan	P0	EL	NO	show the road inside of transformer yard for movement of transformer	Transformer yard is a paved area and small service transformer can be handled with help of hydra and movement of hydra will be taken care of separate road is not required.	Point Closed	Point Closed
5	PE-DG-409-100-MG01	Plot Plan	P0	EL	NO	Please show separate transformer for C.W Pump House & surrounding Auxiliary Loads of C.W. pump House	Shall be shown during detail engineering	BHEL has not complied with. Pl confirm and incorporate.	Shown in the revised drawing.
6	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Building sizes to be shown for the tentative at present.	As engineering progresses, building sizes will be finalized and updated in further revision.	BHEL has not complied with. Pl confirm and incorporate.	As engineering progresses, building sizes will be finalized and updated in further revision.
7	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	legend for the items shown against roads, fences, pipe rack and cable trenches etc	Noted	Please include cable trench , Rail Track, existing roads. There is a mismatch in the color indicated in plan and in legend .Please correct .	Shown in the revised drawing.
8	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	Road width for both main and sub branch to be shown	Noted	BHEL has not complied with. Pl confirm and incorporate..Also the approach roads for all the systems/buildings shall be indicated considering the finalized FGL.	Road width has been indicated however pls. refer civil drawing for further detailing.
9	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	FFL/Top to be shown in the drawing	Will be added in the noted of respective drawings.	Point Closed	Point Closed
10	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	dimensions / designations to be shown	Dimensions are not required in plot plan. Co-ordinates of each building will be shown as and when engineering progresses.	Point Closed	Point Closed
11	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Major ref. dwgs of HRSG ,STG/GTG to be shown. Also topographical survey drawing shall be given in reference drawings.	Noted	BHEL has not complied with. Pl confirm and incorporate.	Since all facilities are shown in plot plan,hence mentioning any reference drawing is not required.
12	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	Schedule of shed/ facilities to be demolished to be added as a table	Will be in-line with contract.	Noted	Point Closed

REVIEW OF : Plot Plan, PE-DG-409-100-MG01 Rev.R0

Sl.No	Document No.	Description	Revision	Reviewer	MARK-UP?	KPCL/FI Comments at 30 & 31.12.2015 (Rev.P0)	MOM Resolution at 30 & 31.12.2015	KPCL/FI Comments at 20.01.16 (Rev.0)	BHEL/REPLY
13	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Key plan showing terminal points to be added	Shall be added. Bhel requested for gas piping layout of GAIL scope from KPCL. KPCL confirmed to provide the same	The exact location of the Drain Terminal point and new road terminal point shall be marked. Please indicate all the BHEL terminal points in the drawing.	Shall be covered in civil drawing.
14	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	All the coordinates shall be shown at the respective locations	Noted	BHEL has not complied with. Pl confirm and incorporate.	As engineering progresses, building location shall be frozen and co-ordinates shall be updated in further revision.
15	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Fire water pump house Location to be identified	Noted	We understand Fire water pumps are located in the raw water pump house. BHEL to confirm. The same shall be corrected in Legends.	BHEL confirms that fire water pumps are located in the raw water pump house and has been updated in legend.
16	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Kindly indicate road width, Road drains and walkways	Separate drawings shall be furnished	Noted.	Road width has been updated, however details shall be covered in civil drawing .
17	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Southside of GT unloading area has an obstruction on the passage. Kindly confirm necessary clearance and turning radius for vehicle movement has been provided.	There is no obstruction, Necessary clearances have been taken care of	Noted.	Point Closed
18	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	staircase width of HRSg shall be indicated	Noted	Kindly indicate width of staircase.	All the details cannot be shown in plot plan,for staircase detail HRSg GA drawing of trichy may be referred.
19	PE-DG-409-100-MG01	Plot Plan	P0	C&I	NO	Kindly clarify the location of SWAS room	It is inside TG Building	Noted.	SWAS room is located in BFP building.
20	PE-DG-409-100-MG01	Plot Plan	P0	EL	NO	Dedicated MCC for ETP to be discuss and if required Same shall be indicated in the plot plan	Will be discussed separately	To be discussed.	shall be shown during detail engg.
21	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Kindly indicate the area for Hydrogen cylinders storage.	Noted	Kindly indicate cylinder storage area.	Shown in the revised drawing.
22	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Kindly Indicate DM Water Storage tank	Noted	Kindly indicate DM water storage tank	Shown in the revised drawing.
23	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Kindly Clarify the location metering station	Location already shown	Point Closed	Point Closed
24	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	Piperack between HRSg & STG Building shall be indicated.		Kindly indicate pipe rack	pipe rack is shown.
25	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	The FGL level of the Plant shall be Given	Noted	1.The FGL shall be indicated in the plan in area wise as the levels are varying for different zones. 2.Also the road slopes , ie the change in elevation shall be indicated . 3.The space for the slope for embankment shall be verified . 4.The existing road levels and the new road levels shall be indicated.	1) FGL has been indicated in the revised drg. 2)Road slope has been shown , however the same shall be updated in-line with civil drawing. 3) Noted 4)shown in the revised drg.
26	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	The units of dimensions and coordinated shall be given as note	Noted	Point Closed	Point Closed

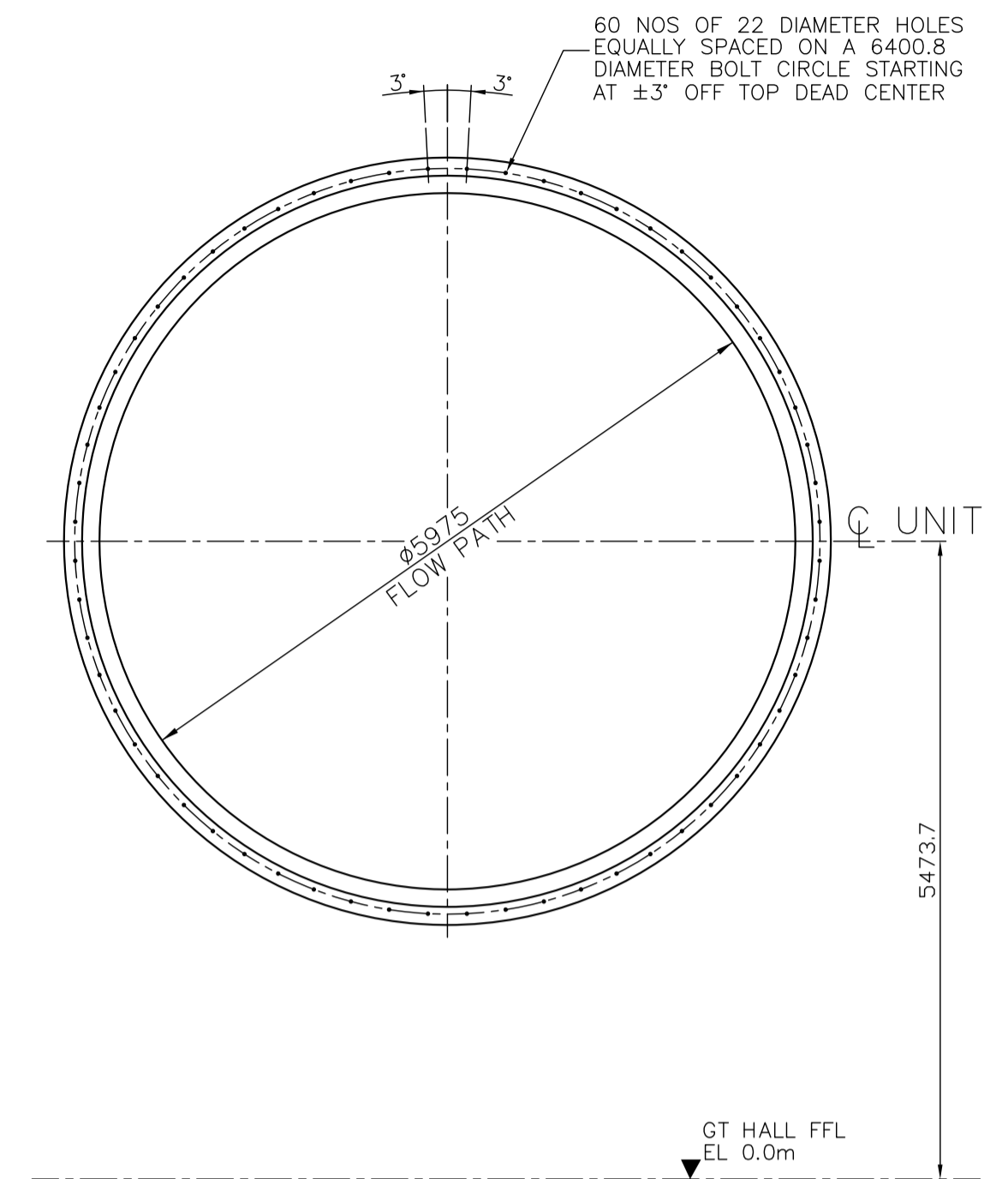
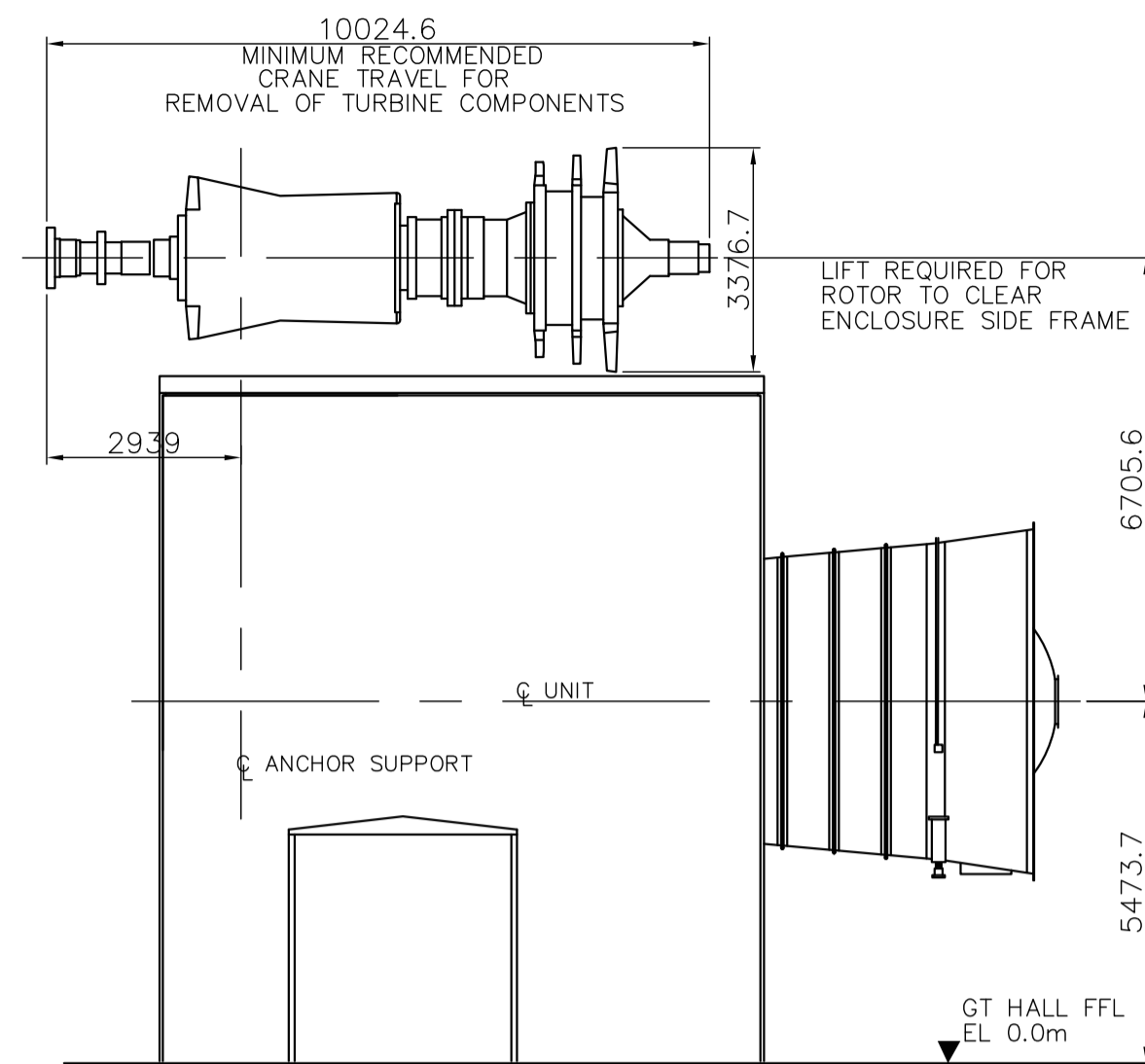
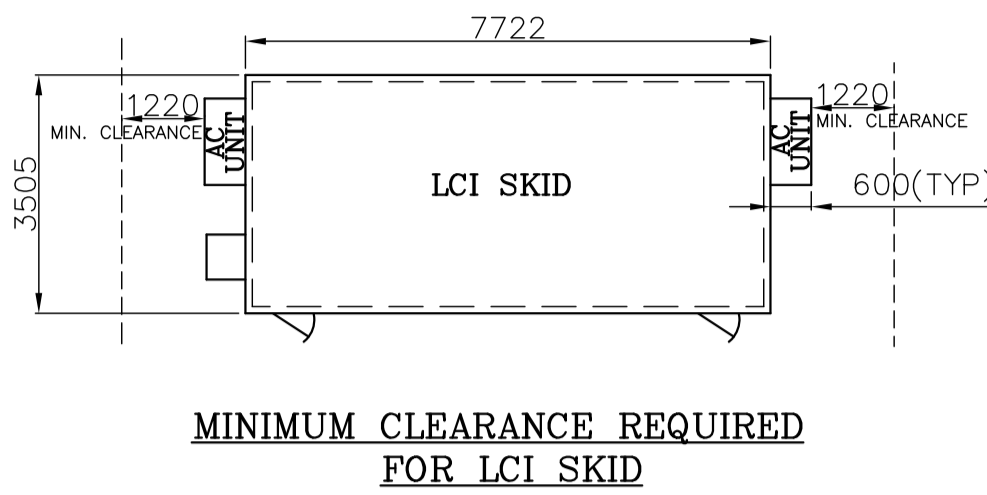
REVIEW OF : Plot Plan, PE-DG-409-100-MG01 Rev.R0

Sl.No	Document No.	Description	Revision	Reviewer	MARK-UP?	KPCL/FI Comments at 30 & 31.12.2015 (Rev.P0)	MOM Resolution at 30 & 31.12.2015	KPCL/FI Comments at 20.01.16 (Rev.0)	BHEL/REPLY
27	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	The building, major equipment and other structures location shall be indicated with coordinates.	Noted	BHEL has not complied with. Pl confirm and incorporate. The reference point for all the buildings/systems/equipments shall be indicated with coordinates.	As engineering progresses, building location shall be frozen and co-ordinates shall be updated in further revision.
28	PE-DG-409-100-MG01	Plot Plan	P0	CVL	NO	KPCL requested to keep provision for green belt along west side boundary wall to the extent possible	Noted	Green belt is not shown in the revised drawing .	shown in revised drawing.
29	PE-DG-409-100-MG01	Plot Plan	P0	ME	NO	KPCL /FI requested BHEL to ensure space provision for all the systems of unit-2 in the project.	Noted	BHEL to include the statement in the notes column for the records and reference purposes.	space provision for unit-2 has already been shown in plot plan.
30	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			The drawing no changed from PE-DG-409-100-M001 to PE-DG-409-100-MG01 in the latest revision .Please clarify	PE-DG-409-100-MG01 is the latest drawing number.
31	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Indicate boundary co-ordinates of the Finished Graded Level.	It will shown in civil drawing.
32	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Indicate routings of pipe racks.	shall be shown during detail engg.
33	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			CWPH location is located in existing pit which is 2.5m deep.	Comment is not clear,For CWPH detail,separate GA has been submitted,same may be referred.
34	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			The pipe line lay out of CW pipe should cross the road at right angles in order to have flexibility in vertical & horizontal bend due to change in FGL.	Noted.Change in elevation will be taken care during pipe routing.
35	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			At all ramps indicate slope or arrow mark in case of ramps between two different formation levels.	Ramp detail shall be shown in civil drawing.
36	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Indicate GAIL gas pipe line routing.	KPCL to furnish GAIL gas pipe line routing.
37	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Gas line connectivity from GAIL metering station.	KPCL to furnish GAIL gas pipe line routing.
38	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			GAIL pipe line corridor up to GAIL metering station.	KPCL to furnish GAIL gas pipe line routing.
39	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Incorporate a note that" width of roads are indicative & will be finalized with drains during detail engineering".	Separate drawing of roads and drains shall be furnished

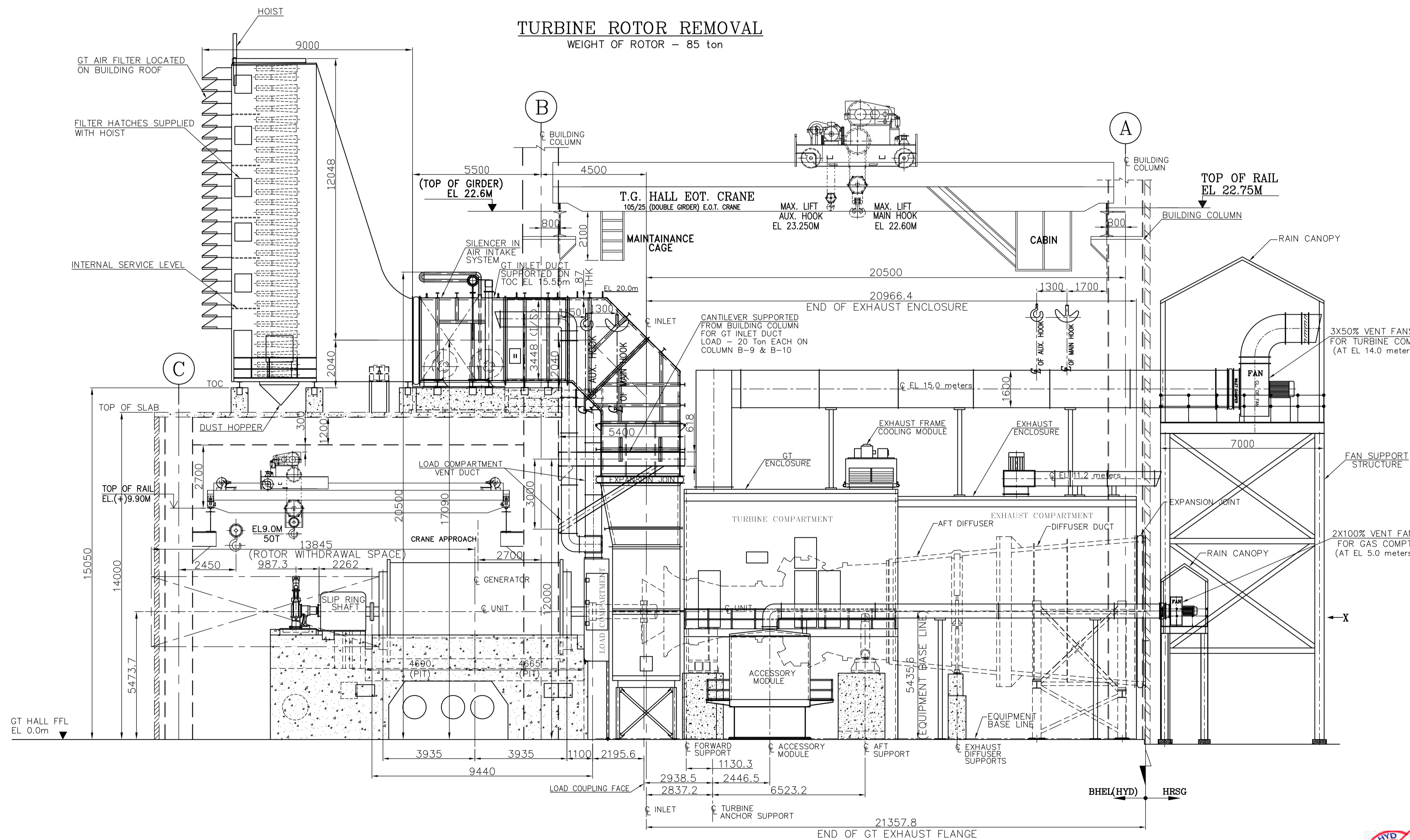
REVIEW OF : Plot Plan, PE-DG-409-100-MG01 Rev.R0

Sl.No	Document No.	Description	Revision	Reviewer	MARK-UP?	KPCL/FI Comments at 30 & 31.12.2015 (Rev.P0)	MOM Resolution at 30 & 31.12.2015	KPCL/FI Comments at 20.01.16 (Rev.0)	BHEL/REPLY
40	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			<p>Furnish separate drawing showing grading indicating important details/note on</p> <p>i. Compaction with filled up soil.                      ii. Type of soil for filling.                      iii. Slope Protections.                      iv. Tentative formation levels of roads.                      v. Toe drain and intercept drains to avoid flooding of surface water beyond boundary of the BTG area.</p> <p>i. Compaction with filled up soil.                      ii. Type of soil for filling.                      iii. Slope Protections.                      iv. Tentative formation levels of roads.</p>	Separate drawing shall be furnished by civil.
41	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Watch towers shall be provided	Watch tower is not applicable in this project.
42	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			The Chlorination Building, SI No.6 (indicated in the legend) is not shown in the plot plan. Same shall be indicated.	Chlorination building is not applicable for this project.
43	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			The size of RODM plant is approximately 50mx50m as per equipment layout (dwg. 1-WT-220-00672 – R0). In which case there is no space for future RODM plant. Therefore please indicate revised location of future RODM plant in plot plan.	Layout od RODM has been shown as per latest drawing of Ranipet.Space for future is also shown.
44	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Centerline co-ordinate along with formation levels of roads shall be indicated.	Centreline co-ordinate of road is already mentioned.
45	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Component names along with serial number shall be indicated in the plot plan.	Noted.
46	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Serial number is not indicated for the block between grid 20W and 80N.	It is part of fire station building.
47	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Location of common effluent collection pit, oil water separator, STP and chlorination building shall be indicated.	Location of common effluent water separator pit shall be shown during detail engg. STP and chlorination is not applicable for this project.
48	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Nomenclature of the building SW of building no. 25 shall be furnished.	Comments in not clear
49	PE-DG-409-100-MG01	Plot Plan	0	CVL	NO			Indicate switchgear room for IDCT.	Already shown alongwith CW pump house in revised drawing.
<b>KPCL COMMENTS :-</b>									
The ANNEXURE attached here with shall be the part of MOM held from 30 th to 31 st December 2015 in the office of KPCL between M/s KPCL,M/s FI and M/s BHEL. Hence BHEL to Note.									

DRG. NO. 1-366-09-89201 SH. 02 OF 02



**TURBINE ROTOR REMOVAL**  
WEIGHT OF ROTOR - 85 ton



**ELEVATION**

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

SIGN. AND DATE REF. DRG. NO. COMPUTER FILE NAME 13660989201-S02-R04

OWNER:		KARNATAKA POWER CORPORATION LIMITED 1x370 MW YELAHANKA COMBINED CYCLE POWER PLANT			
OWNER'S CONSULTANT:		FICTHNER Consulting Engineers (India) Private Limited, Chennai, Bengaluru.			
TYPE OF PRODUCT OR		9FB GAS TURBINE			
NAME OF CUSTOMER/PROJECT		BHARAT HEAVY ELECTRICALS LTD. HYDERABAD			
DRN.	DEEPTHI	SIGN.	DATE	NO. OF VAR.	
CHD.	VSH		25.09.14	-NA-	
APPD.	ECS		25.09.14	-NA-	
DEPT.	GTD	UNTL. DIMS.	SCALE	WEIGHT (KG)	
423		GR. 2/M/F	1:110	-NA-	
TITLE		DRAWING NO.		REV.	
GENERAL ARRANGEMENT GAS TURBINE & GENERATOR		1-366-09-89201_04			
SHT. No 02		ND. OF SHT. 02			

