

TENDER SPECIFICATION

Ref: BHEL/PSSR/SAS/SCT/SK01118-010/T-01/2019-20

DT: 08.06.2019

TSGENCo, Kothagudem TPS, Stg-V,
Unit.No.9&10- R&M – Replacement of
existing pro-control DCS, Iskamatic, MMI
system with Valmet DNA (DDCMIS) system
and Upgradation of PLC for AHP,
Replacement of SWAS with the latest
systems including material handling and
watch & ward.

DUE DATE FOR SUBMISSION: **11.00 Hrs. – 28.06.2019**

VOLUME-I BOOK-I

TECHNICAL & PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

Services After Sales Division - , Ek Tara Building
39, Sarojini Devi Road, Secunderabad-500 003.

Contd./-

NOTICE INVITING TENDER (NIT)
Submission only through E-Procurement Portal
<https://www.bhel.abcprocure.com>
Note: Bidder may download Tender Documents from web sites

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 below) **through E-Procurement Portal <https://www.bhel.abcprocure.com> 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.

This tender shall be under category of National Competitive Bidding (NCB).

1.0 Salient Features of NIT

Sl. No	ISSUE	DESCRIPTION	
i	TENDER NUMBER	BHEL/PSSR/SAS/SCT/SK01118-010/T-01/2019-20 DT: 08.06.2019	
ii	BROAD SCOPE OF JOB	TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10-R&M – Replacement of existing pro-control DCS, Iskematic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems including material handling and watch & ward.	
iii	DETAILS OF TENDER DOCUMENT		
A	VOLUME-I BOOK-I	Technical & Price bid	Applicable
B	VOLUME-I BOOK-II	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 01 dated October 01,2015	Applicable
iv	Issue of Tender Documents	1. This is an E-tender floated online through our E-Procurement Portal https://www.bhel.abcprocure.com	Applicable

		2. Sale Start: 08.06.2019 3. From BHEL website (www.bhel.com->Tender->Notifications): Tender documents for bidder's reference can be downloaded from this website till due date of submission.	
v	Due Date & Time of Offer Submission	Date : 28.06.2019, Time : 11:00 Hrs The bidder should submit their offer online in e-Procurement portal at https://www.bhel.abcprocure.com Offers are invited in two-parts only. Bidders are requested to upload their offer well in advance in order to avoid last minute congestion at this website. Hard copy bid or bids through E-mail / fax shall not be accepted.	Applicable
vi	Opening of Tender	Date : 28.06.2019, Time :11:30 Hrs Notes: (1) In case the due date of opening of tender becomes a non-working day, tenders shall be opened on next working day at the same time. (2) Bidder may depute representative to witness the opening of tender (with authorization letter) (3) Technical bids will be opened on above mentioned date & time and price bid opening date & time will be intimated to technically qualified bidder separately after scrutinising the tender.	Applicable
vii	EMD Amount	Rs. 8,87,000/- (Rupees Eight Lakhs Eighty Seven Thousand only). Notes: (1) EMD Exemption for MSEs is not applicable for this tender. (2) One time EMD not applicable for this tender. Refer clause 2.0 of NIT for mode of deposit of EMD	Applicable
viii	Last Date For Seeking Clarification	Bidders may submit their queries in https://www.bhel.abcprocure.com at least 7 days before the due date of offer submission along with soft version also addressing to Tender issuing department contact details as mentioned below.	Applicable
ix	Reverse Auction	This tender will be finalized through reverse auction. Reverse Auction Guidelines available in the website http://www.bhel.com shall be applicable. Technically qualified bidders are only eligible for participating in Reverse	Applicable

		<p>Auction. In reverse auction, the H-1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.</p> <p>Reverse auction shall be conducted within 24 Hrs. from tender opening.</p> <p>Contact person details for participating in reverse auction:</p> <p>Name: _____.</p> <p>Mobile/Phone No.: _____.</p> <p>E-Mail ID: _____.</p>	
x	Latest updates	<p>Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com->Tender Notifications), and portal https://www.bhel.abcprocure.com.</p> <p>Bidders to keep themselves updated with all such information. This also form part of tender hence the same shall be enclosed with their offer.</p>	Applicable
xi	Tender issuing department contact details	<p>Routine correspondences regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued shall be posted in https://www.bhel.abcprocure.com. Any other queries may be addressed directly to the tender issuing department as mentioned below:</p> <p>1. Shri.MVN Rambabu Phone: 040 27700565 E-mail: mvnrambabu@bhel.in</p> <p>2. Shri. Virendra Kumar Phone: 040 27700565 E-mail: vir@bhel.in</p>	
xii	PRE QUALIFICATION CRITERIA (TECHNICAL)	<p>Executed C&I works for BTG/GT or C&I works consisting of DCS/DDC/Station C&I in one unit of \geq 100 MW.</p> <p>One (1) work of value not less than Rs. 1,77,50,000/-/-</p> <p>OR</p> <p>Two (2) works each of value not less than Rs.1,11,00,000/-</p>	Applicable

		<p>OR</p> <p>Three (3) works each of value not less than Rs. 88,70,000/-</p> <p>in the last seven years (from latest date of bid submission) against direct order from BHEL / PSUs / State Electricity Utilities/Multinational companies.</p> <p>Bidder has to submit work order copies along with work completion certificates (work completion certificates are not required for work orders pertaining to BHEL) as per the above mentioned criteria.</p> <p>The word executed means "Synchronization" of unit (s).</p>	
xiii	PRE QUALIFICATION CRITERIA (FINANCIAL)	<p>Bidder must have achieved minimum average Turnover of Rs. 150 Lacs in last three financial years</p> <p>Bidder must have earned profit in any one of the last three financial years.</p> <p>Bidder has to submit Audited Balance Sheet and Profit & Loss Account for the three Financial Years (FY) i.e 2017-18, 2016-17 & 2015-16.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. In case audited Financial statements have not been submitted for all the three years as indicated above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years. 2. If financial statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by Chartered Accountant. 3. PROFIT shall be PBT earned during any one year of three financial years as mentioned above. 	Applicable
xiv	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:	Applicable

		<p>a. Amendments / Clarifications / Corrigenda / Errata etc issued in respect of the tender documents by BHEL</p> <p>b. Notice Inviting Tender (NIT)</p> <p>c. Price Bid</p> <p>d. Technical Conditions of Contract (TCC)—Volume-1A</p> <p>e. Special Conditions of Contract (SCC) —Volume-1B</p> <p>f. General Conditions of Contract (GCC) —Volume-1C</p> <p>g. Forms and Procedures —Volume-1D</p>	
xv	Validity of offer	The rates should be quoted as given in the tender schedule with validity up to 12 months from the date of tender opening.	Applicable

2.0 MODE OF DEPOSIT OF EMD

EMD for this tender shall be **Rs. 8,87,000/- (Rupees Eight Lakhs Eighty Seven Thousand only)**.

- EMD may be submitted only in the following forms:
 - i) Cash deposit as permissible under the extant Income Tax Act (before tender opening)
 - ii) Electronic Fund Transfer credited in BHEL account (before tender opening)

In case of Electronic Fund Transfer, bank details are as follows:

Account Name: BHARAT HEAVY ELECTRICALS LTD,
 Account No: 00000030359171259,
 IFS CODE: SBIN0008779,
 BANK: STATE BANK OF INDIA,
 BRANCH: ST. Marys Road branch (Secunderabad)

On transfer of amount through EFT, receipt of the same to be submitted as mentioned in clause no. 4.0.

- iii) Bankers cheque/pay order/demand draft in favor of BHEL.
- vi) In addition to above, the EMD amount in excess of Rs. Two Lakhs 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 scheduled due date of tender submission mentioned in the Notice Inviting Tender.

- a) Date of Expiry of Claim shall be minimum of 60 days after the validity of Bank Guarantee.

b) Proforma for Bank Guarantee for EMD is enclosed with this Tender.

c) Bank Details for the purpose of taking EMD BG are mentioned below :-

Name and Address of Beneficiary :	Bharat Heavy Electricals Ltd. Power sector- Southern Region, Service After Sales 39, Sarojini Devi Road, Ek Tara Building, Secunderabad – 500003.(Telangana)
Name of Bank of Client :	State Bank of India, ST. Marys Road branch (Secunderabad)
IFSC Code :	SBIN0008779
Account No. :	00000030359171259

Details for SFMS (Structured Financial Messaging System) transmission of BG

Bank and Branch :	SBI Secunderabad
Branch Code :	0916
SWIFT Code :	SBININBB321
IFSC Code :	SBIN0000916

If EMD is submitted in the mode of (iii) Bankers cheque/pay order/DD or (iv) Bank Guarantee, the same should be forwarded along with covering letter mentioning the tender reference, description & due date for tender submission (mention the same details on envelope also) to the following address so as to reach us on/before due date.

Sr.DGM - Sub Contracts,
Bharat heavy Electrical Ltd.,
Power Sector Services After Sales,
EK Tara Building,
39, Sarojini Devi Road,
SECUNDERABAD – 500 003.
Phone: 040 27700565.

EMD 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 a 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.

- EMD given by all the tenderers will be refunded within 15 days of award of work.

- 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.

3.0 **Procedure for Submission of Tenders:** This is an E-tender floated online through our E-Procurement portal <https://www.bhel.abcprocure.com>. The bidder should respond by submitting their offer online only in our e-Procurement portal at <https://www.bhel.abcprocure.com>. 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 EProcurement Portal <https://www.bhel.abcprocure.com> 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 the DSC Certifying Authority may be obtained from "Bidder Manual", as available in <https://www.bhel.abcprocure.com>.

II. Digital Signing of e-Tender

Tenders shall be uploaded with all relevant documents in .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)

Details of E-procurement service Provider-:

The contact details of the service provider are given below:
e-Procurement Technologies Limited (abcProcure),
B-704 / 705, Wall Street - II, Opp. Orient Club,
Nr. Gujarat College, Ellis Bridge,
Ahmedabad - 380 006, Gujarat (India)

Timings:

Monday to Friday - 10:00AM to 07:00PM
1st, 3rd & 5th Saturday - 10:00AM to 06:00PM
2nd & 4th Saturday – Holiday

Contact Person: BHEL Support Team Ahmedabad
Cell: +91-8160087732
Phone Nos.: +91-79-68136809/871/861/823/872
e-Mail: bhel.Support@abcProcure.com

Further contact details can be obtained by visiting the following webpage: <https://www.bhel.abcprocure.com/EPROC/contactus>

IV. Documents Comprising the e-Tender

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

i) Technical Tender (Un priced Tender)

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

- i). Earnest Money Deposit (EMD) furnished in accordance with Clause 2.0 of NIT.
- ii). All Technical details (eg. Eligibility Criteria requested, Technical Conditions of Contract) should be attached in e-tendering module (As detailed in Clause 4.0 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.
- d. Prices quoted will be taken as the TOTAL PRICE FOR CARRYING OUT THE ENTIRE WORK AS PER THE SCOPE OF WORK SPECIFIED AND ALL THE RELEVANT DETAILS FURNISHED IN THIS TENDER. The rates should be quoted both in figures and in words. All corrections to be initialed. In case of variance between figures and words, the rates advantageous to BHEL shall be taken as final for all purposes.
- e. The rates offered shall be firm inclusive of everything and no variation will be allowed whether in cost of labour or any other factor affecting the price of the contract.
- f. BHEL does not bind itself to accept the lowest tender. BHEL reserves the right to accept or reject the lowest or any other tender without assigning any reason and the work may be allotted to one or more than one contractors.
- g. Incomplete price bid is liable to be rejected.
- h. The offer shall be valid for a period of 12 months from the date of opening of tender.

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.

v). Vendors are also requested to go through Bidder Manual for BHEL Bidders available on <https://www.bhel.abcprocure.com>

V. DO NOT'S (Don'ts)

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.

4.0 DOCUMENTS TO BE UPLOADED & MODALITY OF UPLOADING in EPROCUREMENT PORTAL <https://www.bhel.abcprocure.com> SHALL BE AS DETAILED BELOW:

Sl. No	Description	Remarks
A	<u>Techno-Commercial Bid CONTAINING THE FOLLOWING:-</u>	
i	Covering letter / Offer forwarding letter of Tenderer.	To be uploaded under the form Techno-commercial Bid.
ii	Signed Copy of Tender document along with UNPRICED PRICE BID (without disclosing rates/price, but mentioning only 'QUOTED' or 'NOT QUOTED') along with Annexure-A	
iii	No deviation duly filled and signed	
iv	All Amendments / Correspondences / Corrigenda / Clarifications / Changes / Errata etc pertinent to this NIT.	
v	EMD Remittance Proof	
vi	Work order copies as mentioned in pre-qualification criteria	
vii	ESI Code No. (enclose copy of ESI code allotment letter of ESI authority)	
viii	PAN No. (enclose copy of PAN Card)	
ix	PF Code No. (enclose copy of PF code allotment letter of EPF authority)	
x	GST Registration No. (enclose copy of GST Registration certificate)	
xi	Audited Balance Sheet and Profit & Loss Account duly certified by qualified Chartered Accountant: Viz. 2015-16, 2016-17, 2017-18	
xii	Any other details preferred by bidder with proper indexing.	
B	<u>PRICE BID shall be as mentioned below:</u>	
i	Total Amount corresponding to the total works is to be quoted in the Price	To be uploaded under the form Price Bid.

<p>Bid Form available in e-Procurement portal. Bidders to note that documents uploaded under the form Price Bid shall be considered for commercial evaluation of offer only if they are in above format</p>	<p>Refer "Bidder Manual for BHEL Bidders" available at https://bhel.abcprocure.com</p>
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SPECIAL NOTE:

- i) All documents / annexures submitted with the offer shall be 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.
- 5.0 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.
- 6.0 Bid should be free from correction, over writings using corrective fluid etc. Any interlineation, cutting erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.
- 7.0 **TOTAL PRICE:**
- Prices quoted will be taken as the TOTAL PRICE FOR CARRYING OUT THE ENTIRE WORK AS PER THE SCOPE OF WORK SPECIFIED AND ALL THE RELEVANT DETAILS FURNISHED IN THIS TENDER. The rates should be quoted both in figures and in words. All corrections to be initialed. In case of variance between figures and words, the rates advantageous to BHEL shall be taken as final for all purposes.
- 7.1 The rates offered shall be firm inclusive of everything and no variation will be allowed whether in cost of labour or any other factor affecting the price of the contract.
- 7.2 BHEL does not bind itself to accept the lowest tender. BHEL reserves the right to accept or reject the lowest or any other tender without assigning any reason and the work may be allotted to one or more than one contractors.
- 8.0 **DEFECT LIABILITY/WORKMANSHIP GUARANTEE:**

Defect liability/workmanship guarantee is for period of 12 months from the date of issue of **Preliminary Acceptance Certificate (PAC)** by TSGENCO for each unit. Any defects noticed during this period shall be rectified by

the successful bidder free of cost immediately or during the next available opportunity (shutdown).

9.0 **COMMENCEMENT OF WORK-EXPECTED:**

Successful bidder has to mobilize the site within 7 days from the date of receipt of communication from BHEL for material handling and watch & ward. Depending on shutdown plan of customer successful bidder has to mobilize his resources for attending pre-shutdown, shutdown and post-shutdown activities. Resident Manager / BHEL / SAS decision regarding deployment of sufficient manpower and T&P should be fully complied with. However, successful bidder has to mobilize immediately as per site requirement. We shall inform to the successful bidder through any available mode of communication. The successful bidder has to specifically confirm that all required resources and manpower will be mobilized immediately after intimation.

The entire work shall be carried out by the successful bidder as decided by Resident Manager / BHEL / SAS with the best skills and know how available. The scope of work is only an indicated and not exhaustive. However, successful bidder should abide by the decision of the Resident Manager for any variations of the work.

10.0 **COMPLETION PERIOD FOR THIS CONTRACT:**

45 Days of shutdown period per unit + common shutdown (applicable together for both units) for 3 days (if required) for hook up of common systems like Ash handling, Chlorination plant, DM Water plant (Excluding Pre & Post Shutdown period, Material Handling, Watch and Ward). Material handling and Watch & Ward shall be required for a tentative period of 18 months (till reconciliation with customer after commissioning of second unit).

The entire work covered under the scope of this contract shall be completed within stipulated time. However, for any additional work the completion period shall be proportionately increased.

For any other additional works as mutually agreed between BHEL & Successful bidder, completion period will be suitably increased.

11.0 **LIQUIDATED DAMAGES / PENALTY:**

11.1 If the successful bidder fails to maintain the required progress of work which results in delay in the completion of the work envisaged during the shutdown period of 45 days for each unit, BHEL shall have the right to impose Liquidated Damages/ Penalty @ 0.5% of the contract value (for each unit) per day. Contract value of each unit for this purpose shall be 50% of the total contract value.

11.2 In the event of delay in completion of work envisaged during common shutdown (applicable for both units together) of 3 days, BHEL shall have the right to impose Liquidated Damages/ Penalty @ 0.5% of the contract value

- 11.3 Overall ceiling of Liquidation damages levied as under clause 11.1 and 11.2 shall be 10% of executed contract value for delay attributable to successful bidder. Contract value for this purpose shall be final executed value.
- 11.4 **Compulsory Three shift operation** to be taken up as decided by BHEL/Site In-charge: All the works are to be taken up round the clock (i.e. 24 hours) in three shift operation. Hence all the works are to be planned round the clock without any break. No extra claim will be entertained for three shift operation, idling of manpower due to delay in arrangement of inputs etc. The entire work is to be taken up on war footing with maximum effort.
- 12.0 **TERMS OF PAYMENT:**
- 12.1 **Activity- wise breakup has been indicated against each activity in the scope of work as per attached Annexure-A. In case of reduction in quantum of work at site, payment shall be released only for the activities actually carried out as per the rates arrived. Contract value of each unit shall be revised accordingly.**
- 12.2 Quoting your PAN No. and GST REGISTRATION No. is mandatory for releasing of payment. GST compliant tax invoice is mandatory for releasing of payment.
- 12.3 Filling up the enclosed EFT format duly signed by your bankers is also mandatory for releasing your payment as payments will be effected through EFT only.
- 12.4 **GST remittance proof as per Cl. No. 13.2 (Taxes and Duties)** has to be enclosed for reimbursement of GST.
- 12.5 **Dismantling, Erection and commissioning including Material handling and watch & ward**
- 12.5.1 **90 % of the value executed shall be payable progressively along with all applicable taxes and duties on completion of activities mentioned in Annexure - A on prorate basis** supported by measurement of work done duly certified by BHEL/SAS Resident Manager.
- The following documents are to be submitted along with each running bill.
- Copy of Insurance coverage (should be taken for the full period of the contract. In case the works extends beyond the contract insurance should be kept valid till the completion date.)
 - Letter of commencement of work / joint protocol (with 1st RAB).
 - Labor License/license application copy (with 1st RAB), PF, ESI, Wage sheets of workers.
 - Duly filled pro-forma of Form 36B.
 - Agreement in Non-Judicial stamp paper
 - Power of Attorney.
 - Form-14.
 - HR Pro-forma to be submitted along with bill.
- 12.5.2 **Balance 10% of the executed contract value** on completion of entire work and successful commissioning of the each unit. In addition, the following are to be complied and necessary documents are to be submitted along with the bill.

- Workmen compensation Insurance, Labor License, PF, ESI, Wage sheets of workers and HR Pro-forma to be submitted along with bill.
- Certification given by the contractor both in **M-Book** and **in final 10% bill** to the effect that “No further claim” will made against this contract.
- Submission of a “**NO DUES**” certificate from our principal customer regarding returning of materials, T&P, tackles, fixtures etc., if any supplied to the contractor by the principal customer through BHEL during the execution of work to the effect that all the items have been received intact or as part or after fabrication.
- Material reconciliation duly certified by BHEL Resident Manager & customer.

13.0 **TAXES AND DUTIES**

13.1 **All taxes and duty other than GST & Cess and BOCW Cess**

The successful bidder shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tolls, royalty, commissions, Stamp Duties, or other charges / levies, which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

13.2 **Goods and service Tax (GST) & Cess**

Bidder's price/rates shall be exclusive of GST & Cess (if applicable) (herein after termed as GST). Successful bidder shall submit to BHEL the GST compliant tax invoice/debit note/revised tax invoice on the basis of which BHEL will claim the input tax credit in its return.

Agency shall furnish proof of GST registration with GSTN Portal covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by the successful bidder on BHEL for this project/ work.

Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules wherein the 'Bill To' details as per Clause 15.0.

GST charged in the tax invoice/debit note/revised tax invoice by the successful bidder shall be released separately to the successful bidder only after successful bidder files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the successful bidder and has paid the GST at the time of filing the monthly return.

In case BHEL has to incur any liability (like interest etc.) due to denial/reversal of input tax credit in respect of the invoice submitted by the successful bidder, for the reasons attributable to the successful bidder, the same shall be recovered from the successful bidder.

In case BHEL is deprived of the Input tax credit due to any reason attributable to successful bidder, the same shall not be paid to the successful bidder. Tax invoice/debit Note/revised tax invoice shall contain the particulars as prescribed in GST law.

TDS under GST is applicable and shall be deducted at prevailing rates on gross invoice value from the running bills. E-way bills / Transit passes /

Road Permits, if required for materials / T&P etc., bought into the project site is to be arranged by the successful bidder only.

- 13.3 The successful bidder shall furnish proof of GST registration with GSTN Portal in the State in which the Project is being executed, covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by the successful bidder on BHEL for this project / work.

13.4 Statutory Variations

Statutory variations are applicable under the GST Acts, against production of proof. The changes implemented by the Central / State Government 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.

13.5 Modalities of Tax Incidence on BHEL:

Where GST law permits more than one option or methodology for discharging liability of tax/ levy/ duty; the contractor shall approach BHEL before choosing any option to discharge his tax liability. BHEL shall have the right to direct the contractor to adopt the appropriate option considering the amount of tax liability on BHEL as well as procedural simplicity with regard to assessment of the liability.

The option chosen by BHEL shall be binding on the contractor for discharging the obligation of BHEL in respect of the tax liability to the contractor.

13.6 BUILDING & OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996 (BOCW Act) AND RULES OF 1998 READ WITH BUILDING & OTHER CONSTRUCTION WORKERS CESS Act, 1996 & CESS RULES, 1998

In case any portion of work involves execution through building or construction workers, then compliance to the above titled Acts shall be ensured by the contractor and contractor shall obtain license and deposit the cess under the Act. In the circumstances it may be ensured as under:-

It shall be the sole responsibility of the contractor in the capacity of employer to forthwith (within a period of 15 days from the award of work) apply for a licence to the Competent Authority under the BOCW Act and obtain proper certificate thereof by specifying the scope of its work. It shall also be responsibility of the contractor to furnish a copy of such certificate of licence / permission to BHEL within a period of one month from the date of award of contract.

It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under these act and rules including that of payment / deposit of 1% cess on gross payment made for value of work involving building or construction workers engaged by the contractor within a period of one month from the receipt of payment.

It shall be the responsibility of the sub-contractor to furnish the receipts /challans towards deposit of the cess together with the number, name and other details of beneficiaries (building workers) engaged by the sub-contractor during the preceding month.

It shall be the absolute responsibility of the sub-contractor to make payment of all statutory payments & compensations to its workers including that is provided under the Workmen's Compensation Act, 1923. The contractor shall, however ensure before deposit of any BOCW Cess, that customer is not depositing the same in order to avoid excess deposit of cess.

The contractor shall bear cost of BOCW cess either by way of deposit or through recovery by BHEL in case the same is deposited by the customer. In case of failure in above mentioned compliances, BOCW Cess @ 1% as well as applicable penalty as specified in BOCW Act/Rules shall be deducted from the contractor.

13.7 **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.

14.0 **DEMOBILIZATION AND REMOBILIZATION**

Whatever may be the reason/reasons, no extra payment will be made for the idle labour or any other charges including demobilization and remobilization of the site.

15.0 **INVOICE SUBMISSION:**

The bills are to be submitted through BHEL/Resident Manager addressed to

**BHEL SITE OFFICE
1 X 800 MW TSGENCO
KOTHAGUEDEM
PALONCHA - 507115
TELANGANA**

BHEL TELANGANA GST Registration No is: 36AAACB4146P1ZG

16.0 **SAFETY / PENALTY:**

16.1 The bidder will be fully responsible for the safety of his workmen and shall provide necessary safety appliances like safety Helmets, Safety Shoes, Safety belts, Safety goggles and Safety apron, etc., to all workmen as per Safety Rules as enforced by BHEL / **Customer** at site without any additional cost.

16.2 Separate experienced supervisors are needed to be provided round the clock for supervising the safety practices.

16.3 Penalty will be imposed for not wearing the safety appliances, which are as follows:

- | | | | |
|---|--|---|------------|
| ➤ | Safety Helmets | = | Rs. 2500/- |
| ➤ | Safety Shoes | = | Rs. 2500/- |
| ➤ | Safety Belt at heights | = | Rs. 2500/- |
| ➤ | Safety Goggles during grinding / gas cutting | = | Rs. 2500/- |
- 17.0 For office and stores accommodation, open site will be given. Any other facilities required have to be arranged at the bidder's cost.
- 18.0 The bidder should obtain statutory permission if any required for carrying out the contract at his own cost.
- 19.0 The bidder's personnel should follow all the rules in vogue at site.
- 20.0 In case of doubt, clarification or ambiguity, decision of BHEL will be final.
- 21.0 The bidder should execute the work to the satisfaction of concerned BHEL officials as per the job requirement as decided by BHEL. In case the work carried out is not satisfactory, BHEL reserves the right to terminate the contract with 3 days advance notice and get the balance works carried out by any other agency and recover the entire extra cost if any from any of the amounts of the bidder available with BHEL.
- 22.0 No part of the contract shall be sublet without written permission of BHEL/SAS nor shall transfer be made by power of attorney authorizing others to receive the payment on behalf of the bidder.
- 23.0 All pages of this Tender and especially the Scope of Work (Annexure-3) and Price Schedule-(Annexure-4) should be returned after duly signed and stamped along with the quotation by the bidder.
- 24.0 **CALIBRATION OF IMTE:**
All measuring instruments including temperature and pressure measuring devices used at site are to be duly calibrated and certified by recognized agency with traceability to NPL or equivalent standards which should be valid during the entire period of execution of work at site. The calibration certificate having validity shall be produced at the time of establishment of site, and as and when required by BHEL.
- 25.0 **HIRE CHARGES FOR T&P, INSTRUMENTS ETC., PROVIDED FROM BHEL OR THROUGH BHEL:**
- 25.1 If the bidder fails to supply the required fit for use T&Ps, measuring instruments etc., during the execution of work, and if the same are provided by BHEL or through BHEL, the hire charges as decided by BHEL, will be levied on the basis of certification from BHEL/Resident Manager at site. Further on return of the items after usage, if BHEL is to incur any expenditure due to any damage/loss/repair/rectification on the above items, charges incurred and as decided by BHEL on this account will be levied in addition to the hire charges.
- 26.0 **ADDITIONAL INFORMATION TO BE NOTED BY THE BIDDER:**
- 26.1 **Completion on emergency:**
In case if the work has to be completed by compressing the completion schedule if so decided by BHEL on emergency, the bidder has to arrange

immediately on intimation all required necessary inputs and additional efforts at no extra cost. In the event of any failure on the part of the bidder to meet such requirements on emergency, BHEL reserves the right to arrange all the inputs at its discretion and deduct the entire cost from the bidder as per BHEL procedures.

27.0 Safe custody of Components:

All the dismantled components should be stored safely in polythene covering with proper identification tags for easy traceability required polythene covers and identification tags to be arranged by the bidder. Bidder has to take care of all the components including the dismantled items under his custody and ensure the immediate safe availability of all those items as and when required by BHEL, till commissioning of the equipment or for handing over to the concerned before vacation of the site as decided by BHEL. In case of any loss, damage or theft of these materials/components, BHEL will have the right to impose total recovery along with all charges including penalty in arranging the materials.

28.0 The entire work is time bound, and most of the activities are precision jobs. Hence, bidder has to deploy highly qualified skilled Engineers/ Supervisors/Fitters/ technicians as per site requirement as advised by BHEL. Any delay or failure by the bidder to meet such manpower requirements at site will be viewed seriously. Any suitable remedial action from BHEL side including manpower deployment will be at the cost of the bidder to the extent of charging entire cost including BHEL Daily Service Rates for manpower deployed.

28.1 List of tools, jigs & fixtures, testing kits available with the bidder in fit for use condition and which can be provided by the bidder during the execution of work. If some special fixtures are required, bidder has to fabricate the same and hand over to customer. Material for the same will be provided but welding rods and machining is in bidder's scope.

28.2 Bidder has to make payment to his workmen/employees as per the provisions of state/central laws.

28.3 HSE requirements to be fulfilled by the sub-contractor (Integration of ISO 15001 environmental management system and OHSAS 18001 for Occupational Health and Safety Management System).

29.0 STATUTORY REQUIREMENT:

29.1 Bidder should obtain the labour license from labour inspector of respective state. Labour insurance coverage for all the workmen before start of the work. Insurance coverage should be obtained for all the workmen and not for a few workmen.

29.2 Bidder should obtain the PF clearance certificate and ESI clearance certificate from the concerned Authorities.

30.0 The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The

list of banned firms is available on BHEL web site “www.bhel.com → tender notification”.

- 31.0 "The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice."
- 32.0 If any of the above clauses are contradicting with clauses of General conditions of the contract the above conditions will prevail.
- 33.0 **SUSPENSION OF BUSINESS DEALINGS**
“BHEL reserves the right to take action against contractors who either fail to perform or Tenderers/Contractor who indulge in malpractices, by suspending business dealings with them in line with BHEL guidelines issued from time to time”.
- 34.0 **PVC AND ORC ARE NOT APPLICABLE FOR THIS CONTRACT.**
- 35.0 ***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).***

Thanking you.

**Yours faithfully,
For and on behalf of BHEL,**

Sd/-

**(Virendra Kumar)
Sr.DGM/SCT**

ANNEXURE – 1

SPECIAL CONDITIONS FOR TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M – Replacement of existing pro-control DCS, Iskamatic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems including material handling and watch & ward- Reg.

1. Statutory requirements like labour license from labour Inspector, Labour insurance, PF and ESI clearance certificates from statutory authority are need to be submitted.
2. Major consumables like Organ, Acetylene, Oxygen gases, general purpose Electrodes (6013) shall be arranged by the bidder.
3. Required Platform materials/scaffolding shall be arranged by the bidder.
4. You shall deploy experienced personal for carrying out the works. If any person found not fit or not having suitable experience for the job, our Resident Manager has the discretion to remove and bidder has to replace the person immediately with suitable experienced person.
5. Transportation of the new materials from stores and returning of the removed materials to the notified area of the customer shall be arranged by the bidder.
6. Exclusively a safety supervisor should be arranged by the bidder for supervising the safety activities.
7. Machining of small components/coupling bolts shall be done by the bidder.
8. Supply of material which do not go into the equipment being overhauled permanently is in bidder's scope.
9. All tools & tackles as per site requirement are to be arranged by bidder
10. Calibrated instruments are to be arranged by bidder for carrying out the tests in bidder's scope. of bidder.
11. Any repair /modification work and minor works required for the successful commissioning shall be done by the bidder without any additional cost.
12. The bidder has to co-ordinate with principal customer for arranging of EOT crane available at work location for lifting of Panels. Necessary co-ordination with EOT operators shall be done by contractor.
13. Portable cabin for safe custody of T&P near the work place to be arranged by the bidder.

IMPORTANT NB : STATUTORY REQUIREMENTS LIKE PF, ESI CLEARANCE AS PER TELANGANA GOVT. AND AS PER TSGENCO- HRD TO BE FULLY COMPLIED WITH.

ANNEXURE-2**MAN POWER REQUIREMENT**

1. Customer has insisted to provide experienced diploma holders and engineers. This should be strictly adhered. It may strictly be noted that if experienced engineers and diploma holders are not deployed, accordingly recovery shall be made from your bill based on recommendation by Resident Manager. Recovery amount shall be as per the rates mentioned below.

High Skilled:	Rs. 919.97/- per manday of 8 hours.
Skilled :	Rs. 787.35/- per manday of 8 hours.
Semiskilled :	Rs. 654.74/- per manday of 8 hours.
Unskilled :	Rs. 560.21/- per manday of 8 hours.
2. Resident Engineer – 1 – 10 to 15 years' experience, must be an Engineering Graduate. Supervisors must be diploma holders with sufficient experience in C&I Erection and commissioning works.
3. The sub-contractor man power deployed shall handover the gate passes to the security through the Resident Manger / BHEL.
4. New Laptop with latest configuration i.e i7 Processor,8GB RAM, 1TB HDD,8GB GC, Original licensed W10 & MS Office 2019, Laser jet printer with scanner and Computer operator must be provided at BHEL site office. In case this facility is not provided, BHEL will recover reasonable amount as per RM's recommendation.
5. Recovery towards non-provision of facilities shown in clause 4 above shall be Rs. 25,000/- per month.
6. Office boy must be provided for RM/BHEL at site office.
7. Office furniture such as table, chairs, almirahs etc., shall be provided by bidder in case if the customer is not in position to provide such facility.
8. Safety of the equipment to be given utmost attention.
9. You should make sufficient man power available for taking up this work with accent on quality.

ANNEXURE-3**SCOPE OF WORK**

TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M – Replacement of existing pro-control DCS, Iskamatic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems including material handling and watch & ward- Reg.

A. Materials handling:

This works includes Receipt, unloading, verification stacking, restacking (If required), transportation from storage yard to site and maintaining the records set by BHEL. The scope of work includes arranging of lifting tools, T&P, hydra, trailers etc. as required for satisfactory and safe handling of the equipment. The material handling scope also includes supply of PC with Laser jet printer, qualified and trained manpower of minimum 2 persons to help in maintaining DBR, STOCK REGISTER, MDR, SAR etc as required to work under BHEL STORES/MM in charge. Marking of DBR number in each items with paint (paint will be in contractor scope). Verification of box material, as per site requirement stacking & restacking of material. No separate amount will be paid for these services and the quoted amount includes these services in Material handling. The services have to be provided upto completion of the project. Deployment of the items & manpower mentioned above shall be for the entire period of work including extensions, if any.

BRIEF SCOPE OF WORK

Unloading of materials from trailer/wagons etc. Stacking and DB/ stock register entry and preparation of MRC duly signed by BHEL and customer. You shall submit the lr copy, packing list and gate entry documents along with ra bill.

Verification, restacking and preparation of short supplies MDR, SAR etc. and duly certified by the bhel resident manager.

Filing FIR for any theft or pilferage.

Transportation of materials from **TSGENCO – KTPS** stores to location at site and returning of the unused materials back to **TSGENCO – KTPS** stores will be under contractor's scope including all required arrangements.

Assistance to BHEL during filing of insurance claims by verification and restacking etc.,

Final reconciliation of the materials and submission of all relevant documents and submission of final bill and duly certified by bhel resident manager.

Handing over of left out material and spares to customer as directed by bhel or keeping it in safe custody as per the instructions of bhel resident manager.

An amount of Rs. 25,000/-per month will be deducted from contractor bills towards not providing of PC with Laserjet printer throughout the contract period.

An amount of Rs. 30,000/-per month will be deducted from contractor bills towards not providing of qualified and trained manpower of minimum 2 persons (Rs 15,000/- for each person) throughout the contract period.

BHEL shall have the right to recover charges @5% of Individual item rate w.r.t items against which material unloading, stacking, verification, assistance for insurance lodging, restacking was not carried out. In case of ambiguity, BHEL decision shall be final and binding on the bidder.

- B.** DEPLOYMENT OF SECURITY GUARDS (4 civilian security guards (1st shift - 1 guard, 2nd shift - 1 guard and night shift - 2 guards) for a tentative period of 18 months)

Contract price is inclusive of providing Deployment of Security Guards for round the clock watch and ward of material at stores throughout the contract period (from the date of start of work to handing over of stores to customer after completion of E&C works in unit#9 and 10)

1. SCOPE OF WORK:

- 1.1 To provide security and safety services of BHEL premises at TSGENCO KTPS Unit#9 and 10 C&I R&M works site stores by suitable deployment of security personnel round the clock on all days of the week including Sundays and holidays.
- 1.2 Security personnel will have to take all measures for security of our premises including all equipments, appliances, furniture, machinery fixtures, fittings, office records etc., for which guards deployed for duty will have to remain vigilant and alert. In case of loss of any items due to theft / pilferage, the contractor will take necessary action and comply with all formalities required under law and lodge FIR with police to enable BHEL process the insurance claims and to recover the lost properties. The security personnel shall be responsible for safeguarding items. In case of emergency, the security guards should be able to handle / operate the firefighting equipment located at the company premises.

2. SUPERVISION & CONTROL:

- 2.1 BHEL Resident manager shall nominate one or more of its employees at the respective locations for the proper implementation of the contract and to issue instructions to the agency.
- 2.2 The office so nominated by the company shall exercise supervision and control over the duties being performed by security personnel. Any instructions issued by them shall be promptly attended by the contractor and his security personnel.

3. MANPOWER DEPLOYMENT:

- 3.1 No separate payment will be made by the company towards relievers for the personnel posted under this contract, since the charges payable includes weekly off/leave/National Holidays/other holidays.
- 3.2 The contractor shall ensure that guards provided to the company are educated, of good moral character never having been convicted of a criminal offence by a court of law, physically fit without any permanent physical or mental disability and under the age of 55 years.
- 3.3 The company may call for proof of fitness, including police verification from the contractor in respect of any guards and if necessary order the contractor to get any guard medically checked by an authorized company doctor at the contractors expenses and withdraw him from duty if found unfit.
- 3.4 The contractor shall in respect of each employee supply to the company on the following information.
Name, Father Name, Date of birth, educational qualification, two identification marks, full residential address and passport size photograph.
- 3.5 The contractor shall not substitute a guard with another without the approval of the company.
- 3.6 The contractor shall provide each employee with an identity card with photograph.
- 3.7 The contractor shall ensure that security personnel provided by him to the company are not members of any trade union of the employees of the company and they shall not interfere with the affairs of the company.
- 3.8 Security personnel provided by the contractor to the company shall not be company employees, but of the contractor for all purposes of the contract.

4. DUTIES:

Duties of the security guards / security supervisor and the contractor shall include the following.

4.1 Security Guards:

- 4.1.1 To deal with the company visitors, customer officials and employees courteously and politely and to maintain integrity, orderliness and discipline and be proper prescribed neat and tidy uniform while on duty. Carry out all duties and tasks allotted by the competent officer / supervisor sincerely and to the best office ability.
- 4.1.2 To guard / patrol / check during day and night and ensure that no theft, pilferage trace pass, accident, new sense, disturbance of pace and orderliness etc. takes place in the area of his duty. To man entry point and regulate and check the flow of men, material, transport vehicle etc and ensure that entry / exit is as per valid documents and records.
- 4.1.3 To apprehend immediately, produce before the supervisors or competent BHEL officer any trespasser / person found in the area unauthorized and under suspicious circumstances.
- 4.1.4 To watch habitual offender and mischief makers and inform his supervisor or the competent BHEL official if anything unusual noticed.
- 4.1.5 To seize not found in order / suspected to be stolen.

- 4.1.6 To see that fire equipment installed in the area under his watch is in working condition and bring to the notice of office superiors any defect / short coming.
- 4.1.7 To bring to the notice of his supervisor or the competent BHEL officer any untoward occurrence on the premises, preferably in writing.

4.2 CONTRACTOR:

- 4.2.1 The contractor shall arrange to post security guards at such places and in such manner that guarding patrolling search of incoming and outgoing vehicles and persons whenever necessary in the areas / premises is done throughout 24 hours of the day as per the instructions of company officer.
- 4.2.2 In order to ensure that the security guards are able to discharge their duties the contractor shall provide them with all necessary facilities in the form of batons, lathes, uniforms, shoes, socks and other uniform items etc at his own cost.
- 4.2.3 Contractor shall supervise the performance of the security guards adequately and ensure that performance and turnout are such that the purpose of the contract is fully achieved.
- 4.2.4 The contractor shall visit the contractual area premises every week and meet competent company official or wherever specially called by the latter and carry out the tasks assigned efficiently diligently and to the satisfaction of the company.
- 4.2.5 The contractor shall be responsible for the orderly and disciplined behavior of the employees towards all, including company employees. The contractor employees responsible for misconduct and so named by the competent company official.
- 4.2.6 The contractor shall ensure that any dispute between him and his employees ie guards is settled outside the premises and shall in no way utilize company premises, property etc for this purpose.
- 4.2.7 The contractor shall preserve all records maintained for the company and hand them over to the concerned official at the respective sites from time to time and positively at the end of the contractor.
The contractor shall pay the wages to the security personnel as per the minimum wages fixed by the state govt. / central govt. as applicable.
The contractor shall issue salary slip to each employee every month indicating each component of payment and recoveries.
- 4.2.8 The contractor should ensure the payment of minimum wages fixed by the state govt. / central govt. as applicable from time to time, to their security staff and comply the other statutory requirements, such as depositing statutory contributions to concerned authorities regularly.
- 4.2.9 The photocopies of the bank challan for payment of PF / ESI contribution paid as applicable in respect of security personnel covered under this contract along with an extract of persons employed at the respective sites pertaining to previous month shall be submitted by the contractor to BHEL along with monthly bill.

- 4.2.10 The contractor shall make available all the records required to be maintained under various statutes for verification by BHEL representative as and when required.
- 4.2.11 It will be open to BHEL to ask for replacement of any or all the staff if he / they do not fully meet our security requirement. Alternatively, the contractor may withdraw his personnel for administrative reasons but they should be suitably replaced and be acceptable to BHEL if the guards are found in disciplined, he / they be repatriated to contractor immediately.
- 4.2.12 The contractor will issue employment cards in the prescribed form as required under contract labour (Regulation & Abolition) Act 1970 / Rules immediately on deployment of security personnel at the respective sites.
- 4.2.13 The contractor will also comply with all the provisions as applicable under contract labour (Regulation & Abolition) Act 1970 / Central Regulation / Rules 1971 and State Act / Rules framed there under.
- 4.2.14 Accommodation of security guards shall be arranged by the contractor at his cost.
- 4.2.15 The contractor shall ensure that security staff attend duties in prescribed uniform only.

An amount of Rs. 1,000/- per guard per shift will be deducted from your bills towards not providing guards as specified above. Further, in case of any theft/pilferage due to inadequate/absence of security, the actual material cost shall be recovered from the bills of the contractor.

C. Dismantling, Erection, testing and commissioning of Electrical, Mechanical, C&I systems (as per BOQ) in Unit 9 & 10:

This work involves transportation of New erection materials from storage yard to erection site, Dismantling of the existing system, Erection, Testing and Commissioning of DDCMIS based max DNA control system including APH controls, interlocks, sequential controls, operation interface units and requisite terminations for station C&I and HMI system.

The scope of work includes removal of old equipment/cables and erection of new equipment, testing and commissioning of all the equipment listed below. Any other work required to be carried out to commission the unit not specifically mentioned also is to be carried out to complete system. Erection & commissioning of any instrument/equipment/panel means installation, laying of impulse line & tubing, calibration, cabling, termination, carrying out necessary pre-commissioning checks, testing, commissioning and putting the system in operation.

1. Transportation of new material (Drawing materials)/equipment from Stores/Storage yard to site during erection.
2. Transportation of dismantled material / old equipment / old cables from site to stores/storage yard, stacking with proper identification handing over to Customer stores.

3. Dismantling of existing panels, control desks in control room. Removal of all existing cables.
4. Grouting / Chipping of floor / making floor cut out as required during erection of panels and also during alignment of panels to be arranged / done by the contractor.
5. Impulse Pipe Welding (If Required)
Welding of impulse pipe and fitting shall be carried out by TIG / socket welding as may be the case. Welding shall be performed by qualified welders only. High Pressure impulse line must be welded by qualified welder only. All consumables like normal Electrodes and also special type electrode as per BHEL has to be arranged by the contractor.
6. Removal of old cables from existing panels, boards, control desks, local JB's & field instruments. Dismantling of instruments, JB's, local control panels.
7. Bundling of removed cables on drums, providing identification tags and moving to the stores / yards as recommended by customer.
8. The max DNA control panels and HMI equipment supplied for TG / Boiler AHP, SWAS controls are to be erected with proper alignment.
9. Cable laying, tagging and terminations have to be carried out as per the cable schedules provided by BHEL/Customer.
10. Few old cables have to be retained as suggested by the customer and with printed ferruling terminations have to be done.
11. Contractor has to arrange IBR welding for mechanical works/valves(for High Pressure Impulse lines) wherever required as per BHEL's instruction.

Detailed BOQ is mentioned below.

TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M –Replacement of existing pro-control DCS, Iskamic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems etc (i.e., Dismantling of existing system, Erection, Testing & Commissioning of DDCMIS based on max-DNA control system - Electrical, Control & Instrumentation Work for SG,TG & Stn.C&I & other Boiler mechanical related works as per supply BOQ from EDN, TRY, HWR, Hyderabad (SG, TG & Stn C&I package))				
Sl No	Description	Qty Per Unit	Qty For Unit#9 & 10	Unit
BHEL-EDN Bangalore Supplied Items				
Distributed Digital Control Monitoring & Information System, (DDCMIS) based on Valmet DNA hardware platform, including regulating controls, interlocks, operator interface units, and requisite terminations encompassing the following systems:				
1	Steam Generator Controls comprising of Electronic System Cabinets of size (800 mm X 800 mm X 2000 mm) SG	25	50	Nos
2	Steam Turbine Controls (ST) comprising of Electronic System Cabinets of size (800 mm X 800 mm X 2355 mm) TG	16	32	Nos
3	Station C&I: Electronic System Cabinets of size (800 mm X 800 mm X 2355 mm) Catering to BOP	27	54	Nos
4	HMI - Network Panel/Power distribution	3	6	Nos

	Panels			
5	Dismantling of Existing all TG,SG,BOP,HMI Control Panels and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	110	220	NoS
	Turbovisory System -TSI		0	
6	Bearing Vibration new sensors (in X & Y directions for Turbine Bearing Nos. 1,2,3& 4 while for 5,6&7 new sensors shall be as per existing measurement philosophy)	1	2	Set
7	Relative Shaft Vibration new sensors as per existing measurement philosophy	1	2	Set
8	Overall Expansion Pick-ups for LPT as per existing philosophy	1	2	Set
9	Axial Shift Pick-ups as per existing philosophy.	1	2	Set
10	Junction Boxes & Conduit ,Etc	1	2	Set
11	Emergency shut-down control desk (with minimum configuration)/ Unit Control Panel with instrumentation, push buttons, indications, A/M stations,etc.consists Stand alone annunciation system with alarm windows supplied qty.	1	2	Set
12	Electrical Control Panel (ECP) with Synchroscope, synchronising scheme, indications, ON/OFF controls of Breakers, push buttons, indicators, interfacing relays, transducers.etc	1	2	Set
13	All the controls, interlocks, logics related to Seal Oil in new GAMP Panel shall be as per existing system. Stand alone alarm and annunciation panel at '0' meter location shall be supplied as per existing scheme by BHEL Haridwar	1	2	Set
14	Dismantling of Existing TSI, HMI,UCP and ECP Panels and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	2	Set
	Human Machine Interface (HMI) comprising of: CONTROL ROOM		0	
15	HMI Work Station	22	44	Nos
16	HMI Server	2	4	Nos
17	HMI Monitor	13	26	No
18	Printer	6	12	Nos
19	Cable CAT5e UTP 24AWG (LAN Cable for Networking)	12200	24400	Mtrs
20	Laptop	2	4	No
21	Cable PVC 440V,4C,1Sq.mm Black	1000	2000	Mtrs
22	Large Video Screen with CPU	6	12	Nos
23	LVS - Stand	5	10	Nos

24	LVS -LED	8	16	Nos
25	Computer Furniture (Computer & Printer Table)	10	20	Set
26	Control / Operator desk	7	14	Set
27	Computer Chair	14	28	Nos
	Turbine Instrumentation list below		0	
28	Position Transmitters for HPCV: 02 Nos. IPCV: 02 Nos LPBPCV: 02 Nos..	6	12	Nos
29	EHG, Speeder Gear, SLLD Position (Supply by BHEL-Hardwar)	4	8	Nos
30	Turbine Bearing Thermocouples (Supply by BHEL-Hardwar)	20	40	Nos
31	HPT Exhaust & IP Inner Casing Thermocouples along with assembly	20	40	Nos
32	New Ferro Static Speed Sensors with toothed wheel bracket (to replace existing Hall Probe based speed sensors)	4	8	Nos
33	Radar Type Level Transmitters – 03 Nos. for MOT	3	6	NOs
34	New Load Transducers .	3	6	Nos
35	Level Probes and Level Switches for Seal Oil Vacuum Tank, SOST, IOT, Waste Oil tank and Generator casing, Generator Pre-Chamber, Generator Bushing TOP/BOTTOM along with new Generator instrumentation Cabinet.	11	22	Nos
36	Dismantling of Existing field instruments and shifting to Customer stores including transportation & Hydra, trailer manpower within quoted price	1	2	Set
	24 V DC System (E&C including assistance for load test)		0	
37	Battery Banks -02Nos	2	4	Nos
38	DC Distribution board-02Nos	2	4	Nos
39	Charger Panels 02Nos	2	4	Nos
40	Incommer Power Cable to 24 V DC System and Inter loops, Connection Battery Bangs	2	4	Sets
41	Mini UPS (of adequate capacity) for RIO Cabinets for CWPH Control	1	2	Set
	AC UPS System (E&C including assistance for load test)		0	
42	Battery Banks -02Nos	2	4	Nos
43	AC Distribution board-02Nos	2	4	Nos
44	Charger Panels 02Nos	2	4	Nos
45	Incommer Power Cable to AC UPS System and Inter loops, Connection Battery Bangs	2	4	Sets
46	VMS (Vibration Monitoring System) – with Vibration Pickups and Corresponding Field Cables for BFPs and CWPs. The new VMS will be offered to replace existing VMS	1	2	Set

	system and number of measurement points will be as per existing measurement points.			
47	Sequence of Recording for 512 points (Integral to Valmet DNA system)	1	2	Set
48	Annunciation system (integral to Valmet DNA based DCS) both for control system and Electrical system.	1	2	Set
49	Dismantling of Existing 24V DC system and AC UPS system including associated charger, Batteries UPS panel & Cables items and shifting to Customer stores including transportation & Hydra, trailer manpower within quoted price	1	2	set
50	PreFab Cables for interconnecting of FSSS Panels	1500	3000	Mtrs
	Cables		0	
	TG-Cables		0	
51	4P X 0.5Sq.mm	5000	10000	Mtrs
52	8P X 0.5Sq.mm	2000	4000	Mtrs
53	12P X 0.5Sq.mm	3000	6000	Mtrs
	SG Cables		0	
54	4P X 0.5Sq.mm	11000	22000	Mtrs
55	2P X 0.5Sq.mm	4000	8000	Mtrs
56	2CX35Sq.mm	15000	30000	Mtrs
57	2CX120Sq.mm	5000	10000	Mtrs
	BOP Cables		0	
58	8P X 0.5Sq.mm	14000	28000	Mtrs
59	4P X 0.5Sq.mm	10000	20000	Mtrs
	LT Power Cables		0	
60	2C X 10Sq.mm	1000	2000	Mtrs
61	PSG 1C X 35Sq.mm	1000	2000	Mtrs
62	Earthing 1C X120Sq.mm	2000	4000	Mtrs
63	Shield Cable (Power Cable) 1C X16Sq.mm	1500	3000	Mtrs
64	Removal of all field Cables from panel and Retermination along with new printed ferrules for all panels inc SG,TG BOP,OFF SITE,FIRE SYSTEM etc	1	2	Lot
65	Earthpit :arranging of earth pit including supply of all required materials like copper tube of 100mm, Flat 400MM X 400MM, 3.5Mtr long and GI flats of 50mm width as per site requirement within quoted price)	2	4	Nos
	BHEL-Trichy Supplied Items			
	GRAVIMETRIC FEEDER CONTROL SYSTEM(MP BASED)			
66	Gravimetric feeder remote power cabinet(Eddy current)	6	12	Nos

67	Feeder integral mounted equipments consists of			
68	weighing modules,			
67	optical encoder,	6	12	Nos
68	CMM sensor,			
69	local control panel,			
70	micro switches etc			
	Field control elements/instruments/field cables for Mill DP system and Audio Level			
71	DP PANEL	6	12	Nos
72	NOISE LVL TRANSMITTER AND MIC PH SYSTEM	6	12	Nos
	Scoop tube actuators for BFPs should be replaced with either Electrical Actuators or New Pneumatic Actuators			
73	Elec. Mechanical Actuator Assembly	6	12	Nos
	PNEUMATIC VALVE ERECTION & WELDING & COMMISSIONING		0	
74	HFO pressure control valve(REG,40NB,CS,PNM)	1	2	No
75	LDO pressure control valve (REG,25NB,CS,PNM)	1	2	No
76	HFO flow control valve(REG,40NB,CS,PNM)	1	2	No
77	LDO flow control valve (REG,25NB,CS,PNM)	1	2	No
78	HFO temperature control valve (REG,40NB,CS,PNM)	1	2	No
79	Atomising system pressure regulating valve (REG,40NB,CS,PNM)	1	2	No
80	Thermal drain valves in Soot blower lines (TDV1",FCS,PNM,SW)	5	10	Nos
81	Soot blower line pressure reducing valves(PRV,2",PNM,SW)	1	2	No
	Flame scanner system		0	
82	Flame scanner Pig tail cables with connector	20	40	No
83	Flame scanner head assembly	20	40	No
84	Flamescanner amplifier chasis	5	10	No
85	Flame Scanner shielded cables	4600	9200	Mtrs
86	Miniature junction boxes	20	40	No
	ERV control equipments with Valve		0	
87	Electromagnetic relief valve 2.5" along with Solenoid assy -2.5"BWF,Auto,ERV	2	4	Nos
88	ERV control station and controller	2	4	No.
89	ERV pressure switches	2	4	No.
	ASLD assy		0	
90	Seal Boxes for ASLD - 400Kgs	18	36	Nos
91	ASLD assy (Tube, flange bolt & nut, link chain) - 150Kgs	18	36	Nos
92	Water wall tube bends for furnace opening (63.5 X 5.5)-500Kgs	36	72	Nos
93	Fin Plate	400	800	Kgs

94	Acoustic steam leak detector & accessories(including wave guide, sonic sensor, field junction box, remote panel, PC, Monitor, calibrator, purge air accessories etc.- 18 channel system	1	2	set
	Field Items /Instruments (Pertaining to Station C&I)			
95	Pressure Transmitters – 02 Nos. (Related to CBDT Level Control)	2	4	Nos
96	Thermocouples SH stages 1 & 2 and RH – 46 Nos.	46	92	Nos
97	Ultrasonic Level Transmitters – 13 Nos. (Common for both Units) related to CW/BCW area.	13	26	Nos
98	Dismantling of Existing GRAVIMETRIC FEEDER CONTROL SYSTEM,Mill DP system,Flame scanner system,ERV control equipments,ASLD and other Field Instruments and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	2	Lot
99	Fabrication of Steel,Frames,Angles,channels(Erection Materials)	2.022	4.044	MT
	Instrumentation fittings		0	
100	Tube 1/2" (Carbon Steel)-100Mtrs-SCH40-127Kgs	100	200	Mtrs
101	Tube 1" (Carbon Steel)-100Mtrs-SCH40-250Kgs	250	500	Mtrs
102	Isolation valves for instruments-GLV,25NB,A105,800,Hand	4	8	Nos
103	Isolation valves for instruments-Globe,15NB,FCS,800	10	20	Nos
	Isolation valves for instruments-Gate,NB25,FCS,Hand	10	20	Nos
104	Cable trays		0	
105	300 mm Width x 50 mm Height x 2.5 m length(perforated type)	100	200	No.
106	150 mm Width x 50 mm Height x 2.5 m length(perforated type)	100	200	No.
107	100 mm Width x 50 mm Height x 2.5 m length(perforated type)	800	1600	No.
108	50 mm Width x 50 mm Height x 2.5 m length(perforated type)	800	1600	No.
109	1 " conduits	1500	3000	m
	Junction boxes		0	
110	48 Ways	6	12	No.
111	36 Ways	2	4	No.
112	24 Ways	6	12	No.
113	Conduit 1"	180	360	Mtrs

114	Heavy Oil flowmeter - Main line(mass flow) along with all attachment/Fabrication of supports	1	2	No.
115	Pneumatic tubings fittings & air set for following pneumatic equipment: For HOPCV, LOPCV, HOTCV, LOFCV, HOFCV, ASPRV, SBPRV, Drain temp control valves.	1	2	1
116	Control cables: Multicore 650/1100V PVC insulated, Armoured, Cu. conductor control cable(FRLS/PVC sheath)			
117	19C x 1.5 sq.mm	3450	6900	m
118	10C x 2.5 sq.mm	1380	2760	m
119	2C x 2.5 sq.mm	4485	8970	m
120	3C x 1.5 sq.mm	414	828	m
121	3C x 2.5 sq.mm	230	460	m
	Multicore 650/1100 V PVC insulated Armoured powercables(FRLS/PVC sheath) including for oil heat tracer			
122	3C x 6 sq.mm(Al./Cu. conductor)	1725	3450	m
123	3C x 2.5 sq.mm(Cu. conductor)	1725	3450	m
124	3C x 2.5 sq.mm(Cu. conductor) DC power cable	1020	2040	m
	Instrumentation cables Multi pair 650/1100V PVC insulated Armoured Cu. conductor twisted pair screened instrument cable(FRLS/PVC sheath)			
125	2P x 1.5 sq.mm	6900	13800	m
126	2P x 0.5 sq.mm	138	276	m
127	4P x 0.5 Sq.mm over all shielded cables	1539	3078	m
128	8P x 0.5 Sq.mm over all shielded cables	3036	6072	m
129	2Px0.5 Sq.mm Individual and Overall shielded cables	2070	4140	m
130	8Px0.5sq.mm (PVC insulated, FRLS/PVC sheath sheath, Cu. conductor) Individual and overall shileded	207	414	m
131	Dismantling of all field Instruments-incl transmitters, switches, pressure transmitters, DP transmitters, pressure switches, DPS, Thermo couple, RTD, level switches, pressure guage, temperature gauge etc.	300	600	Nos
132	Removal of all field Cables where ever laid new cable and shifting to stores	106	212	Nos
133	Material Unloading , Stacking and Restacking at KTPS stores ,(Material to be received and acknowledged and maintain the stores till the execution of the both the units)	1	2	L/s
	OFF SITE WORKS UNIT#9&10			
134	Ash Handling Plant Controls comprising of	27	27	Nos

	Electronic System Cabinets of size (800 mm X 800 mm X 2000 mm)			
	Fly Ash Controls			
	Bottom Ash Controls			
	SILO			
	Transport Air Compressor House			
	Vaccum Pump House			
	Ash Slurry Pump House			
	Human Machine Interface (HMI) comprising of: ASH			
135	HMI Workstations	5	5	Nos
136	HMI Server	2	2	No
137	HMI Monitors	7	7	No
138	Network enclosure / Panel with Ethernet Switches & other hardware,	1	1	Set
139	Cable Cat5e UTP	4575	4575	Mtrs
140	Cable PVC 440V 4C 1Sq.mm Black	600	600	Mtrs
141	Computer Furniture (Computer & Printer Table)	2	2	Nos
142	Control / Operator desk	5	5	Nos
143	Computer Chair	7	7	Nos
144	GPS Based Slave Clocks for time synchronising signals	1	1	Set
145	Sequence of Recording for 512 points (Integral to Valmet DNA system)	1	1	Set
146	Annunciation System (Integral to Valmet DNA based DCS)	1	1	Set
147	Dismantling of Existing Ash Handling Plant Controls and associated HMI,AC UPS and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	1	Set
148	Removal of all field Cables from panel and Retermination along with new printed ferrules for all Water Syetem panels	1	1	Lot
149	Earthpit :arranging of earth pit including supply of all required materials like copper tube of 100mm, Flat 400MM X 400MM, 3.5Mtr long and GI flats of 50mm width as per site requirement within quoted price)	2	2	Nos
	AC UPS System AHP including : (E&C including assistance for load test)			
150	Charger Panel	2	2	Nos
151	Battery sets (E&C including assistance for load test)	2	2	Nos
152	AC Distribution Board	2	2	Nos

153	Incommer Power Cable for AC UPS System AHP	2	2	Sets
154	Mini UPS (of adequate capacity) for RIO Cabinets for SILO Control	1	1	Set
155	Transducers for HT Drives of AHP for Current Measurement	15	15	Nos
Cables:				
Note: As the plant is in operation, healthiness of field instruments and cables are generally envisaged to be OK. Loop checking shall be conducted by Bidder within quoted price during commissioning.				
Instrumentation Cable				
156	4P X 0.5Sq.mm	41000	41000	Mtrs
157	4P X 0.5Sq.mm	40000	40000	Mtrs
LT Power Cables				
158	2C X 10Sq.mm	8000	8000	Mtrs
159	PSG 1C X 35Sq.mm	1000	1000	Mtrs
160	Earthing 1C X120Sq.mm	1500	1500	Mtrs
161	Shield Cable (Power Cable) 1C X16Sq.mm	1500	1500	Mtrs
162	Cable Trays and Erection Steel Material for Cables trays	1	1	Lot
Water Systems: Comprising of Electronic System Cabinets of size (800 mm X 800 mm X 2000 mm)				
163	DM Water Plant	10	10	Set
	Clarifier			
	Chlorination Plant			
Human Machine Interface (HMI) comprising of: DM,CHLORINATION,CALRIFIER ROOM				
164	HMI Workstations	5	5	Nos
165	HMI Server	1	1	Nos
166	HMI Monitors	6	6	Nos
167	Network Panel with Ethernet Switches & other hardware,	1	1	Nos
168	Cable Cat5e UTP	4575	4575	Mtrs
169	Cable PVC 440V 4C 1Sq.mm Black	600	600	Mtrs
170	Computer Furniture (Computer & Printer Table)	2	2	No
171	Control / Operator desk	5	5	Set
172	Computer Chair	7	7	Set
173	GPS Based Slave Clocks for time synchronising signals	1	1	Set
174	Sequence of Recording for 512 points (Integral to Valmet DNA system)	1	1	Set
175	Annunciation System (Integral to Valmet DNA based DCS)	1	1	Set

176	Dismantling of Existing Water systems (DM, CHLORINATION, CALRIFIER ROOM) and associated HMI, AC UPS and shifting to Customer stores including transportation & Hydra, trailer manpower within quoted price	1	1	set
<p>Cables: Note: As the plant is in operation, healthiness of field instruments and cables are generally envisaged to be OK. Loop checking will be conducted by bidder within quoted price during commissioning.</p>				
Instrumentation Cable				
177	4P X 0.5Sq.mm	41000	41000	Mtrs
LT Power Cables				
178	2C X 10Sq.mm	1000	1000	Mtrs
179	PSG 1C X 35Sq.mm	500	500	Mtrs
180	Earthing 1C X120Sq.mm	1000	1000	Mtrs
181	Shield Cable (Power Cable) 1C X16Sq.mm	1000	1000	Mtrs
182	Cable Trays and Erection of Steel Material for Cables	1	1	Lot
	Control Cable for Solenoid 5CX 2.5	25000	25000	Mtrs
183	Removal of all field Cables from panel and Retermination along with new printed ferrules for all Water Syetem panels	1	1	Lot
184	Earthpit :arranging of earth pit including supply of all required materials like copper tube of 100mm, Flat 400MM X 400MM, 3.5Mtr long and GI flats of 50mm width as per site requirement within quoted price)	2	2	Nos
185	AC UPS System to DM Plant DCS, HMI & UPS Field Loads. (E&C including assistance for load test)			
186	Charger Panel	2	2	Nos
187	Battery sets (E&C including assistance for load test)	2	2	Nos
188	AC Distribution Board	2	2	Nos
189	Incommer Power Cable for AC UPS System	2	2	Sets
190	Mini UPS (of adequate capacity) for RIO Cabinets for Clarifier Control, Chlorination Plant	1	1	Sets
191	Sodium Analyzer - 2 Nos.	2	2	Nos
192	Silica Analyzer - 2 Nos.	2	2	Nos
193	Field Items /Instruments :erection and commissioning of the following instruments			
194	Level Switches for DM Storage Tanks	1	1	Set
195	Flow Transmitter	1	1	Set
196	Ultrasonic Flow Meters = 5 nos.	5	5	Nos

197	Open channel Flow Meter for Raw Water = 1 no.	1	1	Nos
	Air Compressor : Instrumentation Cables for On/Off Feedbacks to be incorporated in Valmet DNA DCS	1	1	Set
198	GPS based Master Clock for time synchronising signals and driving newly supplied 20 Nos. Slave Clocks (common for both units)	1	1	Set
199	Total SWAS system including analyzers, instruments, field cables, sample lines for Unit 9&10	1	1	Set
200	Dismantling of Existing Field instruments of AHP and Water systems (DM, CHLORINATION, CALRIFIER ROOM) and associated Cables and shifting to Customer stores including transportation & Hydra, trailer manpower within quoted price	1	1	set
	Fire Protection System			
201	Fire Alarm Panels (with Optical fibre card) - Approx. size :: in mm 1000 x 600 x 300 (H x W X D)	9	9	Nos
202	Repeater Panels Approx. size :: in mm 300 x 500 x 100 (H x W X D)	1	1	Nos
203	Multisensor Detectors	1100	1100	Nos
204	Manual Call Points(Indoor)	110	110	Nos
205	Manual Call Points(Outdoor)	10	10	Nos
206	Modules	261	261	Nos
207	Hooter cum Strobe	70	70	Nos
208	Response Indicators	80	80	Nos
209	Exit Sign (Self-Illuminating)	70	70	Nos
210	Siren (3 km)	1	1	Nos
211	PC, Printer	1	1	Nos
212	Flow Switches	7	7	Nos
213	Level Swicth	2	2	Nos
214	Pressure Switches	10	10	Nos
215	Furniture for PC, Printer - FDA	1	1	Nos
216	Cables(2C x 1.5/2.5 sq.mm)	55000	55000	Mtrs
217	Fiber Optic/LAN Cable	10000	10000	Mtrs
218	Erection hardware for cables (Power, Control & Fibre optic)	1	1	Lot
219	Wall Openings Required for cable routing	1	1	Lot
220	Modification of false ceiling	1	1	Lot
221	Dismantling & shifting to stores of existing Fire Alarm Panels and Detectors shall be done by vendor	1	1	Lot

222	Engaging 4 civilian security guards (1st shift - 1 guards, 2nd shift - 1 guard and night shift - 2 guards) for a peroid of 18 months	18	18	Months
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Best effort has been made to give maximum details of the work to be carried out in the scope of work. The contractor is advised to visit site and assess the jobs before quoting. Since it is an R&M job quantities specified are only approximate and subject to variation.

Special Notes:

- 1) The quantities indicated in the Rate Schedule are only indicative, not exhaustive and given for guidance of the contractor.
- 2) Tenderers are requested to quote their rates, only in the rate schedule provided by BHEL. Quoting of rates in any other form/formats will not be entertained. The total rate should be properly and arithmetically calculated and added.
- 3) Please note that the rate schedule is for billing purpose only. Any items, quantities not covered in the billing schedule but appearing in detailed scope of work and required for completion of the work as per the contract, shall be executed by Bidder without additional cost.

ANNEXURE-4**PRICE SCHEDULE FORMAT****Tender Specification No: T-01/2019-20 Dt: 08.06.20019****Time & Date of submission Before 11:00 Hrs. on 28.06.2019**

DESCRIPTION	TOTAL AMOUNT (excl. GST) (in Rs.[Figs. And words])
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<p>TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M – Replacement of existing pro-control DCS, Iskamatic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems including material handling and watch & ward.</p>	<p>100% } Rs. _____</p>
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In words: Rupees

COMPLETION PERIOD : 45 Days of shutdown period per unit + common shutdown for 3 days(if required) for hook up of common systems like Ash handling, Chlorination plant, DM Water plant. (Excl. Pre & Post Shutdown period, Matl. Handling, Watch and Ward. Matl. handling and Watch & Ward shall be required for a tentative period of 18 months (till reconciliation with customer after commissioning of second unit).

APPLICABLE TAXES SHALL BE TREATED AS EXTRA

Note:

1. Work to be taken up as advised by BHEL/SAS in line with customer schedule.
2. Payment shall be on completion of works as per terms of payment envisaged in the Tender.
3. The price quoted will be FIRM for a period of 12 months from the date of tender opening
4. The rates should be quoted **both in figures and in words.**

We have quoted in line with the tender specification and we confirm our acceptance to the above mentioned conditions.

Signature of Bidder with Seal



Bharat Heavy Electricals Limited

Power Sector – Southern Region – SAS

39, Sarojini Devi Road, Secunderabad – 500 003

Phone : 050-27717836, Fax : 050-27701768, Email : rg@bhel.in

No. PS-SR-SAS/F&A/

Date:

Dear Sirs,

Sub: Requirement of information for E-Payment.

We have received guidelines from our HQ for making maximum payments through E-remittance only. We have been instructed to implement the E-Payment system at the earliest. To comply with this instruction, we require details regarding your bank details in the format given below.

Please note that the details are to be furnished **on your letter head** duly attested by **your Bankers**

FORMAT

DETAILS OF CONTRACTOR FOR E-REMITTANCE OF PAYMENT BY BHEL/SAS

1. Name & Address of the Contractor :
2. Bank Account No :
3. Type of A/c (CC/Current) :
4. Name of Bank :
5. Name of Branch :
6. Branch Code :
7. Banker's Address(Branch) :
8. MICR No. of the Branch :
9. IFSC Code of the Branch :

CERTIFICATE FOR NO DEVIATION

I, _____ OF
M/s. _____ hereby certify that
there is no deviation from the Tender conditions either technical or
commercial and I am agreeing to all the terms and conditions
mentioned in the Tender Specification.

SIGNATURE OF THE BIDDER

PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY
(On non-Judicial paper of appropriate value)

Bank Guarantee No.....
Date.....

To
(Employer's Name and Address)
.....

Dear Sirs,

In accordance with the terms and conditions of your Invitation for Bids /
Notice Inviting Tender No.....1(Tender Conditions)
M/s..... having its registered office at
.....2(hereinafter referred to as the 'Tenderer'), is submitting its
bid for the work offor.....3(name of the Employer) at
.....4. The Tender Conditions provide that the Tenderer shall
pay a sum of Rs.....as Earnest Money Deposit in the
form therein mentioned. The form of payment of Earnest Money Deposit
Includes Bank Guarantee executed by a Scheduled Bank.

In lieu of the stipulations contained in the aforesaid Tender Conditions that
an irrevocable and unconditional Bank Guarantee against Earnest Money
Deposit for an amount of.....5 is
required to be submitted by the Tenderer as a condition precedent for
participation in the said Tender and the Tenderer having approached us for
giving the said Guarantee,

We, the..... [Name
& address of the Bank]
..... having our
Head Office at(hereinafter referred to as the Bank)
being the Guarantor under this Guarantee, hereby irrevocably and
unconditionally undertake to forthwith and immediately pay to the
Employer without any demur, merely on your first
demand any sum or sums of Rs.....
5.....(*)..... without any
reservation, protest, and recourse and without the beneficiary needing to
prove or demonstrate reasons for its such demand. Any such demand made
by the 'Employer' shall be conclusive and binding on us irrespective of any
dispute or difference raised by the Tenderer.

The payment so made by us under this Guarantee shall be a valid
discharge of our liability for payment hereunder and the Tenderer shall
have no claim against us for making such payment.

We Bank further agree that the Employer shall have
the fullest liberty without our consent and without affecting in any manner
our obligations hereunder to vary any of the terms and conditions of the

said Tender or to extend the time of submission of bids from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Tenderer and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Tendered or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Tenderer and notwithstanding any security or other guarantee that the Employer may have in relation to the Tenderer's liabilities.

This Guarantee shall be irrevocable and shall remain in force upto and including6 and shall be extended from time to time for such period as may be desired by the Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Tenderer but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms hereof. However, unless a demand or claim under this Guarantee is made on us in writing on or before the7 we shall be discharged from all liabilities under this Guarantee.

We, Bank lastly undertakes not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a. The liability of the Bank under this Guarantee shall not exceed..... 5
- b. This Guarantee shall be valid up to6
- c. Unless the Bank is served a written claim or demand on or before _____7 all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name and seal of the Bank)
Date.....
Place of Issue.....

- 1 Details of the Invitation to Bid / Notice Inviting Tender
- 2 Name and Address of the Tenderer
- 3 Details of the Work
- 4 Name and Address of BHEL Unit / Division / Region
- 5 BG Amount in words and Figures
- 6 Validity Date:
- 7 Date of Expiry of Claim Period.

Note:

1. The Bank Guarantee shall be valid for atleast six months and claim period shall be two months after validity date. In case the BG is submitted without claim period then the validity shall be for eight months.
2. Provide the Contact address, phone no and email id of the Bank

BHARAT HEAVEY ELECTRICALS LIMITED
DIVISION.....

Claim for refund of security deposit
 (Para 4.9.4 of works accounts Manual)

Ref. No.

Date:.....

1. Name and Address of the contractor
2. Contract Agreement / work order No.
3. Date of Contract Agreement / Work order
4. Name of the work undertaken
5. Date of commencement of the work
6. Date of completion of the work
7. Period of maintenance
8. Date on which the final bill was paid
9. Last date of making good the defect
During maintenance period
10. Expenditure incurred by BHEL during
maintenance period, if any, recoverable
11. Date on which security deposit refund falls
Due as per contract
12. Amount deposited / recovered

Details	Amount
---------	--------
13. LESS amount recoverable (with details)
 - i) Amount spent by BHEL on
maintenance
 - ii) Payments made on behalf of contractor
 - iii) Count dues/penalties/compensation
 - iv) Security deposit released with final
bill (%)
14. Net amount recommended for release (12-13)

Date:

Signature of Engineer in Charge

CERTIFICATE TO BE FURNISHED BY THE CONTRACTOR

I/ We have no claim or demand outstanding against BHEL, for the work done or for labour or material supplied or any other account arising out of or connected with the contract agreement / work order (No. dated) and the payment of this bill shall be in full and final settlement of all my / our claims and demands including the 'Deposits' in respect of the contract agreement / work order referred to.

Date:

Signature of Contractor

CERTIFICATE TO BE FURNISHED BY SENIOR ENGINEER

Certified that

- (a) the payment recommended for release is in order and there are no demands other than those included in the claim outstanding from the contractor.
- (b) the maintenance period as per the contract agreement is over and the contractor has carried out the works required to be carried out by him during the period of maintenance to our satisfaction, and all expenses incurred by the company on carrying out such works have been included for adjustment.
- (c) all the objections raised so far have been settled;
- (d) a note of refund of security deposit has been made in the measurement book and contract agreement / work order.

Date:

Signature of Senior Engineer

FOR USE IN ACCOUNTS DEPARTMENT

Passed for Rs..... (Rupees only)

Accountant

Accounts Officer

ACKNOWLEDGEMENT BY THE CONTRACTOR

Received Rs..... in full and final settlement of my / our claim.

Date:

Signature of Contractor

SUB AGENCY LETTER HEAD

.....
Ref. No: BHEL/PS/SR/SAS/No Due/SITE:DATE:.....

To,
The engineer Incharge,
Dept:
Project:.....
Unit:.....

(Through BHEL Site In-charge)

Sub : Request for issuance of "NO DUES CERTIFICATE "

Ref : 1) Customer P.O/LOI :
.....
2) BHEL P.O/LOI :
.....

Dear Sir,
With reference to the above we request for issuance of "NO DUES CERTIFICATE" for the works for the Project:
....., Unit:

Kindly do the needful at your end please.

Thanking you

Yours faithfully,

(Name:)
Site In-charge
Company: M/s.....
Project:..... ,Unit No:

.....
Kindly issue "No Due certificate" for the above subject works after due verification of your stores.

With thanks and regards

Site In-charge
BHEL/PSSR/SAS
PROJECT: Unit:

NO DUES CERTIFICATE

Date:

Ref:1) P.O No:

2) Your Lr .No: BHEL/PS/SR/SAS/No Due/Site: Dtd:

This is to certify that, with the above references, M/s
....., Sub contractor of M/s BHEL/PSSR/SAS returned all the T&P and materials in
healthy condition which were received during execution of the works :

..... at project :

..... of unit No : in the period of

This "No dues certificate" issued after due verification of our stores.

Signature of principal customer

Dept :

Seal :

BHEL: _____ Site, _____ State
HR Clearance for releasing of First and subsequent Monthly Bill (Details check list)

(To be enclosed along with First and subsequent Monthly Running Bills)

1. LABOUR LICENCE	AVL/NOT AVL/NA
LABOUR LICENCE – VALIDITY	CURRENT/OLD/NA
DISPLAY OF LICENCE	DONE/ NOT DONE/NA
NOTICE OF COMMENCEMENT (FORM VI A)	SENT/ NOT SESENT/NA
2. NOTICE BOARD	AVL/NOT AVL/NA
3. ABSTRA OF CL (R & A) ACT /MINIMUM	DISPLAYED /
WAGES ACT/CHILD LABOUR ACT	NOT DISPLAYED/NA
4. REGISTERS TO BE MAINTAINED	
WAGES REGISTER	YES / NO/NA
MUSTER ROLL	YES / NO/NA
FINES REGISTER	YES / NO/NA
DEDUCTIONS REGISTER	YES / NO/NA
OVER TIME REGISTER	YES / NO/NA
LIST OF PERSONS EMPLOYED	YES / NO/NA
5. EMPLOYMENT CARD	ISSUED/ NOT ISSUED/NA
6. WAGE SLIPS	ISSUED/ NOT ISSUED/NA
7. FIRST AID FACILITY	AVL/NOT AVL/NA
8. LATRINES/ URINALS	AVL/NOT AVL/NA
9. DRINKING WATER PROVISION	AVL/NOT AVL/NA
10. WASHING FACILITIES	AVL/NOT AVL/NA
11. NOTICE OF COMMENCEMENT OF WORK	SENT/ NOT SENT/NA
12. HALF YEARLY RETURN – CL (R & A) ACT	SENT/ NOT SENT/NA
13. ANNUAL RETURN – MIN. WAGES ACT	SENT/ NOT SENT/NA
14. REGISTRATION UNDER BOCW(RE & CS) Act	AVAIALBLE/NOT AVAILABLE
15. BOCW CESS PAID IN THE MONTH	YES/NO/NA
16. PF RECOVERY / REMITTANCES (*)	DONE / NOT DONE/NA
17. ESI RECOVERY / REMITTANCE (*)- IF APPLICABLE	DONE / NOT DONE/NA
18. WC INSURANCE AVAILABILITY / VALIDITY	AVL/NOT AVL/ VALIDITY EXPIRED/NA

Certified that the details furnished above are true and correct. Further wages / other payments due to the workmen deployed by us are paid full and in time.

Sing. Of Contractor
Seal

The above details have been verified and found to be correct. In addition, payment of wages to the workmen witnessed and certified that correct wages are paid.

(Sign. Of Resident Engineer)

(Sign. Of HR In-charge)

(Sign. Of Head/Services)

(Sign. Of Head/SAS)

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

S1 No: 1

Clause 4.1.11 of SCC is deleted.

S1 No: 2:

**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 Rev00) enclosed.

Chapter IX Clause 9.1.1 to 9.1.25 stands deleted.

Chapter IX Clause 9.2 to 9.62 stands deleted.

S1 No: 3:

**Clause No. 10.5 on RA Bill Payments, in Special Conditions of Contract (SCC),
Volume-IB, Book-II, is revised as under:**

The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc., and other dues in the meanwhile.

S1 No: 4

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

Void.

S1 No: 5

**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)

(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 fulfil any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.

1.10.11 Penalty for Delayed Remittance of Security Deposit If the contractor fails to furnish SD before start of work, in line with 1.10.3 above, Simple Interest against delayed remittance of the Security Deposit shall be deducted from the sub-contractor at the rate of SBI PLR + 2% on the value of 50% SD of the contract, for the delayed period (i.e., period between start of work and date of remittance of Initial SD, i.e., atleast 50% of SD). In case, the delayed period has different SBI PLR rates, Simple Interest shall be calculated based on different rates by considering the corresponding time period. On similar lines Penalty shall be levied for delayed remittance of Additional Security Deposit (if applicable).

Note: - Bank details & SFMS details provided in clause 2.0 of NIT (Earnest Money Deposit) may be used for the purpose of arranging Bank Guarantees towards Security Deposit / Additional Security Deposit also.

Security deposit & ASD will be released only after completion of workmanship guarantee/Defect liability period of the total contract.

SI No: 6

Clause 2.7.2 and 2.7.3 in GCC regarding Rights of BHEL is revised as under:

2.7.2.

2.7.2.1 To terminate the contract or withdraw portion of work and get it done through other agency, at the risk and cost of the contractor after due notice of a period of 14 days' by BHEL in any of the following cases:

i. Contractor's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor including unexecuted portion of work does not appear to be executable within balance available period considering its performance of execution.

ii. Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.

iii. Non-completion of work by the Contractor within scheduled completion period as per Contract or as extended from time to time, for the reasons attributable to the contractor.

iv. Termination of Contract on account of any other reason (s) attributable to Contractor.

v. Assignment, transfer, subletting of Contract without BHEL's written permission.

vi. Non-compliance to any contractual condition or any other default attributable to Contractor.

Risk & Cost Amount against Balance Work:

Risk & Cost amount against balance work shall be calculated as follows: Risk & Cost Amount= [(A-B) + (A x H/100)]

Where,

A= Value of Balance scope of Work (*) as per rates of new contract

B= Value of Balance scope of Work (*) as per rates of old contract being paid to the contractor at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

H = Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

* Balance scope of work (in case of termination of contract):

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work for calculating risk & cost amount. Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.

Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose. Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

NOTE: In case portion of work is being withdrawn at risk & cost of contractor instead of termination of contract, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work' for calculating Risk & Cost amount.

LD against delay in executed work in case of Termination of Contract:

LD against delay in executed work shall be calculated in line with LD clause no. 2.7.9 of GCC, for the delay attributable to contractor. For limiting the maximum value of LD, contract value shall be taken as Executed Value of work till termination of contract. Method for calculation of "LD against delay in executed work in case of termination of contract" is given below.

- i). Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor = T1
- ii). Let the value of executed work till the time of termination of contract= X

iii). Let the Total Executable Value of work for which inputs/fronts were made available to contractor and were planned for execution till termination of contract = Y

iv). Delay in executed work attributable to contractor i.e. $T2 = [1 - (X/Y)] \times T1$

v). LD shall be calculated in line with LD clause (clause 2.7.9) of the Contract for the delay attributable to contractor taking "X" as Contract Value and "T2" as period of delay attributable to contractor.

2.7.2.2 In case Contractor fails to deploy the resources as per requirement, BHEL can deploy own/hired/otherwise arranged resources at the risk and cost of the contractor and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.

2.7.3 Recoveries arising out of Risk & Cost and LD or any other recoveries due from Contractor

Following sequence shall be applicable for recoveries from contractor:

a) Dues available in the form of Bills payable to contractor, SD, BGs against the same contract.

b) Demand notice for deposit of balance recovery amount shall be sent to contractor, if funds are insufficient to effect complete recovery against dues indicated in (a) above.

c) If contractor fails to deposit the balance amount to be recovered within the period as prescribed in demand notice, following action shall be taken for balance recovery:

i) Dues payable to contractor against other contracts in the same Region shall be considered for recovery.

ii) If recovery cannot be made out of dues payable to the contractor as above, balance amount to be recovered, shall be informed to other Regions/Units for making recovery from the Unpaid Bills/Running Bills/SD/BGs/Final Bills of contractor.

iii) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against contractor.

SL No: 7

In addition to clause 2.7.9 of General Conditions of Contract (GCC), a New clause 2.7.9.1 is added as below.

Void. Intermediate Milestones are not applicable for this contract

SL No: 8

OVERRUN COMPENSATION (ORC)

The **OVERRUN COMPENSATION (ORC)** clause 2.12 published in General Conditions of Contract (Volume I Book-II) is revised as under.

Void. ORC is not applicable for this contract.

Sl No: 9

Clauses 2.13.1, 2.13.6 & 2.13.7 in GCC on Interest Bearing Recoverable Advances

Void. Interest Bearing Recoverable Advances is not applicable for this contract.

Sl. No: 10

Clause 2.14.1 on in General Conditions of Contract (GCC), Volume-IC, Book-II, is revised as under:

2.14.1 The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The quoted rates for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limit of Minus (-) 30% of awarded contract value.”

Sl No: 11

PRICE VARIATION COMPENSATION (PVC)

The PRICE VARIATION COMPENSATION (PVC) clause 2.17 published in General Conditions of Contract (Volume I Book-II) is revised as under.

Void. PRICE VARIATION COMPENSATION (PVC) is not applicable for this contract.

Sl No: 12

Clauses 2.21 in GCC regarding Arbitration is amended as below

2.21 ARBITRATION & CONCILIATION

2.21.1 ARBITRATION:

2.21.1.1 Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided in Clause

2.21.2 herein below or otherwise) in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the

Contract; or, in any manner touching upon the Contract (hereinafter referred to as the 'Dispute'), then, either Party may, commence arbitration in respect of such Dispute by issuance of a notice in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the 'Notice'). The Notice shall contain the particulars of all claims to be referred to arbitration in sufficient detail and shall also indicate the monetary amount of such claim. The arbitration shall be conducted by a sole arbitrator to be appointed by the Head of the BHEL Power Sector Region issuing the Contract within 60 days of receipt of the complete Notice. The language of arbitration shall be English.

The Arbitrator shall pass a reasoned award. Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder as in force from time to time shall apply to the

arbitration proceedings under this clause. The seat of arbitration shall be **Chennai** (the place from where the contract is Issued). The Contract shall be governed by and be construed as per provisions of the laws of India. Subject to this provision 2.21.1.1 regarding ARBITRATION, the principal civil court exercising ordinary civil jurisdiction over the area where the seat of arbitration is located shall have exclusive jurisdiction over any DISPUTE to the exclusion of any other court.

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

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD (Administrative Mechanism for Resolution of CPSEs Disputes) as mentioned in DPE OM No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22-05-2018 as amended from time to time.

2.21.1.3 The cost of arbitration shall initially be borne equally by the Parties subject to the final allocation thereof as per the award/order passed by the Arbitrator.

2.21.1.4 Notwithstanding the existence of any dispute or differences and/or reference for the arbitration, the Contractor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner unless the dispute inter-alia relates to cancellation, termination or shortclosure of the Contract by BHEL.

2.21.2 CONCILIATION:

If at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee (IEC) to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

Notes:

1. No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators.
2. Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure 2.3 to this GCC. The Procedure 2.3 together with its Formats will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this GCC.

The Contractor hereby agrees that BHEL may make any amendments or modifications to the provisions stipulated in the Procedure 2.3 to this GCC from time to time and confirms that it shall be bound by such amended or modified provisions of the Procedure 2.3 with effect from the date as intimated by BHEL to it.

2.21.3 No Interest payable to Contractor

Notwithstanding anything to the contrary contained in any other document comprising in the Contract, no interest shall be payable by BHEL to Contractor on any moneys or balances including but not limited to the Security Deposit, EMD, Retention Money, RA Bills or the Final Bill, or any amount withheld and/or appropriated by BHEL etc., which becomes or as the case may be, is adjudged to be due from BHEL to Contractor whether under the Contract or otherwise.

SI No: 13

Clause 2.22 in GCC regarding Retention Amount is revised as under

Void. Retention Amount is not applicable for this contract.

SI No: 14

The chapter Reverse auction procedure published in 'Forms and Procedures' of Volume I Book-II stands deleted. Reverse Auction Guidelines available in the website <http://www.bhel.com> shall be applicable.

SI No: 15

Existing format on Monthly Performance Evaluation of Contractor, as available in Form No F-14 of Volume ID Forms and procedure stands Deleted. Form No.- F-14 (Rev 01) is enclosed.

SI No: 16

Existing format on Monthly Performance Evaluation of Contractor, as available in Form No F-15 of Volume ID Forms and procedure stands Deleted. Form No.- F-15 (Rev 02) is enclosed.

SI No: 17

Revised Integrity Pact format.

Void. Integrity pact is not applicable for this contract.

All other terms & condition shall be as per GCC.

Annexures

Sl.No.	Description	Annexure	Pages
1	Itemwise Weightages	Annexure-A	10
2	Health Safety and environment plan	Annexure-B	72
3	Monthly plan & review with contractor	Form14	6
4	Monthly performance evaluation of contractor	Form-15	6

WEIGHTAGES FOR ARRIVING UNIT RATES

TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M –Replacement of existing pro-control DCS, Iskamic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems etc (i.e., Dismantling of existing system, Erection, Testing & Commissioning of DDCMIS based on max-DNA control system - Electrical, Control & Instrumentation Work for SG,TG & Stn.C&I & other Boiler mechanical related works as per supply BOQ from EDN, TRY, HWR, Hyderabad **(SG, TG & Stn C&I package)** including material handling and watch & ward

SI No	Description	Qty	Unit	Unit#9 Weightage for amount of each item (Nearest to the 5 decimal points) w.r.t the Grand total (B)	Unit#10 Weightage for amount of each item (Nearest to the 5 decimal points) w.r.t the Grand total (B)	Individual item rate (C)	Total (D)
BHEL-EDN Bangalore Supplied Items						Rs	Rs
Distributed Digital Control Monitoring & Information System, (DDCMIS) based on Valmet DNA hardware platform, including regulating controls, interlocks, operator interface units, and requisite terminations encompassing the following systems:							
1	Steam Generator Controls comprising of Electronic System Cabinets of size (800 mm X 800 mm X 2000 mm) SG	25	Nos	0.02081	0.02081		
2	Steam Turbine Controls (ST) comprising of Electronic System Cabinets of size (800 mm X 800 mm X 2355 mm) TG	16	Nos	0.01332	0.01332		
3	Station C&I: Electronic System Cabinets of size (800 mm X 800 mm X 2355 mm) Catering to BOP	27	Nos	0.02247	0.02247		
4	HMI - Network Panel/Power distribution Panels	3	Nos	0.0025	0.0025		
5	Dismantling of Existing all TG,SG,BOP,HMI Control Panels and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	110	NoS	0.01308	0.01308		
Turbovisory System -TSI							
6	Bearing Vibration new sensors (in X & Y directions for Turbine Bearing Nos. 1,2,3& 4 while for 5,6&7 new sensors shall be as per existing measurement philosophy)	1	Set	0.00059	0.00059		
7	Relative Shaft Vibration new sensors as per existing measurement philosophy	1	Set	0.00007	0.00007		
8	Overall Expansion Pick-ups for LPT as per existing philosophy	1	Set	0.00007	0.00007		
9	Axial Shift Pick-ups as per existing philosophy.	1	Set	0.00007	0.00007		
10	Junction Boxes & Conduit ,Etc	1	Set	0.00007	0.00007		
11	Emergency shut-down control desk (with minimum configuration)/ Unit Control Panel with instrumentation, push buttons, indications, A/M stations,etc.consists Stand alone annunciation system with alarm windows supplied qty.	1	Set	0.00202	0.00202		
12	Electrical Control Panel (ECP) with Synchroscope, synchronising scheme, indications, ON/OFF controls of Breakers, push buttons, indicators, interfacing relays, transducers.etc	1	Set	0.00202	0.00202		
13	All the controls, interlocks, logics related to Seal Oil in new GAMP Panel shall be as per existing system. Stand alone alarm and annunciation panel at '0' meter location shall be supplied as per existing scheme by BHEL Haridwar	1	Set	0.00083	0.00083		
14	Dismantling of Existing TSI, HMI,UCP and ECP Panels and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	Set	0.00238	0.00238		
Human Machine Interface (HMI) comprising of: CONTROL ROOM							
15	HMI Work Station	22	Nos	0.00105	0.00105		
16	HMI Server	2	Nos	0.0001	0.0001		
17	HMI Monitor	13	No	0.00062	0.00062		
18	Printer	6	Nos	0.00021	0.00021		
19	Cable CAT5e UTP 24AWG (LAN Cable for Networking)	12200	Mtrs	0.0116	0.0116		

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TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M –Replacement of existing pro-control DCS, Iskamic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems etc (i.e., Dismantling of existing system, Erection, Testing & Commissioning of DDCMIS based on max–DNA control system - Electrical, Control & Instrumentation Work for SG,TG & Stn.C&I & other Boiler mechanical related works as per supply BOQ from EDN, TRY, HWR, Hyderabad **(SG, TG & Stn C&I package)** including material handling and watch & ward

SI No	Description	Qty	Unit	Unit#9 Weightage for amount of each item (Nearest to the 5 decimal points) w.r.t the Grand total (B)	Unit#10 Weightage for amount of each item (Nearest to the 5 decimal points) w.r.t the Grand total (B)	Individual item rate (C)	Total (D)
20	Laptop	2	No	0.0001	0.0001		
21	Cable PVC 440V,4C,1Sq.mm Black	1000	Mtrs	0.00071	0.00071		
22	Large Video Screen with CPU	6	Nos	0.00143	0.00143		
23	LVS - Stand	5	Nos	0.00024	0.00024		
24	LVS -LED	8	Nos	0.00038	0.00038		
25	Computer Furniture (Computer & Printer Table)	10	Set	0.00238	0.00238		
26	Control / Operator desk	7	Set	0.00166	0.00166		
27	Computer Chair	14	Nos	0.00067	0.00067		
	Turbine Instrumentation list below						
28	Position Transmitters for HPCV: 02 Nos.IPCV: 02 Nos LPBPCV: 02 Nos..	6	Nos	0.00029	0.00029		
29	EHG, Speeder Gear, SLLD Position (Supply by BHEL-Hardwar)	4	Nos	0.00019	0.00019		
30	Turbine Bearing Thermocouples (Supply by BHEL-Hardwar)	20	Nos	0.00071	0.00071		
31	HPT Exhaust & IP Inner Casing Thermocouples along with assembly	20	Nos	0.00071	0.00071		
32	New Ferro Static Speed Sensors with toothed wheel bracket (to replace existing Hall Probe based speed sensors)	4	Nos	0.00048	0.00048		
33	Radar Type Level Transmitters – 03 Nos. for MOT	3	NOs	0.00018	0.00018		
34	New Load Transducers .	3	Nos	0.00011	0.00011		
35	Level Probes and Level Switches for Seal Oil Vacuum Tank, SOST, IOT, Waste Oil tank and Generator casing, Generator Pre-Chamber, Generator Bushing TOP/BOTTOM along with new Generator instrumentation Cabinet.	11	Nos	0.00039	0.00039		
36	Dismantling of Existing field instruments and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	Set	0.00048	0.00048		
	24 V DC System (E&C including assistance for load test)						
37	Battery Banks -02Nos	2	Nos	0.00119	0.00119		
38	DC Distribution board-02Nos	2	Nos	0.00166	0.00166		
39	Charger Panels 02Nos	2	Nos	0.00166	0.00166		
40	Incommer Power Cable to 24 V DC System and Inter loops, Connection Battery Bangs	2	Sets	0.00143	0.00143		
41	Mini UPS (of adequate capacity) for RIO Cabinets for CWPH Control	1	Set	0.00012	0.00012		
	AC UPS System (E&C including assistance for load test)						
42	Battery Banks -02Nos	2	Nos	0.00119	0.00119		
43	AC Distribution board-02Nos	2	Nos	0.00166	0.00166		
44	Charger Panels 02Nos	2	Nos	0.00166	0.00166		
45	Incommer Power Cable to AC UPS System and Inter loops, Connection Battery Bangs	2	Sets	0.00476	0.00476		

WEIGHTAGES FOR ARRIVING UNIT RATES

TSGENCo, Kothagudem TPS, Stg-V, Unit.No.9&10- R&M –Replacement of existing pro-control DCS, Iskamic, MMI system with Valmet DNA (DDCMIS) system and Upgradation of PLC for AHP, Replacement of SWAS with the latest systems etc (i.e., Dismantling of existing system, Erection, Testing & Commissioning of DDCMIS based on max–DNA control system - Electrical, Control & Instrumentation Work for SG,TG & Stn.C&I & other Boiler mechanical related works as per supply BOQ from EDN, TRY, HWR, Hyderabad **(SG, TG & Stn C&I package)** including material handling and watch & ward

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46	VMS (Vibration Monitoring System) – with Vibration Pickups and Corresponding Field Cables for BFPs and CWP. The new VMS will be offered to replace existing VMS system and number of measurement points will be as per existing measurement points.	1	Set	0.00095	0.00095		
47	Dismantling of Existing 24V DC system and AC UPS system including associated charger,Batteries UPS panel & Cables items and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	set	0.00178	0.00178		
48	PreFab Cables for interconnecting of FSSS Panels	1500	Mtrs	0.00178	0.00178		
	Cables						
	TG-Cables						
49	4P X 0.5Sq.mm	5000	Mtrs	0.00476	0.00476		
50	8P X 0.5Sq.mm	2000	Mtrs	0.00285	0.00285		
51	12P X 0.5Sq.mm	3000	Mtrs	0.00571	0.00571		
	SG Cables						
52	4P X 0.5Sq.mm	11000	Mtrs	0.01046	0.01046		
53	2P X 0.5Sq.mm	4000	Mtrs	0.00285	0.00285		
54	2CX35Sq.mm	15000	Mtrs	0.02853	0.02853		
55	2CX120Sq.mm	5000	Mtrs	0.01189	0.01189		
	BOP Cables						
56	8P X 0.5Sq.mm	14000	Mtrs	0.01997	0.01997		
57	4P X 0.5Sq.mm	10000	Mtrs	0.00951	0.00951		
	LT Power Cables						
58	2C X 10Sq.mm	1000	Mtrs	0.00166	0.00166		
59	PSG 1C X 35Sq.mm	1000	Mtrs	0.0019	0.0019		
60	Earthing 1C X120Sq.mm	2000	Mtrs	0.00476	0.00476		
61	Shield Cable (Power Cable) 1C X16Sq.mm	1500	Mtrs	0.00214	0.00214		
62	Removal of all field Cables from panel and Retermination along with new printed ferrules for all panels inc SG,TG BOP,OFF SITE,FIRE SYSTEM etc	1	Lot	0.00238	0.00238		
63	Earthpit :arranging of earth pit including supply of all required materials like copper tube of 100mm, Flat 400MM X 400MM, 3.5Mtr long and GI flats of 50mm width as per site requirement within quoted price)	2	Nos	0.00014	0.00014		
	BHEL-Trichy Supplied Items						
	GRAVIMETRIC FEEDER CONTROL SYSTEM(MP BASED)						
64	Gravimetric feeder remote power cabinet(Eddy current)	6	Nos	0.00571	0.00571		
65	Feeder integral mounted equipments consists of						
66	weighing modules,						

WEIGHTAGES FOR ARRIVING UNIT RATES

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67	optical encoder,	6	Nos	0.00357	0.00357		
68	CMM sensor,						
69	local control panel,						
70	micro switches etc						
	Field control elements/instruments/field cables for Mill DP system and Audio Level						
71	DP PANEL	6	Nos	0.00428	0.00428		
72	NOISE LVL TRANSMITTER AND MIC PH SYSTEM	6	Nos	0.00071	0.00071		
	Scoop tube actuators for BFPs should be replaced with either Electrical Actuators or New Pneumatic Actuators						
73	Elec. Mechanical Actuator Assembly	6	Nos	0.00428	0.00428		
	PNEUMATIC VALVE ERECTION & WELDING & COMMISSIONING						
74	HFO pressure control valve(REG,40NB,CS,PNM)	1	No	0.00024	0.00024		
75	LDO pressure control valve (REG,25NB,CS,PNM)	1	No	0.00024	0.00024		
76	HFO flow control valve(REG,40NB,CS,PNM)	1	No	0.00024	0.00024		
77	LDO flow control valve (REG,25NB,CS,PNM)	1	No	0.00024	0.00024		
78	HFO temperature control valve (REG,40NB,CS,PNM)	1	No	0.00024	0.00024		
79	Atomising system pressure regulating valve (REG,40NB,CS,PNM)	1	No	0.00024	0.00024		
80	Thermal drain valves in Soot blower lines (TDV1",FCS,PNM,SW)	5	Nos	0.00119	0.00119		
81	Soot blower line pressure reducing valves(PRV,2",PNM,SW)	1	No	0.00024	0.00024		
	Flame scanner system						
82	Flame scanner Pig tail cables with connector	20	No	0.00071	0.00071		
83	Flame scanner head assembly	20	No	0.00071	0.00071		
84	Flamescanner amplifier chassis	5	No	0.00018	0.00018		
85	Flame Scanner shielded cables	4600	Mtrs	0.00547	0.00547		
86	Miniature junction boxes	20	No	0.00095	0.00095		
	ERV control equipments with Valve						
87	Electromagnetic relief valve 2.5" along with Solenoid assy -2.5"BWF,Auto,ERV	2	Nos	0.00048	0.00048		
88	ERV control station and controller	2	No.	0.00024	0.00024		
89	ERV pressure switches	2	No.	0.00012	0.00012		
	ASLD assy						
90	Seal Boxes for ASLD - 400Kgs	18	Nos	0.00428	0.00428		
91	ASLD assy (Tube, flange bolt & nut, link chain) - 150Kgs	18	Nos	0.00428	0.00428		
92	Water wall tube bends for furnace opening (63.5 X 5.5)-500Kgs	36	Nos	0.00428	0.00428		
93	Fin Plate	400	Kgs	0.00095	0.00095		
94	Acoustic steam leak detector & accessories(including wave guide, sonic sensor, field junction box, remote panel, PC, Monitor, calibrator, purge air accessories etc.- 18 channel system	1	set	0.00059	0.00059		
	Field Items /Instruments (Pertaining to Station C&I)						

WEIGHTAGES FOR ARRIVING UNIT RATES

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95	Pressure Transmitters – 02 Nos. (Related to CDBT Level Control)	2	Nos	0.00002	0.00002		
96	Thermocouples SH stages 1 & 2 and RH – 46 Nos.	46	Nos	0.00164	0.00164		
97	Ultrasonic Level Transmitters – 13 Nos. (Common for both Units) related to CW/BCW area.	13	Nos	0.00155	0.00155		
98	Dismantling of Existing GRAVIMETRIC FEEDER CONTROL SYSTEM, Mill DP system, Flame scanner system, ERV control equipments, ASLD and other Field Instruments and shifting to Customer stores including transportation & Hydra, trailer manpower within quoted price	1	Lot	0.00357	0.00357		
99	Fabrication of Steel, Frames, Angles, channels (Erection Materials)	2.022	MT	0.00096	0.00096		
	Instrumentation fittings						
100	Tube 1/2" (Carbon Steel)-100Mtrs-SCH40-127Kgs	100	Mtrs	0.00024	0.00024		
101	Tube 1" (Carbon Steel)-100Mtrs-SCH40-250Kgs	250	Mtrs	0.00089	0.00089		
102	Isolation valves for instruments-GLV, 25NB, A105, 800, Hand	4	Nos	0.00029	0.00029		
103	Isolation valves for instruments-Globe, 15NB, FCS, 800	10	Nos	0.00048	0.00048		
	Isolation valves for instruments-Gate, NB25, FCS, Hand	10	Nos	0.00071	0.00071		
104	Cable trays						
105	300 mm Width x 50 mm Height x 2.5 m length(perforated type)	100	No.	0.00048	0.00048		
106	150 mm Width x 50 mm Height x 2.5 m length(perforated type)	100	No.	0.00036	0.00036		
107	100 mm Width x 50 mm Height x 2.5 m length(perforated type)	800	No.	0.0019	0.0019		
108	50 mm Width x 50 mm Height x 2.5 m length(perforated type)	800	No.	0.00133	0.00133		
109	1 " conduits	1500	m	0.00071	0.00071		
	Junction boxes						
110	48 Ways	6	No.	0.00014	0.00014		
111	36 Ways	2	No.	0.00004	0.00004		
112	24 Ways	6	No.	0.0001	0.0001		
113	Conduit 1"	180	Mtrs	0.00021	0.00021		
114	Heavy Oil flowmeter - Main line(mass flow) along with all attachment/Fabrication of supports	1	No.	0.00059	0.00059		
115	Pneumatic tubings fittings & air set for following pneumatic equipment: For HOPCV, LOPCV, HOTCV, LOFCV, HOFCV, ASPRV, SBPRV, Drain temp control valves.	1	1	0.00119	0.00119		
116	Control cables: Multicore 650/1100V PVC insulated, Armoured, Cu. conductor control cable(FRLS/PVC sheath)						
117	19C x 1.5 sq.mm	3450	m	0.00656	0.00656		
118	10C x 2.5 sq.mm	1380	m	0.0023	0.0023		
119	2C x 2.5 sq.mm	4485	m	0.00427	0.00427		
120	3C x 1.5 sq.mm	414	m	0.00039	0.00039		
121	3C x 2.5 sq.mm	230	m	0.00033	0.00033		
	Multicore 650/1100 V PVC insulated Armoured powercables(FRLS/PVC sheath) including for oil heat tracer						
122	3C x 6 sq.mm(Al./Cu. conductor)	1725	m	0.00205	0.00205		

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123	3C x 2.5 sq.mm(Cu. conductor)	1725	m	0.00205	0.00205		
124	3C x 2.5 sq.mm(Cu. conductor) DC power cable	1020	m	0.00121	0.00121		
	Instrumentation cables						
125	2P x 1.5 sq.mm	6900	m	0.00656	0.00656		
126	2P x 0.5 sq.mm	138	m	0.0001	0.0001		
127	4P x 0.5 Sq.mm over all shielded cables	1539	m	0.0022	0.0022		
128	8P x 0.5 Sq.mm over all shielded cables	3036	m	0.00505	0.00505		
129	2Px0.5 Sq.mm Individual and Overall shielded cables	2070	m	0.00148	0.00148		
130	8Px0.5sq.mm (PVC insulated, FRLS/PVC sheath sheath, Cu. conductor) Individual and overall shielded	207	m	0.0003	0.0003		
131	Dismantling of all field Instruments-incl trasmitters, switches, pressure transmitters, DP transmitters, pressure switches, DPS, Thermo couple, RTD, level switches, pressure guage, temperature guage etc.	300	Nos	0.00214	0.00214		
132	Removal of all field Cables where ever laid new cable and shifting to stores	106	Nos	0.0063	0.0063		
	OFF SITE WORKS UNIT#9&10			Unit#9 and 10 Weightage for amount of each item (Nearest to the 5 decimal points) w.r.t the Grand total (B)			
133	Ash Handling Plant Controls comprising of Electronic System Cabinets of size Fly Ash Controls Bottom Ash Controls SILO Transport Air Compressor House Vaccum Pump House Ash Slurry Pump House	27	Nos	0.01605			
	Human Machine Interface (HMI) comprising of: ASH						
134	HMI Workstations	5	Nos	0.00024			
135	HMI Server	2	No	0.0001			
136	HMI Monitors	7	No	0.00033			

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137	Network enclosure / Panel with Ethernet Switches & other hardware,	1	Set	0.00036			
138	Cable Cat5e UTP	4575	Mtrs	0.00653			
139	Cable PVC 440V 4C 1Sq.mm Black	600	Mtrs	0.00043			
140	Computer Furniture (Computer & Printer Table)	2	Nos	0.00048			
141	Control / Operator desk	5	Nos	0.00119			
142	Computer Chair	7	Nos	0.00033			
143	GPS Based Slave Clocks for time synchronising signals	1	Set	0.00024			
144	Dismantling of Existing Ash Handling Plant Controls and associated HMI,AC UPS and shifting to Customer stores including transportation & Hydra,trailer manpower within quoted price	1	Set	0.0019			
145	Removal of all field Cables from panel and Retermination along with new printed ferrules for all Water Syetem panels	1	Lot	0.0019			
146	Earthpit :arranging of earth pit including supply of all required materials like copper tube of 100mm, Flat 400MM X 400MM, 3.5Mtr long and GI flats of 50mm width as per site requirement within quoted price)	2	Nos	0.00014			
	AC UPS System AHP including : (E&C including assistance for load test)						
147	Charger Panel	2	Nos	0.00143			
148	Battery sets (E&C including assistance for load test)	2	Nos	0.00119			
149	AC Distribution Board	2	Nos	0.00119			
150	Incommer Power Cable for AC UPS System AHP	2	Sets	0.00119			
151	Mini UPS (of adequate capacity) for RIO Cabinets for SILO Control	1	Set	0.00059			
152	Transducers for HT Drives of AHP for Current Measurement	15	Nos	0.00107			
	Cables:						
	Instrumentation Cable						
153	4P X 0.5Sq.mm	41000	Mtrs	0.039			
154	4P X 0.5Sq.mm	40000	Mtrs	0.03804			
	LT Power Cables						
155	2C X 10Sq.mm	8000	Mtrs	0.01332			
156	PSG 1C X 35Sq.mm	1000	Mtrs	0.00166			
157	Earthing 1C X120Sq.mm	1500	Mtrs	0.00285			
158	Shield Cable (Power Cable) 1C X16Sq.mm	1500	Mtrs	0.00214			
159	Cable Trays and Erection Steel Material for Cables trays	1	Lot	0.00238			

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160	Water Systems: Comprising of Electronic System Cabinets of size (800 mm X 800 mm X 2000 mm)						
	DM Water Plant	10	Set	0.00594			
	Clarifier						
	Chlorination Plant						
	Human Machine Interface (HMI) comprising of: DM,CHLORINATION,CALRIFIER ROOM						
161	HMI Workstations	5	Nos	0.00024			
162	HMI Server	1	Nos	0.00005			
163	HMI Monitors	6	Nos	0.00029			
164	Network Panel with Ethernet Switches & other hardware,	1	Nos	0.00036			
165	Cable Cat5e UTP	4575	Mtrs	0.00653			
166	Cable PVC 440V 4C 1Sq.mm Black	600	Mtrs	0.00043			
167	Computer Furniture (Computer & Printer Table)	2	No	0.0001			
168	Control / Operator desk	5	Set	0.00178			
169	Computer Chair	7	Set	0.00083			
170	GPS Based Slave Clocks for time synchronising signals	1	Set	0.00024			
171	Dismantling of Exisiting Water systems (DM,CHLORINATION,CALRIFIER ROOM) and associated HMI,AC UPS and shifting to Customer stores including tranportation & Hydra,trailer manpower within quoted price	1	set	0.00071			
	Cables:						
	Instrumentation Cable						
172	4P X 0.5Sq.mm	41000	Mtrs	0.039			
	LT Power Cables						
173	2C X 10Sq.mm	1000	Mtrs	0.00143			
174	PSG 1C X 35Sq.mm	500	Mtrs	0.00095			
175	Earthing 1C X120Sq.mm	1000	Mtrs	0.00166			
176	Shield Cable (Power Cable) 1C X16Sq.mm	1000	Mtrs	0.00143			
177	Cable Trays and Erection of Steel Material for Cables	1	Lot	0.0019			
178	Control Cable for Solenoid 5CX 2.5	25000	Mtrs	0.01783			
179	Removal of all field Cables from panel and Retermination along with new printed ferrules for all Water Syetem panels	1	Lot	0.00024			

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180	Earthpit :arranging of earth pit including supply of all required materials like copper tube of 100mm, Flat 400MM X 400MM, 3.5Mtr long and GI flats of 50mm width as per site requirement within quoted price)	2	Nos	0.00014			
AC UPS System to DM Plant DCS, HMI & UPS Field Loads. (E&C including assistance for load test)							
181	Charger Panel	2	Nos	0.00119			
182	Battery sets (E&C including assistance for load test)	2	Nos	0.00119			
183	AC Distribution Board	2	Nos	0.00119			
184	Incommer Power Cable for AC UPS System	2	Sets	0.00071			
185	Mini UPS (of adequate capacity) for RIO Cabinets for Clarifier Control, Chlorination Plant	1	Sets	0.00059			
186	Sodium Analyzer - 2 Nos.	2	Nos	0.00143			
187	Silica Analyzer - 2 Nos.	2	Nos	0.00143			
Field Items /Instruments :erection and commissioning of the following instruments							
188	Level Switches for DM Storage Tanks	1	Set	0.00005			
189	Flow Transmitter	1	Set	0.00005			
190	Ultrasonic Flow Meters = 5 nos.	5	Nos	0.00024			
191	Open channel Flow Meter for Raw Water = 1 no.	1	Nos	0.00005			
Air Compressor : Instrumentation Cables for On/Off Feedbacks to be incorporated in Valmet DNA DCS							
192	GPS based Master Clock for time synchronising signals and driving newly supplied 20 Nos. Slave Clocks (common for both units)	1	Set	0.00119			
193	Total SWAS system including analyzers, instruments, field cables, sample lines for Unit 9&10	1	Set	0.00131			
194	Dismantling of Exisiting Field instruments of AHP and Water systems (DM,CHLORINATION,CALRIFIER ROOM) and associated Cables and shifting to Customer stores including tranportation & Hydra,trailer manpower within quoted price	1	set	0.00083			
Fire Protection System							
195	Fire Alarm Panels (with Optical fibre card) - Approx. size :: in mm 1000 x 600 x 300 (H x W X D)	9	Nos	0.00214			
196	Repeater Panels Approx. size :: in mm 300 x 500 x 100 (H x W X D)	1	Nos	0.00024			
197	Multisensor Detectors	1100	Nos	0.01308			

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198	Manual Call Points(Indoor)	110	Nos	0.00131			
199	Manual Call Points(Outdoor)	10	Nos	0.00012			
200	Modules	261	Nos	0.0031			
201	Hooter cum Strobe	70	Nos	0.0025			
202	Response Indicators	80	Nos	0.0022			
203	Exit Sign (Self-Illuminating)	70	Nos	0.0025			
204	Siren (3 km)	1	Nos	0.00006			
205	PC, Printer	1	Nos	0.00005			
206	Flow Switches	7	Nos	0.00008			
207	Level Swicth	2	Nos	0.00002			
208	Pressure Switches	10	Nos	0.00012			
209	Furniture for PC, Printer - FDA	1	Nos	0.00012			
210	Cables(2C x 1.5/2.5 sq.mm)	55000	Mtrs	0.04577			
211	Fiber Optic/LAN Cable	10000	Mtrs	0.01189			
212	Erection hardware for cables (Power, Control & Fibre optic)	1	Lot	0.00071			
213	Wall Openings Required for cable routing	1	Lot	0.00119			
214	Modification of false ceiling	1	Lot	0.00119			
215	Dismantling & shifting to stores of existing Fire Alarm Panels and Detectors shall be done by vendor	1	Lot	0.00238			

Quantity indicated from sl. no.1 to 132 is per unit quantity. Quantity indicated from sl. no.133 to 215 is for two units combined.

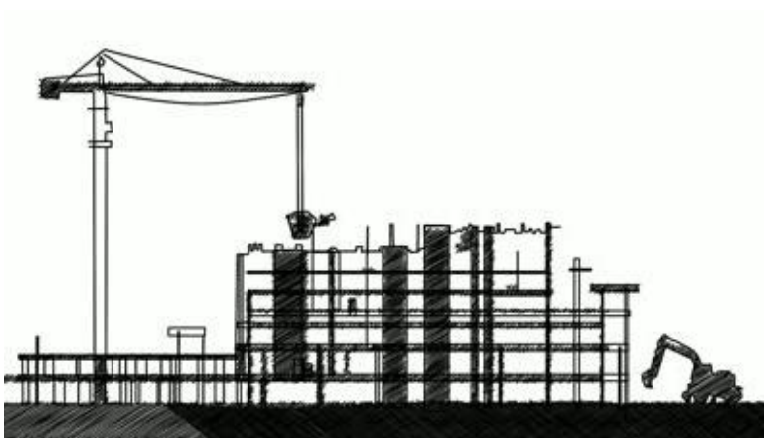
Total amount payable for each item of the BOQ shall be derived based on the following formula

Total amount for each item of the BOQ (D) = Final award price x weightage allocated for the activity (B)

Further, Individual item rate shall be derived based on the following formula and the same shall be deemed as contracted rates for activities specified in BOQ for all purposes.

Individual item rate (C) = (D)/(A)

Payment shall be made as per the price derived from the rates worked out as above against actual quantity executed.



**HEALTH,
SAFETY and
ENVIRONMENT
PLAN**

for

**SITE
OPERATIONS**

by

**SUB-
CONTRACTORS**



HEALTH, SAFETY AND ENVIRONMENT
PLAN FOR
SITE OPERATION by SUBCONTRACTORS

Doc no.: HSEP: 14

REV: 00

Date: 12.08.2014

POWER SECTOR

DOCUMENT ISSUE SHEET

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Signature			
Date	12/8/14	12/8/14	12/8/14

HSE PLAN FOR SITE OPERATIONS BY BHEL'S SUBCONTRACTORS

AT A GLANCE

BEFORE START	SIGNING OF MOU	
	Agree to comply to HSE requirement- Statutory and BHEL's	
PLAN	HSE ORGANISATION	
	<p style="text-align: center;">Manpower</p> <ul style="list-style-type: none"> 1 (one) safety officer for every 500 workers or part thereof 1(one) safety-steward/ supervisor for every 100 workers <p>Qualification As per Cl. 7.1</p>	<p style="text-align: center;">HSE Roles and responsibilities</p> <ul style="list-style-type: none"> Site In-charge- As per clause 7.2.1 Safety officer- As per clause 7.2.2
	<p style="text-align: center;">HSE Planning for Man , Machinery/Equipment/Tools & Tackles</p>	
PROVIDE	HSE INFRASTRUCTURE	
	<ul style="list-style-type: none"> PPEs Drinking Water Washing Facilities Latrines and Urinals Provision of shelter for rest Medical facilities 	<ul style="list-style-type: none"> Canteen facilities Labour Colony Emergency Vehicle Pest Control Scrapyard Illumination
TRAIN	HSE TRAINING , AWARENESS & PROMOTION	
	<p style="text-align: center;">Training</p> <ul style="list-style-type: none"> Induction training Height work and other critical areas Tool Box talk & Pep Talk 	<p style="text-align: center;">Awareness & Promotion</p> <ul style="list-style-type: none"> Signage Poster Banner Competition Awards
COMMUNICATE	HSE COMMUNICATION	
	<p style="text-align: center;">Incident Reporting</p> <ul style="list-style-type: none"> Accident- Fatal & Major Property damage Near Miss 	<p style="text-align: center;">Event Reporting</p> <ul style="list-style-type: none"> Celebrations Training Medical camp

EXECUTE SAFELY

OPERATIONAL CONTROL PROCEDURES

PERMIT TO WORK

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

SAFETY DURING WORK EXECUTION

- | | |
|--|---|
| <ul style="list-style-type: none"> • Welding • Rigging • Cylinder- storage & Movement • Demolition work • T&Ps • Chemical Handling • Electrical works | <ul style="list-style-type: none"> • Fire • Scaffolding • Height work • Working Platform • Excavation • Ladder • Lifting • Hoisting appliance |
|--|---|

HOUSE KEEPING

WASTE MANGEMENT

TRAFFIC MANAGEMENT

ENVIRONMENTAL CONTROL

EMERGENCY PREPAREDNESS AND RESPONSE PLAN

CHECKS

HSE AUDITS & INSPECTION

- | | |
|---|---|
| <ul style="list-style-type: none"> • Daily Checks • Inspection of PPEs • Inspection of T& Ps • Inspection of Cranes & Winches | <ul style="list-style-type: none"> • Inspection of Height work • Inspection of Welding and Gas cutting • Inspection of elevators etc |
|---|---|

HSE PERFORMANCE EVALUATION PARAMETERS

NON CONFORMANCE

PENALTY for NON CONFORMANCE

Refer Clause 22

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.



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1.0 PURPOSE

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

2.0 SCOPE

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

3.0 OBJECTIVES AND TARGETS

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

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



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HSE TARGETS

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

4.0 BHEL POWER SECTOR HEALTH, SAFETY & ENVIRONMENT POLICY

Power Sector HSE Policy

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

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

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

Sd/-

Date: 01.05.2013

Director (Power)



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5.0 MEMORANDUM OF UNDERSTANDING:

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

Memorandum of Understanding

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

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

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

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

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

Signed by authorized representative of M/s _____

Name :

Place & Date:



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6.0 TERMS AND DEFINITIONS

6.1 DEFINITIONS

6.1.1 INCIDENT

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

6.1.2 NEAR MISS

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

6.1.3 MAN-HOUR WORKED

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

6.1.4 FIRST AID CASES

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

6.1.5 LOST TIME INJURY

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

6.1.6 MEDICAL CASES

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

6.1.7 TYPE OF INCIDENTS & THEIR REPORTING:

The three categories of Incident are as follows:

Non-Reportable Cases:

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



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Reportable Cases:

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

Injury Cases:

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

6.1.8 TOTAL REPORTABLE FREQUENCY RATE

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

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

6.1.9 SEVERITY RATE

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

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

6.1.10 INCIDENCE RATE

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

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

7.0 HSE ORGANISATION

Number of safety officers:

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

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

7.1 QUALIFICATION FOR HSE PERSONNEL

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



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

7.2 RESPONSIBILITIES

7.2.1 SITE IN -CHARGE OF SUBCONTRACTOR

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



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

7.2.2 HEALTH, SAFETY AND ENVIRONMENT OFFICER OF SUBCONTRACTOR

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



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8.0 PLANNING BY SUBCONTRACTOR

8.1 MOBILISATION OF MACHINERY/EQUIPMENT/TOOLS BY SUBCONTRACTOR

- As a measure to ensure that machinery, equipment and tools being mobilized to the construction site are fit for purpose and are maintained in safe operating condition and complies with legislative and owner requirement, inspection shall be arranged by in-house competent authority for acceptance as applicable.
- The machinery and equipment to be embraced for this purpose shall include but not limited to the following:
 - 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.

8.2 MOBILISATION OF MANPOWER BY SUBCONTRACTOR

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



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8.3 PROVISION OF PPEs

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

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

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

Relevant is-codes for personal protection

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

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



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

Colour scheme for Helmets:

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

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

8.4 ARRANGEMENT OF INFRASTRUCTURE

8.4.1 DRINKING WATER

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

8.4.2 WASHING FACILITIES

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

8.4.3 LATRINES AND URINALS

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



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8.4.4 PROVISION OF SHELTER DURING REST

Proper Shed & Shelter shall be provided for rest during break

8.4.5 MEDICAL FACILITIES

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

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

8.4.5.2 FIRST AIDER

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

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

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

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

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

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



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

8.4.6 PROVISION OF CANTEEN FACILITY

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

8.4.7 PROVISION OF ACCOMODATION/LABOUR COLONY

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

8.4.8 PROVISION OF EMERGENCY VEHICLE

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

8.4.9 PEST CONTROL

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

8.4.10 SCRAPYARD

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

8.4.11 ILLUMINATION

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



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

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

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

9.0 HSE TRAINING & AWARENESS

9.1 HSE INDUCTION TRAINING

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

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

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



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

9.2 HSE TOOLBOX TALK

- HSE tool Box talk shall be conducted by frontline foreman/supervisor of subcontractor to specific work groups prior to the start of work. The agenda shall consist of the followings:
 - 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.

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



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- 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

9.5.2 Display of HSE signage

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

9.5.3 Competition on HSE and award

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

9.5.4 HSE awareness programme

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

10.0 HSE COMMUNICATION

10.1 INCIDENT REPORTING

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

10.2 HSE EVENT REPORTING

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



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11.0 OPERATIONAL CONTROL

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

LIST OF OCPs

Safe handling of chemicals	Safety in use of cranes	Hydraulic test
Electrical safety	Storage and 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.

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

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



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

11.2 WORK PERMIT SYSTEM

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

11.3 SAFETY DURING WORK EXECUTION

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

11.3.1 WELDING SAFETY

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

11.3.2 RIGGING

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

11.3.3 CYLINDERS STORAGE AND MOVEMENT

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

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



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

11.3.4 DEMOLITION WORK

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

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

11.3.5 T&Ps

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

11.3.6 CHEMICAL HANDLING

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

11.3.7 ELECTRICAL SAFETY

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



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

11.3.8 FIRE SAFETY

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

11.3.9 SCAFFOLDING

- Suitable scaffolds shall be provided for workman for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration of work which can be done safely from ladders.
- When a ladder is used, it shall be of rigid construction made of steel. The steps shall have a minimum width of 45 cm and a maximum rise of 30 cm. Suitable handholds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than 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 from savor, from swaying, from the building or structure.

11.3.10 WORK AT HEIGHT:

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



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

11.3.11 WORKING PLATFORM

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

11.3.12 EXCAVATION

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

11.3.13 LADDER SAFETY

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

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

11.3.14 LIFTING SAFETY

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



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

11.3.15 HOISTING APPLIANCE

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

11.4 ENVIRONMENTAL CONTROL

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

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

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

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

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

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

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

11.5 HOUSEKEEPING

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



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

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

11.6 WASTE MANAGEMENT

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

11.6.1 BINS AT WORK PLACE

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

11.6.2 STORAGE AND COLLECTION

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



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11.6.3 SEGREGATION

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

11.6.4 DISPOSAL

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

11.6.5 WARNING AND SIGNS

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

11.7 TRAFFIC MANAGEMENT SYSTEM

11.7.1 SAFE WORKPLACE TRANSPORT SYSTEM

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



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

11.7.2 TRAFFIC ROUTE FOR PEDESTRIANS

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

11.7.3 WORK VEHICLE

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

- 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



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11.7.4 DAILY CHECK BY DRIVER

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



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

12.0 HSE INSPECTION

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

12.1 DAILY HSE CHECKS

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

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

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

12.2 INSPECTION OF PPE

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



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12.3 INSPECTION OF T&Ps

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

12.4 INSPECTION OF CRANES AND WINCHES

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

12.5 INSPECTION ON HEIGHT WORKING

- Inspection on height working shall be conducted daily by supervisors before start of work to ensure safe working condition including provision of
 - 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.
- Height working shall not be allowed during adverse weather.

12.6 INSPECTION ON WELDING AND GAS CUTTING OPERATION

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



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

12.7 INSPECTION ON ELECTRICAL INSTALLATION / APPLIANCES

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

12.8 INSPECTION OF ELEVATOR

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

13.0 HSE PERFORMANCE

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

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

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



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14.0 HSE PENALTIES

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

15.0 OTHER REQUIREMENTS

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



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

16. NON COMPLIANCE

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

SN	Violation of Safety Norms	Fine (in Rs)
01	Not Wearing Safety Helmet	200/- *
02.	Not wearing Safety Belt or not anchoring life line	500/-*
03	Not wearing safety shoe	200/-*
04	Not keeping gas cylinders vertically	200/-
05	Not using flash back arrestors	100/-
06	Not wearing gloves	50/- *
07.	Grinding Without Goggles	50/- *
08.	Not using 24 V Supply For Internal Work	500/-
09.	Electrical Plugs Not used for hand Machine	100/-
10.	Not 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 sitemangement
- All non-conformities and observations on HSE identified during internal or external HSE audit shall be disposed off by site in a time bound manner and reported back the implementation status
- Corrective action and Preventive action on HSE issues raised by certification body issued by Regional HQs shall be implemented by site and reported to Site management.

18.0 MONTHLY HSE REVIEW MEETING

- Site shall hold HSE review meeting every month to discuss and resolve HSE issues of site and improve HSE performance. It will also discuss the incidents occurred since previous meeting, its root cause and Corrective action and Preventive action. The agenda is given below:
 - 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
04	Tool Box Talk	HSEP:13-F04	00
05	Monthly Site HSE Report	HSEP:13-F05	00
06	Inspection of PPE	HSEP:13-F06	00



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



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20.0 ANNEXURES

ANNEXURE 01

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

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

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

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

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

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



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

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



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ANNEXURE 02

HSE AUDIT/INSPECTION CHECKLIST CUM COMPLIANCE REPORT

PROJECT: _____

SUBCONTRACTOR: _____

DATE : _____

OWNER : _____

INSPECTION BY: _____

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

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



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



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



**HEALTH, SAFETY AND ENVIRONMENT
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ANNEXURE 03

REFERENCES

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

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



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



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



POWER SECTOR

INSPECTION OF FIRST AID BOX

FORMAT NO. HSEP/F-01

REV NO. 00

PAGE NO. 01 OF 02

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

Number of employees on the site

Sl. No.	Item	No. Available	Remarks
1	No. of small sterilized dressings		
2	No of medium sized sterilized dressings		
3	No of large sized sterilized dressings.		
4	No of large sized sterilized burn dressings		
5	No of (15 grams) packets sterilized cotton wool		
6	No of pieces of sterilized eye pads in separate sealed packets.		
7	No of roller bandages 10 cm wide.		
8	No of roller bandages 5 cm wide.		
9	Whether tourniquet available		
10	Whether supply of suitable splints available.		
11	No of packets of safety pins.		
12	Whether kidney tray available		
13	Whether sufficient number of eye wash bottles, filled with distilled water or suitable liquid, clearly indicated by a distinctive sign which shall be visible at all times, available.		
14	Whether 1% -xylocaine eye drops, and boric acid eye drops and soda by carbonate eye drops available.		
15	Whether (20ml) bottle containing a two percent alcoholic solution of iodine available		
16	Whether (two hundred ml) bottle of mercurochrome (2 per cent) solution in water available.		



POWER SECTOR

INSPECTION OF FIRST AID BOX

FORMAT NO. HSE/1-F01

REV NO. 00

PAGE NO. 02 OF 02

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 (2 cm x 1 meter) available		
18	No of rolls of adhesive plaster (2 cm x 1 meter)		
20	Whether snake bite lancet available.		
21	Whether (20 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.		
23	Whether bottle containing 100 tablets (each of 5 grains) of aspirin available		
25	Whether Ointment for burns available		
25	Whether bottle of a suitable surgical anti septic solution available		

Signature of Subcontractor's Site I/C



POWER SECTOR

HEALTH CHECK UP

FORMAT NO. HSEP/1-F02

REV NO. 000

PAGE NO. 01 OF 02

Name of Site	
Name of Sub-Contractor	
Name of Employee	

NAME

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

Personal History

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



POWER SECTOR

HEALTH CHECK UP

FORMAT NO. HSEP/11-F02

REV NO. 000

PAGE NO. 02 OF 02

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

Signature of the examining doctor



POWER SECTOR

PERSONAL PROTECTIVE EQUIPMENTS

FORMAT NO. HSEP/1-F0

REV NO. 00

PAGE NO. 01 OF 01

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

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

Signature of Site In-Charge of Subcontractor



POWER SECTOR

INSPECTION OF T&Ps

FORMAT NO. HSEP/F-07

REV NO. 000

PAGE NO. 01 OF 01

Name of Site	
Name of Sub-Contractor	
Date of Inspection	

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

Signature-Site Safety Officer BHEL	Signature-Subcontractor's Safety Officer
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POWER SECTOR

STATUS OF T&Ps

FORMAT NO. HSEP/18-F02
REV NO. 000
PAGE NO. 01 OF 01

Name of Site	
Name of Sub-Contractor	
Date of Inspection	

Item	Nos. employed	Identification No.	Nos. Tested by competent person	Validity of Test Certificate
Windmills				
Chain Blocks				
Wire Rope Slings				
Man Cages				
Hoists				
Air Compressors				
Crawler Cranes				
Mobile Cranes				
Hydra Cranes				
Others				

Signature of Site I/C of subcontractor



POWER SECTOR
INSPECTION OF CRANES AND WINCHES

FORMAT NO. HSEP/17-F01
REV NO. 000
PAGE NO. 02 OF 02

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

WINCH

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



POWER SECTOR
INSPECTION OF CRANES AND WINCHES

FORMAT NO. HSEP/1-F0
REV NO. 00
PAGE NO. 0 OF 0

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

Signature of Site I/C of subcontractor

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

FORMAT NO. HSEP-F10

REV NO. 00

PAGE NO. 01 OF 02

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

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

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

FORMAT NO. HSEP/F10

REV NO. 00

PAGE NO. 02 OF 02

Sl. No.	Descriptions	Observation Yes/No	Remarks
9	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.		
12	Any obstruction in the stairs.		
12	Are landing provided with handrails, knee rails, toe boards etc.?		
15	Whether ramp is provided with proper slope.		
12	Proper hand rails / guards provided in ramps.		
	Housekeeping		
1	Walkways, aisles & all overhead workplaces cleared of loose material.		
2	Flammable materials, if any, are cleared.		
9	All the de shuttering materials are removed after de shuttering is done.		
9	Platforms and walkways free from oil/grease or other slippery material.		
5	Collected scrap are brought down or lowered down and not dropped from height.		
	PPE And Safety Devices		
1	Use of safety helmet, safety belts ensured for all workers		
2	Anchoring points provided at all places of work.		
9	Common lifeline provided wherever linear movement at height is required.		
9	Safety nets are use wherever required.		
5	Proper fall arrest system is deployed at critical workplaces.		
9	Crawler boards/Safety system or works on fragile roof are used.		

Signature of Site I/C of subcontractor



POWER SECTOR
INSPECTION OF WELDING AND GAS CUTTING

FORMAT NO. HSEP/F-11
REV NO. 00
PAGE NO. 01 OF 02

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

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



POWER SECTOR

INSPECTION OF WELDING AND GAS CUTTING

FORMAT NO. HSEP/F-11
REV NO. 00
PAGE NO. 02 OF 02

Gas Cutting				
Sl no	Description	Yes	No	Remarks
	Are Cylinders kept on trolleys			
	Physical condition of gas cylinders good			
	Is there Oil/grease on valve of the cylinder			
	Are pressure regulators in good condition			
	Condition of hose pipe OK			
	Are hose pipe clamped with hose clip			
	Is flash back arrestor & NRV fitted on torch both for O2 and LP cylinder			
	Is nozzle of the torch cleaned			
	Total Number of NO			
	Total No of YES			
	Compliance			

Signature of Site I/C of subcontractor

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

FORMAT NO. HSEP/F-12

REV NO. 00

PAGE NO. 01 OF 02

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

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

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

FORMAT NO. HSEP/F12

REV NO. 00

PAGE NO. 02 OF 02

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

Signature of Site I/C of subcontractor



POWER SECTOR
INSPECTION OF ELEVATOR

FORMAT NO. HSEP/F-1
REV NO. 00
PAGE NO. 01 OF 01

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

Sr No	Description	Remarks
1.0	Name of equipment	
2.0	Basic Information of equipment	
2.1	Specification	
2.2	Sr. No. of equipment	
2.3	Make	
2.4	Year of manufacture	
3.0	Major repairs/overhauls(Furnish details of work carried out)	Date(s) of major repair/overhaul
3.1		
3.2		
3.3	Repairs carried out at site	
3.4		
4.0	Any performance test conducted	Yes/No
5.0	Document Submitted	Yes/No
6.0	Manufacturer's test / guarantee certificate	Available/ Not available
7.0	Performance test	Done/ Not Done
8.0	Acceptance Norms	
9.0	Committee Observations	
10.0	Date of next review (if accepted)	

Signature-Subcontractor's
Safety Officer

Signature-Site Safety Officer BHEL

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

FORMAT NO. HSEP-1-F1

REV NO. 00

PAGE NO. 01 OF 02

Sub MEMO for Penalty for non compliances in Safety

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


Safety Area

SN	Violation of Safety Norms	Fine (in Rs)
01.	Not Wearing Safety Helmet	200/- *
02.	Not wearing Safety Belt or not anchoring life line	500/-*
03.	Not wearing safety shoe	200/-*
04.	Not keeping gas cylinders vertically	200/-
05.	Not using flash back arrestors	100/-
06.	Not wearing gloves	50/- *
07.	Grinding Without Goggles	50/- *
08.	Not using 24 V Supply For Internal Work	500/-
09.	Electrical Plugs Not used for hand Machine	100/-
10.	Not 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.

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

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

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



SAFETY WORK CLEARANCE	Permit no. _____
Project: _____	Emergency Contact Nos: _____
Subcontractor: _____	

BURNING/WELDING /HOT WORK PERMIT

Area : _____ Date: _____ Time: _____

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

Name of Work Performing Contractor: _____

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

Description of Work: _____

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

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

The following precautions are to be taken:

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

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

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

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

Name of BHEL Safety Representative: _____ Sign: _____

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

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

Permit Cancellation:

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

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

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

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

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

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



SAFETY WORK CLEARANCE		Permit no. _____
Project: _____	Emergency Contact Nos: _____	
Subcontractor: _____		

LIFTING ACTIVITY PERMIT

Area : _____ Date: _____ Time: _____

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

Name of Work Performing Contractor: _____

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

Description of Work: _____

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

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

The following precautions are to be taken:

No.	Item	Yes	Not required
1.	Crane used for lifting activity tested, certified and approved for rated lifting		
2.	All lifting tackles, gears/appliances are tested and certified for lifting works.		
3.	Crane operator is trained and competent for lifting operation.		
4.	Lifting sling/ belt is protected against sharp edge of the jobs to be lifted.		
5.	Access and exit marked and without obstruction.		
6.	Lifting arrangement adequate.		
7.	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.		
14.	Safety shoes (non-slip), helmet with chin strap available with employees.		
15.	Others.		

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

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

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

Name of BHEL Safety Representative: _____ Sign: _____

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

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

Permit Cancellation:

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

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

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

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

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

Original at BHEL site	Second Copy – BHEL SAFETY	Third Copy : Contractor
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SAFETY WORK CLEARANCE	Permit no. _____
Project: _____	Emergency Contact Nos: _____
Subcontractor: _____	

WORKING AT HEIGHT PERMIT

Area : _____ Date: _____ Time: _____

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

Name of Work Performing Contractor: _____

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

Description of Work: _____

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

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

The following precautions are to be taken:

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

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

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

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

Name of BHEL Safety Representative: _____ Sign: _____

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

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

Permit Cancellation:

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

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

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

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

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

Original at BHEL site	Second Copy – BHEL SAFETY	Third Copy : Contractor
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 PSSR	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 1 of 6
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Name of Project	Contract No.	
Name of Work	Name of Contractor	

PART- A: PLAN/ REVIEW OF WORK FOR THE MONTH OF Date of Plan/ Review.....

SN.	Description of Work	Unit of Measurement	Unit Rate (d)	Planned (QTY Planned for the month as per Part -C of last month)		Cumulative Shortfall attributable to contractor upto last month (Refer Note 1)	Achieved		Shortfall attributable to BHEL w.r.t Plan (as per Col. 3 of Part-D)	Cumulative Shortfall attributable to Contractor upto & including this month E=A+B-C-D	REMARKS (Reasons for Shortfall attributable to Contractor. Supporting documents to be kept as record.)
				Phy.	Financial		Phy.	Financial			
(a)	(b)	(c)	(d)	A	B	C	D	E=A+B-C-D			
	Value of Other Items not mentioned above but planned to be executed in this month										
	Total			ΣA	ΣB	ΣC	ΣD	ΣE			

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)

 PSSR	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 2 of 6
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Name of Project		Contract No.	
Name of Work		Name of Contractor	

PART- A: Contd.....

Note 1: In addition to the work planned as per Col. 'A', Contractor shall also make full efforts to minimize the 'Cumulative shortfall attributable to contractor upto the month' as mentioned in Col. 'B' by enhancing its resources, so as to achieve the completion of activities as per agreed schedule. In case contractor is not able to execute the entire shortfall, then BHEL 'Engineer in-charge', shall decide the priority of work to be executed and it shall be binding on the contractor.

Note 2: Percentage Shortfall attributable to contractor w.r.t. "Plan - Shortfall attributable to BHEL" for the month = $[(\Sigma E - \Sigma B) / (\Sigma A - \Sigma D)] \times 100$
 In case, $(\Sigma E - \Sigma B)$ is negative, then it shall be treated as zero percent."

Note 3: Form 14 should include all items being planned in the current month, and all items against which shortfall was attributable to contractor till previous month. However, for practical reason, if it is not possible to mention some of the items in Form-14 being planned to be executed in this month, then also value of such items shall necessarily be included in calculation of Total Value.

Note 4: In case reason for shortfall attributable to contractor is w.r.t. T&P and Manpower, it should be in conformity with Part B1 and B2.

BHEL
 (Sign with name, designation and date)

CONTRACTOR
 (Sign with name, designation and date)

 PSSR	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 3 of 6
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Name of Project		Contract No.	
Name of Work		Name of Contractor	

PART – B-1: PLAN/REVIEW OF DEPLOYMENT OF MAJOR T&Ps FOR THE MONTH OF Date of Plan/ Review.....

CONTRACTOR'S SCOPE: -

SN.	PLAN			DEPLOYMENT STATUS			REMARKS (Works affected due to non-deployment of T&Ps)
	Major T&P to be deployed as per work planned for the month	QTY	Deployment Period (in days)	Weightage assigned to planned T&P (in fraction such that $\Sigma C = 1$)	Actual Deployed Quantity	Actual Deployment Period (in days)	
		A	B	C	D	E	$F = (C \times D \times E) / (A \times B)$

Note: In case, $E > B$, it shall be considered as $E = B$. Similarly, in case $D > A$, it shall be considered as $D = A$.
 Percentage of T&P Deployed = $\Sigma F \times 100$

BHEL SCOPE: -

SN.	PLAN			DEPLOYMENT STATUS			REMARKS (Works affected due to non-deployment of T&Ps)
	Major T&P to be deployed as per work planned for the month	QTY	Deployment Period (in days)	Actual Deployed Quantity	Actual Deployment Period (in days)	Weighted T&P Deployed	

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CONTRACTOR
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 PSSR	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 4 of 6
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Name of Project	Contract No.	
Name of Work	Name of Contractor	

PART – B-2: PLAN/ REVIEW OF DEPLOYMENT OF MANPOWER FOR THE MONTH OF Date of Plan/ Review.....

CONTRACTOR'S SCOPE: -

SN.	Area of Work	Category of Labour	No. of Labour required as per category	Deployment Period (in days)		No. of Labour actually deployed	Actual Deployment Period (in days)	REMARKS (Works affected due to non-availability of labour)
				A	B			

Percentage of Manpower Deployed = $100 \times \frac{\sum(CxD)}{\sum(AxB)}$

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CONTRACTOR
(Sign with name, designation and date)

 PSSR	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 5 of 6
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Name of Project		Contract No.	
Name of Work		Name of Contractor	

PART – C: PLAN(PHYSICAL) FOR THE NEXT MONTH i.e. Date of Plan

SN.	Description of work	Original Planned Quantity	Planned Quantity (excluding shortfalls attributable to contractor till date)	Unit of Measurement	T &Ps Required		Manpower Required		REMARKS (Reasons for difference in Original Planned Quantity w.r.t. Planned quantity to be given)
					Contractor Scope		Category of Labour	No. of Labour required as per Category	
					Major T&P to be deployed as per work planned for the month	Quantity			

Note 1: Planned quantity should be based on available/ expected fronts/ inputs in the next month

Note 2: “Original Planned Quantity” shall be as per latest jointly agreed programme between BHEL and Contractor before commencement of work or at the time of latest Time Extension, as the case may be.

BHEL
(Sign with name, designation and date)

CONTRACTOR
(Sign with name, designation and date)

 PSSR	MONTHLY PLAN & REVIEW WITH CONTRACTOR	Page 6 of 6
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Name of Project	Contract No.	
Name of Work	Name of Contractor	

PART – D: REASONS FOR SHORTEALL ATTRIBUTABLE TO BHEL IN RESPECT OF PLAN FOR THE MONTH.....

SN.	Description of Work (from Part-A)	Quantities Affected		Reasons for Shortfall attributable to BHEL	Agency responsible for reasons for Shortfall	Remarks (Supporting Documents in respect of agency responsible)
		(Physical Quantity)	Unit of Measu- rement			
1	2	3	4	5	6	7

Note1: Reasons for shortfall shall include non-availability of fronts/ drawings/ materials/ T&P (BHEL Scope)/ clearances etc. and other hindrances for which contractor is not responsible.

Note2: Agency responsible may be BHEL Site/ MUs/ Design Centre/ BHEL Customer/ other Contractors etc.

BHEL
(Sign with name, designation and date)

Project		Vendor			Package/Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained	Measurement Key/Scheduled date	Supporting Documents`
#1.01	Cumulative number of days in the month, the nominated Quality Officer or his authorised nominee was not available	QUALITY	1.5		Quality Officer or his authorised nominee should be available for all the days of working at site	Daily Log Book entry/Incident Registers/letter references
#1.02	Number of instances of non- compliance wrt FQP, Standard Drawings, Specifications, E&C Manuals etc.	QUALITY	1.5		No deviation from FQP, Standard Drawings, Specifications, E&C Manuals etc. is allowed without BHEL Engineer's approval.	Daily Log Book entry/Incident Registers/letter references
#1.03	Percentage submission of test certificates for batches of welding electrodes, cement, sand, aggregate, consumable, Paints etc. as applicable for this month OR In case of MM & MH package, monthly checks for Storage/Preservation of material.	QUALITY	1		Submission of 100% Test certificates for materials as per FQP is mandatory. MM & MH package: Storage/Preservation as per manual/procedure.	Daily Log Book entry/Incident Registers/letter references
#1.04	Number of incidences of improper storage & preservation (not in accordance to the guidelines of BHEL MUs or approved FQP) of materials, consumables (viz. gases, welding electrodes & fluxes, fuel etc.) & bought-out items (paints, fasteners etc.) under the custody of the contractor	QUALITY	1		Total number of non-compliances	Daily Log Book entry/Incident Registers/letter references
#1.05	Rework/ Rejection instances in a month necessitated due to deviation from Standard Drawings /Specifications /Manuals /E&C procedures /FQPs or due to Poor Workmanship by contractor	QUALITY	2		Reworks/ Rejection should be as minimum as possible. Total number of reworks/ rejections due to reasons attributable to contractor.	Daily Log Book entry/Incident Registers/letter references
#1.06	Delay in preparation & submission of signed protocols / log sheets / site register / NDT test reports as per approved FQP/ Qualified Welder List along with photocopies of Welder ID cards / Welder Performance Evaluation records etc. in the month OR in case of MM / MH package reconciliation statement / verification report.	QUALITY	1		Within 2 days of measurements taken or within first 3 working days of next month, as advised by BHEL Engineer	Daily Log Book entry/Incident Registers/letter references
#1.07	Number of instances for Major equipment/product failure due to negligence/improper work/poor workmanship by contractor	QUALITY	1		No such event should happen	Daily Log Book entry/Incident Registers/letter references
#1.08	Total number of complaints received in the month on the quality of finish / aesthetics	QUALITY	1		Total number of non-compliances	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package In-charge

Name and Signature of Contractor

Project		Vendor			Package/Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained	Measurement Key/Scheduled date	Supporting Documents`
#2.01	Cumulative number of days of delay in submission of Plan FOR THE MONTH supported by deployment plan of Major T&Ps and Manpower (as per Form F-14) and relevant construction/layout drawings - like A4 plan / elevation views of plan status for structures / pressure parts/Civil Works, Piping isometrics for piping, Layout / PID / System reference sketch, Unloading / storage plans etc.as applicable.	PERFORMANCE	5		Number of days delayed from second working day of the month	Daily Log Book entry/Incident Registers/letter references
#2.02	Percentage of timely submission of Daily Reports for Progress of work, Resources, Consumables etc.	PERFORMANCE	1.5		Percentage of timely submission of daily reports/ Scheduled date is successive next day for each day	Daily Log Book entry/Incident Registers/letter references
#2.03	Number of days delayed for submission of FQP log sheets / protocols / Monthly Progress Reports for the work executed during the month under measurement	PERFORMANCE	1.5		Number of days delayed/Scheduled date is first 2 working days of next month	Daily Log Book entry/Incident Registers/letter references
#2.04	Shortfall attributable to contractor w.r.t. Plan as per Form-14 for the subject month	PERFORMANCE	35		Percentage of shortfall to be calculated w.r.t. Total planned target for the month as per part-A of F-14. If more than one work has been planned in a month then Weightages of works shall be assigned at the time of plan to arrive at plan vs achievement calculation.	Progress review formats
#2.05	Number of days delayed in submission of Running bills with complete supporting documents (including updated reconciliation statement of BHEL issued material) for the month	PERFORMANCE	2		Number of days delayed / Scheduled date is 7th day of next month	Daily Log Book entry/Incident Registers/letter references
#2.06	Number of times the Top Management of contractor did not respond to critical issues of site, for the month	PERFORMANCE	1		Total number of instances	Daily Log Book entry/Incident Registers/letter references
#2.07	Cumulative number of days in the month the works were stopped / refused on interpretation of contract clauses/scope due to tendency of taking undue advantage by interpreting contract clauses in their favour	PERFORMANCE	2		Cumulative number of days lost	Daily Log Book entry/Incident Registers/letter references
#2.08	Number of times rework was refused by contractor	PERFORMANCE	1		Total number of non-compliances	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package In-charge

Name and Signature of Contractor

Project		Vendor			Package/Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained	Measurement Key/Scheduled date	Supporting Documents`
#2.09	Cumulative number of days in the month recording / logging was not done in daily log / history register / hindrance register / soft form in a PC maintained at BHEL Site Office	PERFORMANCE	1		Cumulative number of days recording or logging was not done / all days of the month	Daily Log Book entry/Incident Registers/letter references
#3.01	Number of days of non-availability of required Manpower including supporting staff as per plan submitted in F-14 for the month.	RESOURCES	7		Cumulative number of days Sufficient Manpower was not available as per Plan in F-14	Daily Log Book entry/Incident Registers/letter references
#3.02	Number of days of non-availability of required T&P as per plan submitted in F-14 for the month.	RESOURCES	7		Cumulative number of days Sufficient T&P was not available as per Plan in F-14	Daily Log Book entry/Incident Registers/letter references
#3.03	Cumulative number of major instances in the month hampering / affecting progress of work due to breakdown or non-availability of major T&P and MME for the work, under the scope of Contractor	RESOURCES	3		Cumulative number of instances	Daily Log Book entry/Incident Registers/letter references
#3.04	Cumulative number of major instances in the month hampering / affecting progress of work due to non-availability of Consumables/ use of improper consumables under the scope of contractor	RESOURCES	3		Cumulative number of instances	Daily Log Book entry/Incident Registers/letter references
#4.01	Number of non-compliances during the month for Statutory requirements like validity of Labour Licence, Insurance Policy, Labour Insurance, PF, BOCW Compliance etc. and any other applicable laws/ Regulation, Electrical Licence, T&P fitness certificate, Contractors' All Risk Policy etc. as applicable	SITE INFRASTRUCTURE & SERVICE	1		Total number of non-compliances	Daily Log Book entry/Incident Registers/letter references
#4.02	Cumulative number of days in a month poor illumination is reported at storage area, erection area, pre-assembly area and other designated areas by BHEL site.	SITE INFRASTRUCTURE & SERVICE	0.5		Total number of non-compliances/random checks	Daily Log Book entry/Incident Registers/letter references
#4.03	Cumulative number of days of non-availability of well-maintained toilets facilities for workers (separate for men and women) and non-availability of potable drinking water stations for workers in specified areas.	SITE INFRASTRUCTURE & SERVICE	1		Total number of non-compliances/random checks	Daily Log Book entry/Incident Registers/letter references

Name and Signature of BHEL Package In-charge

Name and Signature of Contractor

Project		Vendor			Package/Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained	Measurement Key/Scheduled date	Supporting Documents`
#4.04	Total number of instances in the month, Housekeeping NOT attended to in spite of instructions by BHEL -i.e. removal / disposal of surplus earth / debris / scrap / unused / surplus cable drums / other electrical items / surplus steel items / packing materials, thrown out scrap like weld butts, cotton waste etc. from the working area to identified locations	SITE INFRASTRUCTURE & SERVICE	2		Total number of non-compliances/random checks	Daily Log Book entry/Incident Registers/letter references
#4.05	Total number of instances in a month, Site Office with reasonably good facilities including enough nos. of computers and printers etc. for use by office and supporting staff was not made available/maintained.	SITE INFRASTRUCTURE & SERVICE	0.5		No discrepancy during regular or surprise visits	Photograph and report of the Engineer
#5.01	Number of days delayed in making labour payments for the last month	SITE FINANCE	2		Number of days delayed / Scheduled date is 7th day of next month	Daily Log Book entry/Incident Registers/letter references
#5.02	Number of complaints from labour/ sub supplier/ sub-contractor for non-receipt of payments from contractor	SITE FINANCE	1.5		Total number of complaints or reporting	Daily Log Book entry/Incident Registers/letter references
#5.03	Number of times the site operations were hampered for want of funds at the disposal of site-in-charge.	SITE FINANCE	1.5		Total number of non-compliances	Daily Log Book entry/Incident Registers/letter references
#6.01	Cumulative number of days in a month the nominated Safety Officer was not available	HSE & SA	1		Safety Officer should be available for all the days	Daily Log Book entry/Incident Registers/letter references
#6.02	Shortfall in number of weekly safety meetings in the month conducted or attended by the Safety Officer	HSE & SA	0.5		Safety meetings to be held every week	Copy of Minutes of meeting
#6.03	Level of compliance w.r.t decisions taken in previous Safety meetings	HSE & SA	0.5		Number of consolidated issues discussed in Safety meetings	Copy of Minutes of meeting, Non-compliance intimation documents from BHEL site
#6.04	Delay in submission of monthly report on safety (including electrical safety for equipment & personnel etc.) in the prescribed form	HSE & SA	1		Number of days delayed/Scheduled date is third working day of next month	Daily Log Book entry/Incident Registers/letter references
#6.05	Number of days taken for lodging FIRs from date of occurrence/notice of incident of theft / accident etc.	HSE & SA	0.5		Number of days delayed/Scheduled date is within 24 Hrs of occurrence/notice of incidence	Copy of FIR lodged by Contractor

Name and Signature of BHEL Package In-charge

Name and Signature of Contractor

Project		Vendor			Package/Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained	Measurement Key/Scheduled date	Supporting Documents`
#6.06	Number of times written(email, letters etc.) warning issued for non-availability/ use of improper Fall protection and rescue arrangement as lifeline, fall arrestors, safety net, hand-railings, covered floors, man-basket, rescue basket & kit etc. by the contractor	HSE & SA	2		Total number of non-compliances	Daily Log Book entry/Incident Registers/letter references
#6.07	Number of times punitive fines imposed for unsafe practices as per contract like non-availability/use of PPEs as safety shoes, helmets, goggles, gloves, lifeline, safety belts etc.	HSE & SA	1		Total number of non-compliances	Non-compliance intimation documents from BHEL site
#6.08	Percentage compliance to Emergency preparedness and response plan: Portable Fire-extinguishers, Buckets, Fire-wardens, display of emergency numbers, mock-drills, Hazard Identification and Risk Assessment(HIRA) etc.	HSE & SA	1		Compliance should be 100% as per HSE Plan or as finalized in Safety Meetings	Non-compliance intimation documents from BHEL site
#6.09	Number of times the agency has defaulted on display of safety posters / safety slogans / safety barriers/emergency numbers etc. in identified areas	HSE & SA	0.5		Total number of instances	Non-compliance intimation documents from BHEL site
#6.10	Non compliances observed during HSE and Safety Audit	HSE & SA	0.5		Total number of non-compliances	Non-compliance intimation documents from BHEL site, Audit Reports
#6.11	Cumulative number of days in the month, non-availability of First Aid Kit, First Aider & Emergency Vehicles/Ambulance.	HSE & SA	0.5		Cumulative number of days	Non-compliance intimation documents from BHEL site
#6.12	Number of days taken for submission of Root Cause analysis (RCA) for the accident from the cut-off date intimated by BHEL for submission of RCA	HSE & SA	0.5		Number of days delayed/Scheduled date is cut-off date intimated by BHEL	Daily Log Book entry/Incident Registers/letter references
#6.13	Non conductance of training (induction, job specific, height work etc.), tool box meeting and health check-up as per Contract requirements	HSE & SA	0.5		Number of incidences of non-conductance during the month	Daily Log Book entry/Incident Registers/letter references
Total			100			

Name and Signature of BHEL Package In-charge

Name and Signature of Contractor

Project		Vendor			Package/Unit	
SL	Parameter for Measurement	Classification	Max Score	Score Obtained	Measurement Key/Scheduled date	Supporting Documents`
	Less Deduction in Score Due to Major Accidents (Fatal, Permanent Disability or bodily injury by which person injured is prevented to resume to work within 48 hours or more after accident,, Major Damage to Equipment etc.) @ 3 points/ accident					
	Less Deduction in Score Due to Minor Accidents(All Others) @ 1 point/ accident					
	Less Deduction in Score Due to not Maintaining of Labour Colony (if applicable) as per BHEL HSE policy @2 points in a month on verification any day					
	Final Score					

Performance Score Summary for the Month	Total Score	Score Obtained
QUALITY	10	
PERFORMANCE	50	
RESOURCES	20	
SITE INFRASTRUCTURE & SERVICE	5	
SITE FINANCE	5	
HSE & SA	10	
OTHERS (deductions if any)	0	
TOTAL	100	

Name and Signature of BHEL Package In-charge

Name and Signature of Contractor