

VOLUME – IA

TECHNICAL  
CONDITIONS OF  
CONTRACT (TCC)

Bharat Heavy Electricals  
Limited



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## **1.0 SCOPE OF WORKS:**

Intent of this tender is to finalize a contract for hiring of Induction Heating Equipment (IHE) with all the accessories along with the operator cum technician, on monthly hire basis for carrying out PWHT at Udangudi site of PSSR as per the specification/details provided hereunder or elsewhere in this tender specification.

## **2.0 GENERAL REQUIREMENTS**

- 2.1 Make / Model / Capacity of the IHEs proposed to be provided by the bidder shall be indicated.
- 2.2 IHEs shall be engaged in the Project construction work of thermal power plants consisting of Boiler, TG, Power Cycle Piping and other structure / equipment of these plants, as per the instructions of BHEL Site Engineer-in-Charge.
- 2.3 IHEs shall be provided with all the accessories, operator cum technician, and all other spares for carrying out PWHT of P91 Weld Joints in Boiler, TG, Power Cycle Piping and other structure / equipment of these plants, as per the requirement at site from time to time.
- 2.4 The IHEs shall be suitable to carry out 'Heat Treatment Cycle' for material mentioned in Annexure-I & Heat Treatment Manual AA/CQ/GL/011/Part II-HTM. The material mentioned in Annexure-I is tentative only not exhaustive.
- 2.5 Power supply for normal operation of the IHE shall be provided by BHEL / BHEL's erection contractor after the services of the IHE is accepted by BHEL till the service are being utilized by BHEL. The bidder at his own cost shall arrange the spares required during breakdown maintenance.
- 2.6 All the IHE deployed at site should be in good working condition & BHEL shall have the right to utilize the IHEs for round the clock operation as per requirement without any extra cost.
- 2.7 Interested bidders are requested to visit the site mentioned at clause no. 3.0 to see the site conditions before submitting their offer.

### 3.0 PROJECT INFORMATION:

1.1	Name of the Project	Udangudi Thermal Power Station
1.2	Station Capacity	2X660 MW
1.3	Owner	Tamil Nadu Generation and distribution Corporation Limited (TANGEDCO)
1.4	Site Location	Kallamoli-628203,Thiruchedur Taluk, Tuticorin District, Tamil Nadu
1.5	Nearest Village	Udangudi
1.6	Nearest Town	Tuticorin at 41 km
1.7	Nearest Railway Station	Thiruchendur at 12 km
1.8	Nearest Airport	Tuticorin Domestic AirPort at 41 km
1.9	Nearest Seaport	Tuticorin Port at 45 km
	Nearest Road access	ECR Connecting Tuticorin and Kanyakumari state highway -176
2.0	Meteorological Condition	
2.1	Climate	Tropical, very dry and hot summer, dry and cold winter and good rain-fall in monsoon accompanied with strong wind
2.2	Site Elevation	(+)varying from +0.6m to 2.8Meter above Mean Sea Level
2.3	Ambient Temperature	
a.	Annual Maximum Mean Temperature	41°C
b.	Annual Minimum Mean Temperature	22.3°C

c.	Dry bulb Temperature(DBT) for Design Purpose	Max 41°C & Min 17°C
2.4	Relative Humidity for Design purpose	Max 84% & Min 62%
2.5	Annual Rainfall	Max 718.2mm & Min 384.4mm
2.6	Basic Design Wind Pressure	Design wind speed is 39 m/sec as per IS: 875 Part III Mean Wind Speed (max): 20.6 km/h as per IS: 875 (Latest Edition)
2.7	Seismic zone	Zone: II as defined in IS:1893-2002
2.8	High Flood Level	High Flood Level for site: RL 2.450 m
3.0	<u>Tide Levels</u> The recorded tide levels with respect to the chart Datum (CD) near the identified intake point are as follows:	
	Mean high water- Spring	CD + 0.99 m
	Mean high water- Neap	CD + 0.71 m
	Mean low water- Neap	CD + 0.55 m
	Mean low water- Spring	CD + 0.29 m
	Mean sea level	CD + 0.64 m
	Highest High tide level	CD + 1.026 m
	Lowest Low tide level	CD + 0.11 m

#### 4.0 PERIOD OF CONTRACT:

The entire contract period shall comprise of Mobilisation period, Hiring Period & demobilization period as mentioned below.

#### 4.1 Commencement of Contract Period:

The contract period shall commence from the date of written intimation for deployment of concern IHEs from 2x660 MW Udangudi STPP Site, Tamilnadu.

#### 4.2 Initial mobilization and tentative schedule for deployment and commencement of Hiring period:

The deployment schedule of the IHEs indicated below is tentative. The IHEs shall be deployed and made operational (After successful trial heat treatment cycle as per requirement of BHEL vide Annexure-I) at Site within Twenty (20) Days from the written intimation for deployment of concern IHEs from 2x660 MW Udangudi STPP Site, Tamilnadu.

#### 4.3 Commencement of Hiring period

The Commencement of Hiring Period for respective IHE shall commence from successful trial heat treatment cycle of the concern IHE at Project Site as certified by BHEL Site Engineer and acceptance by BHEL.

Project Site Name	Tentative Qty of IHEs Required	Initial Hiring Period	Tentative Commencement of Initial Deployment
2x660 MW USTPP Site	10 No's	12 Months	Mar-2023

The hiring period & deployment schedule of the IHEs indicated above is tentative only and the actual hiring period/ deployment schedule of concern IHE shall be made as per the dynamic site requirement intimated separately, from time to time for Required number of IHEs, Duration of Requirement.

#### 4.4 In case of exigency site requirement, BHEL reserve the right to further extend the Hiring Period of each IHE beyond the initial hiring period mentioned.

#### **4.5 Foreclosure of Contract:**

BHEL reserves the right of foreclosing the Contract or foreclosing of hiring period of concern IHE within the initial hiring period or extended hiring period with 15 days' advance notice, without assigning any reason and no payments & no compensation will be made for the period of foreclosure (i.e. after the 15 days' notice period). Hiring charges of the IHEs, in such case shall be paid on pro rata basis of the monthly rate for the no. of days worked at site as per Clause No. 10.5 & 10.6.

### **5.0 FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL**

#### **5.1 Open Space**

- 5.1.1 Minimum Open space as made available by customer will be provided at free of charges to the contractor, for construction of temporary office shed, contractor's stores shed(s).
- 5.1.2 BHEL shall not provide to the contractor any residential accommodation to any of his staff and the contractor has to make his own arrangements for their crew / staff.
- 5.1.3 Location and area requirement for storage sheds shall be discussed and mutually agreed to.

#### **5.2 Electricity**

- 5.2.1 Electricity for construction purpose i.e. PWHT of P91 Joints, shall be provided by BHEL/Erection agency free of cost.
- 5.2.2 BHEL is not responsible for any loss or damage to the contractor's equipment as a result of variations in voltage / frequency or interruptions in power supply.
- 5.2.3 Contractor has to make his own arrangements for his electricity requirement for his staff colony at his cost.
- 5.2.4 Any duty, deposit involved in getting the Electricity shall be borne by the bidder. As regards to contractor's office shed also, all such expenditure shall be borne by the contractor.

#### **5.3 Construction Water**

- 5.3.1 Construction water to be arranged by Contractor. The bidder shall also arrange for further distribution at their cost.

#### **5.4 Drinking Water**

- 5.4.1 Bidder shall arrange drinking water at the work spot at their cost.

## **5.5 Contractor's Obligation On Completion**

- 5.5.1 On completion of the work, all temporary buildings, structures, cables etc. shall be dismantled and levelled and debris shall be removed by the contractor at his cost. In the event of failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.

## **6.0 TOOLS & PLANTS TO BE DEPLOYED BY THE CONTRACTOR**

- 6.1 Necessary tools and tackles and required spares should be made available by the bidder immediately to attend the break downs if any. Bidder shall ensure the healthiness of the IHEs on all days during contract period, no additional payment will be made for any rectification/ maintenance of IHEs.
- 6.2 Consumables like Glass Fibre Cloth, Glass fibre cord, Ceramic Fibre Blanket, Ceramic fibre rope., K Type Thermocouple, required annealing cables & other consumables to carry out the work will be provided by BHEL or BHEL sub agencies. However, Bidder shall arrange one set of annealing cables for respective Induction Heating Equipment.

## **7.0 NORMAL WORKING HOURS**

- 7.1 The services of the IHE shall be made available to BHEL for round the clock operation (i.e. Twenty-Four hours a day) including on Sundays / Weekly holidays as per the site requirement.
- 7.2 Operator cum Technician shall be available for the operation of their IHE round the clock on normal working days as well as on holidays as per the site requirement/exigency.
- 7.3 BHEL reserve the rights to decide no. of operators per IHE or for multiple IHEs as per nature & exigency of work for round the clock operations.
- 7.4 However, the normal / required working hours and Timings shall be fixed and communicated by BHEL Site Engineer as per the requirement / operational convenience.
- 7.5 Holiday working and extended hour working shall be at the discretion of site in charge and no extra charges shall be paid for working beyond the communicated normal / required working hours and for working on weekly / other holidays.
- 7.6 For recording the days of availability of services, vendor is required to maintain a separate register or log sheets at site, which shall be certified by BHEL Site Engineer.

## **8.0 SPECIFIC TERMS AND CONDITIONS**

- 8.1 Regular/Breakdown Maintenance Period of One day per Month shall be permitted. The same shall be decided in consultation with BHEL Engineer. Bidder shall carry out preventive maintenance beyond normal working hours or as per schedule agreed with BHEL Engineer.
- 8.2 The deployed IHE should give trouble free operation without affecting the erection work.
- 8.3 The bidder must maintain and operate the IHEs regularly at site with their manpower. Breakdown/repair should be immediately attended by the bidder. The bidder shall maintain a log book giving full operation, routine. / preventive maintenance and breakdown details and obtain signature of BHEL Site Engineer on a daily basis or as per the site procedure. Original log sheets shall be submitted to BHEL at the end of every month and before submission of monthly bills at site.
- 8.4 The cost of any repair arising during the operation should be borne by the bidder.
- 8.5 Necessary tools and tackles and IHE spares should be made available by the bidder immediately to attend the break downs at their cost.
- 8.6 In case of absence of operator, the bidder should make an alternative arrangement for the continuation of work to meet the erection requirement of site.
- 8.7 IHEs shall be shifted from one location to other location within the same site during the hiring period without any additional cost implication to BHEL.
- 8.8 Bidder shall arrange the entry gate pass for their crew for which necessary documents will be forwarded by BHEL.
- 8.9 Bidder shall be required to take Comprehensive Insurance Policy for the IHE with Third Party Liability cover as well as adequate Insurance for Bidder's Crew before deployment at site. If due to negligence and of non-observation of safety and other precautions, any accident/injury occurs to any other persons/public/property, the bidder shall have to pay necessary compensation and other expenses, if so decided by the appropriate authorities/Statutory Authority.
- 8.10 Any loss or damage to BHEL or customer's property due to negligence of the crew employed by the bidder is attributable to the bidder.

## **9.0 PERFORMANCE OF THE VENDOR**

9.1 Performance of the vendor shall be measured as per attached Annexure. Reports shall be received from site against each job and the same shall be communicated to the vendor. In case the performance of the contractor is not satisfactory (i.e. below 60%), BHEL reserves the right to initiate suitable action against the contractor which may lead to suspension/termination/banning and delisting in accordance with procedure in vogue.

## **10.0 INSTRUCTION TO RATE SCHEDULE**

- 10.1 Bidders are requested to quote only in the prescribed Format provided in Volume-H Price Bid Rate Schedule. Quoting in any other form / formats shall not be entertained. Conditional price bid or price bid with any deviation / clarification etc. are liable to be rejected
- 10.2 Total Price 'A' shall be quoted by the bidders. L-1 bidder Shall be decided on the basis of Total Price (A) quoted.
- 10.3 Total Charges for 12 months shall be as per the "Rate" arrived against Si. No. 1.
- 10.4 The price quoted 'A' shall be inclusive of operation and preventive as well as breakdown maintenance of the IHE including supply of all the accessories and spares. The bidder shall deploy operator-cum- Technician within the quoted rates to ensure smooth operation and maintenance of the IHE without affecting Work.
- 10.5 Per Month Hiring Charges shall be calculated using the formula, Per Monthly Hiring Charges = "Rate" arrived against Sl. No. 1. / 12 Months.
- 10.6 Per Day Hiring Charges shall be calculated using the formula, Per Day Hiring Charges = Monthly Hiring Charges / 30 Days
- 10.7 Operator cum Technician Charges shall be fixed as 10% of the price quoted 'A' for one operator for 12 hours working time including Sunday/ Holidays. Since the services of the IHEs with operator shall be made available to BHEL for round the clock operation (i.e. Twenty-Four hours a day) including on Sundays / Weekly holidays as per the site requirement, deputation of number of operators per IHEs or for multiple IHEs shall be decided by BHEL, BHEL sub agencies & IHEs hiring agencies as per exigency & nature of work. The operator charges for additional operators shall be same as Sl. No. 2 of price schedule.
- 10.8 One-time Mobilization and De-Mobilization Charges for hiring of each IHE shall be as per the rates arrived against Sl. No. 3 and Sl. No 4 respectively.
- 10.9 Awarded Rates and all the terms & conditions shall remain FIRM throughout the tenure of the contract period and no price variation provisions are applicable.

- 10.10 In case of exigency site requirement, BHEL reserve the right to further extend the Hiring Period of each IHE beyond the initial hiring period at the same terms & conditions however mobilisation/demobilisation charges are applicable for such extensions.
- 10.11 Hiring charges will be applicable 90% of hiring charges per month in extended hiring period beyond 12 months in case of extension in hiring period however operator charges shall be fixed throughout the contract period including period of extension.

## **11.0 TERMS OF PAYMENT**

- 11.1 PVC, ORC, Secured Advance & Advance for Mobilization are not applicable for this tender.
- 11.2 Retention Amount as per clause 2.22 of GCC is Applicable for this Tender. Since Performance Guarantee of workmanship is not applicable for this tender, 100% of Retention amount shall be refunded along with Final Bill.
- 11.3 No Advance payment will be made by BHEL for this contract.
- 11.4 Payment of monthly agreed hire charges will be made once in a month at respective site as certified by the BHEL Engineer-In-charge at site as per the terms and conditions.
- 11.5 Mobilization and demobilization charges shall be payable as per point 10.8 above. Payment of mobilization charges shall be made on successful trial heat treatment cycle of the concern IHE at Project Site as certified by BHEL Site Engineer and acceptance by BHEL.
- 11.6 Payment of demobilization charges shall be made after demobilisation of concern IHE from site by the Tenderer.
- 11.7 Contractor has to make his own arrangement at his cost for completing the formalities, for bringing all their material, and equipment etc., at site or the execution of the work, including arrangement of Road Permits if any and as applicable under the relevant acts, etc.,

### **Note:**

- (i) RA bill payments as per Chapter-X of SCC (Volume IB).
- (ii) Refer Part-II, Chapter-1 of Technical Conditions of Contract (TCC) for Corrections & Revisions in GCC & SCC.

## **12.0 PENALTY**

- 12.1 If the IHE could not be utilized due to any failure of the machine, over and above the regular/Breakdown maintenance period of one day per month, the proportional amount towards IHE Hire charges, for the total number of days taken for making the IHE operational shall not be paid and the Charges shall be as per Clause No. 10.5 & 10.6. Similarly, no operator charges shall be paid for those days.

- 12.2 If the non-availability of the IHE extends beyond one week, then apart from non-payment for the period of non-availability, additional Penalty will be charged at the rate of 10% of the Daily Hire Charges including operators, for every day of non-availability (including intervening Sundays and holidays), limited to 10% of the Awarded Contract Value or Executed Contract value, whichever is higher.
- 12.3 In case of total failure of the IHE at site, the contractor should substitute a similar IHE within 15 days which will be treated as idle period and no hire charges shall be paid for this period and no mobilisation/demobilisation charges shall be paid for the replacement IHE. In case, the contractor fails to substitute faulty IHE within 15 days, BHEL may engage a suitable IHE at the Risk and Cost of the Contractor as per Clause 2.7 of GCC. The decision of BHEL in this regard shall be final and binding on the contractor.
- 12.4 When additional operator is required, bidder has to arrange the operator within 48 hours of initiation. If work is held up due to non-availability of operator, hiring charges of that IHE particular shall not be paid for that held up duration.

### **13.0 TAXES AND OTHER DUTIES:**

#### **13.1. Goods and service Tax (GST) & Cess**

- 13.1.1. 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.
- 13.1.2. Contractor's price/rates shall be exclusive of GST & Cess (if applicable) (herein after termed as GST). Contractor 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. Since this is a works contract, the applicable rate shall be @ 18% GST, as applicable presently.
- 13.1.3. Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules wherein the 'Bill To' details will be as below:

BHEL GSTN	- 33AAACB4146P2ZL
NAME	– BHEL SITE OFFICE
ADDRESS	BHEL SITE OFFICE, UDANGUDI THERMAL POWER PROJECT(2X660 MW), KALLAMOZHI, TIRUCHENDUR TUTICORIN DISTRICT - 628206

- 13.1.4. GST charged in the tax invoice/debit note/revised tax invoice by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return.
- 13.1.5. In case BHEL has to incur any liability (like interest / penalty etc.) due to denial/reversal / delay of input tax credit in respect of the invoice submitted by the contractor, for the reasons attributable to the contractor, the same shall be recovered from the contractor.
- 13.1.6. Further, In case BHEL is deprived of the Input tax credit due to any reason attributable to contractor, the same shall not be paid or Recovered if already paid to the contractor.
- 13.1.7. Tax invoice/debit Note/revised tax invoice shall contain all such particulars as prescribed in GST law and comply to the timelines for issue of the same. Invoices shall be submitted on time to the concerned BHEL Engineer In Charge.
- 13.1.8. TDS under GST (if/ as & when applicable) shall be deducted at prevailing rates on gross invoice value from the running bills.
- 13.1.9. 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 Contractor only.
- 13.1.10. BHEL shall not reimburse any amounts towards any interest / penalty etc., incurred by contractor. Any additional claim at a later date due to issues such as wrong rates / wrong classification by contractor shall not be paid by BHEL.

### **13.2. All taxes and duty other than GST & Cess**

The contractor shall pay all (except the specific exclusion viz GST & Cess) taxes, fees, license charges, deposits, duties, tools, 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 and the same shall not be reimbursed by BHEL. 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.

### **13.3. 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.

#### **13.4. New Taxes/Levies**

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

#### **13.5. 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 SAFETY CONDITIONS**

- 14.1 The contractor to follow all safety norms as per present norms indicated in GCC and as per revised norms from time to time.
- 14.2 The contractor to provide all safety appliances like dust masks, safety belt, ladder, safety shoes, helmet, hand gloves, safety goggles, Personal protective equipment (PPE), rain gears, Overalls etc. to their personnel working inside the plant complex at his cost and must adhere to safety codes as given in GCC.
- 14.3 Contractor also must adhere to customer specific HSE Requirement as per instructions of BHEL.
- 14.4 The contractor shall ensure timely compliance of Safety Inspection of equipment, keep updated records and shall give intimation to BHEL Site Engineer.
- 14.5 The contractor shall carry out job as per site engineer's specific requirement by considering the safety measures like wind speed, work area surroundings, etc. Wherever there is a requirement of SWP (Safety Work Permit) before carrying out any activity relating to O&M of equipment, contractor shall comply with such requirements.
- 14.6 The contractor must ensure that operators should study and understand the risk involved at the site and on the equipment with respect to work in executing the job and if any complication perceived, it should be brought to the notice of BHEL Site Engineer before starting the job.
- 14.7 Any loss or damage to BHEL or Customer's properties due to negligence of the crew employed by the contractor is attributable to the contractor.
- 14.8 BHEL shall not be responsible for any accident / injury to the contractor's crew / staff during operation or otherwise.

- 14.9 The contractor has to assume full responsibility for the safety of their crew / staff and to comply with all statutory /safety regulations / security requirements of BHEL and customer.
- 14.10 It is the responsibility of the rate contract agency to arrange passes or entry permit as per BHEL / CUSTOMER procedure followed in the plant premises through BHEL site office.
- 14.11 The contractor shall ensure that all newly recruited staff should undergo safety training and awareness of risk involvement in equipment operation before they are assigned the job in the field. Record for the same shall be submitted regularly to BHEL Site Engineer.
- 14.12 The contractor shall ensure that their operator / drivers should comply with the instructions of BHEL Site Engineer regarding safe operation of equipment.
- 14.13 The contractor shall ensure that only the competent personnel are engaged for O&M of the equipment.

#### **15.0 STATUTORY REQUIREMENTS**

- 15.1 All statutory requirements as per labour laws like minimum wages, Labour License ESI, PF etc., have to be arranged by the tenderer. Necessary insurance (covering WC act) for the workmen engaged by the tenderer has to be taken at his cost and the copy of the same should be submitted before commencement of the work.
- 15.2 A copy of the policy covering the staff to be engaged for concern deployment period should be submitted within 10 days after the receipt of the contract or Necessary insurance policy for the work men engaged at the respective site shall be taken before starting the work at site.
- 15.3 Vendors' supervisor should visit to site for ensuring compliance of all statutory requirement (Submission of EPF challan, GST return document, ESIC (as applicable), etc.) and timely submission of monthly RA bill along with all supporting documents as suggested by respective sites.

#### **15.4 INDEMNITY BOND:**

An Indemnity bond to be furnished by the Vendor stating that all expenditure caused due to failure of statutory obligations on the part of the tender shall be borne by the Vendor.

**16.0 PRICE BID EVALUATION & MODE OF AWARD OF CONTRACT:**

- 16.1 Bidders shall be considered for Price Bid Opening subject to the fulfilment of Pre-Qualification Criteria.
- 16.2 Evaluation shall be done based on the Total Price (A) quoted in the Price Bid.
- 16.3 The bidder who has quoted lowest price is called L-1 bidder and second lowest price is called L2 bidder and so on. The bidder who has quoted the highest rate is called H1 bidder.
- 16.4 BHEL intends to engage more than one agency (limited to 2 agencies including L-1 bidder) for the subject rate contract. Towards this, BHEL shall give offer based on the L-1 accepted rates to remaining bidders in the order of their price competitiveness (i.e. first L-2, then L-3 & henceforth till maximum of 2 agencies are identified) for their acceptance for further award of work.
- 16.5 If none of the bidder matches L-1 rates, then 100% job shall be awarded to L-1 bidder.
- 16.6 If two or more agencies are found qualified through the above process, then the jobs will be awarded to the agencies in the approximate ratio of 60:40 between L1 & L2 or L3 or L4 and so on bidders as per clause 16.4.
- 16.7 However, the ratio of job split may vary in case of successful bidders are not having sufficient quantity of IHEs and the decision of BHEL in this regard is final and binding.

'A trial Heat Treatment Cycle' shall be carried out Udangudi SITE as a means to demonstrate the suitability of concern Induction Heating equipment being offered, as per the details furnished below.

## **WELD JOINT DETAILS**

### **General:**

JOB Material Specification / Grade : **SA335P91/SA234WP91**

Material OD / Thickness : **OD668MM x 34THK/OD510 x 95THK (MAXIMUM)**

Detailed Sketch of the Weld Joint : Sketch depicting the joint dimensions along with the number & location of thermocouples **REFER FIGURE 1.1 AND 1.2.**

### **PREHEAT REQUIREMENT:**

**220°C Temperature / 3-4 HRS Duration / Location of temperature measurement-ON PARENT METAL (REFER FIGURE 1.1 AND 1.2 OF ATTACHED PDF FILE)**

### **During Welding:**

Pre-Heat Requirement: **220°C Temperature / 10-16 HRS Duration / ON PARENT METAL Location of temperature measurement (REFER FIGURE 1.1 AND 1.2 OF ATTACHED PDF FILE) (Maximum Inter-pass temperature-350°C)**

### **POST WELD HEAT TREATMENT REQUIREMENT (AFTER WELDING):**

- (i) **Post-Heat Requirement: Temperature TO BE DECREASED FROM 350°C TO 80-100°C / 4-5 HRS Duration / ON PARENT METAL/JOINT (REFER FIGURE 1.1 AND 1.2 OF ATTACHED PDF FILE) Location of temperature measurement & any other specific instructions (such as maximum time within which PWHT is to be carried out from completion of welding / post heating, etc. POST WELD HEAT TREATMENT HAS TO BE CARRIED OUT IMMEDIATELY AFTER 1 HOUR OF HOLDING OF TEMPERATURE AT POST HEAT i.e. 80-100°C)**
- (ii) **PWHT Requirement: 740-770°C Temperature / 3-5 HRS Soaking Time / ON PARENT METAL/JOINT Location of temperature measurement & any other specific instructions (such as Maximum Rate of Heating, Maximum Rate of Cooling, temperature up to which cooling is to be continued, etc.)**

## HEATING AND COOLING RATES

Thickness of Material	Maximum Heating Rate Above 300°C	Maximum Cooling Rate Upto 300°C
≤ 25 mm	220°C/hour	220°C/hour
> 25 ≤ 50 mm	110°C/hour	110°C/hour
> 50 ≤ 75 mm	75°C/hour	75°C/hour
> 75mm	55°C/hour	55°C/hour

**PRE HEATING/PWHT:** Induction Heating Coil winding and thermocouple location arrangement sketch for Preheating and Post weld heat treatment arrangements.

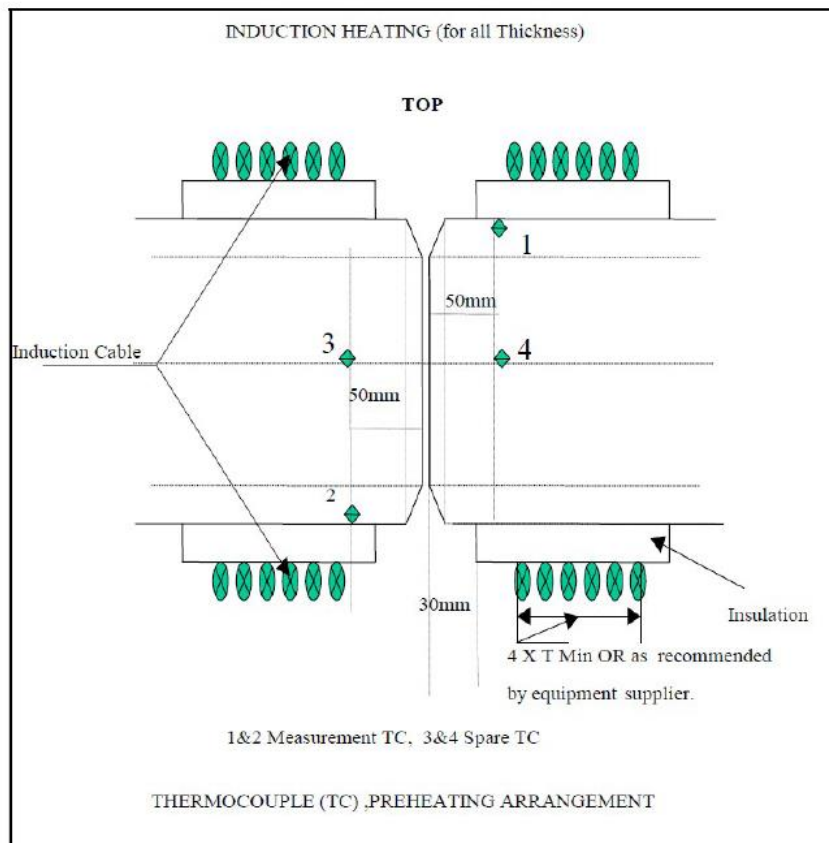


Figure 1.1: Placement of Thermocouples on P91/P92/F91/F92/C12A materials for Preheating

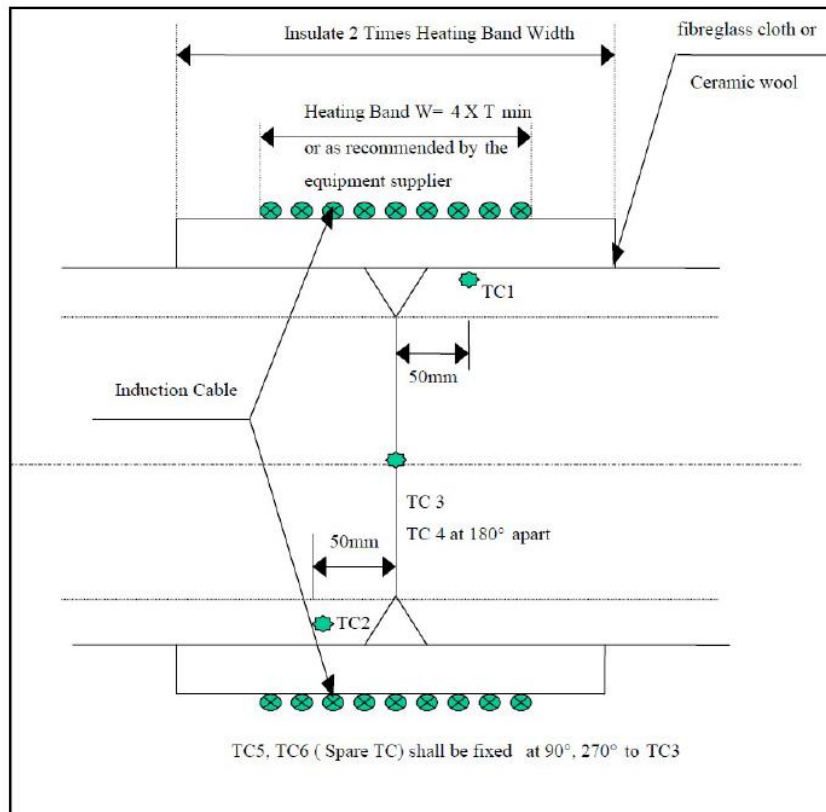


Figure 1.2: Placement of Thermocouples on P91/P92/F91/F92/C12A materials for PWHT

**VOLUME-IA PART-II CHAPTER-I**  
**CORRECTIONS / REVISIONS IN SPECIAL CONDITIONS OF CONTRACT, GENERAL**  
**CONDITIONS OF CONTRACT AND FORMS & PROCEDURES**

**Sl. No:1**

**The following clauses of GCC/SCC are not applicable for this tender.**

**GCC**

- 2.7.9 - Liquidated Damages,
- 2.9 - Progress Monitoring, Monthly review and Performance Evaluation,
- 2.10 - Time of Completion,
- 2.11.2-2.11.4, 2.11.6 - Extension for Time of Completion,
- 2.12 - ORC,
- 2.13 - Interest Bearing Recoverable Advance,
- 2.14- Quantity Variation,
- 2.15 - Extra Works,
- 2.16- Supplementary Items,
- 2.17 - PVC,
- 2.24 - Performance Guarantee for Workmanship.

**SCC**

- 1.0 - General Intent of the Specifications
- 2.0 - General Services to be rendered by the Bidder
- 3.0 - General Technical Requirements
- 4.0 - Obligations of Contractor
- 6.0 - Material handling, Storage, Preservation, etc.,
- 7.0 - Drawings
- 8.0 - Inspection and Quality
- 11.0 - Performance Monitoring.

**Forms and Procedures**

- 1.14- Monthly plan and review with contractors (Form F-14 Rev 00)
- 1.15 - Monthly Performance Evaluation of Contractor (Form F-15)
- 1.17 - Evaluation of Contractor Performance Annual (Form F-17)
- 1.18 - Evaluation of Contractor Performance for the contract (Overall) (Form F-18)
- 1.19 - Milestone Completion Certificate (Form F-19)
- 1.26 - Analysis of unit rates quoted (Form F-26)

**Sl. 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:**

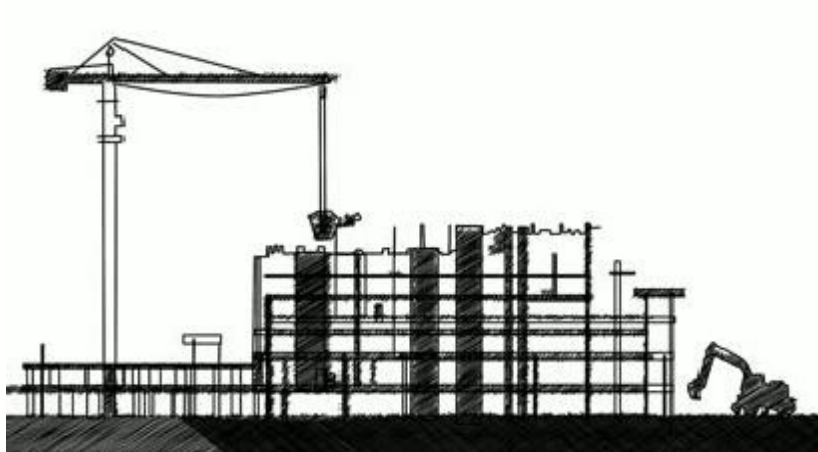
Contractor will comply with HSE (Health, Safety & Environment) requirements of BHEL as per the “ HSE Plan for Site Operations by Subcontractor” (Document No. HSEP: 14 Rev01) provided in Vol-IA, Part-II, Chapter-2.

SCC-Chapter IX Clause 9.1.1 to 9.1.25 stands deleted.

SCC-Chapter IX Clause 9.2 to 9.62 stands deleted.

**Sl. No.: 3**

The chapter Reverse auction procedure published in ‘Forms and Procedures’ of Volume I Book-II stands deleted. ‘Guidelines for Reverse Auction-2021’ available in the website <http://www.bhel.com> -> Supplier Registration, shall be applicable.



**HEALTH,  
SAFETY and  
ENVIRONMENT  
PLAN**

for

**SITE  
OPERATIONS**

by

**SUB-  
CONTRACTORS**

**POWER SECTOR**

# HSE PLAN FOR SITE OPERATIONS BY BHEL'S SUBCONTRACTORS

## AT A GLANCE

BEFORE START	<b>SIGNING OF MOU</b>	
	Agree to comply to HSE requirement- Statutory and BHEL's	Agree to accept BHEL's decision on release of 1.5% (as specified in the contract) of Gross bill amount or part thereof or otherwise(non-release), based on our HSE performance as evaluated by BHEL during the execution period
PLAN	<b>HSE ORGANISATION</b>	
	<p style="text-align: center;"><b>Manpower</b></p> <ul style="list-style-type: none"> <li>1 (one) safety officer for every 500 workers or part thereof</li> <li>1(one) safety-steward/ supervisor for every 100 workers</li> </ul> <p><b>Qualification</b> As per Cl. 7.1</p>	<p style="text-align: center;"><b>HSE Roles and responsibilities</b></p> <ul style="list-style-type: none"> <li>Site In-charge- As per clause 7.2.1</li> <li>Safety officer- As per clause 7.2.2</li> </ul>
	<p style="text-align: center;"><b>HSE Planning</b> for Man, Machinery/Equipment/Tools &amp; Tackles</p>	
PROVIDE	<b>HSE INFRASTRUCTURE</b>	
	<ul style="list-style-type: none"> <li>PPEs</li> <li>Drinking Water</li> <li>Washing Facilities</li> <li>Latrines and Urinals</li> <li>Provision of shelter for rest</li> <li>Medical facilities</li> </ul>	<ul style="list-style-type: none"> <li>Canteen facilities</li> <li>Labour Colony</li> <li>Emergency Vehicle</li> <li>Pest Control</li> <li>Scrapyard</li> <li>Illumination</li> </ul>
TRAIN	<b>HSE TRAINING , AWARENESS &amp; PROMOTION</b>	
	<p style="text-align: center;"><b>Training</b></p> <ul style="list-style-type: none"> <li>Induction training</li> <li>Height work and other critical areas</li> <li>Tool Box talk &amp; Pep Talk</li> </ul>	<p style="text-align: center;"><b>Awareness &amp; Promotion</b></p> <ul style="list-style-type: none"> <li>Signage</li> <li>Poster</li> <li>Banner</li> <li>Competition</li> <li>Awards</li> </ul>
COMMUNICATE	<b>HSE COMMUNICATION</b>	
	<p style="text-align: center;"><b>Incident Reporting</b></p> <ul style="list-style-type: none"> <li>Accident- Fatal &amp; Major</li> <li>Property damage</li> <li>Near Miss</li> </ul>	<p style="text-align: center;"><b>Event Reporting</b></p> <ul style="list-style-type: none"> <li>Celebrations</li> <li>Training</li> <li>Medical camp</li> </ul>

**EXECUTE SAFELY**

**OPERATIONAL CONTROL PROCEDURES**

**PERMIT TO WORK**

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

**SAFETY DURING WORK EXECUTION**

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

**HOUSE KEEPING**

**WASTE MANGEMENT**

**TRAFFIC MANAGEMENT**

**ENVIRONMENTAL CONTROL**

**EMERGENCY PREPAREDNESS AND RESPONSE PLAN**

**CHECKS**

**HSE AUDITS & INSPECTION**

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

**HSE PERFORMANCE EVALUATION PARAMETERS**

**NON CONFORMANCE**

**PENALTY for NON CONFORMANCE**

**Refer Clause 16**

**Incremental penalty**

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

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



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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-HOURS 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/ 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

Monthly planning and review of HSE activities shall be carried out by subcontractor as per format No. HSEP:14-F30 jointly along with BHEL.

## 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.
  - Aircompressors.
  - 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:14-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:14-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)
<b>A. Construction Area</b>		
1.	Outdoor areas like store yards, entrance and exit roads	20
2.	Platforms	50
3.	Entrances, corridors and stairs	100
4.	General illumination of work area	150
5.	Rough work like fabrication, assembly of major items	150
6.	Medium work like assembly of small machined parts rough measurements etc.	300
7.	Fine work like precision assembly, precision measurements etc.	700
8.	Sheet metal works	200
9.	Electrical and instrument labs	450
<b>B. Office</b>		
1.	Outdoor area like entrance and exit roads	20
2.	Entrance halls	150
3.	Corridors and lift cars	70
4.	Lift landing	150
5.	Stairs	100
6.	Office rooms, conference rooms, library reading tables	300
7.	Drawing table	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:14-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:14-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.

**10.3 DAILY HSE ACTIVITY REPORTING**

Daily HSE activities shall be reported by subcontractor to BHEL as per Format No. HSEP:14-F31A



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**11.0 OPERATIONAL CONTROL**

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

**LIST OF OCPs**

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

**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 outside 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 along with 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:14-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:14-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:14-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:14-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.

#### 12.9 INSPECTION OF EXCAVATION

Excavation activities shall be inspected as per Format HSEP:14-F13A

#### 13.0 HSE PERFORMANCE

- Contractor shall be assessed on monthly basis for HSE Compliance by BHEL Safety In-charge at site. The HSE compliance shall be based on Online HSE Evaluation System by BHEL as per Format No. HSEP:14-F33.

Only if the bidder qualifies the 'HSE Compliance Criteria' then bidder shall be eligible for further assessment on other parameters.

Average score of last 6 months for 'HSE Compliance Criteria' for a bidder shall be worked out and Minimum Average Score of last 6 months for a bidder to qualify for future tenders shall be 60. For new vendors (whose past record in Online HSE Evaluation System is not available with BHEL), this criterion shall not be applicable.

**Note:** This criterion shall be subject to review by BHEL from time to time as per requirement/ prevailing conditions.

- 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 Slings properly	200/-
11.	Using Damaged Sling	200/-
12.	Lifting Cylinders Without Cage	500/-
13.	Not Using Proper Welding Cable With Lot of Joints And Not Insulated Property.	200/-
14.	Not Removing Small Scrap From Platforms	500/-
15.	Gas Cutting Without Taking Proper Precaution or Not Using Sheet Below Gas Cutting	500/-
16.	Not Maintaining Electric Winches Which are Operated Dangerously	500/-
17.	Improper Earthing Of Electrical T&P	500/-
18	No or improper barricading	500/-
19.	Activity carried out without Safety work permit (Height work, Lifting activity, Hot work-each person/case)	1000/-
20.	Incident Resulting in Partial Loss in Earning Capacity	25,000/- per victim
21.	Fatal Incident Resulting in total loss in Earning Capacity	1,00,000/- per victim for first instance #

- Legend:-

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

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

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 site management
- 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:14-F01	00
02	Health Check Up	HSEP:14-F02	00
03	HSE Induction Training	HSEP:14-F03	00
04	Tool Box Talk	HSEP:14-F04	00
05	Monthly Site HSE Report	As specified by BHEL	00
06	Inspection of PPE	HSEP:14-F06	00



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07	Inspection of T&Ps	HSEP:14-F07	00
08	Status of T&Ps	HSEP:14-F08	00
09	Inspection of Cranes and Winches	HSEP:14-F09	00
10	Inspection on Height Working	HSEP:14-F10	00
11	Inspection on Welding & Gas Cutting	HSEP:14-F11	00
12	Inspection on Electrical Installation	HSEP:14-F12	00
13	Inspection on Elevator	HSEP:14-F13	00
14	HSE Penalty	HSEP:14-F14	00
15	Accident /incident / property damage /fire incident report	HSEP:14-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
<b>HOUSEKEEPING</b>				
Waste containers provided and used				
Passageways and walkways clear				
General neatness of working area				
Other				
<b>PERSONNEL PROTECTIVE EQUIPMENTS</b>				
Goggles; shields				
Face protection				
Hearing protection				
Respiratory masks etc.				
Safety belts				
Other				
<b>EXCAVATIONS / OPENINGS</b>				
Openings properly covered or barricaded				
Excavations shored				
Excavations barricaded				
Overnight lighting provided				
Other				
<b>WELDING, CUTTING</b>				
Gas cylinders chained upright				
Cable and hoses not obstructing				
Fire extinguisher (s) accessible				
Others				
<b>SCAFFOLDING</b>				
Fully decked platforms				
Guard and intermediate rails in place				
Toe boards in place				
Adequate shoring				
Adequate access				
Others				
<b>LADDER</b>				
Extension side rails 1 m above				
Top of landing				
Properly secured				



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



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



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**ANNEXURE 03**

**REFERENCES**

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

SL NO	CODE NAME	TITLE
(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:14-F01

REV NO.: 00

PAGE NO. 01 OF 02

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

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

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

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

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

Signature of Subcontractor's Site I/C:

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

FORMAT NO: HSEP:14-F02

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

**NAME:**

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

Personal History

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



**POWER SECTOR**

**HEALTH CHECK UP**

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

Signature of the examining doctor





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

FORMAT NO: HSEP:14-F06

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

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

Signature of Site I/C of Subcontractor :

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

FORMAT NO: HSEP:14-F07

REV NO.: 00

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

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

Signature-Site Safety Officer ( BHEL)

Signature-Subcontractor/ Subcontractor's  
Safety Officer

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

FORMAT NO: HSEP:14-F08

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Name of Site	
Name of Sub-Contractor	
Date of Inspection	

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

Signature of Site I/C of subcontractor:

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

FORMAT NO: HSEP:14-F09

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

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

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

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

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

FORMAT NO: HSEP:14-F09

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

**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:14-F09

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

Signature of Site I/C of subcontractor :

	<b>POWER SECTOR</b>	FORMAT NO: HSEP:14-F10 REV NO.: 00 PAGE NO. 01 OF 02
	<b>INSPECTION OF HEIGHT WORKING</b>	

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

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

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

FORMAT NO: HSEP:14-F10

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

Signature of Site I/C of subcontractor :

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

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

<b>Welding</b>				Remarks
Sl.no.	Description	Y e s	N o	
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:14-F11

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

Signature of Site I/C of subcontractor :

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

FORMAT NO: HSEP:14-F12

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

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

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

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

Signature of Site I/C of subcontractor :



**POWER SECTOR**

**INSPECTION OF ELEVATOR**

FORMAT NO: HSEP:14-F13  
REV NO.: 00  
PAGE NO. 01 OF 01

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

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

<b>Signature-Subcontractor/ Subcontractor's Safety Officer</b>	<b>Signature-Site Safety Officer ( BHEL)</b>
--	--

**POWER SECTOR****Inspection of Excavation**

FORMAT NO: HSEP:14-F13E

REV NO.: 00

PAGE NO. 01 OF 01

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

Sl.no.	Description	Yes	No	Remarks
1	Precautions taken for Underground Electrical Cable			
2	Precautions taken for Under / Above ground sewer/ Drinking Water Line			
3	Precautions taken for Underground Telecommunication Line			
4	Precautions taken for Underground Product/Utility Line			
5	Precautions taken for Underground Fire Water Line			
6	Shoring / Shuttering / Sheet piling done to prevent collapse of excavation walls. Strength of Excavation wall ensured at all times			
7	Slope Cutting / Angle Maintained			
8	Hard Barricading & Edge Protection provided			
9	Separate Safe Access for Man and Vehicle			
10	Lighting arrangement			
11	Banksman Provided			
12	Required basic PPEs provided			
13	Excavated soil / Construction Material / equipment kept away from the edge.			
14	First aid in attendance.			
15	Other:			
	Total No of YES			

Signature-Subcontractor/ Subcontractor's Safety Officer

Signature-Site Safety Officer ( BHEL)

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

FORMAT NO: HSEP:14-F14

REV NO.: 00

PAGE NO. 1 OF 02

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

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

**Safety Area**

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

**Legend: -**

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

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



**POWER SECTOR**

**HSE PENALTY**

FORMAT NO: HSEP:14-F14

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PAGE NO. 2 OF 02

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

\_\_\_\_\_

Penalty imposed:

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

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

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

Signature:

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

Name \_\_\_\_\_

Name \_\_\_\_\_

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



**POWER SECTOR- HQ**

**Incident Report**

(To be submitted within 24 hours of time of incident)

FORMAT NO: HSEP:14-F15

REV NO.: 00

PAGE NO. 01 OF 01

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

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



**POWER SECTOR**

**Format for Monthly HSE Planning & Review**

FORMAT NO: HSEP:14-F30

REV NO.: 00

PAGE NO. 01 OF 3

**Note: This is a template and can be modified in consultation with BHEL**

<b>Name of the Site</b>		<b>Name of the Subcontractor</b>	
<b>Scope of Work</b>		<b>Date</b>	
<b>PART- A: PLAN OF HSE ACTIVITIES FOR THE MONTH OF.....</b>			<b>PART-B: REVIEW ON .....</b>
SN.	Description of HSE Activity & Formats	Plan & Targets for the month	Review
1	Availability of First Aid Box at Required Places and Inspection thereof as per Format: Fo1	Areas 1. ... ...	
2	Health check-up as per Format: Fo2	Health check-up for Nos 1. New inductees 2. Drivers & Operators 3. Workers in following high risk areas: a. ...	
3	Induction training of newly joined workers as per Format: Fo3	Minimum No. of workers:	
4	Toolbox talks (TBT) conducted before start of work as per Format: Fo4	Locations of TBTs & No. of workers <b>1.</b> ...	
5	PPE usage and issue as per Format: Fo6		
6	Inspection of T&Ps as per Format: Fo7	List of T&Ps to be inspected 1.	
7	Identification & Inspection Status of T&Ps as per Format: Fo8		
8	Inspection of Cranes & Winches as per Format: Fo9	List of Cranes & Winches & Nos. 1. ...	
9	Inspection of Height Working as per Format: F10	Areas: 1. ...	
10	Inspection of Welding & Gas Cutting operations as per Format: F11	Areas: 1. ...	
11	Inspection of Electrical Installations as per Format: F12	Locations: 1. ...	
12	Inspection of Elevators (as applicable) as per Format: F13	Locations: 1. ...	
13	Inspection of Excavation as per Format: F13E	<b>Locations:</b> <b>1.</b> ...	



## POWER SECTOR

### Format for Monthly HSE Planning & Review

FORMAT NO: HSEP:14-F30

REV NO.: 00

PAGE NO. 02 OF 3

SN.	Description of HSE Activity & Formats	Plan & Targets for the month	Review
14	Job Safety Analysis as per Format F32B	<b>Activities:</b> <b>1.</b> ...	
15	Regular Job Specific Training (Re-training) for workers involved in hazardous activities	Topics/ Hazards & No. of workers <b>1.</b> ...	
16	Mass housekeeping (HK) drive in work areas	Areas <b>1.</b> ...	
17	Vertigo Test of Height workers	Minimum No. of workers:	
18	Deployment of qualified HSE Officers as per contract	Location(s) & Nos. <b>1.</b> ...	
19	Deployment of qualified HSE Stewards as per contract	Location(s) & Nos. <b>1.</b> ...	
20	Deployment of Safety tools & Equipment (Safety Nets, Lifelines, Fall arrestors, Man-cages, flashback arrestors, scaffolding etc.)	Tool/ Equipment & Location <b>1.</b> ...	
21	Safety Walks by site in charge of agency (4 -Weekly once)	Dates:	
22	Safety walks by departmental head (8-Weekly twice)	Dates:	
23	Availability/ deployment of Safety posters/ placards/ signage at strategic locations	Locations: Nos. <b>1.</b> ...	
24	Provision of clean drinking water sources for workers	Locations: Nos. <b>1.</b> ...	
25	Provision of toilets for workers (separate for male & female workers)	Locations: Nos. <b>1.</b> ...	
26	Rest sheds for workers during lunchtime, rain, dust storm etc.	Locations: Nos. <b>1.</b> ...	
27	Availability of following in Labor colony	<b>1.</b> Clean drinking water <b>2.</b> Toilets <b>3.</b> Cleanliness & Hygiene <b>4.</b> Grass cutting, <b>5.</b> Fogging <b>6.</b> Electrical Inspection ...	



## POWER SECTOR

### Format for Monthly HSE Planning & Review

FORMAT NO: HSEP:14-F30

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SN.	Description of HSE Activity & Formats	Plan & Targets for the month	Review
28	Availability of dust/ waste bins at various locations	Locations: <b>1.</b> ...	
29	Availability of Ambulance (individual/ joint) in each shift	Ambulance No.	
30	Availability of emergency vehicle in each shift	Emergency vehicle	
31	Deployment/ Availability of tested Fire Extinguishers	Locations & Nos. <b>1.</b> ...	
32	Tree plantation	Locations & Nos. <b>1.</b> ...	
33	Waste disposal & Scrap Bins	Locations <b>1.</b> ...	
34	Illumination checks	Locations <b>1.</b> ...	
35	Safety award function: 1. Display of good practices Award presentation	Minimum 1 per month	
36	Submission of Daily Reports as per Format No.F31A	Daily Reports (Night & Day Shifts)	

PLAN		REVIEW	
<b>Agency</b> Name:	<b>BHEL</b> Name:	<b>Agency</b> Name:	<b>BHEL</b> Name:
Sign:	Sign:	Sign:	Sign:
Date:	Date:	Date:	Date:



**POWER SECTOR**  
**Format for Daily HSE Reporting**

FORMAT NO: HSEP:1.4-F31 A  
REV NO.: 00  
PAGE NO. 01 OF 1

Note: Following format to be submitted (preferably) in excel/ soft copy by subcontractor daily at the end of each shift. Any photographs/ records to be attached

Night	Day	SHIFT	Year	Month	Day
			Site		
			Submitted By		
			Work Area(s)		
			Staff		
			Man-Power		
			Safety Officers		
			Safety Stewards		
			Tool Box (Topics and No. of Participants)		
			Induction Training (No. of Participants)		
			Vertigo Test (Numbers Tested)		
			On-the-Job Training (Topic & participants)		
			Work Permits		
			Job Safety Analyses conducted		
			Height Work Inspection		
			Other Hazardous Activities Inspection		
		NA	T&P Inspection (Names & Nos. Inspected)		
			Safety Walk (Designation, Areas)		
		NA	HSE Meeting		
		NA	Safety Reward (Details)		
		NA	Housekeeping/ Dust Suppression/ Tree Plantation Activities (Locations/ Details)		
			Lost time Accident		
			Restricted Work Case		
			Medical Treatment Case		
			First Aid Case		
			Near miss		
			Property Damage/ Fire		
			Non-Compliances Submitted by BHEL		
			Complied by Agency		
			Any other Remarks/ Inputs		



**POWER SECTOR**

**Job Safety Analysis Format**

FORMAT NO: HSEP:14-F32B  
REV NO.: 00  
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<b>Name of the Site</b>	
<b>Name of the Subcontractor</b>	
<b>Activity, Area</b>	

HAZARDS		PRECAUTIONS

(Name)	Submitted By (Agency HSE)		Reviewed By (BHEL Execution)		Approved By (BHEL HSE)	
(Sign)						
(Date)						

**POWER SECTOR- HQ**

FORMAT NO: HSEP:14-F33

REV NO.: 00

PAGE NO. 01 OF 3

**Checklist for Evaluation of HSE Performance**

SL	Parameter for Measurement	M/O	Wt	Supporting Documents
1a	Induction training for new workers conducted through audio-visual medium & documented ?	M	1	Induction Training Records
1b	Tool box talk conducted regularly as per plan, and documented?	M	1	Toolbox Talk Records
1c	Contractor in charge and safety in charge attended safety meetings?	M	2	Minutes of Meeting
1d	Whether observations in safety meetings are complied before next meeting?	M	2	-do-
1e	Preparation and submission of Monthly HSE report within stipulated time	M	1	Report submission date
1f	Preparation and submission of Incident/near-miss report and RCA Report (as applicable) within stipulated time	M	1	Incident/ Near Miss Records
1g	Carrying out Inspections and submission of Inspection reports within stipulated time	M	1	Inspection Records
1h	Regular Job Specific Training ensured for High Risk Workers (through audio-visual medium) as per plan	M	1	Training & Attendance Records
2a	Whether the contractor is registered under BOCW	M	2	BOCW Registration Certificate
2b	Availability of Qualified safety officer (1 for every 500 labour)	M	2	Safety Officer qualification & experience records
2c	Availability of Qualified safety supervisor (1 for every 100 labour )	M	2	Safety Officer qualification & experience records
2d	All the workers are provided and using safety helmets and safety shoes/gum boots	M	2	PPE Issue Records, Inspection/ non-conformity records
2e	Housekeeping done on regular basis and scrap removal at site	M	1	Housekeeping records, Inspection/ non-conformity records
2f	Usage of Goggles/Face shields and Hand gloves for gas cutter and grinders		1	PPE Issue Records, Inspection/ non-conformity records
2g	Wall openings & floor openings are guarded?		1	Inspection/ non-conformity records
2h	Adequate illumination provided in all working area?		1	Inspection/ non-conformity records
2i	Safety posters, sign boards and emergency contact numbers in all prominent location are displayed?		1	Inspection/ non-conformity records
2j	Availability of automatic reverse horns, Main horn, hook latches for Vehicles, mobile cranes, Hydras		1	Inspection/ non-conformity records
2k	Ban of carrying mobile phones to work place is implemented for workers		1	Inspection/ non-conformity records
2l	Availability of Tags & Inspection Certificates for Cranes of all capacities		1	Master T&P List with internal & external test details
2l.2	Availability of Tags & Inspection Certificates for Winches of all capacities		1	Master T&P List with internal & external test details
2l.3	Availability of Tags & Inspection Certificates, color coding for Chain pulley blocks		1	Master T&P List with internal & external test details
2l.4	Availability of Tags & Inspection Certificates for Vehicles - Trailers, Dozers, Dumpers, Excavators. Mixers etc.		1	Master T&P List with internal & external test details
2l.5	Availability of Tags & Inspection Certificates for Welding machines, grinders, Drilling machines, etc.		1	Master T&P List with internal & external test details
2l.6	Availability of Tags & Inspection Certificates, colour coding for Wire rope slings etc.		1	Master T&P List with internal & external test details
2l.7	Availability of Tags & Inspection Certificates for Batching plants		1	Master T&P List with internal & external test details

**Checklist for Evaluation of HSE Performance**

SL	Parameter for Measurement	M/O	Wt	Supporting Documents
2m.1	Use of Lifting Permit as per requirement		1	Permit Records
2m.2	Use of Height Permit as per requirement		1	Permit Records
2m.3	Use of Hot Work Permit as per requirement		1	Permit Records
2m.4	Use of Excavation permit as per requirement		1	Permit Records
2m.5	Use of Confined space work permit as per requirement		1	Permit Records
2m.6	Use of Grating removal and safety net removal permit as per requirement		1	Permit Records
2m.7	Use of Lockout-Tag out permit as per requirement		1	Permit Records
2m.8	Use of Radiography permit as per requirement		1	Permit Records
2m.9	Use of Night/ Holiday Work Permit as per requirement		1	Permit Records
2m.10	Use of Any other Applicable Permit as per requirement		1	Permit Records
3a	Material safety data sheet(MSDS) available for all chemicals and displayed in usage and storage area?		1	Inspection/ non-conformity records
3b	Spillages of oil/concrete and other chemical is controlled and cleaned by proper method in case of spill?		1	Inspection/ non-conformity records
3c	Availability of adequate number of urinals in workplace and in elevations and maintained	M	1	
3d	Availability of rest rooms for workers at site	M	1	
3e	Availability of Drinking water facility at work spot		1	
3f	Hygienic Labour colony is provided for workers.		1	
4a	Is heavy/complex critical lifting permit obtained for heavy, complex materials before handling/erection activity?		1	Work Permit records
4b	Whether area below lifting activities barricaded		1	Inspection/ non-conformity records
4c	Availability of experienced rigging foreman		1	Experience details of rigging foreman
4d	Is agency is following proper storage and handling procedure as per manufacturer standard for all hazardous material?		1	Procedure for storage & handling
4e	Are oxygen and acetylene cylinders are transported to work place from storage area in trolleys		1	
5a	Whether all deep excavation has been protected by barrier		1	Inspection/ non-conformity records
5b	Sloping/benching & shoring provided for excavation as per requirement?		1	-do-
5c	Proper access and egress provided for excavations?		1	-do-
5d	Blasting is done in controlled manner?		2	-do-
6a	Whether Electrical booth is equipped with Co <sub>2</sub> fire extinguishers and fire buckets filled with sand?		2	Inspection/ non-conformity records
6b	Availability of Illumination lamp in electric booth?		1	-do-
6c	whether Caution Boards have been displayed?		1	-do-
6d	Usage of Metal Plug top for all hand power tools ?		1	-do-
6e	Usage of Insulated welding cables.		1	-do-
6f	Electrical Booth/Distribution Board to be covered by proper Canopy.		1	-do-
6g	Availability of functional & individual 3oma ELCB / RCCB and MCB for protection and conducting periodical check-up?		1	-do-
6h	Double earthing for panel boards and all machinery & proper earth pit with regular inspection available?		1	-do-
6i	Whether Electrician is qualified and experienced		1	Qualification & Experience records of electrician
6j	Availability and usage of Rubber hand gloves by electrician?		1	Inspection/ non-conformity records

**POWER SECTOR- HQ**

FORMAT NO: HSEP:14-F33

REV NO.: 00

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**Checklist for Evaluation of HSE Performance**

SL	Parameter for Measurement	M/O	Wt	Supporting Documents
7a	Whether Scaffolding pipes made with steel or aluminum, are being used and checked periodically by experienced/ certified scaffolder?		2	Inspection/ non-conformity records
7b	8mm Stainless Steel wire rope with plastic cladding is provided for life line (Vertical / Horizontal) during height work?		2	-do-
7c	Availability of emergency lighting in case of power failure		1	-do-
7d	Whether all the openings are covered with Safety Nets made of fire proof Nylon?		1	-do-
7e	Whether MS pipe rails around staircases & platforms in usage are provided with top, middle rails and toe guard ?		1	-do-
7f	Whether Ladder with vertical life line /Fall arrestor is available to climb?		1	-do-
7g	Whether all workers deployed for working at height have been issued height pass after undergoing vertigo test?		1	Height Pass records
7h	Whether all workers deployed for height work / climbing ladder are provided and using Double lanyard safety belt?		1	PPE Issue records, inspection/ non-conformity reports
7i	Is all hand tools/Small material used by height workers is tied firmly to prevent fall?		1	-do-
8a	Flash back arrestors for all gas cutting sets is available on Torch side and cylinder side		1	Inspection/ non-conformity records
8b	Oxygen/Acetylene/LPG cylinders not in use have caps in place and stored separately?		1	-do-
8c	Availability of Face screen, Hand gloves, and Apron, for welders		1	-do-
8d	Protection from falling hot molten metal during metal cutting / welding at height by providing GI sheet below the cutting area especially in fire prone areas		1	-do-
9a	Pre-employment medical check-up done for all workers and submitted?		1	Medical check records
9b	Availability of first aid center, with MBBS doctor(Own or Sharing basis)	<b>M</b>	2	Attendance records
9c	Availability of Ambulance facility 24 hours (Own or sharing basis)	<b>M</b>	2	-do-
9d	Is First aid trained personnel's are available and their names are displayed at site?	<b>M</b>	1	-do-
9e	Availability of Emergency vehicle at site		1	
9f	Periodical medical check-up is conducted for all the workers and submitted?		1	Medical check records
9g	Availability of sufficient number of first aid box as per standard list and maintaining record		1	Inspection records
10a	Availability of Fire extinguishers, buckets at all vulnerable points		2	Fire extinguisher records
10b	Periodic fire mock drill conducted?		1	Fire, Mock drill records
10c	Are all flammable materials are stored separately?		1	
10d	Periodic grass cutting is done in material storage area?		1	
10e	Availability of 24V DC lighting in confined space work area		1	
10f	Availability of exhaust fan in confined space work area		1	

**Note:**

- **M: Mandatory; O: Optional.** Points other than mandatory can be excluded with appropriate justification (scope etc.) by BHEL
- Additionally: 30 Marks for each Fatal Accident and 10 mark for each major accident shall be deducted.



# SAFETY WORK CLEARANCE

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

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

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

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

## BURNING/WELDING /HOT WORK PERMIT

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

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

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

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

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

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

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

The following precautions are to be taken:

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

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

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

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

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

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

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

**Permit Cancellation:**

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

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

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

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

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

Original at BHEL site

Second Copy – BHEL SAFETY

Third Copy : Contractor



# SAFETY WORK CLEARANCE

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

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

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

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

## LIFTING ACTIVITY PERMIT

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

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

Performing Contractor: \_\_\_\_\_

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

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

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

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

The following precautions are to be taken:

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

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

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

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

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

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

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

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

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

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

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

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

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



# SAFETY WORK CLEARANCE

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

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

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

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

## WORKING AT HEIGHT PERMIT

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

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

Performing Contractor: \_\_\_\_\_

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

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

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

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

The following precautions are to be taken:

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

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

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

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

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

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

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

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


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

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

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

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

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

	<b>HEALTH, SAFETY AND ENVIRONMENT PLAN FOR SITE OPERATION by SUBCONTRACTORS</b>	Doc no.: HSEP: 14 REV: 01
	POWER SECTOR	Date: 17.01.2020

### REVISION HISTORY SHEET

Date	Revision No.	Details of Changes	Reason	Prepared	Reviewed	Approved
12.08.2014	00	First Issue	First Issue	S. B. Jayant, Dy Manager- FQA & Safety	A. K. Sinha, GM-FQA & Safety	Anuj Bhatnagar, ED-FQA & Safety
17.01.2020	01	Formats added:  <b>HSEP:14-F30 – Monthly HSE Planning &amp; Review</b> (Page 11, Clause 8.0 - updated)  HSEP:14-F13E-Excavation Inspection Format (part of F30) HSEP:14-F32B – Job Safety Analysis Format (part of F30)  <b>HSEP:14-F31A – Daily HSE Reporting</b> (Page 18, Clause 10.3 – added)  <b>HSEP:14-F33 – HSE Performance Evaluation</b> (Page 31, Clause 13 – revised)	IOM No.  <b>PSHQHSE/M ONREP/02</b>  Dated 08-Jan-2020	Rohit Kumar	Santosh Nair, GM (MSX & HSE)	



**VOLUME-IA**

**PART II**

**CHAPTER-III : EVALUATION OF VENDOR PERFORMANCE**

NAME OF PROJECT / SITE:

NAME OF THE VENDOR:

ORDER REFERENCE:

PERFORMANCE FEEDBACK YEAR/QUARTER:

Sl No.	CRITERIA	MAX SCORE	WEIGHTAGE	SCORE OBTAINED	WEIGHTED SCORE
1	MANPOWER	10	2.5	25	
2	QUALITY	20	3	60	
3	OTHERS	10	1.5	15	
TOTAL WEIGHTED SCORE (OUT OF 100)					
LESS: Score for Accidents attributable to Contractor during the reporting period (Major @ 3, Minor @1)					
Major Accidents – Fatal, Permanent Disability, Major damage to Equipment					
Minor Accidents – All Others					
Net Weighted Score (out of 100)					
Overall Performance Evaluation			Good / Satisfactory / Unsatisfactory		
Net Weighted Score					
80% and above			Good		
Between 60% to 80%			Satisfactory		
60% and Below			Unsatisfactory		

## VENDOR PERFORMANCE FEEDBACK

NAME OF PROJECT / SITE:

NAME OF THE VENDOR:

ORDER REFERENCE:

PERFORMANCE FEEDBACK YEAR/QUARTER:

Sl No.	Details	PERFORMANCE FEEDBACK				
		5	4	3	2	1
01	<b>MANPOWER</b>					
1.1	Deployed Crew Skill					
1.2	Job Co-ordination Skill					
2	<b>QUALITY</b>					
2.1	IHE Performance					
2.2	Attending to Breakdowns					
2.3	Response to Site Requirement					
2.4	Work as per Customer Satisfaction					
3	<b>OTHERS</b>					
3.1	Behavioural Aspect					
3.2	Responsiveness to statutory regulations and compliance level					

(Signature of Site Engineer)

(Signature of Construction Manager)