



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

**BHARAT HEAVY ELECTRICALS LIMITED**

(A Govt. of India Undertaking)

**TCN – 01**

Ref: PSER:SCT:KLN-M2160:TCN-01

Date: 23-08-2022

Sub	<b>Tender Change Notice (TCN) - 01</b>	
Job	Design, Engineering, Manufacturing, Supply, Erection & Commissioning etc. of Weigh Bridge at 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
Ref	1.0	Tender no PSER:SCT:KLN-M2160:22
	2.0	BHEL's NIT, vide reference no. PSER:SCT:KLN-M2160:9353 Date: 18-08-2022.
	3.0	BHEL's TCN-01, vide reference no. PSER:SCT:KLN-M2160:TCN-01 Date: 23-08-2022.
	4.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 **Site HSE Plan** is attached. Bidders are requested to go through entire volume before submitting their offer.
- 2.0 Revised 'No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 3.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

DY. MGR (SCT)

Encl : As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960

फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

**FORMAT FOR NO DEVIATION CERTIFICATE**  
**(To be submitted in the bidder's letter head)**

BHARAT HEAVY ELECTRICALS LIMITED,  
 Power Sector - Eastern Region,  
 Plot no 9/1, DJ Block, Sector – II, Salt Lake City,  
 Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Design, Engineering, Manufacturing, Supply, Erection & Commissioning etc. of Weigh Bridge at 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
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	4.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted/uploaded offer/documents in accordance with tender instructions with acceptance of the terms & conditions of the tender by us and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized  
representative of the bidder)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 033-2339 8000



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**BHARAT HEAVY ELECTRICALS LIMITED**

(A Govt. of India Undertaking)

# SITE HSE PLAN FOR 2X660MW MAITREE RAMPAL PROJECT

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DOCUMENT NO: HSEP:14(1)-MAITREE: DATE:01.03.16

**HSE DEPARTMENT**

**Plot No. 9/1, Block-DJ, Sector-II, Salt Lake, Kolkata – 700 091**

Phone no. 033-23398049, Web : [www.jantermanter.com](http://www.jantermanter.com)



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**SITE HEALTH, SAFETY AND  
ENVIRONMENT PLAN FOR  
2X660MW MAITREE POWER PROJECT**

Doc no.: HSEP: 14(1)-MAITREE

REV: 06

Date: 18.04.2020

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**DOCUMENT ISSUE SHEET**

	PREPARED BY	APPROVED BY
NAME	Kingsook Roy	Pradip Ghosh
COMPANY	BHEL	BHEL
SIGNATURE		<b>Pradip Ghosh</b> Digitally signed by Pradip Ghosh DN: cn=Pradip Ghosh, o=BHEL, ou=Maaitree, email=pradipg@bhel.in, c=IN
COPY NO:		Date: 2020.07.11 18:50:44 +06'00'
DATE OF ISSUE:		



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## SITE HEALTH, SAFETY AND ENVIRONMENT PLAN FOR 2X660MW MAITREE POWER PROJECT

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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 as well as BHEL's Sub-Contractors at all installation and servicing sites. [In addition, Customer order ref BIFPCL/EPC-MAIN PLANT/2016/01 date 12.07.16, Volume-IIA of VI and EIA report recommendations shall be followed](#)
- 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 or EHSS contract requirements must be followed of which the most stringent shall apply.
- 1.4 We will promote and maintain a safe, healthy and environmentally compliant workplace for all employees, contractors, visitors and any others that may be affected by construction activities, and strive for a "GOAL of ZERO REPORTABLE INCIDENTS" on the project.

### 2.0 SCOPE

The document is applicable for installation and commissioning of 2x660MW SETS as per the relevant contractual obligations, and provides the minimum HSE requirements to be followed at the project site and labour colony. As an item of note, this HSE Plan is considered a living document and will be revised as/if necessary to ensure contract and regulatory compliance requirements are met during the performance of work on the project

### 3.0 OBJECTIVES

The HSE Plan reflects that BHEL places high priority upon the Occupational Health, Safety and Environment at workplaces. BHEL and all sub-contractors are committed to:

- 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.
- Effectively control, co-ordinate and monitor the activities of all personnel on the Project sites including contractors 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 authority.
- 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 and disseminate lessons learned.



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- Ensure timely implementation of correction, corrective action and preventive action.

**3.1 Goals and Targets -**

- To achieve "Zero Fatal Incident at Site"
- 100% compliance of all legal/statutory requirements related to EHS.
- 100% Health, Safety and Environmental Induction training attendance for all employees and sub-contractors.
- 100% High Risk activities to be carried out only after approved Method Statement, HIRA/JSA and Permit to Work are implemented.
- 100% PPEs compliance in high & medium risk activities.
- 100% incident reporting, recording and reviewing for corrective & preventive actions.
- A monthly review shall be scheduled and conducted to assess HSE program compliance and to close any recognized gaps to improve safety management and incident prevention.

**4.0 REFERENCES**

- [Customer order ref BIFPCL/EPC-MAIN PLANT/2016/01 date 12.07.16, Volume-IIA of VI and EIA report](#)
- Relevant legislations as listed in Register of Regulations
- HSEMS Manual
- HIRA Register, Operation Control Procedures and Emergency Preparedness and Response Plan
- Relevant Indian/ Bangladesh/international standards





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**5.0 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/-

Director (Power)



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## **6.0 TERMS AND DEFINITIONS**

### **6.1 DEFINITIONS**

#### **6.1.1 INCIDENT**

Work-related event(s) in which an injury or ill health (regardless of severity) 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 incident".

#### **6.1.3 MAN-HOUR WORKED**

The total number of employee 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 workday 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 aid includes:

- Visit to a physician or a licensed health care professional solely for observation or counselling
- Conduct of diagnostic procedures like X rays, blood test including the prescription medications used solely for diagnostic purposes (e.g. eye drops to dilate eyes)
- Using a non-prescription medicine at non-prescription strength (for medication available in both prescription and non-prescription form as recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for record keeping purposes);
- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);
- Cleaning, flushing or soaking wounds on the surface of the skin;
- Using wound coverings such as bandages, Band-Aids TM, gauze pads, etc.; or using butterfly bandages or Steri-StripsTM (other wound closing devices such as sutures, staples, etc., are considered medical treatment);
- Using hot or cold therapy;
- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for record-keeping purposes);
- Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).
- Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;
- Using eye patches;
- Removing foreign bodies from the eye using only irrigation or a cotton swab;
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;
- Using finger guards;



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- Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or
- Drinking fluids for relief of heat stress.

No other treatments are considered first aid.

### 6.1.5 INJURY OTHER THAN FIRST-AID: ( As per Chapter VII, Rule 69 of Bangladesh Labour Rules, 2015)

**Notice to be given of any accident.** When any accident occurs in an establishment causing loss of life or bodily injury, or an accidental explosion, ignition, outbreak of fire or irruption of water or fumes occurs, the employer shall give notice of the occurrence to the Inspector within following 3 (three) working days [:]

Provided that the factory authority shall, immediately after the occurrence of such incident, inform the matter to the Government, Fire Service, Directorate of Inspection of Factories and Establishments, Police Station, and if required, the nearby hospital or government-private medical service establishment, through telephone, mobile phone, SMS or fax, in order to take immediate necessary action to minimize potential damages or bring the situation under control.]

#### Fatal incident and Serious Incident:

If the victim dies in the incident, it will be treated as a fatal incident.

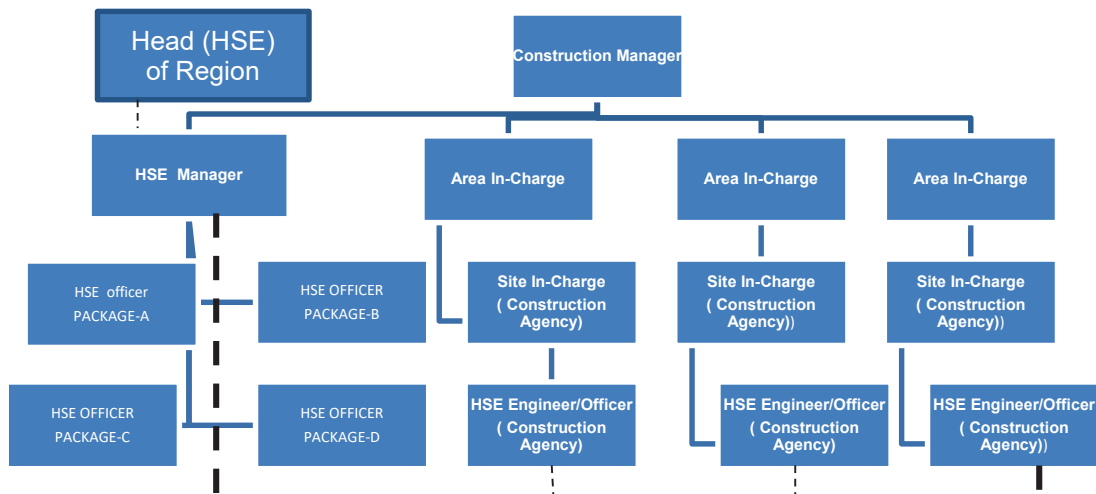
In this case the injured person is likely to be disable for more than 20 days to perform his duty, it will be treated as Serious Incident. In these cases, the intimation will be made as described above.

#### Minor Incident: (As per Chapter VII , Rule 70 of Bangladesh Labour Rules, 2015)

Where an accident mentioned above causes bodily injury resulting the compulsory absence from work of the person injured for a period exceeding 48 (forty-eight) hours, but not exceeding 20days. The management will inform the concerned statutory authority within 7 days in form-27 under rule 69/1/(A), (B) and (C) of Bangladesh Labour Rules, 2015.

## 7.0 HSE ORGANISATION

### 7.1 ORGANIZATION CHART





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### 7.2 NO AND QUALIFICATIONS FOR HSE PERSONNEL

Designation	Qualification	Experience	Nos
HSE officer (BHEL/Construction Agency)	i. Must at least completed Diploma in engineering from a recognized institution ii. Must have a recognized degree or diploma in Safety Management OR NEBOSH IGC /Managing safety IOSH OR Advanced Certificate in Workplace Safety & health from Singapore (Min Duration: 60days) OR Have attended certificate courses in following topics: a. Work-at-height safety b. Scaffolding safety c. Fire Safety d. Excavation safety/civil work safety e. Confined space safety f. Electrical safety g. Safe Lifting h. Risk Identification & Control i. Incident reporting & Investigation j. Disaster Management iii. Must have worked for min 2 years in case of graduate engineers or 5 years in case of Diploma holders. iv. Must be fluent in Bangla in speaking, reading and writing and in English in reading and writing. v. Must have working knowledge in Computer operation vi. Candidates with awareness of ISO-14001 and OHSAS- 18001 will be preferred.	Minimum two years for degree holder and five years for diploma holder in field of safety	Min One safety officer for every 500 persons or part thereof or as decided by site CM



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HSE MANAGER	Same as above, but must be a degree holder in Engg/ Technology	Minimum 5 years' experience in HSE function, out of which min 3 years in major construction engg projects	1 for the project under BHEL's scope
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### 7.3 RESPONSIBILITIES

#### 7.3.1 SITE IN-CHARGE

- To appoint HSE co-ordinators.
- To chair monthly site HSE review Meetings.
- To define roles and responsibilities of the employees under their control with respect to HSE Management System implementation.
- To coordinate with MR for setting HSE objectives and targets in BSC.
- To formulate detailed schedule of activities for implementation of HSE programs.
- To implement Operational Control Procedures (OCPs).
- To arrange resources for implementation of HSE programs.
- To identify and arrange for provision of required training to employees as well as suppliers/ contractors.
- To ensure investigation into any significant incident or safety lapse.
- To ensure corrective action and preventive action for non- conformities / observations.
- To generate HSE performance reports and forwarding the same to MR.
- To communicate the feedback received from interested parties to MR and vice versa.
- To communicate to suppliers / contractors regarding HSE issues pertaining to the activities / services provided by suppliers / contractors and to ensure their training, if required.
- To ensure effective implementation of Emergency Preparedness Response Plans and periodical mock drills.
- To stop work as & when identified unsafe.
- To facilitate HSE promotion.

#### 7.3.2 HEALTH, SAFETY AND ENVIRONMENT MANAGER / OFFICER

- 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.



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- 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 and other emergency Drills and facilitate emergency preparedness
- Design campaigns, competitions & other special emphasis programs to promote safety in the workplace.
- Apprise PSER/HQ on safety related problems.
- Deploy safety wardens suitably.
- 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.
- To stop work as & when identified unsafe.
- 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, sub-contractors on HSE matters

**7.3.3 SECTION IN-CHARGE (RESPECTIVE PACKAGE IN CHARGE)**

- Shall report to Construction Manager.
- Shall demonstrate the personal commitment of his subordinates towards implementation of HSE targets.
- Shall implement the requirements of the client and company safety policy and the HSE Plan.
- Shall manage supervisory structure within their respective sections to ensure that the detailed requirements of Health Safety and Environment Policy of the Customer/ Company is understood and implemented by all personnel engaged in their respective area of operation.
- Shall ensure that the persons working under him shall be competent to maintain the Safety Standards at their site.
- Shall continuously review HSE performance within his sections to ensure that performance targets are being achieved.
- Shall ensure that Induction Training and Tool Box talks are conducted at his site regularly.
- To stop work as & when identified unsafe.
- Shall conduct periodic HSE inspection and mock-drill.
- Shall ensure that specific Risk Assessments conducted by trained and competent personnel at the appropriate time and that the resultant control measures are communicated to the persons responsible for supervising and executing the work.



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- Shall ensure that all management and supervisory personnel engaged within his section conduct routine HSE surveillance.

#### 7.3.4 ALL EMPLOYEES

- To adopt safe working practices wherever they are undergoing.
- To take corrective action and preventive action in case any non-conformity is observed on product / process / system with respect to Occupational Health, Safety and Environment.
- To report all incidents including near miss to HSE officer or HSE coordinator (Site) / HOD (SOX).
- In case any particular activity / work has extremely high consequential risk or high environmental impact, the employee shall bring it to the notice of Site In charge before starting the work.
- To ensure that the workers are engaged by the contractor for the job after undergoing induction training.
- To ensure that the persons engaged in his area follow the safety rules like using appropriate PPEs.
- To get involved in exercises like Job Safety Analysis and Work Permit System.
- To engage licensed electricians for site electrical works.
- To report any incident including near misses or safety lapses immediately to safety officer/HSE co-ordinator/RCM.
- To stop work as & when identified unsafe.
- To maintain & promote improved level of house-keeping all the time at site.
- To support/co-operate with audit team members as & when safety audits are carried out.
- To involve in investigation, if any incident occurs in his work area.
- To participate in safety promotional programmes.
- To attend the safety committee meeting, if he is a member/ invitee
- To ensure that only fit T&Ps and qualified persons are engaged.

#### 7.3.5 SITE IN -CHARGE OF SUBCONTRACTOR

- Shall ensure fulfillment of HSE requirements of BHEL contract
- Shall engage qualified safety officer(s) as per contract.
- 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 authorities.





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- 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).
- 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.
- 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

**7.3.6 SITE HSE COMMITTEE: (If workers strength above 50)**

- Site HSE committee shall consist of Construction Manager (Chairman), Site HSE [manager](#) (Secretary/Convener), HOS (Member), Site In charge of Subcontractors (Member), Safety officer of Subcontractors (Member), [and a cross-section of workers across agencies working at the site.. Both workers and BHEL management shall have equal representations. The committee shall not have less than 6 members and not more than 12 members as per Rule 81, Chapter-VIII of Bangladesh Labour Rules, 2015. Senior most official of BHEL shall officiate as chairman, in case Chairman isn't available on a day of the meeting](#)
- Shall evaluate a suitable course of action for the effective implementation of safety system & procedures. Committee will also ensure that all the relevant codes & acts / rules are followed.
- Shall meet monthly and as and when required, to discuss ways and means to eliminate unsafe acts/condition.
- Shall monitor the performance of the HSE programs and suggest improvements as required.
- Shall discuss exception points relating to HSE Audits, sub-contractors HSE practices, incident reports, near miss reports, etc.





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- Shall analyze the high risk activities to be undertaken in the near future to identify hazards and decide on the control measures to be taken.
- Shall inspect the site on regular intervals to locate unsafe conditions with reference to the inspection checklist.
- Shall investigate all incidents and strengthening the safety programme by additional precautions, if any based on the incident investigate.
- [Records and meeting notes must be taken from each safety committee meeting.](#)
- [Copies of the meeting notes must be submitted to the H&S Manager of BIFPCL for information and record purposes.](#)

### 8.0 PLANNING

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

- 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. A documented daily prior to use inspection checklist shall be completed by the end user and periodic inspection shall be arranged by in-house competent authority for acceptance as applicable. All Tools & Plants shall be certified by a third party COMPETENT person before these are put to use [as per Rule 60, 75 and schedule 3 of Bangladesh Labor Rules](#). As far as possible, this certification shall be made available to site HSE function by the contractor before entry into the site. The certification shall be renewed annually, otherwise, the item shall be withdrawn from the work area. [The fitness of T&Ps shall be monitored by site HSE quarterly and alert/ reminder issued to the concerned agency and BHEL package in-charge.](#)
- The machinery and equipment to be embraced for this purpose shall include but not limited to the following:
  - Mobile cranes.
  - Side Booms.
  - Grinding machine.
  - Drilling machine.
  - Air compressors.
  - Welding machine.
  - Generator sets.
  - Dump Trucks.
  - Excavators.
  - Dozers
  - Grit Blasting Equipment.
  - Hand and power tools.

#### 8.2 MOBILISATION OF MANPOWER

- As a measure to ensure that manpower being mobilized to the construction site is fit and competent for safe working, screening arrangement shall be made by the sub-contractors to fulfill contractual as well as legislative requirement.
- Examination of medical fitness shall be conducted through qualified medical professional for all workers to be deployed (pre-employment). Post-employment medical check-up shall be done for persons engaged in hazardous jobs at a regular interval as per legislations.



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- Appropriate accommodation to be arranged for all workmen in hygienic condition.
- Addiction and substance abuse shall also be checked at pre-employment stage and later at random.

### 8.3 ARRANGEMENT OF INFRASTRUCTURE

#### 8.3.1 DRINKING WATER

- **Adequate** Drinking water shall be provided and maintained at suitable places at different elevations.
- Chilled water shall be made available from 1<sup>st</sup> April to 30<sup>th</sup> Sep of the year
- Chilled water shall be made available from 1<sup>st</sup> April to 30<sup>th</sup> Sep of the year
- Container should be labeled as “ Drinking Water”
- Cleaning of the storage tank shall be ensured at least once in 1 month indicating date of cleaning and next due date. Mild cleaning detergents as used for cleaning vessels shall be applied and scrubbers (3M or equivalent) shall be used for removing scales and deposits on the inside surface. The tank shall be thoroughly cleaned with potable water only before it is refilled.
- Employees should use their own cup for collecting water-no cup shall be shared
- Potability of water should be tested as per standard **at least once in every month as per Rule 50(5) of Bangladesh Labour Rules, 2015.**
- Apart from above, those who are engaged in work producing significant heat , shall be served saline water or Sarbat at the rate of 2litres perday
- Storage of drinking water shall be min 6M away from any toilet and washroom

#### 8.3.2 WASHING FACILITIES (As per Chapter VIII, Rule 86 of Bangladesh Labour Rules, 2015)

- 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.
- If water used for washing is not potable, it shall be marked “Do Not Drink” in English, Hindi and local language

#### 8.3.3 LATRINES AND URINALS ( As per Chapter V, Rule 51, Schedule II of Bangladesh Labour Rules, 2015)

- Latrines and urinals shall be provided in every work place based on strength of workmen at the rate of one toilet seat and one urinal for every 50 female workmen and for every 60 male workmen or part thereof (not less than 20).
- Urinals shall also be provided at different elevations.
- They shall be adequately illuminated and shall be maintained in a clean and hygienic condition at all times, by appointing designated person.
- Separate facilities shall be provided for the use of male and female worker if any.
- Hand-wash facility shall be provided

#### 8.3.4 Sick Room (As per rule 77, Chapter VIII of Bangladesh Labour Rules, 2015)

- A Sick room shall be ensured/identified at site with basic facilities as per sub rule 77(5) 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 a Degree in Medical Science (Allopathy) as recognized in Bangladesh , shall be deployed at the medical centre along with sufficient support staff



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- The medical centre shall be equipped with one ambulance, with trained driver and oxygen cylinder.
- Medical waste shall be disposed as per prevailing legislation

**8.3.5. FIRST AIDER**

- Must have a competence certificate in First-aid issued by Bangladesh Red Cross Society/ Bangladesh St Johns Ambulance/ any other agency which is recognised by the Govt of Bangladesh
- Ensure availability of **one** Qualified First-aider throughout the working hours **for every 150 workmen engaged as per clause 89 of Bangladesh Labour Law**
- 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.

**8.3.6 FIRST AID BOX (as per rule 76(2) of Bangladesh Labour Rules, 2015)**

- 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 box shall be distinctly marked with a Green Cross on white background.
- Any person using/needing the contents of the first aid box shall immediately report that use/need to their supervisor.
- Details of contents of first aid box is given in **Annexure No. 01**

**8.3.7 HEALTH CHECK UP**

The persons engaged at the site shall undergo mandatory health checkup from a qualified doctor as per the **format no. HSEP:14-F03 and Health Record 31-A** 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
- c. Confined space workers
- d. Shot/sand blaster
- e. Welding and NDE personnel

**8.3.8 PROVISION OF ACCOMODATION/LABOUR COLONY**

- The subcontractor shall arrange for the accommodation of workmen at nearby houses or by making a labour colony.
- Regular housekeeping of the labour colony shall be ensured.
- Proper sanitation and hygienic conditions shall be maintained and inspected once in a month.
- Adequate number of toilet facilities with water for workers as per norms to be provided. There must be separate toilet for women workers. Drinking water and electricity to be provided at the labour colony.
- Potable water shall be tested once in six months as per IS10500.
- MSDS of LPG shall be put up prominently. This shall be included in the induction training as well.
- The labour colony shall be appropriately secure so that only authorized persons have access to it.
- First aid facility shall be provided in the labour camp under the administration of trained first aiders.



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- Common kitchen facilities to be ensured and cooking inside the room to be avoided. The canteen should be maintained in hygienic condition.
- No. of occupants in room rooms to be as per the standards practice.
- Awareness training shall be organized for the workers regarding fire safety, safe use of LPG, Health & Hygiene, and electrical safety etc. on monthly basis.
- Adequate drainage and approach roads to be done.
- Perimeter fencing, security and main gate entrance shall be established and maintained.
- Monthly inspection to be done to ensure the compliance and for opportunity of improvement.
- Workers shall not be transported in open vehicles i.e. trailers, truck beds etc within project boundaries which includes the labor colony.

### 8.3.9 PROVISION OF EMERGENCY VEHICLE

Generally one vehicle (4 wheeler) is identified by each major package holder (sub-agency). Minor package holders are permitted to have a tie-up with major package holder

### 8.3.10 PEST CONTROL

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

### 8.3.11 GENERAL DISCIPLINE:

Workmen under influence of liquor or drug or any other intoxication shall not be permitted to work and sent out of the work area. Workmen shall not be permitted to smoke in work area. None shall be permitted to carry any arms or firearms. The workmen shall report to work on time and follow supervisor's instruction. Use of cell phone particularly in hazardous jobs shall be discouraged like height work, crane operation etc. Horseplay, willful violation of rules shall be dealt with suitable disciplinary action including suspension and termination. They shall be subjected to physical frisking or alcohol/drug test at random by security and security shall be authorized to take appropriate disciplinary action against any delinquent employee like throwing out of the gate for the day and so on. If any such employee returns to work, he shall be put through induction training once again.

## 9.0 HSE TRAINING & AWARENESS

Only competent, trained and qualified staff shall be engaged for the provision of HSE induction and training. **Training need identification and scheduling will be done by site HSE team based on execution plan and induction pattern of manpower. Skill training programme will be arranged during execution, apart from Tool Box Talk/ pep-talk**

### 9.1 HSE INDUCTION TRAINING

All persons entering into project site shall be given HSE induction training by the HSE officer of BHEL/subcontractor/customer at a specific location:

No employee shall be engaged without induction training

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

- Briefing of the Project details.
- Safety objectives and targets.
- Site HSE rules.



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- Site HSE major hazards & risks, aspects & impacts and mitigation measures related to the jobs to be performed by the person or group of person.
- First aid facility.
- Emergency Contact No.
- Incident reporting.
- Fire prevention and emergency response.
- Rules to be followed in the labour colony (if applicable)
- Use and maintenance of PPEs(i.e., Shoes/Helmets/Goggles/Leg guard/Apron etc.)
- Dress requirement- no loose dress/ ornaments
- No smoking/alcohol/drug abuse/gambling/fights/theft/damage to property
- General Traffic rules/pedestrian rules
- Cell phone use restrictions
- House keeping
- Security Compliance Requirements
- Environmental Compliance Requirement
- 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 Contractor's in-house HSE induction, all employees shall be tested by asking questions orally or in writing and must pass the test with a 70% passing score, to find out if training input has been retained. Test scores shall be documented and each employee shall sign an induction training form (**format no. HSEP:14-F02**) 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 tool box is a forum for two-way communication between management and the employees. Pep talk is focused on a specific job. The agenda shall consist of the followings:
  - Details of the jobs 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.
  - Feedback from employees
  - Any doubt clearing session at the end.
- Record of Tool box talk shall be maintained as per **format no. HSEP:14-F11**
- Tool box talk to be conducted at least once a week for the specific work.

#### 9.2.1 PRE JOB BRIEFING

A separate documented daily pre job briefing must be conducted at the actual job/work site location with the supervisor and work crew, to cover working environment/conditions, safe work practices for the activities to be carried out, required PPE and review of the work package, JSA and permit requirements. Each crew member and the supervisor will signoff on the pre job briefing form, and form will be submitted to the HSE department at the end of each shift.

### 9.3 TRAINING ON HEIGHT WORK



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Training on height work (above 6' or 2m) shall be imparted to all workers working at height by in-house/external faculty at least twice in a year. Fall protection training must involve as much hands-on activity with the equipment as possible. The training shall include following topics:

- Fall hazards associated with the elevated work.
- Elements of the fall protection systems utilized
- Requirement for 100% tie-off when working at or above 6' or 2m.
- Body Harnesses of at least a five-point configuration shall be used in all fall arrest systems. The harness Dee-ring shall have a minimum tensile strength of 5,000 pounds (22.2 kN).
- Fall protection equipment used. Use of PPEs – Harness proper fit, storage and compulsory tie-off of body harness to a firm support/life-line or anchorage point).
- Anchorage selection used for attachment of personal fall arrest systems shall be capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, determined by a competent person.
- Use of fall arrester (shock absorbing lanyard), retractable fall arrester, life line, safety nets etc.
- Safe climbing through monkey ladders.
- Maintenance and Inspection of PPEs.(Daily/periodical)-color coding
- Medical fitness requirements.
- Mock drill on rescue at height.
- Dos & Don'ts during height work. For the workers & staff passed through the vertigo test, an additional sticker for height pass to be issued. This is applicable for those who are supposed to work or inspecting in BTG area, etc.

#### 9.4 HSE TRAINING DURING PROJECT EXECUTION

- Other HSE training shall be arranged by BHEL/sub-contractor 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
  - T & Ps fitness and operation
  - Electrical safety
  - Welding, NDE & Radiological safety
  - Storage, preservation & material handling.
- A matrix shall be maintained to keep an up-to-date record of attendance of training sessions carried out.
- Skill labour (like fitter, electrician, rigger, scaffolder, carpenter etc.) will pass through the trade test (written and practical) conducted at site by the respective engineer & EHS officer. A pass sticker of qualified person to be marked on their ID Card/Gate Pass.

9.4.1 HSE Induction for Visitors: No visitors are allowed to visit the construction site without safety induction, mandatory PPEs, and designated escort.

9.4.2 Safety Induction for all (Staff/engineers/sub-Contractors officials/supervisors): It is compulsory to provide safety induction and briefing about the site HSE management systems, requirements and individual's roles & responsibility to carry out the activities in safe manner, before deploying them.



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**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 ( as per [Safety signages will be as per BS 5378 safety signs & Colors and BS 5499 graphical symbols & signs](#))**

- 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
- Example:



**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. Monthly safety shall be observed.

**9.5.4 HSE awareness programme**

- Site will arrange HSE awareness programme periodically on different topics including medical awareness for all personnel working at site\

**10. 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. PPE details shall be maintained as per Form-23
- Besides the PPEs mentioned below, the persons shall use, reflective vests, helmet and safety shoe 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, Apron
5	Insulation Work	Respiratory mask, Hand gloves, safety goggles





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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 and other related safety equipments shall conform to the relevant indian or equivalent European or American standards as below:

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

BS EN 397:2012	Industrial Safety Helmets.
BS EN 60903:2003	Insulating material gloves for electrical purposes.
BS EN 374-3: 2003	Protective Gloves- Chemical Penetration
BS EN 388:2003	Protective Gloves- Mechanical Risks
BS EN 407: 2004	Protective Gloves- heat and fire
BS EN 420:2003	Gloves- general requirement
BS EN-20345	Industrial safety footwear
BS EN 166:2002	Eye protectors.
BS EN 352-1 & 2:2002	Ear Muff & Ear Plug
BS EN 175:1997	Eye & Face protection during welding
BS EN 361:2002	Fall Arrest Full Body Harness
BS EN 360:2002	Retractable type fall arresters
BS EN 795:2012	Lifeline System
BS EN 358;1999	Work Resistant Harness
BS EN 813:2008	Seat harness
BS EN 1498+ others	Rescue Harness+ other items of a rescue kit
BS EN 353:2002	Detachable fall arrestor
BS EN 149: 2001	Filtering Half masks to protect against particles
BS EN 471:2003	High Visibility Clothing

- 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
- The visitors shall also use Reflective Vests, 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





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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.
- In case, contractor fails to provide PPEs in time, BHEL/Customer may provide the same and the cost as deemed appropriate by BHEL/Customer shall be debited

**11.0 Power supply & upkeep of installation -**

- Only persons licensed to Govt of State shall maintain and operate power installations.
- All distribution boxes shall be locked and the key controlled by site management of concerned contractor.
- Electrical appliance shall have proper earthing and for appliances equal to & more than 415V shall have two separate earthing ( as per IS-3043-1987)
- All electrical supply shall be provided through ELCB of 30mA sensitivity.
- The working condition and sensitivity of ELCB shall be checked periodically.
- All fuses and fuse wires shall be of standard size and rating.
- All power supplies through cables shall be underground or overhead with height > 3mtrs.

The following guidelines are to be considered the absolute minimum requirements to be supplemented by requirements of all applicable codes and standards for such work; Wiring and Branch Circuits Must be protected by a proper amperage over-current device such as a HRC fuse or circuit breaker. Such installations must be located so as to prevent physical damage to the wire conductors & panels.

- Portable electric lights used in wet or potentially wet locations must be either low voltage type (24 volts or less) or protected by a GFI (ground fault interrupter).
- Must be visually checked before each use and periodically while in use to assure their original integrity is maintained. Cords with cuts, breaks, deep abrasions, etc. shall be taken out of service immediately. Repairs to extension cords shall only be performed by qualified/ licensed electricians.
- Must not be allowed to lie in wet or potentially wet areas.
- Every electric line or cable of unknown origin that is discovered or exposed during a digging, drilling, probing, or similar operation is to be considered as energized and life threatening. The senior company employee on the site will ensure that all necessary safety precautions are taken in order to isolate the line from all workers and the public. Such precautions may include halting the operation if appropriate. The senior company employee on the site is to then contact the proper authorities to have the line identified and either confirmed to be abandoned and/or made safe for continuing the work.
- Any and all underground lines that are discovered or become severed must be considered energized on both sides, and be treated accordingly.
- In general, equipment or machinery being moved or transported must maintain minimum clearances of 25 ft to all power lines.
- TAG IN/ TAG OUT must be in force in Switch Room and all Distribution Boxes for live power line. The authorized person's name and contact no shall be displayed



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- Ensure “double insulated” three - core cables and three pin connectors are used and are properly ground “all insulated” types, all electrical tools and appliances must be manufactured for industrial use.
- All connections shall be electrically and mechanically sound and properly insulated. Taped joints are not permitted. Connections to socket outlets must be made with proper plugs.
- Splices in electrical cords are not permitted. Repairs must be made at the socket connection and retain the same mechanical and dielectric condition of the original connection.
- Damaged or defective electric tools, equipment and extension cords, etc must not be used and shall be tagged out of service, removed from the work area and taken back to stores.
- Only licensed electricians are authorized to repair and work on electrical equipment. Tampering with electric tools or equipment by others could result in termination.
- Temporary electric cabling should be elevated 2.2 meters above the floor/ground or covered for protection. It must be kept clear of walkways and other locations where it may be exposed to damage or create a tripping hazard.
- Energized wiring in junction boxes, circuit breaker panels and similar places must be covered and locked at all times.
- Areas with live high voltage wires or terminals must be barricaded against entry and warning signs posted Danger – High Voltage and Authorized Personnel Only.
- Personnel should never work on energized equipment, deenergizing (lockout/tagout) the equipment is always the first requirement.
- The lockout and tagout procedure will be used when testing or working on, or around, energized installation.
- Working around energized equipment should never be done alone. A second electrician must always be available for assistance.
- If lockout/tagout of the work is infeasible (must be demonstrated), work on energized electrical circuits must be approved by the Site In-charge. All safety precautions necessary must be taken, PPE use must be evaluated per the exposure and used, i.e high/low voltage gloves, insulated shoes, overcoats/aprons, face shields, and other protective equipment like insulated tools, blankets, mats, etc. must be used.
- The welding machines earth leads shall be properly fixed without loose contacts. The earth cable only has to be used. No steel members shall be used as earth leads.
- Electrical crews must be qualified for the equipment and tools they work on, including being trained in Cardio-Pulmonary Resuscitation (CPR) methods and First Aid for rendering help in the event of electric shock.

**11.1 Qualified and Unqualified Workers (Electrical Works):**

Basic electrical safety knowledge is a major concern. It is critical that only qualified workers be allowed to perform this work. Therefore only those persons that are both qualified and authorized may install, fabricate, repair, test, calibrate or modify electrical or electronic wiring, devices, parts, systems or equipment.

**Qualified Person:**

One who is trained and wiremen licensed to Govt [as per Rule 58\(9\) of Bangladesh Labor Rules](#) and familiar with the construction, operation and safety hazards of the equipment upon which they are permitted to work.

- Qualified persons are intended to be only those who are well acquainted/experienced with and thoroughly conversant in the electric equipment and electrical hazards involved with work being performed.
- Only qualified persons may be permitted to work on or near exposed energized parts. Such persons are required to have been trained in three specific areas:
  - Qualified persons must be capable of working safely on energized circuits;



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- Must be familiar with the proper use of special precautionary techniques and procedures based on equipment and exposure; and
- Must be familiar with required personal protective equipment, insulating and shielding materials, and insulated tools.
- Qualified persons are expected to be able to evaluate unknown situations and adjust their activities in such a way that only safe work practices are used. Such behavior is the responsibility of the qualified person.
- It is possible and likely for an individual to be 'qualified' with regard to certain equipment in the work place, and unqualified on other equipment they must note their limitation and stop work if not qualified on what equipment they were to work on.
- An employee who is undergoing on-the-job training, who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training, and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties. The process must be documented as proof.

## 12.0 Lifting Operations:

All the cranes and lifting tools & tackles shall be inspected on daily basis and as well as formal monthly by expert and as per the law third party for annual certification. These shall be tested and certificates of fitness shall be obtained from 3<sup>rd</sup> party state govt approved competent agency before deploying at site and later periodically ([As per Rule 60 and 75, Schedule 3 of Bangladesh Labour Rules](#)) The last date of Third Party Inspection and the next Due date shall be conspicuously displayed on all cranes. A copy of certificate shall be pasted on operators cabin of all the lifting equipment.

- The manufacturer's instruction for maintenance shall also be followed. All safety measures shall be followed. All tools tackles, lifting appliances; material-handling equipment etc used by the contractor shall be of safe design and construction. The operators, slingers and signalers shall be qualified as per IS 13367 (part-1):2003 "Safe use of cranes- code of practices". There shall be a person responsible for co-ordination among cranes where multiple cranes are used, and lifting over 75% of the crane capacity to be avoided.

### 12.1 Personnel Lifts (Man-Basket): ([To be treated as a T&P item](#))

A Personnel Man-Basket permit shall be completed prior to lifting any people, along with a rigging plan. Man-basket shall be used where access through ladders or scaffolding is not feasible. Man-baskets shall be designed and engineered by a manufacturer (job made man-baskets are not allowed, unless designed and tested by a certified engineer), and built robust with MS Angles and flats or plates or channels only. Guard rails top and mid, must be in place and screened-in to avoid material from falling out of basket. The factor of safety shall be 200%. It shall have a door with double latches and shall open inside. Anchor points shall be identified within the man-basket. The man-basket shall be thoroughly inspected and load tested and a trial run performed without personnel before being put to job. It shall be treated as a lifting tool and shall undergo same certification cycle and inspection as other lifting equipments. An additional sling of required lifting capacity shall be fixed the man-basket main lifting point and attached to the crane above the ball or block. While lifting man-basket, the crane shall maintain a uniform speed of lift without any swing. Once man-basket reaches the destination, the lift brakes shall be locked as long as the basket remains at that point. The same care shall be taken in its descent. As for hanging man-basket, the same shall be hung off a rigid structure with help U-shaped handle welded to man-basket. This shall be tested once in a year by a competent person.

[It shall be tested as per Rule 60 and 75, Schedule 3 of Bangladesh Labor Rules](#)

## 12.2 CRANES AND HOISTING EQUIPMENTS:

[These shall be tested and certified before use as per clause 60 and 75, schedule 3 of Bangladesh Labour Rules](#)

This procedure provides the guidelines to ensure proper rigging and lifting activities are accomplished safely and in accordance with applicable specifications, codes, and regulations.

- On every crane or piece of hoisting equipment notices of all rated load capacities, recommended operating speeds,



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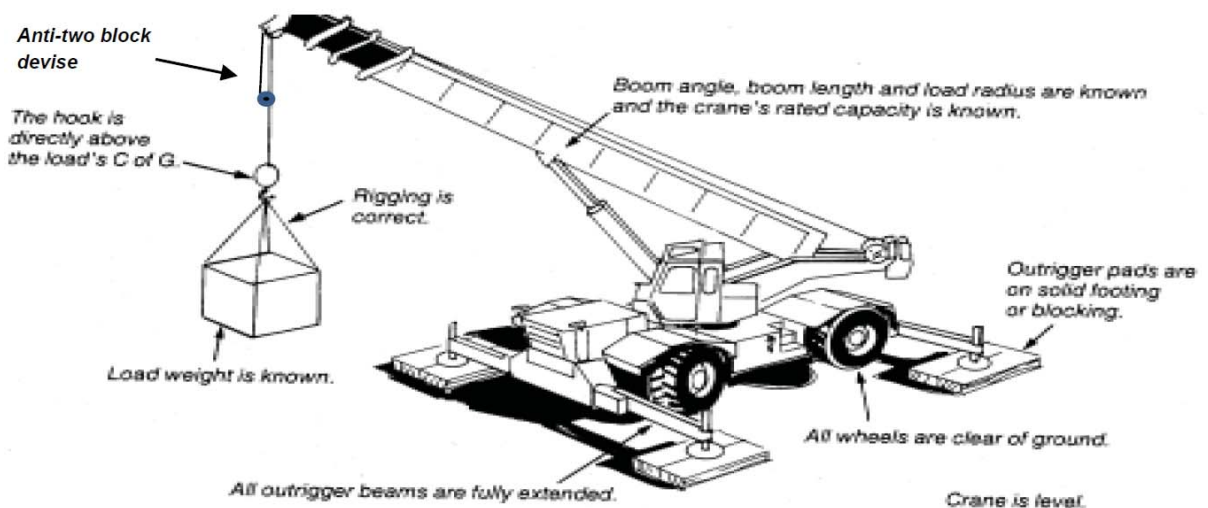
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and any hazard warnings or special instructions shall be conspicuously posted. All instructions and warning shall be visible from the equipment operator's station.

- Cranes shall have an Anti Two-block safety device installed
- All mobile cranes shall have overload and backup alarms
- Load angle indicators and limit switch

All areas within swing radius of cranes that are potentially accessible by pedestrian, vehicular, or equipment movement shall be barricaded to prevent anyone or any vehicle or equipment from being struck by the crane or hoisting equipment, or its load(s).

- No part of the lifting equipment or its load shall be within the distance as specified in the Indian Electricity Act from an energised power line
- Cranes shall have annual certified third party inspection and be inspected before use by the operator. Any defects shall be corrected before use. Logs of crane inspection shall be kept with the crane.
- Make certain that the rigging personnel, material, and equipment have the necessary capabilities for the job and are in safe condition.
- Communicate with person(s) directly responsible for accomplishing the work and / or work area to establish requirements/responsibilities and make certain that all preparatory work is complete.
- Mats/Pads must be used on all lifting equipment, equipped with out riggers.
- Pick and carry must have the load secured to the rig in front.
- Proper crane setup:



### 12.2.1 Safe Rigging Practices:

- Review the planned operation and requirements with the operator and rigging crew.
- Ensure a pre-lift meeting is conducted with crane operator, tagline operator, signal personnel, and Safety Manager.



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- Designate a qualified person from the rigging crew to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- Clear the lift area of all unnecessary personnel.

12.3 Crane operators must follow the followings:

- Pass an annual Operator's Physical examination
- Carry a valid experience certificate from the previous employers.

**13. Fire prevention, protection & preparedness –**

**An auxiliary document on this is prepared detailing all aspects (HSEP:FIRE:MAITREE REV00)**

The Fire Prevention, Protection and Preparedness Program is an integral part of the overall HSE Program. Effort and consideration must be given to safety, life and potential for delays in construction schedules and plant startup, as well as protection of property on a given project.

The purpose of which is to prevent -

- Inception of fire
- Loss of life or personal injury
- Loss of Property
- Interruption of operations

Site-in-charge / Safety Officer will make periodical review of the site Fire Protection, Prevention Preparedness Programme, Site conditions and available fire protection equipment. It is very imperative that the Sub-contractors along with BHEL to establish good contact with Local fire station for availability of Fire tender in case of emergencies, in addition to their own fire equipment.

Fire Protection, Prevention and Preparedness Inspections - The Contractor /Sub-Contractor will be required to make frequent fire prevention inspections of his work site and operating facilities. Deficiencies will be corrected at once.

- Area where Hot work activities are carried out (Gas cutting / Welding/ any other spark producing work) above a working spot, a GI / fire-resistant non-asbestos sheet or suitable material shall be placed to prevent the fall of hot sparks. A bucket of water shall be kept nearby while doing hot work
- Hot work shall be preferably carried out in a designated area with a standing Hot Work Permit, to be renewed monthly. The designated area shall have fire extinguishers.
- Any hot work outside designated area shall require a Hot Work permit and fire watch.

No flammable material shall be stored within 35 feet from any fire load.

- Necessary fire extinguishers shall be kept at accessible area as per the chart below:



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Fire Extinguisher Chart						
Extinguisher		Type of Fire				
Colour	Type	Solids (wood, paper, cloth, etc)	Flammable Liquids	Flammable Gasses	Electrical Equipment	Cooking Oils & Fats
	Water	 Yes	 No	 No	 No	 No
	Foam	 Yes	 Yes	 No	 No	 Yes
	Dry Powder	 Yes	 Yes	 Yes	 Yes	 No
	Carbon Dioxide (CO <sub>2</sub> )	 No	 Yes	 No	 Yes	 Yes

- Emergency telephone number to be displayed at all conspicuous places.

General flammable material storage requirements:

- All flammable material shall be stored in deigned areas and/or in flammable storage cabinets, as necessary.
- Fire extinguishers shall be located near by and have unobstructed access.

14.0 Illumination:

- Each phase of construction will create its own illumination and lighting challenges; whether the work is related to confined spaces, hazardous atmospheres, stairways, pedestrian walkways or night work. Proper and adequate illumination is critical in order to perform the work in a safe and healthy manner. The following are the minimum requirements: Lamp (hand held) shall not be powered by mains supply but either by 24V or dry cells.
- Temporary lighting used in damp and / or hazardous locations and confined areas must be of not more than 24 volts.
- Lamps shall be protected by suitable guards where necessary to prevent danger, in case of breakage of lamp. Broken and burnt-out bulbs must be replaced immediately.
- Emergency lighting provision for night work shall be made to minimize danger in case of main supply failure.
- 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.</b>	<b>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	300
	rough measurements etc.	
7.	Fine work like precision assembly, precision	700
	measurements etc.	
8.	Sheet metal works	200
9.	Electrical and instrument labs	450
<b>B.</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

**15.0 RADIOGRAPHY:** Wherever the process requires examination by radiography,

- BHEL /contractor shall use AERB approved radiography contractors for the work on site.
- Site radiography shall be carried out after advance notification to the HSE officer and client personnel. All radiography on the site shall be subject to receipt of client/BHEL work permit and shall normally be performed outside of normal working hours. No ionising radiation sources shall be left unsupervised whilst on site.
- A minimum of 2 qualified persons from the radiography contractor are required for each activity involving ionising radiation. Adequate warning signs shall be posted on barriers and the work area shall be marked off at a safe distance with tape or hard barricades prior to starting radiography by concerned job sub-contractor.
- All personal executing radiography operations shall carry calibrated radiation monitoring devices at all times.
- The storage of radioactive sources on the site is prohibited, they shall be present only for the time required to complete the work. Whilst not in use, radiation sources and their container shall be secured in a safe location with adequate warning signs displayed as per AERB guidelines.

**16.0 Confined Space Entry:**

A confined space must have an opening of minimum dimension of 40.65cm X 30.65cm if shape is rectangular or oval and dia of 40.65cm if shape is round.



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A hazard assessment must be completed prior to any entry into a confined space. The hazard assessment must identify the sequence of work to be performed in the confined space, the specific hazards known or anticipated, and the control measures to be implemented to eliminate or reduce each of the hazards to an acceptable level. No entry must be permitted until the hazard assessment has been reviewed and discussed by all persons engaged in the activity. Personnel who enter confined spaces must be trained per role e.g. entrant (worker), confined space supervisor & attendant, and must be informed of known or potential hazards associated with the confined spaces to be entered. Number of persons entering shall be kept at minimum. All confined spaces must be inventoried at site and kept on file. Confined spaces must be posted at the entrance with similar type wording "DANGER - Do Not Enter – Confined Space - Permit Required".



Once a hazard assessment is completed the Contractors/Subcontractors requirements are:

- All confined space activities must be reviewed with the Contractor's Safety Manager prior to commencement of the work. Confined space permits are required as part of the entry process.
- Prior to entering the confined space, the area must be completely controlled to prevent the entry of any unauthorized individual, hazardous substances, or materials, which would threaten the safety of the entrants and the stability of the space. All energy sources, including stored or residual energy, must be isolated and/or blanked, and locked out.
- All shall be given a pep-talk by the concerned supervisor giving details of the jobs to be performed, hazards and risks associated and mitigation measures. The persons shall be provided with all necessary PPEs including respiratory masks, if necessary.
- The confined space must be monitored prior to one entering the identified area. Then periodic atmospheric testing must take place throughout the entry, especially after breaks or work interruptions during the entry. Continuous monitoring is preferable, and may be necessary in certain situations. Monitoring results must be documented on the entry permit with the initials of the individual conducting the testing.
- Contractors/Subcontractors must complete a Confined Space Permit before permitting workers to enter the space. This document must be reviewed and approved via a signature by the entry supervisor. The content of the completed permit must be reviewed with the entrants before entering the space and posted at the confined space entrance.
- A proper and accessible means of exit and exit shall be ensured before entry.
- The space shall be illuminated with 24V lamps only
- All gas cylinders/welding machines shall be preferably kept outside the confined space. Even cutting torches/ electrode holders shall be kept outside, when not in use, if possible.
- All electrical equipments shall be connected to ELCB
- The confined space must have an attendant monitoring the activities within the space. This individual must be in constant communication with work crew inside the space. The attendant must know who is inside the space, that must be documented. The attendant must not have any other responsibilities than monitoring the space. He/she may not enter the space to perform rescue unless relieved of the duties as an attendant.





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- Adequate ventilation must be provided to establish and maintain a stable atmospheric environment. Air circulation shall be ensured. Fumes/dusts generated inside shall be extracted. Ventilation systems must be designed for use in confined spaces.
- Any space 5' or more in depth must have a mechanical retrieval system. This system must be designed for the retrieval of human, and must not be used for equipment purposes. Workers inside the space must wear full body harnesses, and must be connected to the retrieval system.
- Rescue procedures must be established prior to any entry. The local fire department must be contracted prior to entry if they will be the primary source of rescue.
- All individuals involved in the confined space activities must be trained, including hands-on experience with the safety equipment involved. Documentation of the required training must be available prior to the start of any confined space work activities.
- The confined space shall be cleared off all cables, machines, cylinders, materials at the end of the day's work as far as possible.
- Once the confined space work has been completed, the entry permit must be cancelled. A copy of the cancelled permit must be given to the HSE Manager.

#### **17.0 Welding and Gas Cutting Operations**

- When possible, items to be welded, cut, heated, etc. shall be moved to a safe location free of combustible or flammable material. If this is not possible, then all combustibles/flammables that can be removed from the area shall be removed within a 35 foot circumference and a positive means of confining arcs and sparks generated by the process shall be taken and additional person(s) shall be stationed as fire watch for the area(s) still exposed, along with obtaining the Hot Work Permit as applicable.
- Appropriate fire-fighting equipment is to be available in close proximity of any welding and gas cutting operations at all times.
- Drums, tanks, and similar containers that have contained flammable or toxic material shall not be welded, cut, or heated until they have been made safe by water filling, thorough cleansing, or similar accepted practices. The container shall also be ventilated during the welding, cutting, or heating process.
- Proper ventilation is required for any welding or torch operations performed in a confined space.
- Any welding or gas cutting operations performed on metals of toxic compounds or coating such as zinc, stainless steel, lead, cadmium, chromium, and beryllium shall be properly ventilated and/or proper respiratory protection shall be worn by any person that could be exposed to fumes, vapors, and gasses created by the welding and gas cutting processes.
- Wherever it is practical, all arc welding operations shall be shielded to prevent direct light rays or sparks from contacting persons in the vicinity or from reaching areas normally used to travel through or into the vicinity. Where this is not practical, persons who shall be in the area are to use proper eye and skin protection. Other persons who are not participating in the welding or gas cutting operations are not to be allowed into the hazard zone.
- Welders and other employees who are exposed to arc welding radiation shall wear suitable clothing and protective apparel to prevent burns and other types of ultraviolet radiation damage to the skin.
- Arc welding machines shall be shut down when being moved or when they are not in continuous use.
- Electrode holders left unattended shall have electrodes removed and shall not be left where they might contact employees or conducting objects.



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- Arc welding power supply cable shall be of proper rating and material, e.g. copper.
- Welders shall guard against allowing materials adjacent to or behind them to reflect radiation back toward them or towards others in the area. Reflected radiation can cause skin burns and eye flash burns.
- Compressed gas cylinders shall always be secured from tipping or falling, whether in use, in storage or in transit. The cylinders shall always be secured upright, except during times when actually being hoisted or carried.
- Valve caps shall be in place when cylinders are not in use. Valve caps shall never be used for lifting the cylinder vertically.
- Regulators shall be removed when cylinders are not in use or are in transit, unless the cylinder is firmly secured on a special carrier designed for this purpose.
- Cylinders being transported by a powered vehicle shall be secured in an upright position. Gas cylinders are not allowed to be used in man-basket when occupied.
- Cylinders containing oxygen or fuel gasses shall not be taken into confined spaces.
- Oxygen cylinders shall be stored a minimum of (6) meters from fuel gas cylinders or shall have an approved firewall between them.
- Torches shall only be lit by approved strikers; never with matches, cigarette lighters, or hot work.
- While carrying out job at height, the sparks or molten slag shall be prevented from falling down by putting a fire-resistant (non-asbestos) sheet or even MS Sheet. If such can not be provided, the passage of falling sparks or molten slag shall be barricaded till ground floor and any cable/ tubes/ any other objects interfering in the passage shall either be removed or covered with Fire-resistant sheet or M S Sheet.

**18.0 COMPRESSED GAS :**

- All cylinder valves shall be closed when any work is finished and when any cylinders are empty or being moved.
- Valve protection caps shall be placed and secured properly before gas cylinders are transported, moved or stored.
- Compressed gas cylinders shall be secured in an upright position with chain or other appropriate means during storage, use or transportation.
- All cylinders shall be kept at a safe distance from welding or cutting operations or shielded from safe.
- All cylinders shall be placed where they cannot become part of the electrical circuit.
- Oxygen and acetylene shall not be stored together. Oxygen must be separated from acetylene (or ANY fuel gas) or combustible material by at least 20 ft or a barrier with a 30 minute fire resistance rating.
- Oxygen and fuel gas regulators, hoses and associated equipment shall not be altered and shall be in proper working order while in use.
- Compressed air can be extremely dangerous if allowed to penetrate the skin. As such, the use of compressed air to clean off yourself or other workers shall be strictly prohibited.



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**19.0 WORK AT HEIGHT:** All work at height above 2meter above ground level without complete platforms, handrails and other related fall protection shall require a [work permit](#) in the prescribed form. This shall require approval by the competent authority. The HSE officer of sub-contractors and subsequently BHEL shall follow the checklist religiously by physically verifying the condition of the work area before recommending for approval.

Whenever a fall hazard or other exposure exists for working at heights more than 2.0m/6ft, the nature and scope of work will be evaluated for conditions and environmental factors before selecting the appropriate fall protection system (active, passive or a combination of measures, as appropriate). A personnel fall protection system must include:

- The only permissible personal fall arrest system is an industry approved safety harness. Employees can use positioning belts with two-D ring attachment points as long as they are used in conjunction with a safety harness. Safety harnesses must be secured to an overhead object of substantial capacity capable of supporting five thousand pounds. In order to accomplish this and ensure 100% protection, the worker may need to use two lanyards. The primary lanyard is never unhooked until the secondary lanyard is secure.
- The type of work and the environment conditions determine lanyard and lifeline selection. If welding, chemical cleaning that may damage lanyards, connectors or lifelines, sandblasting, etc., either protect the components or use more appropriate type of system. Lanyards and lifelines must incorporate, or be used with, an appropriate deceleration (shock absorbing) device. Deceleration devices include rope grabs, rip-stitch lanyards, specially woven lanyards, tearing, or deforming lanyards, automatic self-retracting lifelines and lanyards which dissipate or limit the energy imposed on the employee during fall arrest. Once in use, the system's effectiveness is to be monitored. In some cases, a program for cleaning and maintaining the system may be necessary. Lanyard and lifelines must use locking snap hooks only and under no circumstances must two lanyard snap hooks be connected.

**Minimum Requirements:**

Prior to the start of work at elevation, the HSE Manager involved with the work must meet with the work supervisor to review the scope of work, and must review all the possible fall hazards and effective safety responses. The evaluation/analysis must be documented and kept on file and on site by the HSE Manager.

The procedures for the safety response to identified fall hazards developed and rescue plans by must be reviewed with all individuals exposed to the hazards.

The HSE Manager must establish an inspection process of fall protection systems. Some equipment requires documented inspections by its manufacture on a regular schedule. This equipment must have evidence of the inspection and re-certification process on it. This information must be reviewed before the equipment is actually used. Individuals must visually inspect the fall protection equipment before each use. Failure to complete this inspection process could result in serious injury or death.

Immediately remove from service any fall protection equipment that is identified as defective, damaged, or has been subjected to an impact. Damaged fall protective equipment must be destroyed to prevent re-use and not be discarded into trash containers, as the worn or damaged equipment could be unintentionally re-used.

Aerial lifting devices, excluding scissors lifts require the use of full body harnesses and lanyards in any elevated position. All lifelines in general are to be made of min 8mm dia steel rope and tied to columns with 3 clamps at each end. Wherever columns are not available to tie the lifelines, the vertical posts are to be provided.

**19.1 SCAFFOLDS: (As per IS 3696)**

The safe and efficient erection, use, dismantling, and storage of scaffolds, ladders and elevated work platforms are considered important objectives in maintaining a safe work environment. This procedure provides the guidelines for erection, use, dismantlement, and storage of scaffolding and elevated work platforms.



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There is no such thing as a temporary scaffold. All scaffolds must be erected and maintained to conformed standard. The Scaffold Tagging defines satisfactory, incomplete or defective scaffolds.

Management must ensure or have each worker who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards.

All employees must be competent for the type of scaffolding work they are undertaking and should have received appropriate training relevant to the system they are working on.

- All scaffolds shall be erected / dismantled by scaffolding crew under direct supervision of competent scaffolding supervisors.
- All scaffolds shall be capable of supporting 4 times maximum intended load and erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement. Bambo scaffolding is not permitted for use on site.
- Guard rails and toe boards shall be installed on all open sides and ends of platforms more than (2) meters above ground or floor

Scaffold planks must be at least 5 cm x 25 cm (2" x 10") full thickness lumber scaffold grade or better.

- Scaffold planks shall not span distances greater than 2.5 meters (8 feet).

Scaffold planks shall extend over end supports not less than 6 inches nor more than 12 inches and be secured to the scaffold. Scaffolding and accessories with defective parts shall be immediately repaired or replaced.

- All scaffolding must be a minimum of two planks wide. No one may work from a single plank.
- Scaffold planks must be inspected before use. Planks that have been damaged must be removed from the site.
- Access ladders must be provided for each scaffold. Climbing the end frames is prohibited unless the design incorporates an approved ladder.
- Adequate mudsills or other rigid footing capable of withstanding the maximum intended load must be provided.
- Scaffolds more the 6 meters (20 feet) in height must be tied to the building or structure at intervals which do not exceed 4 meters (13 feet) vertically and 6 meters (20 feet) horizontally.
- Do not overload scaffolds. Material should be brought up as needed. Scaffolding must not be loaded in excess of its rated capacity.
- Barrels, boxes, kegs, blocks or similar unstable object must never be used as work platforms or to support scaffold.
- Where persons must work under or pass under a scaffold then a 18 gauge wire mesh screen must be installed between the toe board and guard rail.
- Employees exposed to overhead hazards while working on a scaffold will be protected by 5 cm (2") thick planks.
- Wooden/bamboo ladders shall not be allowed at any cost. Ladder's rungs shall be fitted /welded properly. Before every use the rungs should be checked for safe use.
- The platform should have permanent hand rail and mid rail with Toe board without fail.
- All platforms are to be tightly planked for the full width of the scaffold, except as may be necessary for entrance openings. Platforms shall be secured in place.
- On suspension scaffolds designed for a working load of 500 pounds, no more than two workers are permitted to work on the scaffold simultaneously. On suspension scaffolds with a working load of 750 pounds, no more than



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three workers are permitted on the scaffold simultaneously. Each employee on the scaffold shall use an approved safety harness attached to an independent lifeline. The lifeline is to be securely attached to substantial members of the structure (not the scaffold itself) or to securely rigged lines, which shall safely suspend a worker in event of a fall.

### Suspension Scaffold

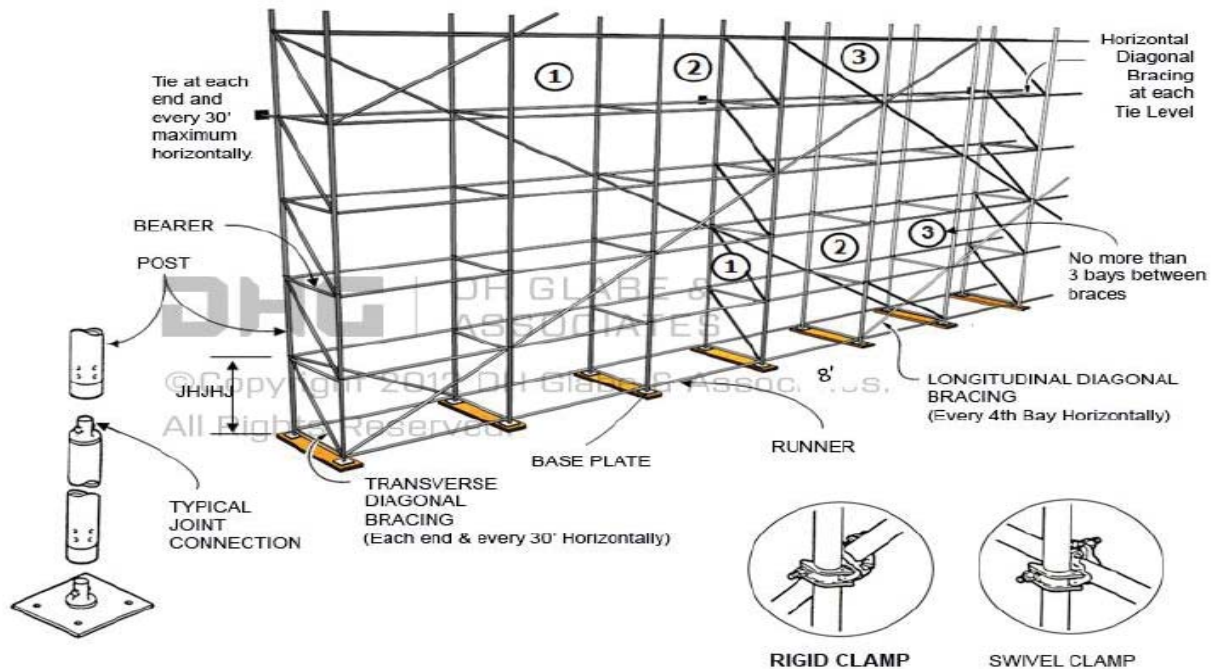
- Suspended scaffolds are platforms suspended by ropes, or other non-rigid means, from an overhead structure.
- Requirements for use are to be preapproved by HSE Head, under a specific Permit to Work.

### Rolling Scaffolds

- The height of rolling scaffolds shall not exceed three times the minimum base dimension.
- The minimum base dimension of rolling scaffold will be 1.25 meters (4 feet).
- Adequate help must be provided when moving a rolling scaffold.
- Secure or remove all loose materials, equipment and tools before moving a rolling scaffold.
- No one is permitted to ride a rolling scaffold when it is being moved. Castor brakes must be locked - on when the scaffold is not being moved.

### Typical Scaffold Designs

#### Tube & Coupler Scaffold –



#### Rolling Scaffold –



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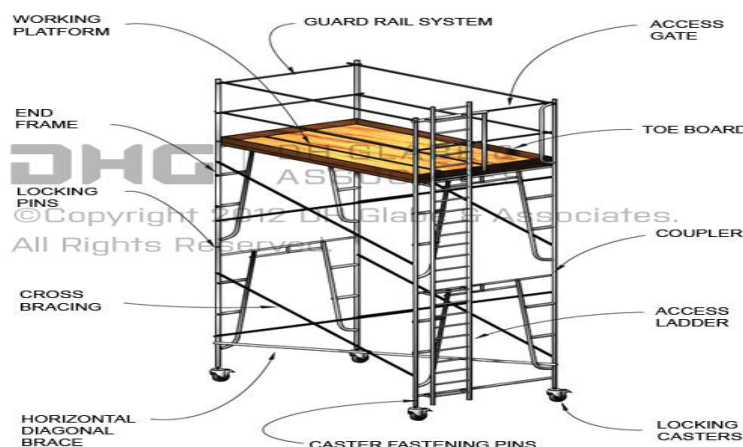
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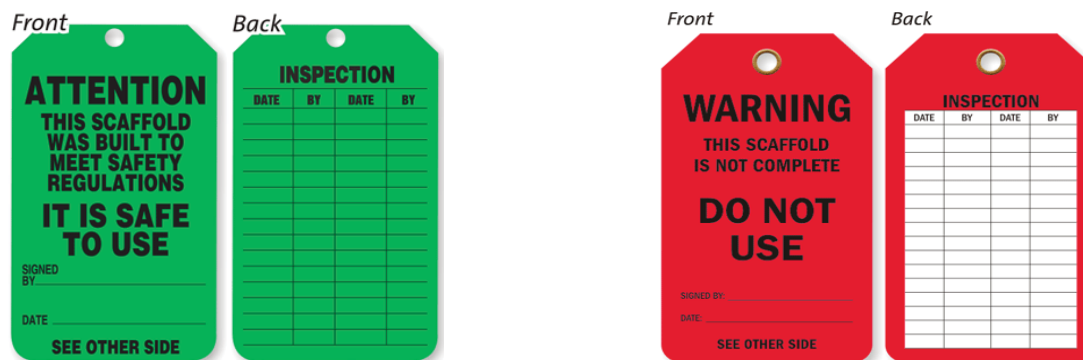


### Scaffold Tagging:

Scaffolds being erected, modified or dismantled must be tagged as suitable for use. The scaffolds can only be accessed by those involved with the process.

- GREEN scaffold tag- shall be fixed when scaffold is complete and safe for use, signed and dated by the scaffolding competent person daily.
- RED scaffold tag – to be fixed if scaffold is in some way defective and cannot be used or is still under erection.

Examples of scaffold tags:



### 19.2 Precautions against the fall of materials and persons and collapse of structures

- ❖ Adequate precautions should be taken such as the provision of fencing, or barriers to protect any person who might be injured by the fall of materials, or tools or equipment being raised or lowered. Cradle may be used for lifting materials - however this shall be made of MS angles and flats only and duly certified by the HSE officer. Operators may also use designed containers for lifting small tools.
- ❖ Guardrails (including scaffolding) erected over/adjacent working areas must have the guardrails screened (opening < 0.5), to prevent material from falling outside the platform/decking.





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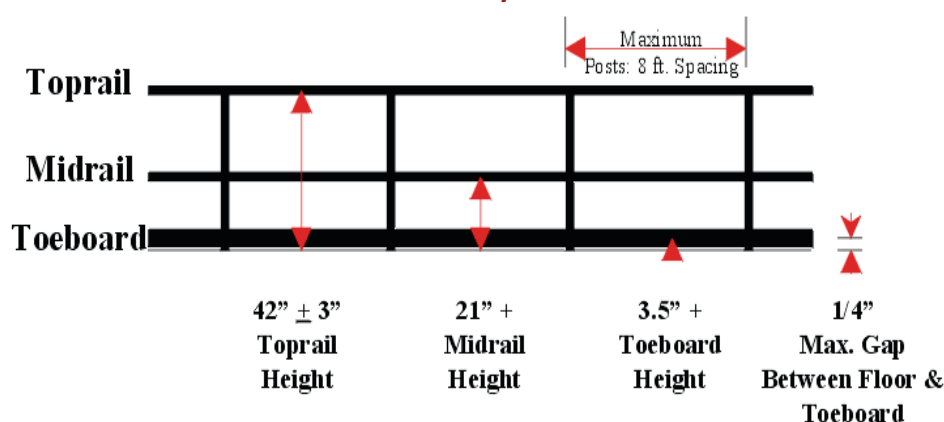
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- ❖ Guardrails must be able to withstand a 200 pound force exerted in any one direction.
- ❖ Where necessary to prevent danger, guys, stays or supports should be used or other effective precautions should be taken to prevent the collapse of structures or parts of structures that are being erected, maintained, repaired, dismantled or demolished.
- ❖ All openings through which workers are liable to fall should be kept effectively covered or fenced and indicated in the most appropriate manner.
- ❖ As far as practicable, guard-rails and toe-boards in accordance with Indian laws and regulations as depicted below:

### Guardrail system



- ❖ Guardrails shall be provided to protect workers from falling from elevated work places. The rails are generally made of MS pipes of suitable dia. Rebar shall not be used for any handrails, ladder or cover purpose. Wherever the guard-rails and toe-boards cannot be provided:
  - (a) adequate safety nets or safety sheets shall be erected and maintained; or
  - (b) adequate safety harnesses shall be provided and used and or
  - (c) adequate fall arrestor shall be provided and used.

As mentioned under PPE clause, all these PPEs shall be defect free and regularly inspected for any defect. The full body safety harness shall have double lanyard only with max 1.8m length.

The monkey ladders shall have sufficient fall arrestors. Adequate lifelines of 8mm steel wire rope shall be provided across the work area.

The HSE officer shall recommend appropriate PPEs after analysing hazards and risks involved.

#### 19.3

##### Safety Nets:

- ❖ All safety net systems shall meet the requirements of relevant Standard
- ❖ Safety net mesh openings shall have a maximum size of 6 inches x 6 inches and be secured at each crossing to prevent elongation of the opening. All nets must meet standard.
- ❖ Safety nets must be installed with sufficient clearance to prevent contact with the surface or structures under them
- ❖ Safety nets shall be installed as close as possible to the working level but in no case more than 25 feet below the working level.
- ❖ The safety nets shall extend out at least 8 ft. from the side of the open edge.
- ❖ Material, equipment and other items that fall into the net are to be promptly removed.
- ❖ Safety nets are to be inspected before use and then daily for wear or damage caused by falling materials.
- ❖ Safety net installation shall be inspected by a competent person.
- ❖ Safety nets must be installed below the working decks of the super structure for protection from falls of personnel



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- and material.
- ❖ Safety nets and safety net installations must be drop-tested at the jobsite:
    - After initial installation and before being used.
    - Whenever relocated.
    - After major repair.
    - At 6-month intervals if left in one place.
  - ❖ The drop test consists of a 400 pound bag of sand 28-32 inches in diameter dropped into the net from the highest surface at which employees are exposed to fall hazards, but not from less than 42 inches above that level.
  - ❖ When the employer can demonstrate that it is unreasonable to perform the drop-test described above, the employer or a designated competent person shall certify that the net and net installation have sufficient clearance and impact absorption by preparing a certification record prior to the net being used as a fall protection system. The certification must include:
    - Identification of the net and net installation.
    - Date that it was determined that the net and net installation were in compliance.
    - Signature of the person making the determination and certification.

### **20.0 SAFETY IN JETTY CONSTRUCTION:**

A jetty is to be constructed close to the power plant site over a river. The construction activity involves deployment of cranes and other lifting appliances – a few may be mounted on vessels.

Prior to taking up job at the identified space, a HIRA shall be prepared and corrective measures shall be prepared by an expert group. This shall be shared with the subcontractor/gang to be deployed for the job through meeting/TBM as well as proper documentations.

- The safety rules as described in clause 12.0 shall be followed for all safety appliances. However, the operators shall be certified specifically for operating the lifting appliances mounted on the vessels by the owner of the vessels or the lifting supervisor of the agency.
- The lifting appliances on vessels shall be fixed and securely anchored
- Lifting appliances/ mobile plant shall be kept away from dangerous locations such as openings, edges close to water.
- The operation zone shall be clearly demarcated and properly fenced off.

### **20.1 SAFE USE OF LIFE JACKETS AND BUOYANCY AIDS:**

- Lifejackets/buoyancy aids should be provided to and worn by workers with risk of falling into water.
- Lifejackets/buoyancy aids should conform to BS EN ISO 12402-1, 2, 3 or 4, or other equivalent international standards according to working conditions
- Lifejackets should be thoroughly checked by the user before each use.







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Efficient state:  
Green



Maintenance Record

- A lifebuoy with sufficient lifeline (not less than 30 meters) shall be provided and the locations of the lifebuoys shall be at less than 50 metre intervals along the edges of places where work is being carried out overside or in exposed position on vessels where there is a reasonably foreseeable risk of falling or being washed overboard. To avoid any delays to rescue operations, lifebuoys shall be tightly tied to the posts.



- The lifejacket/ buoyancy aid shall preferably be provided with a self-activating light (for night work) in order to aid locating the wearer and facilitating rescue.
- The lifejackets /buoyancy aids shall be inspected and checked periodically by a competent person.



- The life jackets/ buoyancy aids shall be properly maintained in a good serviceable condition according to the manufacturer's instructions.
- All inflatable life jackets shall be serviced by an authorized person/agent at least once a year.

## **20.2 WORKING AT HEIGHT**



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- Suitable guard-rails and toe-boards shall be installed at edges. Openings shall be properly covered where persons are liable to fall from height, to land surfaces or into water.
- Suitable working platforms, with suitable guard-rails and toe-boards, shall be provided for work at height. Safe means of access and egress shall be provided for the working platform.
- Safety harnesses with continuous and effective anchorage system shall be provided when it is impracticable to provide a suitable working platform, access and egress and safe place of work.
- Access and egress shall be sufficiently illuminated and free from any obstructions, openings, projections in order to avoid any slip, trip and fall.

**21.0 NIGHT SHIFT OPERATION:**

Night shift operation shall be avoided to the extent possible, so shall be any complicated or heavy job. However, prior administrative approval shall be obtained from BHEL for such operation and a detailed work plan developed. The following shall be ensured:

- i. Adequate illumination along access, work area and egress
- ii. Supervision
- iii. Issue of strict instruction to workmen not to stray away from the work area and earmarked approach
- iv. Non-deployment of women workforce
- v. Non-deployment of fatigued workforce
- vi. Vacating the area immediately on completion of the job
- vii. Informing first-aid facility and ambulance in advance

**22.0 CONTROL OF MOVEMENTS AND USE OF HAZARDOUS SUBSTANCES AND CHEMICALS:**

- ❖ The hazardous substances and chemicals shall be stored in a cool, well ventilated, dry and covered space with restricted entry only
- ❖ The loading, unloading, issue and use of these materials shall be strictly in accordance with the Material Safety Data Sheet (MSDS) and under strict supervision. Every supply shall accompany a MSDS as per standard purchase order clause.
- ❖ The site HSE team shall maintain MSDS of all these items and the same shall be shared with the stores or the user as and when required.
- ❖ Each container shall be labeled.
- ❖ Damaged containers are replaced or repaired immediately.
- ❖ The stores shall check the expiry date of perishable chemicals while receiving and store in such a fashion so as to follow First-in-first-out queue.
- ❖ There shall be enough space for movement of material and people in the stores.
- ❖ Bulk chemical storage areas with secondary containment shall be provided so as to arrest spillage from spreading.
- ❖ Dispose the cleanup waste to an industrial waste site or approved temporary storage location.
- ❖ There shall be sufficient fire extinguishers and sand buckets in the stores and at point of use. In case of any spillage, dry sand shall be put on the spill and soaked sand shall be disposed as per the procedure for hazardous waste.
- ❖ Control measures on use of flammable and combustible fluids shall be undertaken to limit quantities in storage area and cabinets.
- ❖ There shall be provision of water preferably flowing one and a face shower at stores and point of use.
- ❖ The persons handling these items shall strictly wear appropriate PPEs like rubber/neoprene gloves, apron, shield etc.
- ❖ No smoking signage should be displayed.



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**23.0 CHEMICAL CLEANING:** The chemicals have to be handled as instructed in MSDS. Only authorized person(s) shall be engaged for this job under strict supervision. The waste chemicals shall be drained out to a suitable storage provision and disposed off as per the relevant procedure. The area shall be barricaded while carrying out cleaning operation so as to prevent any unauthorized entry. Once the operation is completed, the surplus material along with the containers shall be returned to stores or scrap yard, as the case may be. The users shall use all appropriate PPEs and shall have water and sand for handling any incidental spillage or splash etc. The area shall be left completely clean before removing barricades.

### 23.1 PAINTING

Requirements provide a detailed procedure to be implemented by all concerned employees and sub-contractors involved in painting activities.

#### Significant Environmental Hazards:

- Chemical hazard due to inhalation of lead fumes (lead containing paint)
- Chemical hazard due to inhalation of VOC's from painting operations
- VOC's from painting and coating operation
- Disposal of paints and coats drums

#### Control Procedure for Painting:

- Chemical products used in painting and coating operation shall have proper MSDS sheet in place. Whenever any doubt arise with respect to handling and safety point of view it should be accessed to all concerned.
- Toxic substances and hazards relate the toxic chemicals shall be indentified.
- Proper PPE shall be used including plastic gloves appropriate overall etc.,
- Arrangement for cleaning of spillage shall be ensured
- In case of nauseating feeling by any one immediate action shall be taken
- Only trained workers shall be allowed and proper training should be imparted to the works.
- Exposure limits of the toxic substances shall be checked before starting the work and nobody shall be allowed to carry the work beyond the permissible limit.
- Ventilation or exhaust facility shall be provided at place where painting and coating operations are carried out.
- Overalls shall be supplied by the contractors/subcontractors to the workmen and adequate facilities shall be provided to enable the painters to wash at the cessation of work.
- Smoking, open flames or sources of ignition shall not be allowed in places where paints and other flammable substances are stored.
- A caution board in national /regional language "smoking strictly prohibited" shall be displayed in the vicinity.
- Suitable fire extinguishers/sand buckets shall be kept available at places where flammable paints are stored, handled or used.
- In case of indoor painting or painting in confined spaces, exhaust ventilating shall be provided. If adequate ventilation is not provided a proper respirator shall be provided and used by persons who are trained and fit tested.
- The VOC's from painting and coating operations shall not exceed the permissible level of CPCB/ SPCB norms. The paints and coats must be selected as per the guidelines.
- Workers shall thoroughly wash their hands and feet before leaving the work.

## 24.0 SAFETY IN THE USE OF HAND TOOLS AND POWER-OPERATED TOOLS

### 24.1 General provisions

- i. All hands and power tools and similar equipment, shall be maintained in safe condition.
- ii. All job-made/field-made tools are prohibited, unless designed with engineered stamp
- iii. When power operated tools are designed to accommodate guards, they shall be equipped
- iv. with such guards, when in use;
- v. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains and other reciprocating, rotating or moving parts of the equipment shall be similarly guarded;



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- vi. Personnel using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapours, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazards;
- vii. All hand-held powered platen sanders, grinders, grinders with wheels of 5 cm or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks of 0.5 cm wide or less shall be equipped with only a positive on-off control.
- viii. All hand-held powered drills, tappers, fastener drivers, horizontal, vertical or angle grinders with wheels greater than 5 cm in diameter, disc sanders, belt sanders, reciprocating saws, saber saws and other operating powered tools shall be equipped with a momentary contact on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

#### **24.2 Hand Tools**

- i. The contractor shall not issue or permit the use of unsafe hand tools;
- ii. Wrenches including adjustable pipe end and socket wrenches shall not be used when saws are sprung to the point that slippage occurs;
- iii. Impact tools such as drift pins, wedges and chisels shall be kept free of mushroomed heads;
- iv. The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight on the tools.

#### **24.3 Power operated tools**

- i. Electric power operated tools shall be either of the approved double-insulated type or shall be grounded;
- ii. The use of electric cords for hoisting or lowering loads shall not be permitted;
- iii. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming incidentally disconnected;
- iv. Safety clips or retainers shall be securely installed or maintained on pneumatic impact (percussion) tools to prevent attachments from being incidentally expelled;
- v. All pneumatically riveting machine staplers and other similar equipment provided with automatic fastener feed, which operate at more than 7 kg/cm<sup>2</sup> pressure at the tool a safety device on the muzzle to prevent the tool from ejecting the fasteners unless the muzzle is in contact with the work surface;
- vi. Compressed air shall not be used for cleaning purposes except when the pressure is reduced to less than 2 kg/cm<sup>2</sup> and that too with effective chip guarding. The 2 kg/cm<sup>2</sup> pressure requirement does not apply to concrete form, mill scale and similar cleaning purposes;
- vii. The manufacturer's safe operating for hoses, pipes, valves, filters and other fittings shall
- viii. not be exceeded;
- ix. Only personnel who has been trained in the operation of the particular tool shall be allowed to operate power-actuated tools;
- x. The tool shall be tested each day before loading to see that the safety devices are in proper working condition. The method of testing shall be accordance with the manufacturer's recommended procedure;
- xi. Any tool found not in proper working order, or that which develops a defect during use, shall be immediately removed from service and not used until properly repaired;
- xii. Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any other person. Hands shall be kept clear of the open barrel end;
- xiii. Loaded tools shall not be left unattended;
- xiv. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tiles, surface hardened steel, glass block, live rock, face brick or hollow tiles;
- xv. Driving into materials that can be easily penetrated shall be avoided unless backed by a
- xvi. substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side;
- xvii. No fastener shall be driven into a palled area caused by an unsatisfactory fastening;



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- xviii. Only non-sparking tools shall be used in an explosive or flammable atmosphere;
- xix. All tools shall be used with the correct shield, guard or attachment as recommended by the manufacturer.

### 24.4 Abrasive wheels and tools

- i. All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation;
- ii. Grinding machines shall be equipped with suitable safety guards;
- iii. The maximum angular exposure of the grinding wheel periphery and sides shall not be more than 90°, except that when the work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 120°. In either case, the exposure shall begin not more than 8.650 above the horizontal plane of the spindle. Safety guards shall be strong enough to withstand the bursting of the wheel;
- iv. Floor and bench-mounted grinders shall be work-rests, which shall be rigidly supported and readily adjustable. Such work-rests shall be kept at a distance not to exceed 5 mm from the surface of the wheel;
- v. Cup type wheels used for external grinding shall be protected by either revolving cup guard or a band type guard;
- vi. When safety guards are required, they shall be mounted as to maintain proper alignment with the wheel and the guard and the guard and its fastening shall be adequate strength to retain the fragments of the wheel in case of incidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180°;
- vii. Portable abrasive wheel used for internal grinding shall be provided with suitable safety flanges;
- viii. When safety flanges are required, they shall be used only with wheels designed to fit the
- ix. flanges. Only safety flanges, of a type and design and properly assembled so as to ensure that the pieces of the wheel will be retained in case of incidental breakage, shall be used;
- x. All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects;
- xi. Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place;
- xii. All employees using abrasive wheels shall be protected by suitable eye protection equipment.

### 24.5 Woodworking tools

- i. All fixed power driven woodworking tools shall be provided with a disconnect switch that can either be locked or tagged in the **off-position**;
- ii. The operating speed shall be attached or otherwise permanently marked on all circular saws over 0.5 m in diameter or operating at over 3000 peripheral rpm. Any saw so marked shall not be operated at a speed other than that marked on the blade. When a marked saw is retensioned for a different speed, the marking shall be corrected to show the new speed;
- iii. Automatic feeding devices shall be installed on machines wherever the nature of the work will permit. Feeder attachments shall have the feed rolls or other moving parts covered or guarded so as to protect the operator from hazardous points;
- iv. All portable power driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

**24.6** Defective tools to be tagged out for maintenance, as DEFECTIVE, DO NOT USE, and sent to tool/store room for repair or to be discarded.

### **25.0 START UP, COMMISSIONING AND TESTING:**



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There are various activities involved prior to commissioning- the major ones are -Hydraulic Test, Steam Blowing, Charging of transformers, Boiler Light Up, Rolling and Synchronisation and Full loading of unit.

These activities shall be personally supervised by the site executive along with the commissioning engineer. The readiness of upstream and downstream system shall be ensured before taking up. These shall be handled strictly by the authorised persons only and the team shall be suitably briefed about the activity including hazards & risks involved and control plan by the concerned executive-in-charge before start. Entry of persons to the area of activity shall be suitably restricted and the emergency functions like Ambulance, first aid centre and Fire station shall be intimated about the plan well in advance. Lock-out/ Tag-out shall be in place while charging transformer and whenever necessary. Electricians with valid wiremen license only shall be permitted to work on power lines. The area and the passage shall be adequately illuminated.

## **26.0 INCIDENT INVESTIGATION, REPORTING AND RECORDS:**

Every incident including near-misses or injury of any kind and at any level of severity shall be immediately reported by the BHEL employees or the contractor's workmen in their work area to the safety officer/ HSE coordinator, site engineer or RCM. The site HSE co-ordinator shall be the nodal person for this purpose.

For any reportable injury to any employee or to the contractor's workmen, the safety officer/ HSE-coordinator shall report the incident in incident/ incident report, to CUSTOMER

In the case of serious injury requiring hospitalization or fatality, communication shall be made to customer through telecom immediately with submission of incident report within 24 hrs and detail investigation report may be forwarded in INCIDENT INVESTIGATION REPORT FORMAT within seven days.

[Investigations into all reportable incidents shall be conducted](#) using accepted Root Cause Analysis (RCA) methodology cause and effect, 5 why's, etc, to determine the Physical, Human and Latent Root Causes for these type accident/incidents. The leader of the Investigation Team must be trained and competent in RCA methods. [However, it is recommended to conduct preliminary investigations into all other incidents as a proactive measure.](#)

Every site shall maintain record of incidents / incidents at site, and shall be available for inspection by representatives of statutory agencies / officials visiting site from customer The Safety Officer/ HSE coordinator shall maintain these records.

### **26.1 Incident Investigation Procedure:**

The purpose of the investigation procedure is to find out root cause of accidents / incidents & not to find out faults, so as to avoid recurrences, in future and share lessons learned.

RCM shall constitute a committee of at-least 2 site engineers within 24 hours of such incidents. The investigation shall aim at finding out the basic unsafe acts / conditions that have caused the incidents. Immediately after all appropriate emergency measures, first aid and damage containment measures have been taken, every effort shall be made by the committee to:

- Preserve physical evidence
- Take photographs
- Take statement from incident victim(s) and eyewitnesses and anyone who may have knowledge of possible cause(s) of incidents

The committee shall also recommend corrective measures to prevent recurrence of similar incidents

## **25.2 Initial Incident Response:**

In the event of an accident/incident, the supervisor and employees at the work site must:

- Stop work and make the work area safe (mitigate or remove the exposure to the hazard)
- Provide first aid and activate "Emergency Medical Services" and other emergency services, e.g. fire or police, as





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- required,
- Ensure the injured worker is transported to "Emergency Medical Services" for medical attention if necessary,
- Secure the site to ensure the protection of employees and the public and to aid with the investigation,
- Report the incident immediately to the local Site In-Charge.

### 26.3 Incident Investigation Report:

The investigation committee on completion of the all investigations shall prepare and submit the report to the RCM. The report shall also include corrective measures with assigned responsibility to be taken at site to prevent similar incidents in future. The RCM shall forward the copy of the investigation report to customer

### 26.4 Data Analysis

The site HSE team shall maintain the records and incident data shall be analyzed on [quarterly basis](#) so as to check the trend which will in turn trigger corrective measures

## 27.0 HSE COMMUNICATION

### 27.1 MONTHLY & WEEKLY HSE REPORTING

- HSE information of Site shall be reported monthly and weekly through Monthly/Weekly Site HSE report (MSHR) as per **format no. HSEP:14-F08**.
- Preparation of MSHR shall be done as per " Guidelines for filling up Monthly HSE report"
- The period of reporting shall be 25<sup>th</sup> of the preceding month to 24<sup>th</sup> of the present month and shall be submitted to Regional HQ by the end of the calendar month.

27.1.1 The following documents and reports are to be maintained at site, but not limited to:

- HSE induction sign-in roster
- Pre-employment Health Record Form 31-A.
- HSE Inspections and audit reports
- Environmental monitoring documentation
- Method Statements and JSA
- Training records
- HSE corrective action tracking sheets
- 3<sup>rd</sup> party inspection report of crane, lifting tools & tackles
- PPE inspections
- First report of incident
- Incident investigation reports
- Chemical inventory documentation
- MSDS of chemicals
- PTW and separate permits of critical activities
- Vehicle and equipment inspections
- Toolbox talk
- Pre job briefings
- Trade test details
- Safety statistics monthly
- Noise monitoring reports
- Written safety violations
- HSE committee and other MOM



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- HSE Plan & Emergency Plan
- Weekly & Monthly HSE report to be submitted to CUSTOMER

### 27.2 INCIDENT REPORTING

- HSE incidents of site shall be reported to Regional HQ and PS-HQ as per HSE procedure for incident investigation, analysis and reporting
- Corrective action shall be immediately implemented at the work place and compliance shall be verified by HSE officer until then work shall be put on hold by Construction Manager.

### 27.3 HSE EVENT REPORTING

- Important HSE events like HSE training, Medical camp etc. organized at site shall be reported to PS Regional HQ in detail with photographs for publication in diff house magazines
- Celebration of important days like National Safety Day, World Environment Day etc. shall also be reported as mentioned above.
- There will be one all hands safety meeting per month (say, monthly safety day)

## 28.0 OPERATIONAL CONTROL

### 28.1 HSE ACTIVITIES

HSE activities shall be conducted at site based on the HSEMS 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
- 4) Operational Control Procedures
- 5) HSE Procedure for Emergency Preparedness and Response Plan
- 6) Contract documents

### 28.2 WORK PERMIT SYSTEM

- The following activities shall come under Work Permit System
  - a. Height working
  - b. Hot work in general and at height including handling of hazardous substance viz, Acetylene, Oxygen and LPG
  - c. Confined space
  - d. Radiography
  - e. Hazardous Energy Control (lockout/tagout)
  - f. Excavation and Trenching





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g. Heavy lifting exceeding 50Metric Tonne

h. [Handling of Hazardous Substances- Diesel, Caustic Soda, Citric Acid/EDTA, Thinner, Battery Acid, Oil-based paint, Lubricants, Transformer oil.](#)

- "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 general work permit and other permits as referenced above of particular work activity at particular location before starting of the work with Method Statement and HIRA/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.

**28.3 ENVIRONMENTAL CONTROL ( [To read with Environmental management Plan- auxiliary doc](#))**

Environment protection has always been given prime importance by BHEL. Environmental damage is a major concern of the principal contractor 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 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. BHEL shall use appropriate MSDS for clean-up technique

All contractors shall be responsible for the cleanliness of their own areas and must not pollute the ground, air and water.

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

**28.3.1 Water Supply and Wastewater Discharge Requirement**

- Source of water is provided by client from the existing system.
- Wastage of water to be controlled by monitoring the required water for construction & domestic use and actual consumed.
- No contaminated water to be discharged in the storm water drain confirming the standard parameters before discharge. Proper approval to be taken if applicable as per [Bangladesh Environmental Standards](#)

**28.3.2 Storm water runoff Management**

- Expansion of existing plant, no existing drainage systems will be disturbed and damaged.
- No construction waste water to be discharged in the existing storm water drain or newly construction storm water drains.



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**28.3.3 Noise Mitigation**

High noise is harmful to the human health and it can cause impairment if exposed for long duration at regular intervals, and also cause disruption in nearby communities.

- Noise monitoring shall be carried out in all construction locations periodically.
- Use of silent DG is allowed at site during construction.
- Low noise generation equipment's to be preferred
- Acoustic enclosure to be used in case noise level is high for particular equipment or system.
- Work areas where noise levels exceed the 85db shall be posted as hearing protection required.
- Use of PPEs / ear plug/ear muff for personnel entering into high noise area.
- Activities generation High noise will be planned in day shift.

**Noise Level Chart (As per Bangladesh Environmental Standards)**

Parameter	Night Noise level dBA	Daytime Noise Level dBA
At 1-meter from each piece of equipment	85	85
At Property boundary	70	70

**28.3.4 Air pollution Control**

- Water sprinkling on road for suppression of fugitive dust to be done regularly.
- Startup and commissioning activities to be planned for compliance with contract, regulatory and permit requirements..(As per Bangladesh Environmental Standards)
- Required monitoring to be done in the respective work location as applicable.

**28.3.5 Land and Water Resource Protection**

- Only prior approved land by CUSTOMER to be used during construction work.
- Contract clauses to be followed
- All hazardous substances will be stored with proper containment facilities to avoid any release into the water system, causing land/water contamination.

**28.4 HOUSEKEEPING**

- 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 various work area locations
- 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.



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- Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas

## 28.5 WASTE MANAGEMENT

There are operations on construction projects that may create hazardous waste, which would require handling, storage, transferring, and transporting. Therefore, hazardous waste guidelines apply for Hazardous Waste Planning:

### 28.5.1 Minimum Requirements:

- Contractors must designate a Material Manager who is responsible for checking delivered materials as potential hazardous waste and informing the Contractor's Safety Manager.
- Contractors who create, may be expected to create or could accidentally create a material that could be classified to be hazardous waste must provide Disposal number (or equivalent) and other pertinent information on file.
- All hazardous waste or waste which could be considered hazardous waste, as determined by the methodology and definitions from environmental regulators must be stored and collected in special areas and properly disposed of by the Contractor.
- No waste haulers, disposers, recyclers, or scavengers will be allowed on the site without the permission of the owner. It will be the responsibility of the Contractor to provide copies of all licenses, permits, and authorizations to the.
- No waste may be removed from the site by any person without the authorization of the Contractor. No waste may be brought onto the site and disposed of using the Contractor's systems or facilities.
- **Burning of waste, if not used for generating energy, shall be generally prohibited**

### 28.5.2 General Requirements

- For non-hazardous waste disposal. Receptacles e.g., dumpsters, etc. must be placed around the site for collection of waste materials. No material is to be abandoned on the site.
- Dumpsters will be inspected frequently, and any potentially hazardous material or waste will be removed from the dumpster and placed in the appropriate storage area at the expense of the responsible Contractor.

### 28.5.3 Definitions

- Solid Waste - Any garbage, refuse, sludge, or any other waste material which is not an "excluded waste."
  - The following solid wastes are not hazardous wastes unless otherwise designated as such by local authorities:
  - Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels
  - Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy.
- Other Waste Material - Any solid, liquid, semi-solid, or contained gaseous material, resulting from industrial, commercial, mining or agricultural operations which are discarded. This is usually an incidental by-product of the operation. Discarded material must be treated as follows:
  - Disposed of, and not used, reused, reclaimed, or recycled
  - Burned or incinerated, except where the material is being burned as a fuel for the purpose of recovering usable energy
  - Physically, chemically, or biologically treated (other than burned or incinerated) in lieu of or prior to being disposed of.



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- Excluded Waste - Materials that are not solid wastes. The following materials are not solid wastes for the purpose of this part:
  - Domestic sewage ("Domestic sewage" means untreated sanitary wastes that pass through a sewer system.)
  - Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment
  - Industrial wastewater discharges that are point source discharges.

28.5.4 Treatment - Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste to neutralize such waste, to recover energy or material resources from the waste, or to render such waste non-hazardous.

28.5.5 Improper Disposal - The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into the environment.

28.5.6 Temporary Storage - The holding of a hazardous waste for a period less than 90 days, at the end of which the hazardous waste is properly disposed of.

**28.5.7 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.

**28.5.8 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.

**28.5.9 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.

**28.5.10 DISPOSAL**



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- 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.

#### 28.5.11 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.

#### 28.6 WORK VEHICLES (Limited to contractual provision)

Work vehicle shall be as safe stable efficient and roadworthy as private vehicles on public roads. Site management shall ensure that drivers are [minimum 18 years of age, physically fit, suitably qualified and trained](#) for the equipment they are operating. 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.
- Equipped with backup alarms.
- 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

#### 28.6.1 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.



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- 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

**28.7 EMERGENCY PREPAREDNESS AND RESPONSE** Preferably to be maintained jointly by all stakeholders in the project) ( A separate document titled “Emergency Preparedness and Response Plan bearing document no HSEP:EPRP:MAITREE is to be read along with this plan) Emergency preparedness and response plan requirements are to protect worker life and health, and to safeguard property used and stored on the project. This plan is prepared in anticipation of an emergency to prevent losses to any Incident. This plan describes how the organization identifies, respond to and review emergency situations.

This plan covers fire, medical and other environmental incidents. It aims at controlling the emergency and generally mitigating the adverse effects of a major Incident. This plan is applicable to all activities carried at all BHEL project sites. Determination of hazard potential and identification and assessment of hazards is the first part in emergency planning. This requires systematic study of the site / plant to identify emergencies that can occur.

**28.7.1 Definition:**

A major emergency can be defined as an Incident that has potential to cause serious injury or loss of life. It may cause extensive property damage and adversely affect the environment as a whole.

**28.7.2 Emergency scenarios and General Guidelines:**

Various scenarios that are anticipated to cause emergency at BGRESL site are discussed in brief along with guidelines.

- Personal injuries:  
In spite of putting best efforts some technical failure or human error may lead to personal injury at site. Guidelines are given below when personnel injuries happen:
  - Contact medical center over phone/cell/radio;
  - Contact security control room over phone/cell/radio;
  - Contact HR/Admin department over phone/cell/radio;
  - Tell your location nature of injury or near miss incident;
  - Inform site safety department;
  - Provide First Aid treatment if properly trained person is available, otherwise take the injured person to Medical center if practical; or
  - Stay with the injured person until medical assistant arrives.
- In case of fire:
  - Shout “fire fire”;
  - Inform the persons nearby. Contact Fire Center and give your location and other details as warranted and act very calmly and swiftly. Then contact security and safety department once in a safe location;
  - Try to put out the fire by using available portable fire extinguisher if trained and fire is in incipient stage only, otherwise let firefighting personnel tend to it;
  - Do not make any attempt to collect your belonging;
  - Get out and away from the area immediately and walk do not run. Follow shortest escape route and assemble at assembly point; and
  - Under no circumstance put your precious life at risk.



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- Mishaps involving failures of crane, structures, equipment and vehicular incidents, etc., can also lead to an Emergency situation on construction sites. Guidelines for actions to be taken in case of such situations are as:
  - Inform immediate authority and also inform security and safety departments.
  - Try to assist in rescue personnel involved only if safe to do so;
  - Cordon off the area to prevent entry of personnel in affected area;
  - Security shall ensure movement in affected area in coordination with Section/Site In-charge.
  - Fire/Security service departments responding to affected area to contain and control the situation;
  - All other personnel not involved in mitigation operation shall be directed to assembly point; and
  - Contractor/ sub-contractor management shall ensure that their workmen are away from emergency site, not gathering around location of emergency.
- Toxic leakage from nearby live units can also lead to emergency situation at construction site. Guidelines for actions to be taken are as:
  - Inform immediate authority and also inform security and safety departments;
  - Evacuate all the personnel from the area immediately depending upon the wind direction to safest assembly point;
  - Call for help from fire and medical by phone/Cell/radio;
  - Arrange transport for any victims to medical Centre; and
  - Do not panic, act swiftly, do not run and proceed as per advice of emergency services.
- Bomb threat, sabotage, riot etc., also may lead to emergency situation at construction site. Such situation shall be dealt by HR/Admin and security department with the advice of Site In-charge.
  - Notification to the owner and authorizes to follow immediately.
- Natural calamities like earthquake, cyclone, and flood like situation can also lead to emergency situation at construction site. Site In-charge will act with required diligent and directive received from Concerned State Government, Corporate office and Owner.

**28.7.3 Communication system**

An important key to effective emergency response is an effective communication system. At BHEL, site telephone, mobile and radios will be used for communication during emergency.

- Whosoever is observing any emergency shall inform about emergency to:
  - HR/Admin department
  - HSE-Head /Officers /
  - Medical and Security department
  - Fire department,
- BHEL Site/Section In-charge
- BHEL Section In-charge will confirm the information with emergency services and also inform the Regional Manager as well as sub-contractors Site In-charge.

**28.7.4 Communication matrix shall be as:**



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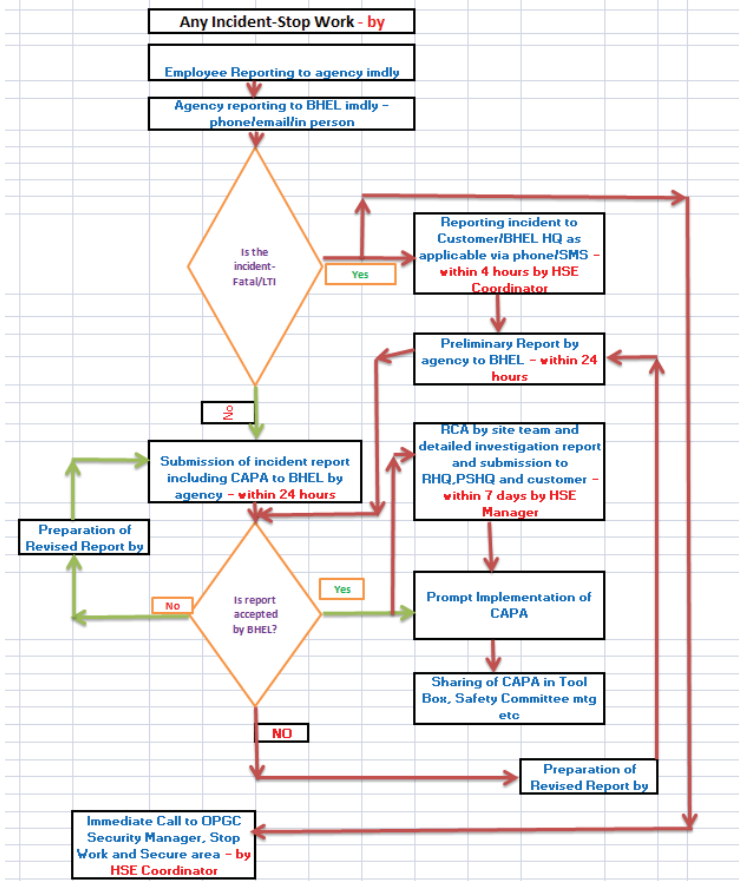
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## **INCIDENT MANAGEMENT FLOW CHART**



## 28.7.5 List of Key Personnel -

Sl. No.	Name	Designation	Telephone Number	Mobile number

## 28.7.6 Emergency Control Center -





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For the coordination with emergency situations at BHEL site Site In-charge office shall operate as an Emergency Control Room. Site Main Controller (Site In-charge) will coordinate from this Emergency Control Room. Control Room shall be equipped with all necessary communication devices necessary to manage particular emergencies.

**28.7.7 Emergency Drills -**

The site HSE Manager and Emergency and Rescue Teams must participate in regular emergency drills of various types. The intervals between such drills must not exceed three months. The records of the drills must be prepared and kept on site for review by the Owner and site Management. The records must be reviewed during regularly scheduled project HSE Committee meetings.

- After each drill, a formal, documented debriefing must be conducted to discuss areas of improvement and an Action Plan developed with Responsible Person and Anticipated Completion Dates describing improvements to be implemented.

**28.7.8 Roles & Responsibility -**

Responsibility of Site In-charge (Site Main Controller):

- Immediately on receiving message regarding emergency will proceed to their cabin and fill their role as Main Controller and activate the Emergency Control Room and Emergency Management Team.
- Take strategic and technical decisions in line with the incident scenario to mitigate the cause of emergency.
- Provide leadership and guidance to the Emergency Management Team.
- As soon an emergency call is received they shall inform respective Section In-charge.
- Call for available resources Fire, Medical, Security as needed based on emergency situation.
- Stay in contact with Section In-charge for coordination efforts of resources and evacuation of personnel.
- Ensure head count is conducted and received.
- Notify Owner representative of situation and plan.

Responsibility of Section In-charge (Area Controller):

- If not at the location, once notified of an emergency will proceed to the area and act as an incident controller if safe or as appropriate based on the nature of emergency.
- Will be overall in-charge of the area situation in consultation with emergency responding offices and mobilized resources in coordination with Main Controller.
- Will assess the situation and take necessary action to control the emergency and give necessary instruction to site personnel as necessary and appropriate.
- Will evaluate if fire emergency and attempt to extinguish if safe and in incipient stage and assist injured as applicable.
- Shall instruct the sub-contractors and ensure that all non-essential employees are moved to safe assembly point and organize head count.
- Ensure safe evacuation of site personnel to safe assembly point in coordination with Main Controller.
- Shall keep in contact with Main Controller keep them informed about site situation and seek directives for mitigation of emergency.
- Communicate with shift Fire Officer of fire condition and rescue measures.



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- Communicate with shift Security Officer assist in barricading the affected area.
- Communicate with shift Medical for transporting of casualties, if any.

Fire officer /shift Fire in charge:

- Respond to the emergency call with fire crew in first turn out. Report to Incident controller at site of emergency.
- Decide line of control action in consultation with Section In-charge/Incident Controller for firefighting and other control actions including evacuation of trapped personnel.
- Deploy auxiliary fire squad for assisting fire crew.
- Ensure safety of the crew members
- Keep in constant contact with Emergency Control Room and Team.

Security officer / In charge:

- Instruct and deploy security personnel at security posts/gates and around the affected area.
- Communicate with the auxiliary fire squad at emergency site immediately on receiving emergency call to ensure their mobilization.
- Cordon off the affected area and guide traffic /emergency vehicles and manage crowd control by dispersing unnecessary persons from the area.
- Ensure vigilance at security posts /gates and be in contact with area manager and other members connected with firefighting or rescue operation.
- Mobilize for evacuation of personnel to safe locations/assemble point.

Medical Center:

- Upon receiving notification of an emergency, anticipate the casualties and prepare accordingly as per medical response plan. Inform Medical Staff and nearest Hospital in advance.
- Dispatch ambulance to incident site along with necessary staff.
- Provide medical treatment/first aid as necessary.

HR/Admin and HSE Teams:

- Coordinate with Main Controller and all other Emergency Management Team members and Government agencies as per requirement.
- Identify appropriate Assembly Points at project site, provide directions and marked areas clearly.
- Assist with arrangement of necessary PPE and use of.
- Support the Emergency Management Team as directed and/or necessary based on situation.

28.7.9 General Requirements:

- 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 sub-contractors
- Assembly point shall be earmarked and access to the same from different location shall be shown in consultation with the owner
- Fire exit shall be identified and pathway shall be clear for emergency escape.
- Appropriate type and number of fire extinguisher shall be deployed as per Fire extinguisher deployment plan and validity shall be ensured periodically through inspection



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

## 28.8 WEATHER SEVERITY PLAN

### A. OBJECTIVE AND SCOPE:

Considering the overall monsoon and wind speed in the area the emergencies like cyclone and flood shall be considered from safety point of view during project work.

Warning/alerts issued by Bangladesh Meteorological department shall be acted upon by appropriate measures. These alerts are mostly conveyed to District Administration which in turn passes on to the owner of the project i.e. BIFPCL in this case. BIFPCL will have onus to convey such alert to contractors. and coordinate appropriate response. Such alert is transmitted over Radio and TV channels also.

This safety plan provides procedure to be followed during emergency due to flood and cyclone for the period of entire project work with respect:

- To give clear guidance as to the actions that must be implemented.
- To inform employees what to do in an Emergency Scenario.
- To establish an emergency response and communications procedure.

### B. RESPONSIBILITIES

RCM or his assignee shall coordinate with various departments in charge and supervisors, who will execute the alert procedures in their assigned areas. The coordination shall be in line with directives received from the Client/consultants.

### C. CYCLONE

In the event of CYCLONE, alert warning is in three parts. The alert will be issued by BHEL Site Manager.

The actions required during cyclone/Rough Weather:

- Check and assist subcontractors in cleanup. Pick up all loose and unused material of respective supervisor's area
- Check tie-down arrangement is proper for all temporary structure, cranes and tall objects etc.
- Tie to secure all gas cylinders to avoid displacement and unsafe conditions which could be due to wind pressure.
- Secure portable electricity generating sets and other equipments, pumps, hoses etc.
- Make preparation for removal of water logging.
- Take review of work activity and make preparation for removal of equipments and material from all areas.



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- Isolate/Turn off all electrical power from the main panel/switches. Secure and anchor panels properly.
- Recheck anchorage/tie of all temporary structures/sheds, tall objects, cranes, rigs, scaffolds etc to avoid toppling due to wind force.
- Cranes boom shall be either locked or lowered the booms as reasonably & practicably and rigs to safe position for the safety point of view.
- Group up all trash barrels, wooden pallets, forms; wooden decks etc. and anchor properly.
- Welding machines, air compressors, and such equipments are to be grouped together and secured to the stable objects. Welding leads, electrical cables, hoses are to be rolled up and secured properly.
- Set on site vehicles on high ground in the site area with brakes set firmly.
- Anchor all tanks, vessels, gas cylinders that may be moved by high wind and water.
- Evacuate job site.

**D. PERSONNEL EVACUATION:**

Personnel Evacuation will be required if predicted wind speed and storm surge heights are beyond acceptable limits as per the guidelines of BHEL management.

Special cyclone shelter shall be arranged in consultation with BHEL management. This shelter shall be equipped with first aid kit and emergency kit containing torch, sufficient batteries, jackets, emergency treatment manual. The map of escape routes and other site specific instructions of emergency situations shall be prominently displayed in the shelter.

Once the warning received from Client/Consultant, the emergency response team shall evacuate and transport all personnel involved in the project to the cyclone shelter.

Cyclone may followed by the calm "EYE" be aware of it. If the wind suddenly drops, don't assume the cyclone is over. Violent wind may resume from the opposite side direction. Wait for the official "All clear Signal".

After the cyclone do not go outside until officially communicated about safe situation outside. Use recommended routes for returning. Do not panic or rush while returning.

Checking of gas leaks and wellbeing of electrical appliances is essential before leaving the site.

Listen to local radio for official warning and advice. The site manager shall also obtain updates from client/consultants/metrological departments and communicate to the personnel on project site.

**E. MONSOON:**

During monsoon following precautions needs to be considered.

- **Excavation:** Inspect all excavations and protect from collapsing or subsidence. Clear all excavated material.
- **Storm water drains:** Check all storm water drains ahead of monsoon for any blockage etc. Identify way for draining out water collected in the site. If required, temporary drains should be prepared for draining out



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accumulated water in site. The sufficient number of dewatering pumps should be available for the purpose and logged water shall be pumped to nearest drain by dewatering pumps.

- **Access Routes:** Identify access routes to the site in case of flood. Sand should be available to spread over slippery surface.
- **Electrical Supply:** Beforehand check earthing of electrical panels and electrical cables for joints, cracks, insulation failure etc. Keep additional stock of electrical cables and plug tops for replacement of damaged one or to energize dewatering pumps. Do not keep electrical cables/welding cables on the ground but route them above head level. Do not use welding / DB sheds as shelters. All electrical equipment shall be equipped with ELCBs/RCCBs.
- **Power Cable route demarking:** cable route shall be demarked by either by temporary or permanent.
- **Scaffolding:** Check all scaffolds for stability after heavy rain/storm.
- **Work restrictions:** Do not perform any height work, electrical work and rigging activities during rain. Lower the crane boom to avoid striking of lightning.
- **Vehicular movement:** Instruct the vehicle operators about following safety precautions during monsoon in daily tool box meeting, Slippery surface and road conditions, Speed limit, Wind shield wiper, Fog light, break condition is proper, break light is in proper condition & functioning. Not to take vehicle in loose soil.
  - **Lightening protection:** Boiler and all tall structure shall be facilitated with lightning protecting equipment.
  - **Workmen shed construction:** workmen rest shed shall be constructed in robust way. RCC pillar shall be used instead of brick pillar. It shall be facilitated with lightning arrestor as per site resource. However if the rest room is nearby high mast light. Lightning arrestor may or may not be provided.
  - **Field Training Programme on Lightening/Thunder: Dos or Dos not.**

**F. SAFETY PRECAUTIONS FOR SNAKE MENACE:**

**Preventive Measures –**

- ③ Remove vegetation around the site
- ③ Pour Carbolic acid around site boundaries in regular intervals to keep away poisonous snakes. In summer and rainy season, frequency will be once a month and in other seasons, it will be once a quarter. It may be noted that as the location of the project is on a sand bed, there is almost no wild growths. Hence, Snake menace may not of significant severity and scale.

**Precautions to avoid snake bite –**

- ③ Avoid stepping out in the dark, especially during monsoon without safety shoes and torch.
- ③ Before wearing shoes, check inside the shoes for any snake/insect hiding inside. Similarly before lifting any material with hand lying on ground for long time, look for snake/insect handling inside. Wear leather hand gloves. Always check inside gunny bags, cartons, boxes before putting your hand in side or lifting them.



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- ③ Be aware of your surroundings at all time. Never sit or step over obstacles without looking carefully. Never go near bushes for natural calls.
- ③ Don't chase snakes as they become aggressive. Never try to hit a snake or try to catch it, where there is one, there are likely others.
- ③ Never handle a snake, even if you think it is dead.
- ③ If necessary, snake gaiters may be used

### Symptoms of Snake Bite –

- ③ A pair of punctured mark, severe pain, Redness & swelling around bitten area
- ③ Victim gets nausea, vomiting sensation, sweating, disturbed breathing and increased salivation.

### Actions required in case of snake bite –

- ③ Reassure the victim
- ③ Immobilize the bitten body part without compression.
- ③ Get the patient to hospital as fast as safely possible
- ③ Tell the doctor any of the symptoms appearing on the way to the hospital.

### Snakebite Emergency: DO's and DON'Ts

#### Do's:

- ③ Avoid yourself and victim from the risk of second bite.
- ③ Remove tight clothing, shoes, watch or ring near bitten area before swelling starts. Calm the victim. Tell victim that virtually all snakebites are successfully treated. Panic can increase the danger to the victim by inducing rapid heartbeat.
- ③ Clean / disinfect bite area thoroughly, apply hard direct pressure with gauze pad over bite area, soak gauze pad with Betadine if possible before application and strap pad tightly in place with adhesive tape
- ③ Wrap affected extremity with 2" – 3" elastic bandaging as tightly as one would for sprain, keep the affected extremity positioned at or as close to heart level as possible and immobilize affected extremity; use a splint if possible.
- ③ Get medical attention as soon as possible
- ③ Ensure the availability of anti venom serum in the hospital.

#### Don'ts:

- ③ Do not bleed the wound, cut or increase bite marks or put ice on the bite
- ③ Do not eat or drink anything and engage in strenuous physical activity
- ③ Do not apply oral suction to bite
- ③ Do not take alcoholic beverage or any self medication
- ③ Do not apply cold / hot packs or burn wound
- ③ Do not delay seeking medical attention
- ③ Do not remove dressings/elastic wrap until at hospital



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**G. EMERGENCY CONTACT LIST:**

Following emergency contact numbers shall be available / displayed at site and updated regularly.  
Emergency Contact Numbers





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(Contact numbers to be filled by Site Management)

<b>BIFPCL</b>		
	Resident Construction Manager	
	Safety Manager	
	Admin	
<b>BHEL</b>		
	RCM	
	Safety Manager	
	HSE COORDINATOR	
	HR-ADMIN	
<b>AGENCY/SUB-CONTRACTOR</b> ( )		
	RCM	
	Safety Manager	
	Ambulance	
	HR-ADMIN	
	Area First-aider	
<b>INSIDE COMMON FACILITIES</b>		
	SECURITY OFFICE AT GATE	
	AMBULANCE DRIVER	
	SICK ROOM	
<b>Outside</b>		
	Near Hospital	
	Near Fire Station	
	Ambulance Service	
	Police Station	

28.9

**CONTROL OF**

**DOCUMENTS**

All documents shall be controlled as per HSE Procedure for Document Control.



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**28.10 CONTROL OF RECORDS**

All records shall be controlled as per HSE Procedure for Control of Records.

**29.0 HSE AUDIT**

**29.1 INTERNAL HSE AUDIT**

- Internal HSE Audit shall be carried out by Regional HQ/PS-HQ as per HSE audit calendar.
- Qualified HSE auditor [as certified by accreditation agencies like DNV, BVC, TUV-SUD etc](#) shall be engaged for the internal HSE audit.
- HSE checklist (**Annexure 02**) shall be used for carrying out audit and report shall be submitted to Head (HSE) of the Region with a copy to concerned site. Final audit report will be issued by Head (HSE) of the Region.
- All non-conformities and observations on HSE shall be disposed of by site [within 2 weeks](#).
- Corrective action and Preventive action on HSE issues issued by Regional HQs shall be implemented by site and reported to HQ

**29.2 EXTERNAL HSE AUDIT**

- External HSE audit may be carried out by customer/consultant as second party audit or by certification body/government body as third party audit.
- Site shall facilitate smooth conduct of HSE audit and make available all the necessary information data which are not confidential in nature.
- All non-conformities and observations on HSE identified during external HSE audit shall be disposed off by site [within 2 weeks](#) 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 HQ

**30.0 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 tentative agenda is given below: The chairman shall pick relevant points:
  - 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.

**31.0 Resumption of Construction Activities After Lock Down and Prevention of Coronavirus Infection during Site Operations- Operational control procedure (OCP no -61)- Annexed**



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**32.0 FORMATS USED**

SL. No.	Format Name	Format No.	Rev No.
01	HSE Induction Training	HSEP:14-F02	00
02	Health Check Up	HSEP:14-F03	00
03	Excavation Work Permit	HSEP:14-F04	00
04	Radiation Work Permit	HSEP:14-F05	00
05	Confined Space Work Permit	HSEP:14-F06	00
06	Work-at-height Permit	HSEP:14-F07	00
05	Monthly Site HSE Report	HSEP:14-F08	00
06	Incident Report	HSEP:14-F09	00
07	Incident Investigation Report	HSEP:14-F10	00
08	Tool Box Talk	HSEP:14-F11	00



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**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:

**As per Rule 76(2) of Bangladesh Labour Rules, 2015:**

- (2) The first-aid box shall be distinctively marked with a GREEN Cross 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)	A bottle containing 100 tablets (each of 5 grains) of aspirin
(xviii)	Ointment for burns
(xix)	A bottle of suitable surgical anti-septic solution
(xx)	3 packets of ORS

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



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(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.
(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.

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



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POWER SECTOR

HSE INDUCTION TRAINING

FORMAT NO: HSEP:14-F02

REV NO.: 00

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Name of Site :	
Name of Sub-Contractor :	
Date :	
Name of Training Co-ordinator	

Sl No.	Name	Designation	Signature

Signature of Training co-ordinator :



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

FORMAT NO: HSEP:14-F03

REV NO.: 00

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<b>Name of Site :</b>			
<b>Name of Sub-Contractor :</b>			
<b>Name of Employee :</b>			
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		:	
Chest Expansion	:	Inspiration	Expansion
Lymph Node Enlargement	:		
<b><u>Ear, Nose, Throat</u></b>		:	
Ear		:	
Nose		:	
Throat		:	





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POWER SECTOR

HEALTH CHECK UP

FORMAT NO: HSEP:14-F03

REV NO.: 00

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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



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Bharat Heavy Electricals Ltd  
Power Sector- Eastern Region

HSEP:14-F04

Date:

PROJECT: \_\_\_\_\_

**(TO BE SUBMITTED IN TRIPLICATES)  
EXCAVATION WORK PERMIT**

Sl No:

- I. Name of the work:
- II. Name of Contractor:
- III. Exact location of work and item for excavation:
- IV. Duration of work: From \_\_\_\_\_ to \_\_\_\_\_
- V. Type of excavation: Manual/ by Excavator
- VI. Dimension of excavation:

The following items have been checked and compliance shall be ensured during the currency of the permit:

item	Done
1. Checked for underground pipe/power cable	
2. Proper illumination provided (for night work)	
3. Plan/drawing available and checked (sloping, shoring provided). Safety of any adjacent structure taken care of.	
4. Access/Egress ensured (in case of manual)	
5. Equipment operator skill checked	
6. Area cordoned off, signage put up	
7. Appropriate PPEs provided	

The following persons are permitted to work for the duration mentioned herein:

Date		No of persons allowed	Time Duration	
From	To		From	To

List of persons to be maintained by contractor separately

Sign of Initiator (Sub-contractor)

Sign of Recommender



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Sign of Approver

Work completed/stopped/area cleared at \_\_\_\_\_ on \_\_\_\_

The permit stands closed on \_\_\_\_\_

Sign of BHEL HSE team



Bharat Heavy Electricals Ltd  
Power Sector- Eastern Region

HSEP:14-F05

Date:

PROJECT: \_\_\_\_\_  
(TO BE SUBMITTED IN TRIPLICATES)

**RADIATION WORK PERMIT**

SI No:

- I. Name of the work:
- II. Name of Contractor:
- III. Exact location of work and item for radiography:
- IV. Duration of work: From \_\_\_\_\_ to \_\_\_\_\_
- V. Name of Radiography agency and its authorised supervisor:

The following items have been checked and compliance shall be ensured during the currency of the permit:

item	Done
1. Safety regulations as per BARC/AERB ensured while source in use/transit/stores	
2. Proper illumination provided	
3. Area cordoned off	
4. Appropriate PPEs provided	

The following persons are permitted to work for the duration mentioned herein:

Date		No of persons allowed	Time Duration	
From	To		From	To



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List of persons to be maintained by contractor separately

Sign of Initiator (Sub-contractor)

Sign of Recommender

Sign of Approver

Work completed/stopped/area cleared at \_\_\_\_\_ on \_\_\_\_

The permit stands closed on \_\_\_\_\_

Sign of BHEL HSE team



Bharat Heavy Electricals Ltd  
Power Sector- Eastern Region

HSEP:14-F06

Date:

PROJECT: \_\_\_\_\_  
(TO BE SUBMITTED IN TRIPLICATES)

## **CONFINED SPACE WORK PERMIT**

Sl No:

- I. Name of the work:
- II. Name of Contractor:
- III. Exact location of work:
1. Condition check of target space:

Condition	Y/N	NR
8. Isolated from air/ water/ steam/ gas/ power/radiation source		
9. Thoroughly cleaned/washed		
10. Adequately cooled		
11. Proper illumination provided		
12. Manways open & ventilated		



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**2. Protection measures:**

Measure	Y/N	NR
1. Handlamp is of 24V		
2. Operators wearing recommended PPEs- gloves/ clothing/ear plug/ muff/ safety harness/lifeline/ goggles /face shield		
3. Operators wearing special devices – dust/gas/airline mask, communication equipment, personal gas alarm		
4. Attendant with SCBA/Air mask		
5. Rescue equipment/ team deployed		
6. Fire fighting equipment close-by		

The following persons are permitted to enter the confined space to work for the duration mentioned herein:

Date(s)	No of persons allowed	Name of persons allowed	Duration	
			From	To

Sign of Initiator (Sub-contractor)

Sign of Recommender

Sign of Approver

Work completed/stopped/area cleared at \_\_\_\_\_ on \_\_\_\_\_

The permit stands closed on \_\_\_\_\_

Sign of BHEL HSE team



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Bharat Heavy Electricals Ltd  
Power Sector- Eastern Region

HSEP:14-F07

Date:

PROJECT: \_\_\_\_\_

(TO BE SUBMITTED IN TRIPLICATES)

## **WORK-AT-HEIGHT PERMIT**

Sl No:

- I. Name of the work:
- II. Name of Contractor:
- III. Exact location of work:

Sl.	Description of the point to be checked	Pl tick (✓) if it is OK
1.	Whether the manpower of the Gang engaged is having adequate number and skill required for the said activity?	
2.	Whether Supervisor has been engaged for this activity?	
3.	Whether following PPEs have been provided to all workers? Full body Harness, Safety Shoe, Helmet	
4.	Whether Lifelines tied with solid anchorage above 1 M level from the job?	
5.	Whether Tool-Box meeting carried out and Hazard related to the said job and safety precaution to be taken told to workers?	
6.	Whether Fall arrestor fixed where staircase is not available for access to job?	
7.	Whether Scaffold/Platform/Place for job is strong enough, has easy access and is safe for the job? Is the Space sufficient for doing work? Whether Safety Net has been fixed?	
8.	Whether all Lifting T&Ps and Tackles have valid Fitness Certificates? Whether Lubrication is Ok? Whether these are free from any defect when visually checked before use?	
9.	Pl ensure that none of the workers of the Gang has Vertigo or High or Very Low Blood Pressure. ( Health register to be referred)	

The following persons are permitted to work for the duration mentioned herein:

Date		No of persons allowed	Time Duration	
From	To		From	To

List of persons to be maintained by contractor separately

Sign of Initiator (Sub-contractor)

Sign of Recommender

Sign of Approver



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Work completed/stopped/area cleared at \_\_\_\_\_ on \_\_\_\_

The permit stands closed on \_\_\_\_\_

Sign of BHEL HSE team



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HSEP14:F-08

**MONTHLY HSE REPORT**

Month: \_\_\_\_\_

**1. Lagging Indicators:**

**a. Incident statistics:**

Category	Fatal	Non-fatal major	Minor	First aid cases	Near Miss	Property Damage
Month						
Year						
Cumulative						

b. LTI free days ( No of days since last Fatal or non-fatal major incident) as on closing day of the month: \_\_\_\_\_

**2. Leading Indicators:**

**a. Training Details:**

i. No of persons covered in Induction Training:

ii. Skill training/ drills:

Sl No	Topic	No of persons

iii. Medical Check-up details:

Sl No	Date/ details	No of Persons





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iv. Observations statistics: Nos

Nos carried forward from last month	Recorded in current month	Closed in current month	Closing Balance

v. Environmental initiatives/ checks:

Initiative	Date/Duration	Qty	Remarks

vi. HSE Reward details:

Agency	Title of reward	Remarks

vii. Penal action details: (financial/ suspension/ termination cases)

Agency	Penal action details	Violation details

(HSE Manager/BHEL)

To: HSE manager/BIFPCL



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HSEP:14-F09



**Bharat Heavy Electricals Limited  
Power Sector Eastern Region**

## **INCIDENT ( PERSONAL INJURY / PROPERTY DAMAGE ) REPORT**

(This report is to be sent within 24 hours directly to GM/Q &S/PS-HQ, , Noida with copy to MR(HSE)/PSER in respect of all incidents in addition to immediate Fax / Telegraphic intimation of fatalities and major damages including fires.)

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 INCIDENT			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 INCIDENT / INJURY / DAMAGE							
12	PERSON (NAME & DESIGNATION) WITH MOST CONTROL OVER AGENCY (OBJECT / EQUIPMENT / SUBSTANCE ) CAUSING INCIDENT INJURY / DAMAGE						
13	DESCRIBE CLEARLY HOW THE INCIDENT OCCURRED AND IF THE VICTIM WAS WEARING THE APPROPRIATE PPE (USE ADDITIONAL SHEET, IF REQUIRED).						



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**ANALYSIS**

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



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**BHARAT HEAVY ELECTRICALS LIMITED HSEP:14-F10  
POWER SECTOR: EASTERN REGION**

INVESTIGATION REPORT FROM PROJECT SITE :

INCIDENT(FATAL/SERIOUS INJURY/PROPERTY DAMAGE/FIRE)

DATE :

**Instructions**

This report is to be sent within seven days to GM/Q&amp;S/PS-HQ and RHQ Safety Department, in respect of incident requiring investigation by a committee.

<b>Report date</b>	<b>Incident Date</b>	<b>Incident Time</b>	<b>Incident Type</b>	
<b>Name of Site :</b>				
<b>Scope of work :</b>				
<b>Name &amp; Designation of BHEL Package I/C</b>				
<b>Name of Contractor :</b>				
<b>Incident Location :</b>				
<b>Victim(s) Information</b>				
<b>Name</b>	<b>Designation</b>	<b>Age</b>	<b>Sex</b>	<b>Address</b>
<b>Witness Information</b>				
<b>Name</b>	<b>Address</b>			



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1	Describe, how the incident took place ( Attach separate sheets, diagrams, and photographs, if possible.)
2	Description of Injury (Attach medical report as applicable)
3	Describe property and equipment damaged in the incident and extent of damage.
4	Describe any personal protective equipment used and other safety equipment that were in place.
5	Describe any perceived actual or possible safety violations in the area of incident.
6	Describe events and conditions immediately before the incident.



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7	Are these conditions still in existence?
8	Were any unsafe actions performed by the victim or by others or were any safety rules violated that caused/ contributed to the incident.
9	Describe steps taken to secure the area.
10	Describe measures to be taken to prevent similar recurrences.
11	Any other information



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Prepared by			
Name	Designation	Signature	Date

Submitted to:

- 1 Construction Manager
- 2 RHQ: Safety Department
- 3 GM/Q&S/PS-HQ



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POWER SECTOR

TOOL-BOX TALK

FORMAT NO: HSEP:14-F11

REV NO.: 00

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Name of Site :

Sub-Contractors Name :

Date :

Topic:

**Attendance Sheet**

Name	Signature	Remarks

Signature of Site I/C of Subcontractor :





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**SITE HEALTH, SAFETY AND  
ENVIRONMENT PLAN FOR  
2X660MW MAITREE POWER PROJECT**

Doc no.: HSEP: 14(1)-MAITREE

REV: 06

Date: 18.04.2020

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**RECORD OF REVISION**

<b>CLAUSE No.</b>	<b>Rev No.</b>	<b>Brief of Revision</b>	<b>Date</b>
All	00	New procedure introduced	08.04.2016
All	01	Customer comments incorporated	11.01.2017
All	02	Customer comments incorporated	11.04.2017
All	03	Customer comments incorporated	15.06.2017
All	04	Customer comments incorporated	09.10.2017
7.2	05	Qualification criteria of HSE officer revised	16.05.2018
All	06	Inclusion of OCP-61 as annexure	18.04.2020



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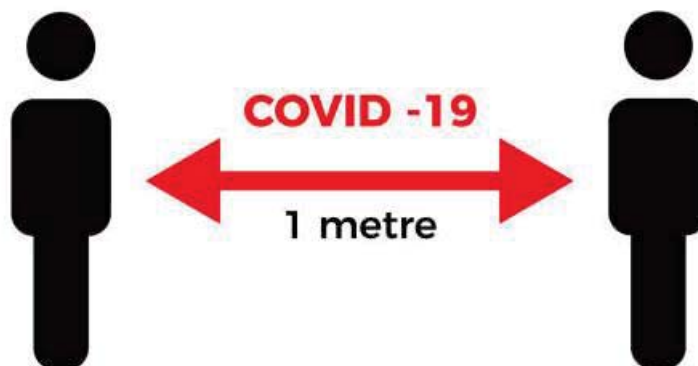
### Resumption of Construction Activities After Lock Down and Prevention of Coronavirus Infection during Site Operations

<b>Purpose</b>	<ul style="list-style-type: none"><li>➤ To resume work in a safe manner after Lock down due to COVID-19 Outbreak</li><li>➤ To ensure health &amp; safety of personnel and preventing infection during operations</li><li>➤ To ensure HSE Management &amp; Control during operations to avoid medical emergencies</li></ul>	<b>Scope</b>	PS Regions
<b>Background</b>	<ul style="list-style-type: none"><li>➤ The purpose of this procedure is to resume construction works at BHEL project sites in the event of 'Construction activities' being permitted by the Government/District Administration/Statutory Authorities.</li><li>➤ By following this OCP the chain of corona spread will largely be eliminated and works can be done safely.</li><li>➤ All precautionary measures are to be ensured at site and labor colonies so that the labor force feels safe and secure at work place and act in a productive manner.</li><li>➤ This OCP also lays down guidelines to handle cases of infection</li></ul>		
<b>Applicability</b>	<ul style="list-style-type: none"><li>➤ This SOP applies to all BHEL employees and its subcontractors working at project sites.</li><li>➤ It also covers guidelines for medical personnel, security personnel, visitors and others</li></ul>		
<b>Responsibility</b>	Concerned Site In-charge / Site HSE Head/Package Head		
<b>Performance Criteria</b>	Number of cases of violations from these guidelines. All violations must be recorded and compliance for the same immediately/ within day		
<b>References</b>	<ul style="list-style-type: none"><li>➤ Corporate HSE Circular BHEL:CO: SOP : COVID-19 : 01</li><li>➤ Corporate Guidelines regarding disinfection for Prevention of COVID-19 in BHEL Offices, Townships, Hospitals, Factories and other common places (No. AA:HR:MR 1 (C ) dated 20-03-2020)</li><li>➤ OHSAS : 18001 , ISO : 14001:2015, ISO 45001:2018</li><li>➤ ICMR &amp; WHO Guidelines for COVID 19</li><li>➤ Govt. of India Guidelines being issued from time to time</li><li>➤ Guidelines issued by National Centre for Disease Control and other agencies of Govt. of India</li><li>➤ WHO Guidelines being issued from time to time</li></ul>		









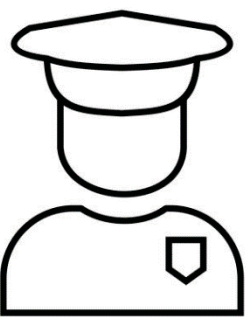
Prepared by	Reviewed by	Approved By
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### General PPEs & Precautions

Maintain Social Distance of at least 1 meter **Minimum** (more the better)



Precautions at all times is necessary. Even a single lapse can lead to infection

	Face shield/ mask must be worn by all at all times and disposed/ cleaned properly		Protective clothing must be worn		Protective gloves as identified in Safety Data Sheet
	Appropriate footwear with substantial uppers must be worn		Mandatory requirements are specified and must be followed. Report any accidents.		
	Spray to disinfect personal items/ areas		Spray to disinfect public places/ infrastructures/ tools etc.		
	Hazmat suits and special PPEs for medical personnel and other officials with more probability of coming into contact with infected		Strict security & control at Gate to avoid entry into site/office premises of infected persons and persons without necessary PPEs, unauthorized personnel, animals etc.		



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### Resumption of Construction Activities After Lock Down and Prevention of Coronavirus Infection during Site Operations

#### General

1. This procedure is applicable for all Site Personnel working at Project Site or in the offices of Project Site, including staff, workers, officials, medical and security personnel. It also includes visitors including drivers, cleaners, doctors, nurses, etc. entering the site premises
2. **These are broad guidelines that sites may follow as per requirement in order to ensure the purpose of this OCP is met.**
3. The procedure refers specifically to COVID-19 disease caused by SARS-CoV-2 Virus, but is applicable to similar highly infectious respiratory illnesses as well
4. This procedure is Annexure to Corporate HSE Circular **BHEL: CO: SOP: COVID-19: 01 – 'Standard Operation Procedure for Work Resumption after Lockdown'**. In case of any ambiguity & duplicity, Corporate HSE Circular & Guidelines and Govt. guidelines to be followed
5. This procedure is necessary to ensure continuation of business operations in order to avoid mandatory lockdown in the event of an infection. All precautions to be taken seriously due to the contagiousness and mortality rate of this disease.
6. Necessary precautions may be ensured at all times. Even a slight lapse can lead to infections and shut down of site operations for the mandatory notified period

#### Procedures and Controls

S No	Activity	Responsibility
1	<b><u>Routine HSE Management Activities During COVID-19</u></b>  a. Due to the stress on existing medical facilities due to COVID-19 pandemic, it is imperative to take utmost precautions and avoid any incidents during operations. b. All activities to be carried out in safest manner possible with all necessary precautions. c. All activities to be carried out using least amount of paperwork as far as possible. The methodology to issue Permit etc. can be decided by Site Management. All necessary precautions before starting activity to be ensured and regularly monitored by concerned execution and HSE Team. d. As far as possible, meetings & classroom trainings to be avoided. Essential meetings can be carried out by following the guidelines in Corp HSE Circular and this OCP e. <b>HSE Observer</b> App to be used to monitor HSE Activities and follow up with agencies for closure of non-conformities. Follow up to also be carried out through Phone. f. Apart from monitoring of HSE requirements, monitoring of COVID-19 precautions by workers and BHEL and Agency Officials also to be carried out	Agency, BHEL
2	<b><u>Strict Control at Gates</u></b>  a. <b>Strict Control at the Gate/ Banning Entry to Anyone Not Wearing Masks</b> i. Security personnel at the gate may erect a barricade preferably approx. 10 meters from the gate and only allow personnel who are wearing proper masks inside. ii. Public address system may be used to warn any non-compliant visitors iii. Near entry gate, round markers at 1-meter distance to be ensured so that distancing is ensured iv. A hand-wash or hand sanitiser facility is preferable at the gate to allow entry after hand wash or hand sanitisation. In case this is not feasible or not possible at the gate, then these	Security, Agency, BHEL



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may be provided at key locations to enable hand wash / hand sanitisation before starting work, before eating, etc.

**v. Screening at Gate with Contactless Thermometer & Action on Suspected Cases**

- 1) Security Personnel at the Gate to screen each person entering the premises using a non-contact infrared thermometer, which is duly serial numbered and calibrated.
- 2) In case any site worker/ official is found to have fever more than 99 Degrees Fahrenheit or found coughing/ sneezing, he/she may be advised rest till recovery or entry to be permitted after obtaining clearance from medical officer/assistance/attendants.
- b. Any parcel/courier person should be stopped at gate only. Parcel to be collected from gate by concerned person preferably with provision of Special Box (wood/metal/plastic or the like) which can be sanitized daily. A provision of drop box at front of BHEL site office may also be deployed for receiving document like letter/invoice, etc.
- c. Don't allow any new vehicle without concerned BHEL engineer permission.
- d. New staff/worker to be screened thoroughly before issuing gate passes or permitting entry.
- e. Ensure that number of persons coming inside and going outside is matching, agency wise.
- f. Visitor entry in site office to be avoided as far as possible.

**3 Maintaining Strict Social Distancing during site/office activities – minimum 1 meter distance between any two personnel to be Enforced Strictly**

Agency/ BHEL

- a. During meetings, classroom training programmes like induction training and on-the job training, toolbox talks and other gatherings, following precautions may be ensured:
  - i. Preferably, such meetings to be avoided and communication carried out through other means (email, phone, pamphlets etc.)
  - ii. At door, hand sanitizer or soap and water to be ensured for sanitizing hands during entry & exit by each individual (Specs of Hand sanitizer are detailed in Corporate Guidelines AA:HR:MR 1 (C) dated 20/03/2020)
  - iii. Only limited number of personnel to be called in training/ meeting, so as to ensure distance of minimum **1 meters** between two participants
  - iv. Each participant to wear mask
  - v. In case any individual is symptomatic/ coughing/ sneezing, he/ she may be taken to quarantine area by the medical/ first aid personnel, and medical assistance sought from specialized hospital, etc
  - vi. Persons may be allowed to attend the induction training/ meeting only after temperature screening if felt necessary.
- b. **Social Distancing During Toolbox Talks**  
During Toolbox Talks, minimum 1 meter distance between any two workers to be ensured
- c. **During site execution activities:**
  - i. For all site execution activities, social distancing is to be maintained. In case this is not possible due to nature of work, speciality of work, etc, ensure sensitisation of the labour/staff involved and use of appropriate PPEs, especially mandatory face mask. In any



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- case, close working to be allowed only in special circumstances and ensuring these activities are preferably time staggered to the extent possible
- ii. Ensure hand wash / hand sanitisation facility at key places and these are topped up regularly
- d. In office premises:
- i. Sharing of items like pens, water bottles etc. in office premises to be avoided
- ii. Seating arrangement to be ensured to ensure minimum 1 meter distance
- iii. Doors preferably to be in open condition to avoid contact
- iv. All common touch points to be regularly disinfected.

4

#### **Mandatory Face Masks for Everyone at All Times**

- a. The Govt of India advisory available at following link gives details on how to prepare, use and clean such masks.

<https://www.mohfw.gov.in/pdf/Advisory&ManualonuseofHomemadeProtectiveCoverforFace&Mouth.pdf>

- i. The workmen/staff may use home-made masks/ "gamchcha" (गमछा) provided they are used effectively and constantly.
- ii. All site personnel to wear masks as specified at all times except possibly while having lunch/ tea. During that period, a distance of minimum **2 meters** to be maintained between two persons.
- iii. Minimum two masks to be ensured for each person – one can be used and other washed. Daily washing with detergent is mandatory
- iv. Strict directions for usage, washing of mask to be given to workers and officials. Masks are not to be touched from outside, and are to be put in soap solution on reaching residential quarters.
- v. There must not be a sharing of face covers and a face cover must be used by only one individual
- vi. Regular awareness by way of posters or daily briefing to be provided regarding correct usage, handling, washing, disposal etc of face masks/gamchas/cloth etc

#### **b. Types of Masks**

##### **i. Homemade/ Reusable Face Covers:**

- 1) Such home/ self-made face covers may be preferably used by all personnel. In case they can arrange better masks, same may be allowed.
- 2) In any case, no person to be permitted in site premises without a mask.

##### **ii. Triple Layer Surgical Masks**

- 1) These are disposable masks to be given to visitors/ used by workers and officials as per requirement.

##### **iii. N95 Masks**

- 1) Medical, security, and other officials, who come into contact with large number of people during the course of the day to be given N95 Masks
- 2) In addition, infected personnel and who are suspected of infection to use specialized masks as indicated by doctor

Concerned Individual/  
Supervisor



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5	<p style="text-align: center;"><u><b>Mask cleaning/ disposal</b></u></p> <p>The Govt of India guidelines in above link also give details on how to wash and dispose the masks. Same to be followed.</p> <p>In addition,</p> <ul style="list-style-type: none"><li>a. For re-usable masks, in labor colony, separate area for cleaning masks to be identified, wherein all workers to wash the masks using detergent and water</li><li>b. Minimum two sets of masks to be ensured with everyone so that one can be used while other is washed</li><li>c. Cleaning of masks and availability of backup to be ensured by other officials as well besides workers.</li><li>d. <b>Safe disposal of Masks, Infected clothing, items etc.</b><ul style="list-style-type: none"><li>i. Each location to have separate bin for collecting used disposable masks and possibly infected items.</li><li>ii. All these bins to be collected daily and disposed of by trained staff wearing proper PPEs</li></ul></li></ul>	Concerned Individual, Agency, BHEL
6	<p style="text-align: center;"><u><b>Provision of Food &amp; Refreshments</b></u></p> <ul style="list-style-type: none"><li>a. <b>Workers:</b> Tea for workers may be avoided. In case necessary, strict social distancing to be ensured, besides hand washing. It is preferable to let the labour bring their own cups/glasses or else use of disposable paper based cups to be encouraged<ul style="list-style-type: none"><li>i. Tea cups may be arranged by the server and picked by worker in contactless manner.</li><li>ii. Food for workers may be served in packets.</li><li>iii. <b>Preparation:</b> Common food preparation to be carried out under strict hygiene with cooks wearing gloves and masks. A guard specifically to monitor the health of the cooks may be deployed, who can warn the management regarding any possible health issues.</li><li>iv. At tea/ food distribution area, social distancing norms to be ensured</li></ul></li><li>b. <b>Officials:</b> As far as possible, home cooked food to be preferred. In case not possible, packed food to be delivered at each seat, prepared in hygienic fashion as above</li></ul>	Agency/ BHEL
7	<p style="text-align: center;"><u><b>General Precautions in Site Areas</b></u></p> <ul style="list-style-type: none"><li>a. Workers to be instructed to maintain social distancing of minimum 1 m at all time (tool box meeting, tea time lunch time, gate entry time and drinking/service water area)</li><li>b. Daily Tool Box Meeting to contain the awareness about COVID 19 and precautionary measures to prevent spread.</li><li>c. No other group meeting to be conducted preferably.</li><li>d. Contractor to keep their working area clean and hygiene. Disinfectant spray/powders to be applied daily at common places (eating place, drinking water area, service water area and transport vehicles)</li><li>e. All the workers during resting also, to maintain social distance of at least 1 meter (or more). Subcontractor has to disinfect the rest shelter at regular intervals.</li><li>f. Subcontractor may keep sanitizer/hand wash in sufficient numbers at all common points.</li></ul>	Agency/ BHEL



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- g. All hanging load must be inspected before starting work. A committee can be formed by each contractor to ensure all these pre start up inspections are done and submit the report to BHEL.
- h. Sanitizer may be kept at stair case entrance, lift entry point etc. Lifts to be avoided to the extent possible, and staircases preferred
- i. If any worker is found with COVID-19 symptom, he/she has to be sent to quarantine chamber immediately by medical personnel and medical assistance sought. Contractor to maintain extra room to keep person with symptom in quarantine.
- j. Contractor to display precautionary measures, 'Do's and Don'ts' at prominent places in languages spoken by their workers.
- k. Workers may be advised to keep separate water bottles. Common water bottles/mugs/glasses to be preferably avoided.
- l. Contact Biometric attendance system is strictly prohibited till such advisory is in place.
- m. Regular disinfection of all Areas, Equipment and facilities**
  - i. Each agency to prepare the disinfecting plan and act accordingly.
  - ii. A dedicated disinfectant gang to be identified for the task by each agency.
  - iii. All areas (including office premises, site areas, chairs, tables, furniture etc.), tools & equipment to be disinfected by dedicated gang every day before resumption of work.
  - iv. The disinfectant gang to be provided full body suits for the task
  - v. Common touch points like handrails, lift buttons, door/window knobs or handles, vehicle door handles, taps, conference room & dining hall tables/chairs, common sofas/chairs, visitor sofa/chairs, files & folders, etc to be disinfected regularly at frequent intervals every day.
  - vi. Pool vehicles, to be disinfected after every use. Social distancing to be maintained inside the common pool vehicles.
- n. Provision of Disinfectant Spraying Machine and Disinfectant Chemical**
  - i. Provision of disinfectant machine may be deployed for faster disinfection of surfaces, premises, offices etc.  
The indicative composition of disinfectant chemicals is given in Corp HR Circular No. AA:HR:MR 1 (C ) dated 20-03-2020
- o. Disinfecting the operator/driver touch points of Vehicles/cranes, T&Ps etc.**

Disinfection to also be carried out for all Cranes, Vehicles, Equipment, consoles, T&Ps etc. which come into contact with operating personnel.
- p. Mandatory Disinfecting of all PPEs, Tools & Items on daily basis**

All PPEs, Tools & Items to be disinfected mandatorily before use/ issue and also those in stores
- q. Posters on COVID-19**

Sufficient Posters on COVID-19 to be ensured across the site in languages understood by most workers.
- r. Provision of Hand-Hygiene at Site**
  - 1) In order to ensure hand-hygiene at site, wash basins with sufficient flowing water (going to drain after washing – not re-usable) to be installed at various locations. Here flowing water means water flowing from any tap or poured from tanker/sump/tank etc. Dipping hands into





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	<p>water in buckets/tanks/sumps etc for the purpose of washing is strictly prohibited as it is counter-productive.</p> <p>2) Brief guidelines for hand washing are as below:</p> <ol style="list-style-type: none"><li>Soap to be provided at each wash basin and replenished regularly.</li><li>Washing with soap for at least 20 seconds is recommended.</li><li>As a general guideline, for every 100 workers, 1 wash-basin to be provided at site areas.</li><li>Close queue to be avoided near wash-basins and 1-meter distance to be maintained. Round markers at 1-meter distance can be ensured as guidance</li></ol> <p>s. <b>Penalty</b></p> <ol style="list-style-type: none"><li>To ensure compliance penalty may be imposed in line with district administration norms or higher for not wearing mask or violating social distancing guidelines.</li><li>Concerned subcontractor may also be warned of stricter penalties in case of continued negligence</li></ol>	
8	<p style="text-align: center;"><b><u>Labor Colony</u></b></p> <ol style="list-style-type: none"><li>All relevant guidelines in Corporate HSE Circular BHEL:CO: SOP : COVID-19 : 01 to be followed</li><li>Labor colony should be properly fenced with gate and deputation of security guard</li><li>Inward and outward registers to be maintained at colony. No person may be allowed to go outside unless otherwise for purchase of essential items. Concerned HR in charge of the agency to accompany the person for hospital visits if any and report the matter to BHEL/Customer/ District administration in case of COVID like symptoms.</li><li>Hand wash or hand sanitizer facility at the entrance of the colony and common points (water points, etc)</li><li>New workers should not be allowed to enter colony before health checkup.</li><li>Daily report to be submitted to BHEL on the upkeep of the labour colony on above issues.</li></ol>	Agency/ BHEL
9	<p style="text-align: center;"><b><u>Provision of Quarantine Chambers</u></b></p> <ol style="list-style-type: none"><li>In labor colony, a temporary home quarantine chamber is preferable to be set up to keep possible infected cases until further medical help arrives. Quarantine chamber should be away from labor colony tenements.</li><li>Similar arrangement of quarantine chambers may be set up at Site premises.</li><li>Quarantine chamber to have in-built toilets, washrooms, proper ventilation and other facilities</li><li><b>Sustaining during Quarantine</b><ol style="list-style-type: none"><li>During quarantine, all essential items, like food, laundry, hygiene etc. for the upkeep and sustenance of the individual to be ensured in a safe manner maintaining appropriate distance until medical care arrives.</li><li>The care provider in quarantine area should be fully covered/protected and trained in caring of the quarantined person till medical care arrives</li></ol></li></ol>	Agency/ BHEL
10	<p style="text-align: center;"><b><u>Action in case any individual is suspected of COVID infection or showing symptoms</u></b></p> <p>In case any suspected COVID-19 case is found or an individual is showing symptoms:</p> <ol style="list-style-type: none"><li>Immediately alert BHEL HQ &amp; Corporate office, Customer, Local authorities/ district administration, etc</li><li>Arrange to take the individual to the COVID testing or COVID care facility as per advise of local authorities/district administration</li></ol>	Agency/ BHEL



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	<ul style="list-style-type: none"><li>c. Sanitize and disinfect immediately all the areas where the person would have visited in the Project premises and labour colony etc</li><li>d. Co-operate with the local authorities in identifying and tracing individuals who might have come in close contact with the suspected person. Take immediate action as advised by the local authorities/ district administration, customer, etc including cordoning off or sealing of the area.</li><li>e. Apprise BHEL offices and customer regularly.</li></ul>	
11	<p style="text-align: center;"><b><u>Liaison with Specialty Hospitals for COVID-19</u></b></p> <p>Liaison with specialty hospitals for COVID-19 test/treatment facility, for timely care to suspected individuals, and advice</p>	BHEL
12	<p style="text-align: center;"><b><u>Hazmat Suits and N95 Masks for Medical Personnel</u></b></p> <p>Medical Personnel at site to be provided hazmat suits besides N95 masks</p>	BHEL
13	<p style="text-align: center;"><b><u>Training/ Awareness regarding COVID-19</u></b></p> <p>All site personnel to be given inputs on COVID-19 regularly covering following broad topics: (Workers to be given Pep Talk once a month through Audio-Visual Medium and daily through toolbox talks and officials to be informed in internal meetings as and when they happen.</p> <p>Every meeting to begin with brief discussion on COVID-19 and need to ensure precautions like masks and social distancing).</p> <p>Suggested topics are given below:</p> <ul style="list-style-type: none"><li>a. What is COVID-19 &amp; How it spreads through coughing, sneezing and touching mucous membranes like mouth, eyes after touching infected surface</li><li>b. What are the symptoms of COVID-19, namely coughing accompanied with fever and flu-like symptoms including running nose and sneezing</li><li>c. The highly infectious spread, Number of infections and fatalities in the world from this disease</li><li>d. Fatality rate from COVID-19 varies from 1-10% and individuals with preexisting conditions like heart diseases, diabetes, kidney &amp; liver problems, smokers are more vulnerable to have serious effects from Coronavirus infection</li><li>e. How COVID-19 infected individual can be asymptomatic, but can still infect friends and family members. Infected individual can be immune, but friends and family members can develop serious issues, so it is best to be protected to avoid problems for friends &amp; family and especially elders</li><li>f. According to studies, Coronavirus can stay on surfaces from few hours to few days, so touching of unknown surfaces to be avoided and hands washed/ sanitized frequently</li><li>g. There is no cure/ vaccine for this disease so far</li><li>h. Prevention is the only cure</li><li>i. Best way to save oneself is to wear mask at all times and not to touch surfaces and protect oneself from infection from respiratory droplets</li><li>j.</li></ul>	Agency/ BHEL
14	<p style="text-align: center;"><b><u>Keeping Updated on COVID-19 in the Area/ Locality</u></b></p> <p>Site to remain vigilant about any reported COVID-19 cases in the vicinity and take appropriate precautions/actions as advised by the local authorities/district administration</p>	Agency/ BHEL



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15	<p><b><u>Staggered Shifts to Avoid Contact during Commute</u></b></p> <ol style="list-style-type: none"><li>Staggered deployment of labour/staff to be ensured to prevent accumulation of people in work areas as well as in common transport vehicles. Aim is to ensure distance of minimum 1 meter between two occupants</li><li>Drivers to also wear protective masks, preferably N95</li><li>Proper air circulation and ventilation to be ensured in vehicles</li></ol>	Agency/ BHEL
16	<p><b><u>Air circulation, filtering and ventilation in Office Premises &amp; Training Halls</u></b></p> <ol style="list-style-type: none"><li>Air circulation to be ensured in closed areas</li><li>Well ventilated areas/rooms preferred to air conditioning, to the extent possible</li></ol>	Agency/ BHEL
17	<p><b><u>Guidelines to handle outside papers (eg. At Weigh bridge area, LR copies, gate passes, documents, etc.)</u></b></p> <ol style="list-style-type: none"><li>All involved personnel to strictly maintain 1 meter distance and all social distancing and other guidelines</li><li>PPES like Face mask and gloves to be necessarily worn by the dealing person.</li><li>If required, papers to be handled using long forceps, ironed on both sides using hot iron, and then handled (with gloves)</li><li>The driver/ visitor must always wear mask and maintain distance</li></ol>	Agency/ BHEL
18	<p><b><u>General/ Other</u></b></p> <ol style="list-style-type: none"><li>Shift roster should be followed,</li><li>Mass gathering meetings should not be conducted. Communications/meetings to be preferably through telephone, Mail, WhatsApp, Web-ex, etc. Face to face meetings to be preferably avoided. In case of unavoidable situations, social distancing to be maintained.</li><li>Canteen may remain closed preferably.</li><li>Committee may be formed to monitor implementation of COVID-19 prevention steps besides hygiene and fulfillment of essential needs at labor colony.</li><li>Office common area may be sanitized daily (door handle, pantry, washrooms, common printers and other common areas)</li><li>Vehicle seats and door handle to be sanitized daily.</li><li>Vehicle arrangement to be made so as to maintain social distancing. Extra persons should not travel in the vehicle. As per Corporate HSE circular, not more than 3 personnel to travel in a single site vehicle (6 seater) at a time</li><li>After lock down period, on resumption of work, all office equipment such as PC, Printers, AC, etc. are to be disinfected and started one by one after checking for any wear &amp; tear due to rodent acts during lockdown.</li><li><b>Banning animals from site:</b> As per recent reports, Coronavirus is also spreading to animals. Hence, all animals may preferably be expelled from site.</li></ol>	Agency/ BHEL

**Note:**

- Other precautions as deemed necessary by concerned sites may be ensured in order to ensure strict precautions to prevent even a single case of Coronavirus Infection
- Responsibilities are only indicative – to be decided at Site Level

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### Some Useful Links

A. Internet links of Govt and other authoritative sources on COVID-19 and Coronavirus are listed below:

1. MyGov COVID-19-19 Page: <https://www.mygov.in/COVID-19/>
2. Preventive Measures (Advisory) :<https://www.mohfw.gov.in/pdf/PreventivemeasuresDOPT.pdf>
3. Guidelines for Home Quarantine: <https://www.mohfw.gov.in/pdf/Guidelinesforhomequarantine.pdf>
4. Guidelines for COVID-19 Quarantine Facilities:<https://ncdc.gov.in/WriteReadData/l892s/90542653311584546120.pdf>
5. Posters, Dos, Don'ts on COVID-19:<https://www.mohfw.gov.in/>
6. Miscellaneous guidelines and circulars: <https://www.nhp.gov.in/whatsnew>
7. Advisory for Ensuring Safe Drinking Water : <https://www.mohfw.gov.in/pdf/advisorydrinkingwaterpdf.pdf>

B. World Health Organization:

1. Infection Prevention & Control :<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control>
2. Advice for Public : <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
3. Points of Entry & Mass Gatherings: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/points-of-entry-and-mass-gatherings>



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Site to follow all the general safety precautions as per this OCP.

In addition, relevant records pertaining to actions taken to be prepared and kept.

Records:

Record Title	Record No.	Location	Responsibility	Retention Period

Verification, Corrective and Preventive Action:

HOD / Site In-charge shall ensure effective implementation of the above procedure. In case of any deviation, shall take suitable corrective and preventive action.

### Revision History

Revision Date	Revision No.	Old Text	New Text	Reason	Revised by
18/04/2020	00	-	-	First Issue	As indicated on Page 1



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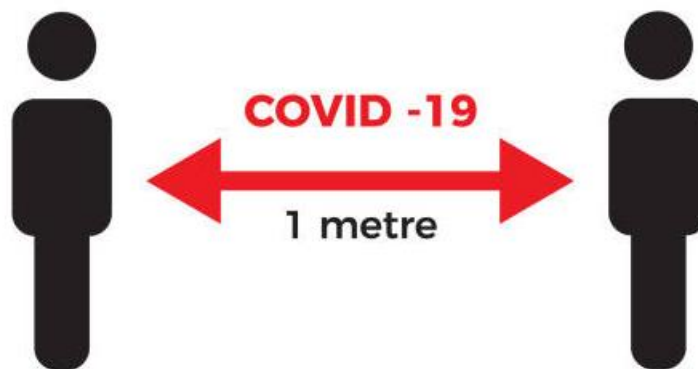
### Resumption of Construction Activities After Lock Down and Prevention of Coronavirus Infection during Site Operations

Purpose	<ul style="list-style-type: none"><li>➤ To resume work in a safe manner after Lock down due to COVID-19 Outbreak</li><li>➤ To ensure health &amp; safety of personnel and prevention of infection during operations</li><li>➤ To ensure HSE Management &amp; Control during operations</li></ul>	Scope	PS Regions
Background	<ul style="list-style-type: none"><li>➤ The purpose of this procedure is to resume construction works at BHEL project sites in the event of 'Construction activities' being permitted by the Government/District Administration/Statutory Authorities.</li><li>➤ By following this OCP the chain of corona spread will largely be contained and works can be done safely.</li><li>➤ All precautionary measures are to be ensured at site and labor colonies so that the labor force feels safe and secure at work place and act in a productive manner.</li><li>➤ This OCP also lays down guidelines to handle cases of infection</li></ul>		
Applicability	<ul style="list-style-type: none"><li>➤ This OCP applies to all BHEL employees and its subcontractors working at project sites.</li><li>➤ It also covers guidelines for medical personnel, security personnel, visitors and others</li></ul>		
Responsibility	Concerned Site In-charge / Site HSE Head/Package Head		
Performance Criteria	Number of cases of violations from these guidelines. All violations must be recorded and compliance for the same immediately/ within day		
References	<ul style="list-style-type: none"><li>➤ Corporate HSE Circular BHEL:CO: SOP: COVID-19 : 01</li><li>➤ Corporate Guidelines regarding disinfection for Prevention of COVID-19 in BHEL Offices, Townships, Hospitals, Factories and other common places (No. AA:HR:MR 1 (C) dated 20-03-2020)</li><li>➤ OHSAS : 18001 , ISO : 14001:2015, ISO 45001:2018</li><li>➤ ICMR &amp; WHO Guidelines for COVID 19</li><li>➤ Govt. of India Guidelines being issued from time to time</li><li>➤ Guidelines issued by National Centre for Disease Control and other agencies of Govt. of India</li><li>➤ WHO Guidelines being issued from time to time</li></ul>		










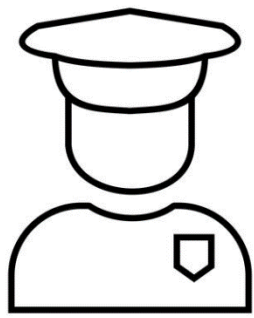
Prepared by	Reviewed by	Approved By
<b>Task Force:</b>  Rohit Kumar, SM/ PSHQ-HSE Nitesh K. Meena, DM/ PSNR-HSE Saswajeet Raut, SE/PSER-HSE Navin Sadh, SE/ PSWR-HSE Sandeep Dalal, SE/ PSSR-HSE	<b>HSE Heads/ PS-Regions:</b>  S. C. Meena, AGM/ PSNR B Tirkey, AGM/ PSER R. O. Jadhao, AGM/ PSWR Mukesh Shrivastava, AGM/ PSSR	<b>Head/ HSE, PSHQ:</b>  Santosh Nair, GM

### General PPEs & Precautions

Maintain Social Distance of at least 1 meter **Minimum (more the better)**



Precautions at all times is necessary. Even a single lapse can lead to infection

	Face shield/ mask must be worn by all at all times and disposed/ cleaned properly		Protective clothing must be worn		Protective gloves as identified in Safety Data Sheet
	Appropriate footwear with substantial uppers must be worn		Mandatory requirements are specified and must be followed. Report any accidents.		
	Spray to disinfect personal items/ areas		Spray to disinfect public places/ infrastructures/ tools etc.	Strictly No Shaking Hands	
	Hazmat suits and special PPEs for medical personnel and other officials with more probability of coming into contact with infected		Strict security & control at Gate to avoid entry into site/office premises of infected persons and persons without necessary PPEs, unauthorized personnel, animals etc.		



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#### General

1. This procedure is applicable for all personnel working at Project Site, including staff, workers, officials, medical and security personnel, cleaners, housekeeping staff etc. It also includes visitors including drivers, cleaners, doctors, nurses, etc. entering the site premises
2. These are broad guidelines that may be followed in order to ensure the purpose of this OCP is met.
3. The procedure refers specifically to COVID-19 disease caused by SARS-CoV-2 Virus, but is applicable to similar highly infectious respiratory illnesses as well
4. This procedure is branches out of Corporate HSE Circular **BHEL: CO: SOP: COVID-19: 01 – ‘Standard Operation Procedure for Work Resumption after Lockdown’**. In case of any ambiguity & duplicity, Corporate HSE Circular & Guidelines and Govt. guidelines to be followed
5. This procedure is necessary to ensure continuation of business operations in order to avoid mandatory lockdown due to an infection. All precautions to be taken seriously due to the contagiousness and mortality rate of this disease. Even a slight lapse can lead to infections and shut down of site operations for the mandatory notified period
6. The physical distancing guidelines of minimum 1 m indicated in this document to be reviewed in line with latest Govt. guidelines and ensured appropriately

#### Detailed Procedures & Controls are given below

Procedures and Controls		
S No	Activity	Responsibility
1	<b><u>Deployment/ Nomination of COVID Marshall</u></b>  a. BHEL and Agencies shall nominate COVID Marshalls, who will be responsible for monitoring the COVID prevention measures and apprising management on the same. b. Every agency shall nominate COVID Marshall, who shall report to BHEL COVID Marshall c. BHEL COVID Marshall shall be nominated by Site In-charge in consultation with Site HSE Head. d. BHEL COVID Marshall shall be the Nodal COVID Marshall for the site, and having overall responsibility.	Agency, BHEL
2	<b><u>Directions for Newly Joining Workers/ Officials</u></b>  a. Mandatory health check-up for every worker/ official joining the site b. An undertaking to be submitted by every worker/ official which shall specify if he/she had been in contact with a Covid-19 positive case, and other health-related details (as per <b>Format HSEOCP61-F01</b> ) c. All newly joining workers/ officials, shall follow the applicable procedures/ guidelines as laid out by Govt./ statutory authorities pertaining to quarantine, prior to joining work	Agency, BHEL
3	<b><u>Routine HSE Management Activities During COVID-19</u></b>  a. Due to the stress on existing medical facilities due to COVID-19 pandemic, it is imperative to take utmost precautions and avoid any incidents during operations. b. All activities to be carried out in safest manner possible with all necessary precautions. c. All activities to be carried out using least amount of paperwork and physical proximity as far as possible. The methodology to issue Permit etc. can be decided by Site Management. All necessary precautions before starting activity to be ensured and regularly monitored by concerned execution and HSE Team.	Agency, BHEL





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	<ul style="list-style-type: none"><li>d. As far as possible, meetings &amp; classroom trainings to be avoided. Essential meetings can be carried out by following the relevant guidelines</li><li>e. <b>HSE Observer</b> App to be used to monitor HSE Activities and follow up with agencies for closure of non-conformities. Follow up can also be carried out through Phone/ Video Call etc.</li><li>f. Apart from monitoring of HSE requirements, monitoring of COVID-19 precautions by workers and BHEL and Agency Officials also to be carried out</li></ul>	
4	<p style="text-align: center;"><b><u>Strict Control at Gates</u></b></p> <ul style="list-style-type: none"><li>a. <b>Strict Control at the Gate/ Banning Entry to Anyone Not Wearing Masks</b><ul style="list-style-type: none"><li>i. Security personnel at the gate may erect a barricade preferably approx. 10 meters from the gate and only allow personnel who are wearing proper masks inside.</li><li>ii. Public address system may be used to warn any non-compliant visitors</li><li>iii. Near entry gate, round markers at minimum 1-meter distance to be ensured so that distancing is ensured</li><li>iv. A hand-wash or hand sanitiser facility is preferable at the gate to allow entry after hand wash or hand sanitisation. These are also to be provided at key locations to enable hand wash / hand sanitisation before starting work, before eating, etc.</li><li>v. Gutkha, Paan, tobacco etc. to be banned from the site. Spitting to be strictly prohibited.</li></ul></li><li>vi. <b>Screening at Gate with Contactless Thermometer &amp; Action on Suspected Cases</b><ul style="list-style-type: none"><li>1) Security Personnel at the Gate to screen each person entering the premises using a non-contact infrared thermometer, which is duly serial numbered and calibrated.</li><li>2) In case any site worker/ official is found to have fever more than 99 Degrees Fahrenheit or found coughing/ sneezing, he/she may be advised rest till recovery and entry to be permitted after obtaining clearance from medical officer/assistance/attendants.</li></ul></li><li>b. Any parcel/courier person should be stopped at gate only. Parcel to be collected from gate by concerned person preferably with provision of Special Box (wood/metal/plastic or the like) that can be sanitized daily. A provision of drop box at front of BHEL site office may also be deployed for receiving document like letter/invoice, etc. Parcels to be properly sanitized prior to opening.</li><li>c. Any construction material received at site, unless properly sanitized, to be kept undisturbed for at least 3 days and to be used only after that period.</li><li>d. Don't allow any new vehicle without concerned BHEL engineer permission.</li><li>e. Ensure that number of persons coming inside and going outside is matching, agency wise.</li><li>f. Visitor entry in site office to be avoided as far as possible.</li></ul>	Security, Agency, BHEL
5	<p style="text-align: center;"><b><u>Maintaining Strict Social Distancing during site/office activities – minimum 1 meter distance between any two personnel to be Enforced Strictly</u></b></p> <ul style="list-style-type: none"><li>a. <b>During meetings, classroom training programmes like induction training and on-the job training, toolbox talks and other gatherings, following precautions may be ensured:</b><ul style="list-style-type: none"><li>i. Preferably, such meetings to be avoided and communication carried out through other means (email, phone, pamphlets etc.)</li><li>ii. At door, hand sanitizer or soap and water to be ensured for sanitizing hands during entry &amp; exit by each individual</li><li>iii. Only limited number of personnel to be called in training/ meeting, so as to ensure distance of minimum <b>1 meters</b> between two participants</li><li>iv. Each participant to wear mask</li></ul></li></ul>	Agency/ BHEL



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- v. In case any individual is symptomatic/ coughing/ sneezing, he/ she may be taken to quarantine area by the medical/ first aid personnel, and medical assistance sought from specialized hospital, etc
- vi. Persons may be allowed to attend the induction training/ meeting only after temperature screening if felt necessary.
- b. **Social Distancing During Toolbox Talks**  
During Toolbox Talks, minimum 1 meter distance between any two workers to be ensured
- c. **During site execution activities:**
  - i. For all site execution activities, social distancing is to be maintained. In case this is not possible due to nature of work, speciality of work, etc, ensure sensitisation of the labour/staff involved and use of appropriate PPEs, especially mandatory face mask. In any case, close working to be allowed only in special circumstances and ensuring these activities are preferably time staggered to the extent possible
  - ii. Ensure hand wash / hand sanitisation facility at key places and these are topped up regularly
- d. **In office premises:**
  - i. Sharing of items like pens, water bottles etc. in office premises to be avoided
  - ii. Seating arrangement to be ensured to ensure minimum 1 meter distance
  - iii. Doors preferably to be in open condition to avoid contact
  - iv. All common touch points to be regularly disinfected.

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#### **Mandatory Face Masks for Everyone at All Times**

- a. Face masks, and other necessary PPEs to be provided to all workers as per guidelines of Govt/ statutory authorities
- b. Those responsible for sanitation and cleaning of areas to be given coveralls
- c. **The Govt of India advisory available at following link gives details on how to prepare, use and clean such masks.**  
<https://www.mohfw.gov.in/pdf/Advisory&ManualonuseofHomemadeProtectiveCoverforFace&Mouth.pdf>
  - i. The workmen/staff may use home-made masks/ "gamchha" (गमछा) provided they are used effectively and constantly.
  - ii. All site personnel to wear masks as specified at all times except possibly while having lunch/ tea. During that period, a distance of minimum **2 meters** to be maintained between two persons.
  - iii. Minimum two masks to be ensured for each person – one can be used and other washed. Daily washing with detergent is mandatory
  - iv. Strict directions for usage, washing of mask to be given to workers and officials. Masks are not to be touched from outside, and are to be put in soap solution on reaching residential quarters.
  - v. There must not be a sharing of face covers and a face cover must be used by only one individual
  - vi. Regular awareness by way of posters or daily briefing to be provided regarding correct usage, handling, washing, disposal etc of face masks/gamchhas/cloth etc

Concerned Individual/ Supervisor



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#### d. Types of Masks and Use case scenarios

##### i. Homemade/ Reusable Face Covers:

- 1) Such home/ self-made face covers may be preferably used by all personnel. In case they can arrange better masks, same may be allowed.
- 2) In any case, no person to be permitted in site premises without a mask.

##### ii. Triple Layer Surgical Masks

- 1) These are disposable masks to be given to visitors/ used by workers and officials as per requirement.

##### iii. N95 Masks

- 1) Medical, security, and other officials, who come into contact with large number of people during the course of the day to be given N95 Masks
- 2) In addition, infected personnel and who are suspected of infection to use specialized masks as indicated by doctor

#### e. Minimum two sets of masks to be ensured with everyone so that one can be used while other is washed

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#### Mask cleaning/ disposal

The Govt of India guidelines in above link also give details on how to wash and dispose the masks. Same to be followed.

In addition,

- a. For re-usable masks, in labor colony, separate area for cleaning masks to be identified, wherein all workers to wash the masks using detergent and water
- b. Cleaning of masks and availability of backup to be ensured by officials as well.
- c. **Safe disposal of Masks, Infected clothing, items etc.**
  - i. Each location to have separate bin for collecting used disposable masks and possibly infected items.
  - ii. All these bins to be collected daily and disposed of by trained staff wearing proper PPEs

Concerned Individual, Agency, BHEL

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#### Provision of Food & Refreshments

- a. **Workers:** Tea for workers may be avoided. In case necessary, strict social distancing to be ensured, besides hand washing. It is preferable to let the labour bring their own cups/glasses or else use of disposable paper based cups to be encouraged
  - i. Tea cups may be arranged by the server and picked by worker in contactless manner.
  - ii. Food for workers may be served in packets.
  - iii. **Preparation:** Common food preparation to be carried out under strict hygiene with cooks wearing gloves and masks. A guard specifically to monitor the health of the cooks may be deployed, who can warn the management regarding any possible health issues.
  - iv. At tea/ food distribution area, social distancing norms to be ensured
- b. **Officials:** As far as possible, home cooked food to be preferred. In case not possible, packed food to be delivered at each seat, prepared in hygienic fashion as above

Agency/ BHEL



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9	<p style="text-align: center;"><b><u>General Precautions in Site Areas</u></b></p> <ul style="list-style-type: none"><li>a. Workers to be instructed to maintain social distancing of minimum 1 m at all time (tool box meeting, tea time lunch time, gate entry time and drinking/service water area)</li><li>b. Daily Tool Box Meeting to also include awareness about COVID 19 and precautionary measures to prevent spread.</li><li>c. No other group meeting to be conducted preferably.</li><li>d. Contractor to keep their working area clean and hygienic. Disinfectant spray/powders to be applied daily at common places (eating place, drinking water area, service water area and transport vehicles)</li><li>e. All the workers during resting also, to maintain physical distance of at least 1 meter. Subcontractor has to disinfect the rest shelter at regular intervals.</li><li>f. Subcontractor may keep sanitizer/hand wash in sufficient numbers at all common points.</li><li>g. All hanging load must be inspected before starting work. A committee can be formed by each contractor to ensure all these pre start up inspections are done and submit the report to BHEL.</li><li>h. Sanitizer may be kept at stair case entrance, lift entry point etc. Lifts to be avoided to the extent possible, and staircases preferred</li><li>i. If any worker is found with COVID-19 symptom, he/she has to be sent to quarantine chamber immediately by medical personnel and medical assistance sought. Contractor to maintain extra room to keep person with symptom in quarantine.</li><li>j. Workers may be advised to keep separate water bottles. Common water bottles/mugs/glasses to be preferably avoided.</li><li>k. Contact Biometric attendance system is strictly prohibited till such advisory is in place.</li><li><b>l. Regular disinfection of all Areas, Equipment and facilities</b><ul style="list-style-type: none"><li>i. Each agency to prepare the disinfecting plan and act accordingly.</li><li>ii. A dedicated disinfectant gang to be identified for the task by each agency. The disinfectant gang to be provided full body suits for the task.</li><li>iii. All areas (including office premises, site areas, chairs, tables, furniture etc.), tools &amp; equipment to preferably be disinfected by dedicated gang every day before resumption of work.</li><li>iv. Common touch points like handrails, lift buttons, door/window knobs or handles, vehicle door handles, taps, conference room &amp; dining hall tables/chairs, common sofas/chairs, visitor sofa/chairs, files &amp; folders, etc to preferably be disinfected regularly at frequent intervals every day.</li><li>v. Pool vehicles, to be disinfected after every use. Social distancing to be maintained inside the common pool vehicles as per Govt./ statutory body guidelines.</li></ul></li><li><b>m. Provision of Disinfectant Spraying Machine and Disinfectant Chemical</b><ul style="list-style-type: none"><li>i. Provision of disinfectant machine may be deployed for faster disinfection of surfaces, premises, offices etc. The indicative composition of disinfectant chemicals is given in Corp HR Circular No. AA:HR:MR 1 (C) dated 20-03-2020</li></ul></li><li><b>n. Disinfecting the operator/driver touch points of Vehicles/cranes, T&amp;Ps etc.</b> Disinfection to also be carried out for all Cranes, Vehicles, Equipment, consoles, T&amp;Ps etc. which come into contact with operating personnel.</li><li><b>o. Mandatory Disinfecting of all PPEs, Tools &amp; Items on daily basis</b> All PPEs, Tools &amp; Items to be disinfected mandatorily before use/ issue and also those in stores</li></ul>	Agency/ BHEL
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	<p><b>p. Posters on COVID-19</b></p> <p>q. Sufficient Posters on COVID-19 to be ensured across the site in languages understood by most workers. Contractor to display precautionary measures, 'Do's and Don'ts' at prominent places in languages spoken by their workers.</p> <p><b>r. Provision of Hand-Hygiene at Site</b></p> <p>1) In order to ensure hand-hygiene at site, wash basins with sufficient flowing water (going to drain after washing – not re-usable) to be installed at various locations. Here flowing water means water flowing from any tap or poured from tanker/sump/tank etc. Dipping hands into water in buckets/tanks/sumps etc for the purpose of washing is strictly prohibited as it is counter-productive.</p> <p>2) <b>Brief guidelines for hand washing are as below:</b></p> <ul style="list-style-type: none"><li>i. Soap to be provided at each wash basin and replenished regularly.</li><li>ii. Washing with soap for at least 20 seconds is recommended.</li><li>iii. As a general guideline, for every 100 workers, 1 wash-basin may be provided at site areas.</li><li>iv. Close queue to be avoided near wash-basins and 1-meter distance to be maintained. Round markers at 1-meter distance can be ensured as guidance</li></ul> <p><b>s. Penalty</b></p> <ul style="list-style-type: none"><li>i. To ensure compliance penalty may be imposed in line with district administration norms or higher for not wearing mask or violating social distancing guidelines.</li><li>ii. Concerned subcontractor may also be warned of stricter penalties in case of continued negligence</li></ul>	
10	<p style="text-align: center;"><b><u>Labor Colony</u></b></p> <p><b>Following guidelines for COVID Prevention in labor colony may be followed:</b></p> <ul style="list-style-type: none"><li>a. All relevant guidelines in Corporate HSE Circular BHEL:CO: SOP : COVID-19 : 01 to be followed</li><li>b. HSEOCP No. 61A for Labor Colony.</li><li>c. Any other guidelines issued by applicable Govt/ Statutory authorities</li></ul>	Agency/ BHEL
11	<p style="text-align: center;"><b><u>Provision of Quarantine Chambers</u></b></p> <ul style="list-style-type: none"><li>a. In labor colony/ near site, a temporary home quarantine/ isolation chamber may be set up to keep possible infected cases (with cough, cold, fever or other symptoms) until further medical help arrives. Quarantine chamber should be away from labor colony tenements.</li><li>b. Similar arrangement of quarantine chambers may be set up at Site premises.</li><li>c. Necessary arrangements for quarantine shall be as per Govt./ statutory body guidelines</li></ul>	Agency/ BHEL
12	<p style="text-align: center;"><b><u>Action in case any individual is suspected of COVID infection or showing symptoms</u></b></p> <p>In case any suspected COVID-19 case is found or an individual is showing symptoms like cough/ cold/ fever etc.:</p> <ul style="list-style-type: none"><li>a. Immediately alert BHEL HQ &amp; Corporate office, Customer, Local authorities/ district administration, etc</li><li>b. Arrange to take the individual to the COVID testing or COVID care facility as per advise of local authorities/district administration</li><li>c. Sanitize and disinfect immediately all the areas where the person would have visited in the Project premises and labour colony etc.</li></ul>	Agency/ BHEL



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	<p>d. Co-operate with the local authorities in identifying and tracing individuals who might have come in close contact with the suspected person. Take immediate action as advised by the local authorities/ district administration, customer, etc including cordoning off or sealing of the area.</p> <p>e. Apprise BHEL offices and customer regularly.</p>	
13	<p><b><u>Liaison with Specialty Hospitals for COVID-19</u></b></p> <p>a. Liaison with specialty hospitals for COVID-19 test/treatment facility, for timely care to suspected individuals, and advice.</p> <p>b. Information regarding local authorities dealing with COVID to be maintained</p> <p>c. Addresses of COVID centers for possible scenarios to be maintained</p>	BHEL
14	<p><b><u>Hazmat Suits and N95 Masks for Medical Personnel</u></b></p> <p>Medical Personnel at site to be provided hazmat suits besides N95 masks</p>	BHEL
15	<p><b><u>Training/ Awareness regarding COVID-19</u></b></p> <p>All site personnel to be given inputs on COVID-19 regularly covering following broad topics: (Workers may be given Pep Talk once a month through Audio-Visual Medium and daily through toolbox talks and officials to be informed in internal meetings as and when they happen.</p> <p>Every meeting to begin with brief discussion on COVID-19 and need to ensure precautions like masks and social distancing).</p> <p>Suggested topics are given below:</p> <p>a. What is COVID-19 &amp; How it spreads through coughing, sneezing and touching mucous membranes like mouth, eyes after touching infected surface</p> <p>b. What are the symptoms of COVID-19, namely coughing accompanied with fever and flu-like symptoms including running nose and sneezing</p> <p>c. The highly infectious spread, Number of infections and fatalities in the world from this disease</p> <p>d. Fatality rate from COVID-19 varies from 1-10% and individuals with preexisting conditions like heart diseases, diabetes, kidney &amp; liver problems, smokers are more vulnerable to have serious effects from Coronavirus infection</p> <p>e. How COVID-19 infected individual can be asymptomatic, but can still infect friends and family members. Infected individual can be immune, but friends and family members can develop serious issues, so it is best to be protected to avoid problems for friends &amp; family and especially elders</p> <p>f. According to studies, Coronavirus can stay on surfaces from few hours to few days, so touching of unknown surfaces to be avoided and hands washed/ sanitized frequently</p> <p>g. There is no cure/ vaccine for this disease so far</p> <p>h. Prevention is the only cure</p> <p>i. Best way to save oneself is to wear mask at all times and not to touch surfaces and protect oneself from infection from respiratory droplets</p>	Agency/ BHEL
16	<p><b><u>Keeping Updated on COVID-19 in the Area/ Locality</u></b></p> <p>Site to remain vigilant about any reported COVID-19 cases in the vicinity and take appropriate precautions/actions as advised by the local authorities/district administration</p>	Agency/ BHEL



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17	<p><b><u>Staggered Shifts to Avoid Contact during Commute</u></b></p> <ol style="list-style-type: none"><li>Staggered deployment of labour/staff to be ensured to prevent accumulation of people in work areas as well as in common transport vehicles. Aim is to ensure distance of minimum 1 meter between two occupants</li><li>Drivers to also wear protective masks, preferably N95</li><li>Proper air circulation and ventilation to be ensured in vehicles</li></ol>	Agency/ BHEL
18	<p><b><u>Air circulation, filtering and ventilation in Office Premises &amp; Training Halls</u></b></p> <ol style="list-style-type: none"><li>Air circulation to be ensured in closed areas</li><li>Well ventilated areas/rooms preferred to air conditioning, to the extent possible</li></ol>	Agency/ BHEL
19	<p><b><u>Guidelines to handle outside papers (eg. At Weigh bridge area, LR copies, gate passes, documents, etc.)</u></b></p> <ol style="list-style-type: none"><li>All involved personnel to strictly maintain 1-meter distance and all social distancing and other guidelines</li><li>PPES like Face mask and gloves to be necessarily worn by the dealing person.</li><li>If required, papers to be handled using long forceps, ironed on both sides using hot iron, and then handled (with gloves)</li><li>The driver/ visitor must always wear mask and maintain distance</li></ol>	Agency/ BHEL
20	<p><b><u>General/ Other</u></b></p> <ol style="list-style-type: none"><li>Shift roster should be followed,</li><li>Mass gathering meetings should not be conducted. Communications/meetings to be preferably through telephone, Mail, WhatsApp, Web-ex, etc. Face to face meetings to be preferably avoided. In case of unavoidable situations, social distancing to be maintained.</li><li>Canteen to remain closed preferably.</li><li>Committee may be formed to monitor implementation of COVID-19 prevention steps besides hygiene and fulfillment of essential needs at labor colony.</li><li>Office common areas may be sanitized daily (door handle, pantry, washrooms, common printers and other common areas)</li><li>Vehicle seats and door handle to be sanitized daily.</li><li>Vehicle arrangement to be made so as to maintain social distancing. Extra persons should not travel in the vehicle. As per Corporate HSE circular, not more than 3 personnel to travel in a single site vehicle (6 seater) at a time</li><li>After lock down period, on resumption of work, all office equipment such as PC, Printers, AC, etc. are to be disinfected and started one by one after checking for any wear &amp; tear due to rodent acts during lockdown.</li><li><b>Banning animals from site:</b> As per recent reports, Coronavirus is also spreading to animals. Hence, all animals may preferably be expelled from site.</li></ol>	Agency/ BHEL

**Note:**

- Other precautions as deemed necessary by concerned sites may be ensured in order to ensure strict precautions to prevent even a single case of Coronavirus Infection
- Responsibilities are only indicative – to be decided at Site Level



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### Some Useful Links

**A. Internet links of Govt and other authoritative sources on COVID-19 and Coronavirus are listed below:**

1. MyGov COVID-19-19 Page: <https://www.mygov.in/COVID-19/>
2. Preventive Measures (Advisory) : <https://www.mohfw.gov.in/pdf/PreventivemeasuresDOPT.pdf>
3. Guidelines for Home Quarantine: <https://www.mohfw.gov.in/pdf/Guidelinesforhomequarantine.pdf>
4. Guidelines for COVID-19 Quarantine Facilities: <https://ncdc.gov.in/WriteReadData/l892s/90542653311584546120.pdf>
5. Posters, Dos, Don'ts on COVID-19: <https://www.mohfw.gov.in/>
6. Miscellaneous guidelines and circulars: <https://www.nhp.gov.in/whatsnew>
7. Advisory for Ensuring Safe Drinking Water : <https://www.mohfw.gov.in/pdf/advisorydrinkingwaterpdf.pdf>

**B. World Health Organization:**

1. Infection Prevention & Control : <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control>
2. Advice for Public : <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
3. Points of Entry & Mass Gatherings: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/points-of-entry-and-mass-gatherings>



## **Coronavirus Self Declaration Form**

- 1) Name: .....
- 2) Age: .....
- 3) Father's Name: .....
- 4) Agency: .....
- 5) Identification Number.....Identification Type.....
- 6) Arriving from: .....
- 7) Are you arriving from any COVID Hot Spots or Containment Zones? If Yes, please give details:
  
- 8) Have you come in contact in with relatives/ friends/ people infected, suspected or diagnosed with COVID-19 in last 21 days? If Yes, please provide your relationship with people and your last contact date with them:
  
- 9) Have you been advised quarantine/ isolation or undergone treatment w.r.t. COVID-19? If Yes, please provide details (date, duration, location, medical report etc.):
  
- 10) Please state if you have experienced/ are experiencing any of the following symptoms:

Symptom	Yes	No
i) Fever		
ii) Cough		
iii) Shortness of Breath		
iv) Persistent pain in the Chest		

I acknowledge that the information I have given is accurate and complete.

Date:

Place:

Signature:



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Site to follow all the general safety precautions as per this OCP.

In addition, relevant records pertaining to actions taken to be prepared and kept.

Records:

Record Title	Record No.	Location	Responsibility	Retention Period

Verification, Corrective and Preventive Action:

HOD / Site In-charge shall ensure effective implementation of the above procedure. In case of any deviation, shall take suitable corrective and preventive action.

### Revision History

Revision Date	Revision No.	Old Text	New Text	Reason	Revised by
18/04/2020	00	-	-	First Issue	As indicated on Page 1
01/06/2020	01	-	Besides general improvements/ corrections, modifications as below: <b>Added (Other clauses shifted by 2):</b> 1. Deployment of COVID Marshalls 2. Directions for newly Joining Workers/ Officials; Addition of Format F1 <b>Edited:</b> 4. Construction material, unless sanitized to be kept undisturbed for 3 days 6. Sanitization staff to be given coveralls 10. Reference to OCP 61A for COVID Prevention in labor colony added	New Govt. guidelines/ general improvements	PSHQ-HSE



## OPERATIONAL CONTROL PROCEDURE

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OCP No. : 61A

### Prevention of COVID-19 Infection in Labor Colony

Purpose	➤ To ensure necessary precautions in Labor Colony in order to prevent spread of Infectious diseases like COVID-19 among residents	Scope	PS Regions
Applicability	➤ This SOP applies to labor colonies at project sites.		
Responsibility	Concerned Site In-charge / Site HSE Head/Package Head		
Performance Criteria	Number of cases of violations from these guidelines. Violations must be recorded and compliances be done for the same immediately/ within a day		
References	➤ HSEOCP:61 and all References therein This OCP is an Annexure to HSEOCP 61)		

#### Procedures and Controls

S No	Activity	Responsibility
1	<b>General</b> a. Norms for social distancing, training/ awareness, face masks, disinfection, sanitization, gate entry, quarantine, medical, action in case of suspect COVID cases etc. as indicated in HSEOCP:61, Corporate HSE Circular BHEL:CO: SOP: COVID-19 : 01 and Govt. guidelines b. Each labor colony will be secured preferably by a boundary wall and gate, manned by a guard. Only workers with valid ID cards to be let inside c. New workers should not be allowed to enter colony without health checkup.	Agency, BHEL
2	<b>Precautions for Living Rooms &amp; Common Areas in Labor Colony</b> a. <b>Spacing of minimum 2 meters between living areas of workers inside a room may be maintained.</b> Preferably, the living area of each worker may be partitioned using sheet of cloth, plastic etc. b. Rooms to be properly ventilated as far as possible c. Sanitation to be given prime importance and personal hygiene to be promoted d. Outside every common facility, eg. Toilet, washroom, food hall/ canteen etc., provision of washbasin with water (flowing water preferably) and soap (preferably liquid soap) to be ensured e. Round markers with chalk at 1-2 meter distance to prevent crowding at each common facility like toilet, washroom, drinking water point, washing area, mess/ canteen etc. f. <b>Staggered shift planning</b> – In case the capacity of infrastructure and facilities like toilets, washrooms, canteen etc. is not sufficient, workers can be assigned staggered shifts so as to not overwhelm the facilities. A group can depart before the next group starts to get ready. Detailed assessment and planning in this regard is to be carried out by each concerned agency g. Face masks shall be worn by everyone inside the colony premises (Refer 1(a)). h. Sanitisation/Disinfection of all areas to be carried out regularly (Refer 1(a)). i. Spitting of Pan. Gutkha etc. inside the colony and urinating etc. outside the toilets to be strictly avoided j. Regular visits by Doctors to the labor colony can be arranged on non-working day for check-up of all workers k. Banning animals from labor colony: As per recent reports, Coronavirus is also spreading among animals. Hence, all animals to preferably be expelled from labour colony. l. Necessary social distancing to be ensured during cooking and taking food. Separate water bottles, utensils etc to be preferably maintained by each worker to prevent infection. Common cooking to be preferably avoided. In case necessary, adequate care to be taken especially w.r.t. health and well-being of the cook and maintaining proper distance during serving food/ tea etc.	Agency/ BHEL



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### Prevention of COVID-19 Infection in Labor Colony

- m. Identification of “COVID Wardens” (CWs) by each agency for maintaining the following:
  - i. Keeping an eye on the health of workers and report any suspected cases of fever, coughing etc. to the management
  - ii. Keeping an eye on the social distancing measures in the labor colony and report any non-conformances to the management.
  - iii. Educate the workers about social distancing and COVID prevention measures.
- n. **Training/ Awareness regarding COVID-19**
  - i. Workers to be instructed to maintain social distancing of minimum 1 m at all time
  - ii. **Posters on COVID-19:** Sufficient Posters on COVID-19 to be ensured across the labor colony in languages understood by most workers.
  - iii. All workers to be instructed to inform any suspected cases of illness (individual or others) to an emergency contact number of CW, The emergency contact numbers and CW contact numbers to be displayed at prominent locations
- o. **Commute to/ from Labor Colony**
  - i. Social distancing precautions and masks to be strictly ensured during commute between labor colony and site. Govt. guidelines on occupancy of the vehicles to be followed.
  - ii. In case vehicles are used, concerned drivers to be instructed to keep a watch on the occupants following the necessary social distancing measures and wearing masks.
- p. **Inspection & Review**
  - i. Daily Inspection by concerned COVID Wardens and reporting to Agency
  - ii. Regular inspection by Agency & BHEL

#### Note:

1. Other precautions as deemed necessary by concerned sites may be ensured in order to prevent Coronavirus Infections. This OCP suggests minimum requirements. However, Sites may consider alternative actions based on feasibility and circumstances, while adhering to GOI/District Administration/Local Authority guidelines, issued from time to time for social distancing, sanitation, use of face masks, etc
2. Responsibility assignments are only indicative – to be decided at Site Level



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Prevention of COVID-19 Infection in Labor Colony

Site to follow all the general safety precautions as per this OCP.

In addition, relevant records pertaining to actions taken to be prepared and kept.

Records:

Record Title	Record No.	Location	Responsibility	Retention Period

Verification, Corrective and Preventive Action:

HOD / Site In-charge shall ensure effective implementation of the above procedure. In case of any deviation, shall take suitable corrective and preventive action.

### Revision History

Revision Date	Revision No.	Old Text	New Text	Reason	Revised by
27/04/2020	00	-	-	First Issue	PSHQ-HSE