

Ref: BHE:PW:NGP:PUR:BRM-BFG:3229 /Corg03

Date: 26-03-26

To,
ALL BIDDERS,

Sub: Corrigendum-03- Issuance of Docs & Bid Due Date Extension

Scope of Work: RENOVATION & MODERNIZATION OF RE-INTRODUCTION OF BLAST FURNACE GAS FIRING SYSTEM IN ALL 3 UNITS (2X30MW +1X14MW) AT PP-II, NSPCL BHILAI

References:

1. E-Tender Spec No: BHE:PW:NGP:PUR:BRM-BFG:3229
2. **NIC Tender ID: 2026_BHEL_59137_1**

Bidders to kindly take note of the following:

AA) Bid submission end date and Bid Opening Date has been amended as mentioned in following table:

Existing Bid Submission End Date	26-03-2026, 13:00 Hrs
Existing Bid Opening Date	26-03-2026, 17:00 Hrs
Revised Bid Submission End Date	02-04-2026, 13:00 Hrs
Revised Bid Opening Date	02-04-2026, 17:00 Hrs

BB) **INCLUSION OF DOCS:**

Following docs are attached as Annexure 0 - Project-Specific Safety Amendments wWhich forms of tender documents

All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing. Bidders are requested to submit as a part of their offer, a copy of this corrigendum duly Digitally countersigned by the authorized signatory as a token of Bidder's unqualified acceptance of this corrigendum.

BIDDERS MAY PLEASE NOTE THAT SUBJECT TENDER IS E-TENDER AND THE OFFER IS TO BE SUBMITTED ONLY IN E-PROCUREMENT PORTAL → <https://eprocarebhel.co.in>
BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.

Thanking you,
Yours faithfully,

GM (Purchase)

BHARAT HEAVY ELECTRICALS LIMITED



HEALTH, SAFETY & ENVIRONMENT PLAN

Annexure 0

Project - Specific Safety Amendments



DOCUMENT REF. NO.
BHEL:PSWR:NSPCL BHILAI PP II:SUP:01

RENOVATION AND MODERNIZATION
NSPCL BHILAI PP-II



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

R&M PPII, NSPCL BHILAI

Annexure 0 - Project-Specific Safety Amendments

Doc no.: R&M PPII,
NSPCL BHILAI
Revision: REV00
Date: 25.03.2026
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Annexure 0 - Project-Specific Safety Requirements Amendments

Supplementary document of HSEP14 Rev.02 for R&M PP-II, NSPCL BHILAI Project site

This document, titled “Annexure–0: Project Specific Safety Requirements Amendments,” has been developed as a supplement to the BHEL APEX HSE document “HSEP14 Rev.02 – Health, Safety & Environment Plan for Site Operations by Subcontractors.”

This Annexure–0 is formulated based on, and intended to address, the specific HSE needs and concerns of the Customer, incorporating all applicable HSE requirements as stipulated in the contract document of R&M PP-II, NSPCL Bhilai.

This document shall be read, understood, and implemented in conjunction with HSEP14 Rev.02. In the event of any conflict between the provisions of this Annexure–0 and those of HSEP14 Rev.02 on any HSE issue, clause, or detail, the provisions contained in this document shall prevail.

While every effort has been made to include all relevant HSE guidelines and requirements in this document, it is not exhaustive. Any clarification or interpretation regarding HSE matters shall be subject to the discretion of BHEL.

Furthermore, any amendments, modifications, additions, or revisions to the existing rules, regulations, and guidelines contained in this document, the apex document (HSEP14 Rev.02), or any other related documents issued by BHEL, the Customer (NSPCL Bhilai), or any statutory authority during the course of project execution shall be binding and must be complied with.

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**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

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5	FORMATS USED (Will be provided at site in Hard/ soft copy available in BHEL HSE Observer App)	AT SITE
	Inspection of First Aid Box Health Check Up HSE Induction Training Tool Box Talk Monthly Site HSE Report Inspection of PPE Inspection of T&Ps Status of T&Ps Inspection of Cranes Inspection of Winches Inspection on Height Working Inspection on Welding & Gas Cutting Inspection on Electrical Installation Inspection on Elevator HSE Penalty Incident Reporting Format Format for Inspection of Labour Colony Format for Maintaining Records of E-waste Handled / Generated Format for Maintaining Records of Hazardous Waste at the Facility Inspection of Illumination Levels Monthly HSE Planning & Review Format Daily HSE Reporting Format A & B HSE Performance Evaluation Checklist	
6	WORK PERMITS (Will be provided at site in Hard/ soft copy available in BHEL HSE Observer App)	AT SITE
	General Work at Height Permit Burning/ Welding/ Hot Work Permit Confined Area Work Permit Excavation Work Permit Radiation/ Radiography Permit Heavy / Complex / Critical Lifting Activity Permit Night / Holiday Work Permit Material Loading / Unloading Permit Safety Facility Removal Permit (i.e. Grating, Safety Net etc) Lockout / Tag out Permit – (i.e. Live Electrical Maintenance etc.) Beam / truss/ duct/ structure alignment permit Drilling & Blasting Permit Winch Operation Permit Batching Plant Operation Work Permit Elect Motor Operated Sky Climber Operation Work Permit Abrasive Shot Blasting Permit Scaffolding Erect & Dismantle Permit Construction Db Installation Work Permit	

1.0 SCOPE

<p>1.1</p>	<p>Health, Safety, and Environment (HSE) Plan for site operations by contractors is a mandatory framework applicable to all contractors, agencies, and sub-contractors engaged in the R&M PP-II, NSPCL BHILAI. This plan aligns with BHEL Apex level HSE document - HSEP14 rev.02 - Health, Safety & Environment plan for site operations by subcontractors and is designed to ensure comprehensive safety and environmental compliance across all project phases, including dismantling, material management, erection, commissioning, testing, civil works, and labour colony operations.</p> <p>BHEL's HSE Plan emphasizes the systematic identification, evaluation, prevention, and control of workplace hazards and environmental impacts. It mandates that all subcontractors adhere to this plan in conjunction with any customer-specific requirements, ensuring compliance with statutory and contractual HSE obligations. The plan outlines clear objectives, such as ensuring the health and safety of all personnel, protecting the environment, providing trained and competent personnel, and maintaining safe work systems. It also sets ambitious targets aiming for zero incidents across various categories, including explosions, fatalities, lost-time injuries, fires, vehicle incidents, and environmental incidents.</p> <p>As a dynamic and living document, the HSE Plan is subject to revisions to accommodate evolving project needs and regulatory requirements.</p>
<p>1.2</p>	<p>This document is applicable for BHEL's Agency/ contractors/ Sub contractor at all activities of R&M PPII, NSPCL BHILAI as per the relevant contractual obligations.</p>
<p>NOTE</p>	<p>A. The contractor shall also comply with HSE Targets/ Compliance stipulated by BHEL/ Customer from time to time.</p> <p>B. Contractor shall take all necessary precautions to protect all the existing equipment, structures, facilities and buildings etc. from damage. In case any damage occurs due to the activities of the contractor on account of negligence, ignorance, accidental or any other reason whatsoever, the damage shall be immediately made good by the contractor at his own cost to the satisfaction of the BHEL/ Customer (R&M PPII, NSPCL BHILAI). The contractor shall also take all necessary safety measures with specific reference to excavation in rock, at his own cost, to avoid any harm or injury to his workers and staff from the equipment and facilities of the power plant.</p>

2.0 REFERENCES

2.1	Contract Documents
2.2	Relevant Legislations
2.3	BHEL Power Sector HSE Management System
2.4	<p>BHEL to provide contractor hard / soft copies of all applicable HSE Procedures, Work Permits (Soft Copy/ via HSE observer App), Operational Control Procedures, Job Safety Analysis, Hazard Identification & Risk Assessment formats and any other instructions required to be followed by the contractors, as a minimum before commencing operations at site. These shall include, but not limited to:</p> <ol style="list-style-type: none"> i. HSE Procedures ii. Method Statements iii. JSA & HIRA Standard Format iv. Operational Control Procedures v. Work Permits vi. Inspection & HSE Formats
2.8	Relevant Indian & international standards in case of any ambiguity in/ lack of procedure/ specifications. All IS & BS standards mention in this HSE Plan must be followed wherever applicable.
NOTE	<ol style="list-style-type: none"> 1. All contractor must use HSE observer App for raising HSE observation, Near miss, weekly Safety Walk by top management, TBT, Asset Management system (T&Ps etc.), HSE Inspection, All Work Permit system etc.. In case of any technical error or any specific requirement, HARD Copy of work permit system shall be implemented at site, as per Work Permit Format (HSEP:12) and format provided by BHEL at Site. 2. However, in case Customer have their own Safety Work Permit system, then same shall be followed. 3. Contractor shall ensure availability and understanding of these requirements prior to commencing work at site. In case the statutory requirements i.e. State or Central Acts and / or applicable rules like the Building and Other Construction Workers Regulation of Employment and Conditions of Service- Act,1996 or State Rules (wherever notified), the Factories Act, 1948 or Rules (wherever notified), etc. are more stringent than the requirements stipulated in this document, they shall be applicable.

3.0 BHEL HEALTH, SAFETY & ENVIRONMENT POLICY



Health, Safety & Environment Policy

BHEL is committed to ensure occupational health & safety of its employees and other people working for the organisation and minimising the environmental footprints of its activities, products and services through active leadership and ensuring availability of required resources. Further, we commit to continually improve our Environmental, Social and Governance (ESG) performance by:

- Strengthening safety culture with an objective to attain Zero Harm,
- Taking up activities for protection of the environment, including prevention of pollution, protection of biodiversity & ecosystems and climate change mitigation & adaptation,
- Taking steps for attaining Net Zero emissions (Scope 1 and Scope 2) by 2047,
- Conserving resources and adopting sustainable waste management practices based on Reduce / Recycle / Reuse approach,
- Managing Environmental impacts and Occupational Health & Safety risks through elimination / substitution / reduction / control approach,
- Ensuring compliance with applicable legislations, regulations and BHEL Management Systems,
- Incorporating appropriate Occupational Health, Safety and Environment criteria into business decisions, conceptualisation and design of products, selection of plants, technologies and services, procurements and in outsourced processes,
- Ensuring consultation and participation of workers and other stakeholders for improvements in the HSE Management System (HSEMS) and reviewing periodically this policy and HSEMS to ensure their relevance, appropriateness and effectiveness,
- Imparting appropriate structured training to persons engaged at our workplaces and promoting awareness amongst customers, contractors and suppliers on HSE issues,
- Communicating this policy within BHEL and making it available to interested parties.

...

(This policy bears the approval of Chairman & Managing Director, BHEL)



Bharat Heavy Electricals Limited



4.0 MEMORANDUM OF UNDERSTANDING

This document will be followed as mention in HSEP14 Rev. 02 Section – A, Clause no. 17.

Memorandum of Understanding

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

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

M/s.....have gone through and understood all the HSE requirements of the contract including HSE manpower, tools & equipment, systems & procedures, and agree to fulfill the same as a minimum. Any additional resources and support required for ensuring fulfillment of HSE Objectives shall be provided by subcontractor at no extra cost.

M/s..... agree that in case they fail to comply to the HSE requirements as stipulated in the contract, BHEL shall have the right to implement the same and the cost shall be recovered from the subcontractor with applicable overheads.

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

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

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

M/s..... agree that the subcontractor shall seek HSE clearance as per BHEL format before each RA bill as mentioned in clause no. 9. The penalty amounts for not providing Safety manpower and various Safety violations have also been reviewed and agreed.

M/s..... agree to share the HSE Costs (running costs) of common facilities created by BHEL on proportional to contract value basis as calculated at Site by BHEL.

Signed by authorized representative of M/s _____

Name :

Place & Date:

5.0 AMOUNT LINK TO SAFETY ASPECT/ COMPLIANCE TO SAFETY RULES

5.1 **AMOUNT LINKED TO SAFETY ASPECTS/ COMPLIANCE TO SAFETY RULES IN LINE WITH/ UNDER HSEP14 REV. 02 & THIS SUPPLEMENT DOCUMENT i.e. TERMS & PROCEDURE FOR THE PAYMENT LINKED TO RA BILL FOR SAFETY: -**

5.2 **TERMS & PROCEDURE FOR THE PAYMENT LINKED TO RA BILL FOR SAFETY:**

There is an amount linked to each RA bill w.r.to safety. Contractor must fulfill all the details mentioned below to process the amount linked to RA bill for Safety aspect/ safety Rule/ Compliance etc.

Agency/ Contractor are advised to price their bids in such a manner that the component for 'Amount linked to Safety Aspects/ compliance to Safety Rules' should not be less than 5 % of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works etc.. In case 'Amount linked to Safety Aspects/ compliance to Safety Rules' is less than aforesaid minimum percentage specified of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works etc., the amount by which it is lower shall be retained proportionately from the other components mentioned below of the Contract price while releasing payments of each RA bill. No interest shall be payable on the amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by Project Manager (Package In charge)/ Construction manager and Safety-in-charge on quarterly basis/ 3 month period.

5.2.1	The amount linked to Safety Aspects/ compliance to Safety shall be paid in two parts, viz,
5.2.1.A	10% of Y amount (calculated as 0.1 Y of the service portion amount of RA bill) shall be linked to Fatal/Major Accidents, and
5.2.1.B	90% of Y amount (calculated as 0.9 Y of the service portion amount of RA bill) shall be linked to various Safety Aspects specified in HSE Plan for Site operation by Contractor.
	NOTE : Y = 5 % of service portion of gross amount (excluding taxes as applicable) of each RA bill raised in 3 months, envisaged for Safety Aspect.
5.2.2	Contractor shall claim Amount linked to Safety Aspects/ Compliance to Safety in such a manner that amount claimed is equal to Y of service portion of gross amount (excluding taxes as applicable) of RA bill.
5.2.3	The amount as elaborated at PARA 5.2.1 (above) shall be withheld from first and second monthly RA bill of the respective quarter/three-month period and shall be released in part or full based on safety compliance duly certified by Project Manager and Safety-in-charge on quarterly basis. The amount for the entire quarter (i.e. RA bills raised during a 3-month period) shall be paid to the Contractors at the end of that three months period along with 3rd/last RA Bill for the quarter/three months period upon complying the following conditions:

5.2.3.A Amount of RA bill linked to FATAL/ Major Accidents (0.1Y as mention at clause 5.2.1.A).

I.No fatal injury or accident-causing death in that three months' period.
AND

II.No Major injury or accident causing 25% or more permanent disablement to workmen or employees in that three-month period. Permanent disablement shall have the same meaning as indicated in The Workmen's Compensation Act' 1923 or IS 3786.

In case of any fatal injury or accident as elaborated above occurs during that three-month period, the stipulated amount (0.1Y) subject to minimum of **Rs 10 Lakh per fatality** shall be forfeited and shall not be payable to the contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the contractor under the Contract.

In case of any Major injury or accident causing **25%** or more permanent disablement to workmen/worker or employees occurs during that three-month period, **Rs 4 lakh per Major injury** shall be deducted from the amount (0.1Y) linked to Fatal/ Major Accidents and shall not be payable to the Contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the Contractor under the Contract.

Further, in case, Contractor doesn't raise RA Bills in any three-month period/quarter and if any fatal injury and/or major accident takes place in that period, Construction Manager shall deduct the amount [**Rs 10 Lakh per fatality and Rs 4 lakh per Major injury**] pertaining to this particular quarter from his next RA bill/due payment. In case, the amount to be deducted/forfeited exceeds the amount linked to Safety, the same shall be recovered from any other payments immediately due to the contractor under the Contract.

The amount deducted/forfeited as mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of the Work-men's Compensation Act' 1923 and rules framed there under or any other applicable laws as applicable from time to time.

5.2.3.B Amount of RA Bill linked to Compliance of Safety Rules (0.9Y i.e. 90% of amount as elaborated as mention at clause 5.2.1.B).

Aforesaid amount (on quarterly basis) shall be payable to Contractor in five equal parts under five heads as under:

(i) Amount payable on deployment of required Safety Personnel One fifth of the amount specified at clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that required number of Safety personnel/ Officer/ Supervisor etc. as per **HSEP14 Rev.02, Section – A, Clause 5 & their Sub clause vide heading HSE Personnel** to be solely provided by the subcontractor have been deployed. The aforesaid amount linked to deployment of requisite safety personnel shall be paid as under:

a. 50% of the amount referred at 5.2.3.B (i), for deployment of Safety Supervisors shall be paid on pro-rata basis depending upon the actual no. of Safety Supervisors deployed vis-à-vis actual requirement:
(Amount to = 0.09Y x Service portion of RA bill amount x (a/b) be paid)

Where 'a' is actual no. of Safety supervisors deployed.

And

'b' is required no. of Safety supervisors as per, This HSE Plan for site operation by contractor.

In case, actual no. of Safety supervisors deployed is more than requisite number (i.e. a/b is more than 1), the amount to be paid shall be restricted to 0.09Y.

b. 50% of the amount referred at clause 5.2.3.B (i), for deployment of Safety Officers shall be paid on pro-rata basis depending upon the actual no. of Safety Officers deployed vis-à-vis actual requirement:
(Amount to be paid) = 0.09Y x Service portion of RA bill amount x(a/b)

Where 'a' is actual no. of Safety Officers deployed

And

'b' is required no. of Safety Officers as per HSE plan for site operation by contractor.

In case, actual no. of Safety Officers deployed is more than requisite number (i.e. a/b is more than 1), the amount to be paid shall be restricted to 0.09Y.

c. In case aforesaid requisite no. of Safety personnel are not deployed by contractor, amount not to be paid as calculated above for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

NOTE: - In case as per HSEP14 Rev.02 and this Annexure – 0 (Supplementary document to HSEP14 Rev02), contractor/ agency has to deploy only Safety supervisor (where worker < 20) & only Safety officers (where worker >20 & <50), then Both a & b portion will be released/ deducted as per compliance.

5.2.3.B

(ii) Amount payable on providing requisite Personal Protective Equipment & Safety Equipment

One fifth of the amount specified at Clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements mention in HSEP14 Rev.02 & **Annexure – 1 of this document (List of Safety Enables - PPEs).**

In case of non-compliance by contractor, warning letter/Noncompliance shall be issued by Construction Manager/ Safety Officer of BHEL. Further, if more than two such warning letters/Non-Compliance Memos are issued in a quarter/three monthly period, above mentioned amount for that particular quarter/three- month period shall be forfeited and shall not be payable to the contractor under the contract.

Note: - The agency should ensure sufficient inventory of personal protective equipment (PPEs) prior to initial mobilization. After identifying the need of the required PPEs for various activities performed at the site, an additional inventory of approx. 20% of required PPEs should be maintained during the execution of the work. If sub agency fails to provide the PPEs to worker the same may be issued by BHEL and cost for the PPEs will be recovered from the contractor from regular RA Bill with overhead as per contract.

(iii) Amount payable on providing requisite Safety Induction and Training

One fifth of the amount specified at Clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements of imparting **Safety training as per HSEP14 Rev. 02 Clause 11- HSE Training & Awareness** to at least 90% of its employees/workmen (who have not been previously provided with requisite training) in a quarter/ three months' period. In case contractor fails in meeting the aforesaid requirement, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

5.2.3.B(iv) Amount payable on providing requisite Medical and First Aid Amenities

One fifth of the amount specified at clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements of **HSEP14 Rev.02 Section – A , Clause 1, Clause 2 & Annexure -A (i.e. Medical Centre and Ambulance) and This Annexure -0 (Project specific Safety Amendment) Clause 7.2 & their Sub clause, Clause 7.3 & their sub clause.** In case contractor fails to support BHEL in complying aforesaid mentioned Clauses in Both document HSEP14 Rev02 and this Annexure - 0, then even on one incidence in any quarter/three-month period, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

(v) Amount payable on compliance to Work Permit System

One fifth of the amount specified at Clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements of **HSEP14 Rev.02, SECTION – B Clause 13.2 Work Permit System.** In case of non-compliance by contractor, warning letters/Non-Compliance Memos shall be issued by Construction Manager/ Safety Officer of BHEL. In case of issuance of more than two such warning letters/Non-Compliance Memos in a quarter/three monthly period, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

NOTE :-

1. In case 'Amount linked to Safety Aspects / compliance to HSE Plan for site operation by contractor' is less than 5 % of the cumulative total of Service Portion of the Contract, i.e. Civil/ Installation/ Erection /Structural Works etc., the amount by which it is lower shall be retained proportionately from the other components of RA Bill while releasing payments of each RA bill. No interest shall be payable on the amounts linked and withheld for Safety Aspects / Compliance to HSE Plan for Site operation by contractor including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to HSE Plan for site operation by contractor including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by Construction Manager and Safety-in-charge on quarterly basis/ after 3-month period.
2. Amount deducted by customer against amount/ payment linked to RA bill for safety mentioned in above para, shall be distributed amongst the agencies responsible for the same proportionate to violation made by contractor/ agency.
3. In case BHEL have deducted any penalty for Safety violation and this penalty category matched with above mentioned terms & procedure for the Payment linked to RA bill for safety (Clause 5.2 of this document), then total higher amount penalty shall be deducted from quarterly claim raised for Safety amount withheld for safety aspect by contractor/ vendor.

6.0 HSE ORGANIZATION

6.1	Deployment (NUMBERS OF HSE PERSONNEL APPLICABLE FOR EACH SHIFT) : The contractor should deploy sufficient HSE Officers and HSE Supervisors, as per requirement given in HSEP14 Rev 02, since initial stage and add more in proportion to the added strength in work force. This clause is Supplement to HSEP14 Rev. 02, Section A, Clause 05 and its sub-clauses.
6.2	SITE HSE COMMITTEE - This clause is Supplement to HSEP14 Rev. 02, Section B Clause no. 20, Subclause 19.
6.2.1	Site HSE/ Safety committee shall be formed within each contracting agency comprising of worker representatives with equal no. of management representatives as per the provisions of BOCW Act/rules. This committee in each agency shall meet at least once in every month. The safety officer of the concerned agency shall coordinate these meetings. BHEL/ R&M PPII, NSPCL BHILAI shall be special invitee for Safety Committee meetings. The safety committee functioning shall be in line with the provisions of BOCW Act/Rules.
6.2.2	Apart from the above, each agency shall organize safety meetings every day before start of day's work to educate & motivate the workers about the necessity of safety. Case study of accident/ incident can be shared in these meetings.
6.2.3	The contractor shall also regularly organize safety meetings for all job supervisors/foremen.
6.2.4	Weekly meeting with contractors Safety Officers to be organized by safety department of BHEL/ R&M PPII, NSPCL BHILAI and minutes to be recorded, circulated and compliance status to be checked on regular basis.
6.2.5	Shall meet monthly and as and when required, to discuss ways and means to eliminate unsafe acts/condition.
6.2.6	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.
6.2.7	Site HSE committee shall consist of BHEL Project Director/ Construction Manager (Chairman), Site BHEL HSE coordinator (Secretary/Convener), BHEL HOS (Member), Site In charge of contractor (Member) and Safety officer of contractor (Member).
6.2.8	Shall monitor the performance of the HSE programs and suggest improvements as required.
6.2.9	Shall discuss exception points relating to HSE Audits, sub-contractor HSE practices, incident reports, near miss reports, etc.
6.2.10	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.
6.2.11	Shall inspect the site on regular intervals to locate unsafe conditions with reference to the inspection checklist.
6.2.12	Shall investigate all incidents and strengthening the safety programme by additional precautions, if any based on the incident investigate.



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6.3	HSE OFFICER & SAFETY SUPERVISOR - This clause is Supplement to HSEP14 Rev. 02, Section – A, Clause 5.2 (Qualification & Experience requirement of HSE personnel) & Section B, Clause 5.3 & Clause 5.4 and its sub-clauses.
6.3.1	The contractor shall submit the certificates of qualification & experience of HSE manpower at least 10 days before deployment for BHEL to assess suitability as per requirement detailed in this document.
6.3.2	The deployment of HSE personnel shall be part of payment terms.
6.3.3	BHEL shall have the right to reject in case of any deviation. In case of rejection, contractor shall arrange suitable candidates as a replacement and submit resume to BHEL. Penalties will be applicable during the period of non-deployment in such cases as well.
6.3.4	At any point of time (in case contractor is not deployed HSE officer), BHEL shall have the right to deploy the required HSE manpower at the risk and cost of contractor with applicable overheads at market determined rates with applicable overheads.
6.3.5	In such cases also, the provision of logistics, transportation, food and other logistical support to the HSE personnel shall be in the scope of contractor in addition to the salary.
6.3.6	Contractor shall ensure physical availability of safety personnel at the place of specific work locations. No work shall be started at any of the project sites until above safety personnel & concerned Site Engineer of contractor are physically deployed at site.
6.3.7	The Contractor shall prepare an organization chart identifying the areas of operations, responsibilities and reporting structure of all safety personnel for each shift and submit the same to BHEL.
6.3.8	Blood Alcohol test must be performed regularly/ daily basis by contractor Employee/ designated worker to ensure safe working environment at project site. In case of any employees or workers observed that they consume alcohol, same are not allowed at project site for the day.
6.3.9	Any worker found misbehaving, using abusive language, or engaging in physical altercation with fellow workers, BHEL staff, customer representatives, or any site personnel shall be liable for immediate removal from the site. Such action will be taken at the sole discretion of BHEL.

7.0 HSE PLANNING BY CONTRACTOR

7.1	PROVISION OF PERSONAL PROTECTIVE Equipment's (PPE's) - This clause is Supplement to HSEP14 Rev. 02, Section B, Clause 9 & its sub-clauses.	
7.1.1	The agency should ensure sufficient inventory of personal protective equipment (PPEs) prior to initial mobilization. After identifying the need of the required PPEs for various activities performed at the site, an additional inventory of approx. 20% of required PPEs should be maintaining during the execution of the work. A PPE plan shall be prepared which gives fair idea regarding issue of PPEs to various personnel. If sub agency fails to provide the PPEs to worker the same may be issued by BHEL and cost for the PPEs debited to the Sub agency from regular RA Bill. Overhead charges applicable as per contract.	
7.1.2	The following matrix recommends the minimum PPEs required for each respective job. However, this is not exhaustive; the BHEL HSE officer may also guide the agency on appropriate PPEs.	
	S. No	Type of work
	1	Concrete and asphalt mixing
	2	Welders/Grinders/Gas cutters
	3	Stone/ concrete breakers
	4	Electrical Work
	5	Insulation Work
	6	Work at height
	7	Grit/Sand blasting
	8	Painting
	9	Radiography
	10	Each contractor should maintain "breath analyzer" expected at the worksite if required.
7.1.3	At least two breathing apparatus sets (complying requirement as per IS: 10245) shall be provided at each site where excavation/tunneling works and Welding/ Cutting operations in confined areas are being carried out, to rescue the victims under exposure to harmful gases/vapors, if any.	
7.1.4	Eye Protection: - the contractor shall provide suitable personal protective equipment to his workmen depending upon the nature of hazards and ensure their usage by the workers engaged in operations like welding, cutting, chipping, grinding or similar operations which may cause injuries to his eyes.	
7.1.5	Safety PPE's, Equipment and Devices etc. shall be ensured as per Annexure - 1. However, it is not limited to Annexure - 1, contractor must comply for PPE's as per construction activities or instruction from BHEL. Note: The quantities required under Annexure-1 must be as per BHEL Site instruction. agency must comply with it during the execution of work.	

7.2 CONFINED SPACE ENTRY (CONTRACTOR TO HAVE OXIMETER AND TOXIC GAS METER) This clause is Supplement to HSEP14 Rev. 02.

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”.



7.3 The Contractor shall ensure that scaffolding is **designed by a competent person**, specifically a Certified Scaffolder. Furthermore, all Construction activity i.e. erection, excavation, or height work etc. activities related to uses of scaffolding must be carried out under the expert supervision of a Certified Scaffolder to maintain safety and compliance. It is to be noted that BHEL Site will inform or intimate the Contractor regarding the deployment of a Certified Scaffolder, as and when required, depending on the nature of work being executed at the site.

7.4 The Contractor shall ensure that rigging activities are carried out by a **competent person, specifically a Certified Rigger**. Furthermore, all construction activities involving rigging – such as lifting, shifting, or handling of heavy equipment and materials – must be executed under the expert supervision of a Certified Rigger to maintain safety and compliance. It is to be noted that BHEL Site will inform or intimate the Contractor regarding the deployment of a Certified Rigger, as and when required, depending on the nature of work being executed at the site.



8.0 HSE TRAINING AND AWARENESS

8.1	HSE INDUCTION TRAINING: This clause is Supplement to HSEP14 Rev. 02, including Section B, Clause 11 (HSE Training & awareness).
8.1.1	Each worker deployed by the agency shall be given 2-days induction training which shall include the medical examination and instructions related particular, firefighting, first aid and reporting of accidents. All employees shall be given safety training as per BOCW Act/Rules.
8.1.2	One safety trainer is to be deployed by contractor/ agency, where total number of worker exceeds 200 nos workers.
8.2	SAFETY MESSAGE PROPAGATION: This clause is Supplement to HSEP14 Rev. 02, including Section B, Clause 11.8 (HSE Promotion, Signage, Posters, Competition, Awards, Etc.)
8.2.1	Minimum one safety message board/hoarding of appropriate size for every 10 workers to be provided and maintained by the concerned agency.
8.2.2	Safety suggestion boxes shall be kept at each contractor's office at site for obtaining safety suggestions from the workers. Best suggestions should be implemented and may be rewarded suitably to encourage the workers for safety.



9.0 HSE COMMUNICATION AND PARTICIPATION

<p>9.1</p>	<p>REPORTING AND INVESTIGATION OF ACCIDENTS AND DANGEROUS OCCURRENCES: This clause is Supplement to HSEP14 Rev. 02, Section B, Clause 12 and their sub clause (HSE COMMUNICATION & PARTICIPATION).</p>							
	<p>9.1.1</p>	<p>Reporting of accidents: Notice of any accident (the prescribed format is annexed to the manual) to a worker at the building or construction site that</p> <table border="1" data-bbox="416 645 1453 1149"> <tr> <td data-bbox="416 645 536 723">a.</td> <td data-bbox="536 645 1453 723">Causes loss of life; or</td> </tr> <tr> <td data-bbox="416 723 536 920">b.</td> <td data-bbox="536 723 1453 920">Disables a worker from working for a period of 48 hours or more immediately following the accident; Shall forthwith be sent by Telegram, Telephone, Fax, Email or similar other means including special Telephone/ Messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, besides the Engineer-in-charge, to</td> </tr> <tr> <td colspan="2" data-bbox="416 920 1453 1149"> <p>I. The Regional Labour Commissioner (Central); II. The Board with which the worker involved was registered as a beneficiary; III. Director General of Building and other construction (regulation of employment and conditions of service) Act/Rules; and IV. The next of kin or other relative of the worker involved in the accident;</p> </td> </tr> </table>	a.	Causes loss of life; or	b.	Disables a worker from working for a period of 48 hours or more immediately following the accident; Shall forthwith be sent by Telegram, Telephone, Fax, Email or similar other means including special Telephone/ Messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, besides the Engineer-in-charge, to	<p>I. The Regional Labour Commissioner (Central); II. The Board with which the worker involved was registered as a beneficiary; III. Director General of Building and other construction (regulation of employment and conditions of service) Act/Rules; and IV. The next of kin or other relative of the worker involved in the accident;</p>	
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<p>9.1.2</p>	<p>Further, notice of accident shall be sent in respect of an accident which</p> <table border="1" data-bbox="416 1189 1453 1503"> <tr> <td data-bbox="416 1189 536 1234">a.</td> <td data-bbox="536 1189 1453 1234">Causes loss of life; or</td> </tr> <tr> <td data-bbox="416 1234 536 1503">b.</td> <td data-bbox="536 1234 1453 1503"> <ul style="list-style-type: none"> ● Disables the injured worker from work for more that 10 days to I. The Officer-in-charge of the nearest Police Station; II. The District Magistrate or, if the District Magistrate by order so desires, to III. The Sub-Divisional Magistrate; </td> </tr> </table>	a.	Causes loss of life; or	b.	<ul style="list-style-type: none"> ● Disables the injured worker from work for more that 10 days to I. The Officer-in-charge of the nearest Police Station; II. The District Magistrate or, if the District Magistrate by order so desires, to III. The Sub-Divisional Magistrate; 			
a.	Causes loss of life; or							
b.	<ul style="list-style-type: none"> ● Disables the injured worker from work for more that 10 days to I. The Officer-in-charge of the nearest Police Station; II. The District Magistrate or, if the District Magistrate by order so desires, to III. The Sub-Divisional Magistrate; 							
<p>9.1.3</p>	<p>Where any accident causing disablement that subsequently results in death, notice thereof in writing of such death, shall be sent the Authorities mentioned above within 48 hours of such death.</p>							
<p>9.1.4</p>	<p>In case of an accident causing minor injury, first aid shall be administered and that resulting in disability of 48 hours or more, the injured worker shall be given first aid and immediately transferred to a Hospital or other place for medical treatment.</p>							

9.1.5	All near-miss accidents shall be reported to BHEL Engineer and Safety Officer as per prescribed format.
9.1.6	Reporting of dangerous occurrences: The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:
I.	Collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of building or construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;
II.	Falling of objects from height;
III.	Collapse or subsidence of soil, any wall, floor, gallery, roof or any other part of any structure, platform, staging, scaffolding or means of access including formwork;
IV.	Contract work, excavation, collapse of transmission;
V.	Explosion of receiver or vessel used for storage at pa pressure than atmospheric pressure, of any gases or any liquid or solid used as building material;
VI.	Fire and explosion causing damage to any place on construction site where building workers are employed;
VII.	Spillage or leakage of any hazardous substance and damage to their container;
VIII.	Collapse, capsizing, toppling or collision of transport equipment;
IX.	Leakage or release of harmful toxic gases at the construction site;
X.	In case of failure of a lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authorities;
9.1.7	Every notice given for fatal accidents shall be followed by a written report to the concerned Statutory Authorities and the Engineer In-charge in the specified Form annexed as Schedule, under acknowledgement.
9.1.8	Incident / injury statistics shall be maintained by all agencies cause wise.
9.1.9	Investigation of accidents and dangerous occurrences
9.1.10	Besides reporting, it shall be the responsibility of the contractor to constitute a team (members as per the gravity of the incident) of responsible person to thoroughly investigate all incidents involving near-miss accidents, lost-time and reportable accidents and dangerous occurrences with a view to finding out the causative factor, taking remedial measures and fixing responsibility, and make a copy of the investigation report along with action-plan, specifying a definite time-frame for implementation of the findings, available to the Engineer in-charge forthwith.

9.2	HSE COMMUNICATION This clause is Supplement to HSEP14 Rev. 02, Section B, Clause 12 & their sub clause (HSE COMMUNICATION & PARTICIPATION).	
9.2.1	MONTHLY & WEEKLY HSE REPORTING	
A	HSE information of Site shall be reported monthly and weekly through Monthly/Weekly Site HSE report (MSHR) as per format no. (HSEP:14-F05).	
B	Weekly, Monthly safety meeting conducted by BHEL/Customer are to be attended compulsorily by site in charge, senior area engineers, safety officers.	
C	In case Site-In-charge is not available on meeting day, next in command has to attend meetings.	
D	Preparation of MSHR shall be done as per” Guidelines for filling up Monthly HSE report”	
E	The period of reporting shall be 25 th of the preceding month to 24 th of the present month and shall be submitted to Regional HQ by the end of the calendar month.	
F	<p>The following documents and reports are to be maintained at site and submitted to BHEL site on monthly basis.</p> <ul style="list-style-type: none"> • 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 • 3rd 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 • Safety statistics monthly • Noise monitoring reports • Written safety violations • HSE committee and other MOM • HSE Plan & Emergency Plan • Weekly & Monthly HSE report <p>BHEL Site Office or Headquarters may request additional documents or reports not listed above, as and when required, for audit, review, or compliance purposes.</p>	



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10.0 SAFETY DURING WORK EXECUTION and T&Ps

10.1	General Safety terms & Conditions during Work Executions
a.	The contractor shall comply the provisions of Factories Act 1948, any other statutory provisions applicable to them to ensure occupational health and safety and shall strictly follow NSPCL Safety Rules/ BHEL HSEP 14 Rev 02 as issued from time to time relating to Operation & Maintenance of plants. The contractor shall make arrangements at all his work places for ensuring safety and absence of risks to health of the workers.
b.	The Contractor shall ensure proper safety of all workmen, materials, plant and equipment's belonging to him or to NSPCL (Station Name) or BHEL to other working at or near the site. The contractor shall also be responsible for Provision of all safety notices and safety equipment required both by the relevant legislation and the Engineer-In-Charge as he may deem necessary.
c.	Contractor shall adhere to the requirements of Work Permit System of NSPCL/ BHEL. In case Contractor fails to obtain work permit or fails to comply to any requirements of aforesaid Work permit system, he will be issued a warning letter/Non-compliance Memo by Engineer In-charge /Safety Officer of NSPCL/ BHEL regarding the same advising him to take corrective action. BHEL shall maintain written record of all such incidents when Warning letter / Non-compliance Memo is issued to Contractor for not complying with the requirements of Work Permit System.
d.	The contractor shall ensure that the equipment's/electrical installation system/facilities are provided and maintained by him as required under various statutes. He shall also ensure testing/examination of the equipment's wherever required, in accordance with the provisions of the Factories Act, CEA Regulations and any other prescribed statutes. The record of such inspection/testing and examination shall be kept at the site and shown to BHEL or to the person authorized by him on demand.
e.	The contractor shall ensure that all floors, steps, stairs, passages and gangways are to be properly maintained shall be kept free from obstruction and substances likely to cause persons to slip- and fall. Scrap is to be removed from site immediately. Spillage of oil to be avoided & if it occurs, it is to be cleaned immediately. Emergency exit way also to be kept clear of any obstacles and illumination to be ensured.
f.	The contractor shall not remove any part of equipment's like guards etc or gangways (like fencing, base etc.) or other systems without the permission of the Engineer In-charge/ BHEL. Whenever any guards/other parts of the system are removed for repair, it will be provided back to its place, before any operation or use of the equipment's. The contractor shall not handover / allow operation of these equipment's, till the guards are provided at its place.
g.	In case, any opening in gangway/ access etc. is caused due to removing any parts of base for lifting of material or otherwise, either the opening shall be suitably fenced or suitably covered to prevent fall of any person or material in such openings in consultation with Engineer in charge/ BHEL. Temporary fencing shall also be provided whenever required along with appropriate caution boards, lighting etc.
h.	The employees employed by the contractor should be skilled/ competent in accordance with the Job requirement to the satisfaction of the Engineer In-charge/ BHEL. Engineer In charge/ BHEL shall have a right to remove any employee of the contractor, whom he feels to be incompetent/unskilled. The contractor shall employ sufficient number of supervisors to ensure supervision at all places of his work at all the times.
i.	No person should be allowed to carry, lift or move any load manually so heavy which may likely to cause him injury as prescribed under concerned state factories rules.
j.	The contractor shall follow and comply with all the BHEL Safety rules mention under HSEP 14 Rev.02 & this supplementary document & relevant provisions of applicable laws pertaining to the safety of workman, employee's plant and equipment as may be prescribed from time to time



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	without any demur, protest or contest or reservation. In case of any unconformity between statutory requirement and Customer Safety Rules etc. referred in HSEP 14 Rev 02 & this document shall be binding on the contractor unless the statutory provisions are more stringent.
10.2	PRECAUTIONS AGAINST THE FALL OF MATERIALS AND PERSONS AND COLLAPSE OF STRUCTURE: - This clause is Supplement to HSEP14 Rev. 02.
10.2.1	Use of retractable fall arrestor (as Second Line of Protection) to be ensured in critical/ tricky areas
10.2.2	Safety Net as per IS: 11057:1984 should be used extensively for prevention/ arrest of men and materials falling from height. The safety nets shall be fire resistant, duly tested and shall be of ISI marked and the nets shall be located as per site requirements to arrest or to reduce the consequences of a possible fall of persons working at different.
10.2.3	Reaching beyond barricaded area without lifeline support, moving with support of bracings, walking on beams without support, jumping from one level to another, throwing objects and taking shortcut must be discouraged.
10.2.4	Use of Rebar steel for making Jhoola and monkey-ladder (Rods welded to vertical or inclined structural members), temporary platform etc. must be avoided. Jhoola should be made with angles and flats and tested like any lifting tools before use.
10.2.5	Monkey Ladder should be properly made and fitted with cages.
10.2.6	Lanyard must be anchored always and in case of double lanyard, each should be anchored separately.
10.2.7	In case of pipe-rack, persons should not walk on pipes and walk on platforms only.
10.2.8	In case of roof work, walking ladder/ platform should be provided along with lifeline and/ or fall arrestor.
10.2.9	Empty drums must not be used.
10.2.10	For chimney or structure painting, both hanging platform and men should be anchored separately to a firm structure (if available) along with separate fall arrestor. Rope ladder should be discouraged.
10.3	NIGHT SHIFT WORK EXECUTION/ ACTIVITY This clause is Supplement to HSEP14 Rev.02
10.3.1	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 be developed. The following shall be ensured.
10.3.2	Adequate illumination along access, work area and egress Supervision.
10.3.3	Issue of strict instruction to workmen not to stray away from the work area and earmarked approach.
10.3.4	Non-deployment of women workforce.
10.3.5	Non-deployment of fatigued workforce.
10.3.6	Vacating the area immediately on completion of the job
10.3.7	Informing Medical Centre and ambulance in advance
10.4	EMERGENCY PROVISIONS: This clause is Supplement to HSEP14 Rev. 02.
	<ul style="list-style-type: none"> a. Flushing and washing water supplies: Ample supplies of tepid flushing and washing water supplies shall be provided at all possible points of discharge, spillage or escape of chemicals. b. Adequate provisions shall be made for emergency treatment of the eyes, comprising eye wash bottles, located conveniently to places where discharge, spillage or escape of chemicals can occur. c. Safety shower and eye washer shall be provided near the location of chemical handling



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	<p>place.</p> <ul style="list-style-type: none"> d. Safety shower arrangement shall be provided in close proximity to the Ammonia dosing skid. i.e. Two (2) numbers of safety shower units and two (2) number of Eye-fountains. e. A suitable first aid treatment room with outside telephone facilities shall be provided within a reasonable distance of the place where chemicals are being used. Chemicals shall be stored with proper identification and with necessary caution boards. f. The protective clothing and apparatus required for emergency use shall be made available also near the acid cleaning area. g. If signs of skin irritation occur the persons should be removed from contact and referred for medical opinion/ emergency. In the event of the splashing of the chemical to skin, the affected area should be washed thoroughly avoiding spreading contamination to the face and eyes. h. Temperature limitations specified for various steps/ area should not be exceeded wherever applicable. i. Posters & Danger boards sign for chemicals. 								
<p>10.5</p>	<p>100W, 220V incandescent (or equivalent LED) DC Emergency lighting shall be provided as follows: This clause is Supplement to HSEP14 Rev. 02.</p> <p>(a) One (1) no. in each local control area, (b) Three (3) nos. in each MCC/ Switchgear room and control room (c) One (1) no. in each office room and each pump house (d) Six (6) nos. in Track hopper shed (e) Twelve (12) nos. in track hopper tunnels (f) Two (2) nos in each underground portion of TPs (g) One (1) no at every 5.0m height interval in the staircases of various TPs and buildings and one no in each drive floor in each TP.</p>								
<p>10.6</p>	<p>Site-in-charge / Safety Officer will make periodical review of the site Fire Protection, Prevention Preparedness Programme, Site conditions and available fire protection equipment. In addition to deployment of fire tender mention in this document.</p>								
<p>10.7</p>	<p>Emergency telephone number to be displayed at all conspicuous places.</p>								
<p>10.8</p>	<p>All the safety requirements recommended in NFPA -2001 or as specified by listing authorities shall be incorporated in the installation by the contractor.</p>								
<p>10.9</p>	<p>The Contractor shall abide by the following during Construction and Erection activities:</p> <table border="1" data-bbox="215 1590 1420 1899"> <tr> <td data-bbox="215 1590 311 1668">I</td> <td data-bbox="311 1590 1420 1668">Chain pulley block shall not be used for Holding loads more than 2 (Two) ton.</td> </tr> <tr> <td data-bbox="215 1668 311 1736">II</td> <td data-bbox="311 1668 1420 1736">Hydra shall not be used for material transport and any work at site.</td> </tr> <tr> <td data-bbox="215 1736 311 1814">III</td> <td data-bbox="311 1736 1420 1814">Cage shall necessarily be used to Monkey ladders of height more than 4m.</td> </tr> <tr> <td data-bbox="215 1814 311 1899">IV</td> <td data-bbox="311 1814 1420 1899">Fencing shall be provided to all Electrical Distribution boards and transformers for safety.</td> </tr> </table> <p>Note – Only Farana is allowed for work at site and BHEL Material Yard etc.</p>	I	Chain pulley block shall not be used for Holding loads more than 2 (Two) ton.	II	Hydra shall not be used for material transport and any work at site.	III	Cage shall necessarily be used to Monkey ladders of height more than 4m.	IV	Fencing shall be provided to all Electrical Distribution boards and transformers for safety.
I	Chain pulley block shall not be used for Holding loads more than 2 (Two) ton.								
II	Hydra shall not be used for material transport and any work at site.								
III	Cage shall necessarily be used to Monkey ladders of height more than 4m.								
IV	Fencing shall be provided to all Electrical Distribution boards and transformers for safety.								
<p>10.10</p>	<p>Any Heavy equipment (crane, winch machine, etc.) manufactured less than 15 years from the current year shall be only allowed to be used at our project Site's. Pre-safety Inspection of the equipment by safety deptt. shall be done before mobilizing the equipment at our project site.</p>								



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ANNEXURE – 1

This clause is Supplement to HSEP14 Rev. 02

List of Safety Equipment's & safety Personal Protective Equipment's, the list of minimum suggestive Safety Equipment's & Safety Personal Protective Equipment's to be deployed necessarily by the Contractor as per Instruction by BHEL. However, the actual deployment at site shall not be limited to these and additional equipment's if required shall be mobilized by the contractor. Safety Gadgets, Equipment and Measurement Devices to be ensured in total throughout the duration of the project.

Sl. No.	Minimum Suggested List of Safety Equipment's and Safety Personal Protective Equipment's	Minimum Quantity
1	<ul style="list-style-type: none"> ❖ Safety PPEs (Industrial Safety Helmet & Industrial Safety/Electrical Shoes) • Industrial Safety Helmet (IS:2995) • Industrial Safety/Electrical Shoes (IS: 15298) • Full Body Safety Harness double lanyard (conforming IS: 3521) • Retractable Fall arrestor as secondary fall protection (conforming IS or EN 360 standard) etc. 	As instructed by BHEL Site

ANNEXURE - 1 Cont.

This clause is Supplement to HSEP14 Rev. 02

List of Safety Equipment's & safety Personal Protective Equipment's mention in this table are, the list of minimum suggestive Safety Equipment's & Safety Personal Protective Equipment's. However, all the Safety Equipment's & Safety Personal Protective Equipment's to be deployed necessarily by the Contractor wherever required or as per instruction from BHEL HSE officer/ construction manager.

The actual deployment at site shall not be limited to these and additional equipment's if required shall be mobilized by the contractor. Safety Gadgets, Equipment and Measurement Devices to be ensured in total throughout the duration of the project.

Safety Gadgets & Equipment			
	Name	Quantity	Unit
1	Lifelines-steel wire rope min 8mm insulated (Length-100mtr)		
2	Retractable fall arrestors		
3	Safety nets (10m X 5m) or (10mX10m) or (15m X 15 m) etc.		
4	Sky climbers		
5	Fire blanket (5mX 5m)		
6	Honey Bee Removal Suit & Kit		
7	Flashback arrestors		
8	Barricading Tape (100mX 100 nos)		
9	Binoculars		
10	Walkie-Talkies		
11	LOTO kit		
12	24-Volt light		
13	Sand Buckets		
14	Hard barricading		
15	ELCB for welding machine & winches		
16	Fire extinguishers		
17	First aid box covering medicines as per BOCW		
18	Temporary platform material (grating)		



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19	Small size u clamps to tie life lines		
20	Vertical lifeline (16mm polyamide rope with fire resistant)		
21	Rescue harness		
22	Mini fogging machine		
23	Gas Welding Igniter		
24	Toe boards (height-150mm)		
25	Portable Aluminum ladder (Length- 3mtrX400mm)		
26	Eye/ Hand Wash Station		
27	Whistle		
28	Sintex plastic water tank-1000L		
29	Earth pits each electrical per panel & connected load		
30	Electrical shed covered for keeping welding machine and electrical panels		
31	Earth flat (Aluminum) (50mmX 400 m) for earthling		
32	Gas cylinder trolley for gas cutting sets.		
33	Sheds for segregating filled and unfilled gas cylinders		
34	100 W LED & its fixture/cable		
35	250 W LED & its fixture/cable		
36	Painting safety kit		
37	Double lanyard full body harness with shock absorber		
38	Multi-purpose Ladder		
39	Urinal provision		
40	As per requirement		
41	Tool carrying bags		
42	Bigger sized Bins for floor for scrap collection		
43	Ladder clamps for beam type of columns		
44	Ladder clamps for box type of columns (with stoppers where inclined or vertical boxes)		
45	Helmet torches		
46	Torches with good capacity		
47	Mobile Tower ladder with platform provision for hopper cavity 350x350		
48	Laser Distance meter		
49	Man Cage for standard wt and with standard wire ropes		
50	Temporary Ladders 3 meters		
51	Exhaust fans		
	Measurement Instruments (All measuring instrument must be calibrated)		
1	ELCB/RCCB Tester		
2	Multi meter (Light cables)		
3	Electric Tester (to checked low voltage up to 415 V)		
4	Earth Resistance Meter		
5	Lux Meter		
6	Anemometer		
7	Breath Analyzer (Alcohol)		
8	Multi-gas dozi-meter		
9	Gas leakage detector / alarm		
10	Gas monitor (confined space)		
11	Radiation meter & Badges		
12	Blood Pressure Monitor		
13	Fire detectors		
14	Sound level meter		
15	SCBA (Self-contained breathing apparatus)		
16	Siren		
17	Public address system		
18	Emergency lamp – (rechargeable)		
19	Oxygen Meter (while working in confined space etc)		

ANNEXURE – 2

This clause is Supplement to HSEP14 Rev. 02

Indicative List of Indian Standard Codes for Safety

S No	CODE NAME	TITLE
PERSONAL PROTECTIVE EQUIPMENT		
(1)	IS : 818-1968 (Reaffirmed 2003)	Code of Practice for safety and health requirements in Electric and Gas Welding and Cutting operations.
(2)	IS: 1179-1967 (Reaffirmed 2003)	Specification for Equipment for Eye & Face protection during welding.
(3)	IS : 1989 (Part 2):1986 (Reaffirmed 1997) IS: 5557-1969	Specification for Leather Safety Boots & Shoes Industrial & Safety Rubber Knee Boot
(4)	IS: 4770 : 1991 (Reaffirmed 2006)	Rubber Gloves – Electricals purposes-Specification
(5)	IS:8519 – 1977 (Reaffirmed 1983)	Guide for Selection of Industrial Safety Equipment for Body Protection.
(6)	IS:8520 – 1977 (Reaffirmed 2002)	Guide for Selection of Industrial Safety Equipment for Eye, Face and Ear Protection.
(7)	IS: 8807-1978	Code of practice for maintenance and care of industrial safety equipment eye and face protection
(8)	IS: 1224-1985	Safety shoes
(9)	IS: 8940-1978	Code of practice for maintenance and care of industrial safety equipment eye and face protection
(10)	IS: 8990-1978	Code of practice for maintenance and care of industrial safety clothing
(11)	IS: 10667-1983	Guide for selection of industrial safety for protection of foot and leg
(12)	IS: 816-1969	Code of practice for safety and health requirements in electric and gas welding and cutting operations
(13)	IS: 7194-1994	Assessment of noise exposure during work for hearing conservation purposes
(14)	IS: 2925 – 1984 (Reaffirmed 2010)	Specification for Industrial Safety Helmets
(15)	IS: 3521 : 1999 (Reaffirmed 2002)	Industrial Safety Belts & Harnesses-Specification
(16)	IS: 14166:1994 (Reaffirmed 2002)	Respiratory Protective Devices-Full Face Masks Specification
(17)	IS: 14746 : 1999 (Reaffirmed 2003)	Respiratory Protective Devices-Half Masks and Quarter Masks - Specification
CIVIL ENGINEERING OR CONSTRUCTION WORK		
(18)	IS: 2750- 1967(Part II)	Steel scaffolds
(19)	IS: 875-1987	Structural safety of building: loading standards
(20)	IS: 4014-1967	Code of practice for steel tubular scaffolding
(21)	IS: 3646(Part II) – 1966(Reaffirmed 2003)	Code of Practice for Interior Illumination
(22)	IS:3696 (Part I) – 1987 (Reaffirmed 2002)	Safety Code for Scaffolds and Ladders
(23)	IS: 4138-1977	Safety code for working in compressed air
(24)	IS: 7293-1974	Safety code for working with construction machinery



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

R&M PPII, NSPCL BHILAI

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(25)	IS: 9944-1992	Recommendations on safe working load for natural and man-made rope slings
(26)	IS: 3696(Part 2) : 1991 (Reaffirmed 2002)	Scaffolds and Ladders-Code of Safety
(27)	IS:3786 – 1983 (Reaffirmed 2002)	Method for Computation of Frequency and Severity Rates for Industrial Injuries and Classification of Industrial Incidents
(28)	IS: 4912 : 1978 (Reaffirmed 2002)	Safety Requirements for Floor and Wall Openings, Railings and Toe Boards
(29)	IS: 5983 – 1980 (Reaffirmed 2002)	Specification for Eye-Protectors
(30)	IS:6519 – 1971 (Reaffirmed 1997)	Code of Practice for Selection, Care and Repair of Safety Footwear
(31)	IS:9167:1979	Specification for Ear-Protectors
(32)	IS:6994(Part I)-1973 (Reaffirmed 1996)	Specification for Industrial Safety Gloves Leather and Cotton Gloves
(33)	IS 11006 : 2011	Flash Back(Flame Arrestor) Specification
(34)	IS:9473:2002	Respiratory Protective Devices-Filtering Half Masks to protect Against Particles-Specification.
(35)	IS: 9944:1992 (Reaffirmed 2003)	Natural and Man-made Fiber Rope Slings- Recommendations On Safe working loads.
(36)	IS:11057 – 1884 (Reaffirmed 2001)	Specification for Industrial Safety Nets
(37)	IS: 12254:1993 (Reaffirmed 2002)	Polyvinyl Chloride (PVC) Industrial Boots-Specification
(38)	BS:1129	Portable timber ladders, steps, Trestles & lightweight staging
(39)	BS:1139	Metal scaffolds
(40)	BS:5973	Code of practice for access & working scaffolds
(41)	BS:5974	Code of practice for temporary installed scaffolds and access equipment
(42)	BS:5975	Code of practice for false work
FIRE PROTECTION		
(43)	IS: 2193-1992	Code of practice for selection, installation and maintenance of portable first aid fire extinguishers
(44)	IS: 5896	Code of practice for selection, operation and maintenance of fire-fighting appliances
(45)	IS: 8433-1984	Code of practice for dissolved acetylene cylinders
(46)	IS : 15397 :2003 (Reaffirmed 2008)	Portable Extinguisher Mechanical Foam Type(Stored Pressure)-Specification
ELECTRICAL		
(47)	IS: 3043-1987	Code of practice for earthing
(48)	IS: 5424-1969	Rubber mats for electrical purposes
(49)	IS: 3646 (Part II)	Artificial lightings
(50)	IS: 2148 & IS: 2206	Flame proof electrical fittings Machinery
MACHINERY		
(51)	IS:13367(Part 1):1992 (Reaffirmed 2003)	Safe Use of Cranes-Code of Practice
(52)	IS: 1860-1980	Code of practice for installation, operation and maintenance of electric passenger and goods lifts
(53)	IS: 1991-1987	Safety requirements for the use, care and protection of abrasive grinding wheels
(54)	IS: 5903-1970	Safety devices for gas cylinders



**BHARAT HEAVY ELECTRICALS LIMITED
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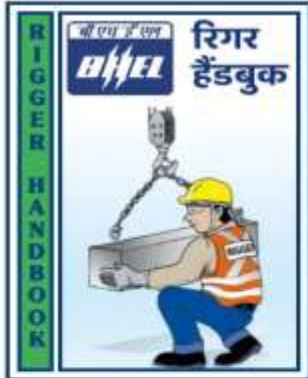
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(55)	IS: 8216-1976	Guide for inspection of lift wire ropes
(56)	IS: 8964-978	Recommendations for safety conditions for woodworking machines
(57)	IS: 9474-1980	Principles of mechanical guarding of machinery
(58)	IS: 11461- 1985	Code of practice for compressors safety
(59)	IS: 19311:2002	Guidelines for Quality and/or Environmental Management Systems Auditing
(60)	IS: 13367-1992	Code of practice for safe use of cranes
(61)	IS:1641	Code of practice for fire safety of buildings – General principles of fire grading and classification.
(62)	IS:1642	Code of practice for fire safety of buildings - Details of construction.
(63)	IS:4081	IS:4081 Safety code for blasting and related drilling operations.
(64)	IS:4130	Demolition of buildings - code of safety.
(65)	IS:5121	Safety code for piling and other deep foundations.
(66)	IS:5916	Safety code for construction involving use of hot bituminous materials
(67)	IS:7205	Safety code for erection of structural steel work.
(68)	IS:7969 (Indian Explosives Act 1940)	Safety code for handling and storage of building materials. (As updated)
(69)	IS:11769	Guidelines for safe use of products containing asbestos

ANNEXURE - 3



एक रिगर क्या है

• भारी वजन रिगर के चालक या नियंत्रक नहीं, किसी भार को सुरक्षित रूप से उठाने के लिए तकनीकी कौशल उपयोग करने वाले व्यक्ति को रिगर कहा जाता है।

एक योग्य रिगर को पता होना चाहिए कि कैसे...

- विभिन्न प्रकार की रस्सियों, सिंग्स, चंकीयों और सहायक उपकरणों का उपयोग करें।
- उठाने के लिए उपयोग की जाने वाली किसी भी रस्सी, सिंग या भार के सुरक्षित वर्क भार (एसडब्ल्यू) को जानें।
- भार उठाने के लिए भार का आकलन करें।
- उपयुक्त सुरक्षित सिगिंग तकनीकों का चाल करें और उनका उपयोग करें।
- विभिन्न भारों और अकारों के सुरक्षित रूप से सिंग टोक का चाल करें।
- जब रोक (ब्रेक), ऑपरेटर को रुकने से बाहर होना है तो ड्रेन पर होल्डर ऑपरेटर को रोकने की भूमिका निभाते हैं।
- भार को नियंत्रित करने के लिए हाथों और पैरों से संकेत दें।
- संभलने वाले कुशल भारों का भार नियंत्रण उचित पर मुद्रित किया जा सकता है कि किस प्रकार से भार पर अधिक किया जा सकता है।

फ्लैट वेबिंग और राउंड सिंथेटिक सिंग्स (Flat webbing and round synthetic slings)

फ्लैट वेबिंग और राउंड सिंथेटिक सिंग्स को SWL के साथ लेबल किया जाता है। अगर लेबल गायब है तो भार न उठाएँ। गुणवत्ता और रूप लेबलिंग के लिए निर्माता को सिंग सौदाग। सिंथेटिक सिंग्स में अधिकतम तनाव है।

सिंग या रिस्सी को उठाने पर अधिक भार से बचाना रहे। उठाने के लिए उपयुक्त तकनीकें, नीचे होने पर 10 डिग्री भारी हो सकती है। कार्य में, खसकने वाले को एक चालने से उठाना चाहिए है। जो कि इस निर्माण प्रणाली (Suction) चालन में किसी मुद्रित भार सकता है। पदार्थ और टोक-अकार तलाक प्रदर्शन, सीधे या अन्यथा ही प्राप्त किया होना है।

सिंग के विभिन्न प्रकार

प्रत्यक्ष (direct) सोड सिंग

2 पैर सिंग

चोकर हिल्व गैसकार भार

चोकर हिल्व (वर्क) भार

सामान्य नियम (Thumb Rule)

सिंग का सोड सींगिंग सोड (एसडब्ल्यू) अधिकतम भार है। इसे सिंग चालनी के एसडब्ल्यू, सिंगिंग लाइन्स और सिंग टर्निंगन को विधि का चोकर करने के बाद उठाना जा सकता है।

अ) सही साइज का रस्सी (SWL) सिंग के लिए SWL नीचे दिखने वाले सूत्र द्वारा दिया जाता है:-

सूत्र: $SWL (kg) = D^2 (mm) \times 8$

$D (mm) = \sqrt{SWL (kg) / 8}$

यहां, SWL = सुरक्षित कार्य भार और D = रस्सी व्यास

ब) श्रृंखला (Chain) का SWL सूत्र (C) द्वारा नीचे दिखने वाले सूत्र द्वारा दिया जाता है:-

सूत्र: $SWL (फिटल) = D^3 (मिमी) \times G \times 0.4$

जहाँ (a.), सूत्र (C) 80 सूत्रका, 0.4 का उपयोग करें।

WORKING LOAD LIMIT (WLL) IN TONNES UNDER GENERAL CONDITIONS OF USE

Chain Size (mm)	Single Leg Slings		60°		90°	
	Grade 80	Grade 100	Grade 80	Grade 100	Grade 80	Grade 100
6	0.02	0.03	0.01	0.01	0.01	0.01
8	0.03	0.04	0.02	0.02	0.02	0.02
10	0.05	0.07	0.03	0.03	0.03	0.03
13	0.08	0.11	0.05	0.05	0.05	0.05
16	0.12	0.16	0.07	0.07	0.07	0.07
20	0.18	0.24	0.11	0.11	0.11	0.11
25	0.28	0.37	0.17	0.17	0.17	0.17
32	0.42	0.56	0.26	0.26	0.26	0.26
40	0.60	0.80	0.38	0.38	0.38	0.38
50	0.90	1.20	0.57	0.57	0.57	0.57
63	1.35	1.80	0.86	0.86	0.86	0.86
80	2.10	2.80	1.35	1.35	1.35	1.35
100	3.15	4.20	2.03	2.03	2.03	2.03
125	4.73	6.30	2.97	2.97	2.97	2.97
160	7.56	10.10	4.60	4.60	4.60	4.60
200	11.82	15.75	6.90	6.90	6.90	6.90
250	18.23	24.30	10.35	10.35	10.35	10.35
315	27.35	36.45	15.53	15.53	15.53	15.53
400	42.53	56.70	23.30	23.30	23.30	23.30
500	63.80	84.40	33.90	33.90	33.90	33.90
630	95.70	127.60	51.15	51.15	51.15	51.15
800	141.10	188.10	75.20	75.20	75.20	75.20
1000	211.65	282.20	111.75	111.75	111.75	111.75

**On adjustable slings, some grade shortening breaks may occur. WLL by 20%. Advice should be sought from the manufacturer.*

चित्र - उपयोग की सामान्य परिस्थितियों में टन (1000 फिटल) में कार्य भार सीमा

सिंगल सिंग

प्रत्यक्ष भार (सोडिंग फैक्टर-1)

आपतकार भार (सोडिंग फैक्टर-0.5)

गोलाकार भार (सोडिंग फैक्टर-0.75)

बास्केट हिल्व - सिंगल सिंग बटिकल लेग्स - पैरों के बीच के कोण को शामिल करें

गोलाकार भार (सोडिंग फैक्टर-2)

आपतकार भार (सोडिंग फैक्टर-1)

गोलाकार भार (90°-1.00, 60°-1.33, 30°-4.41, 120°-1.00)

गोलाकार भार (90°-0.87, 60°-1.16, 30°-3.73, 120°-0.80)

अंतहीन सिंग

बास्केट हिल्व गोलाकार भार (45°-1.28, 60°-1.28, 90°-1.08, 120°-0.75)

प्रत्यक्ष भार (90°-1.00, 60°-1.33, 30°-4.41, 120°-1.00)

वायर रोप सिंग चोकर हिल्व के साथ

Choked Hitch Angle

चोकर हिल्व कोन न्यूनिकरण चार्ट

चोकर हिल्व (कोन)	सीमित कारक
120-180	1.00
105-120	0.82
90-105	0.71
60-90	0.58
0-60	0.50

रिगर के हाथों के संकेत

केन को निर्दिष्टित को निर्दिष्ट करने के लिए एक रिगर को केन हाथों को सही-बायाँ करके देना चाहिए। रिगर सही रूप से कोन और केन के उभरे होने का चालक को चालक के चालक से - फिर उठाने / घुमाने की दिशा।

Left/Right	Hand Signal	Wording
Hoisting	Upward	2 short
Lifting	Downward	3 short
Hoisting right	Right	1 long, 2 short
Hoisting left	Left	1 long, 1 short
Hoisting	Upward	1 long, 3 short
Hoisting	Downward	1 long, 4 short
Stop	Stop	3 short

क्या करें और क्या न करें



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

BHARAT HEAVY ELECTRICALS LIMITED



HEALTH, SAFETY & ENVIRONMENT PLAN

Annexure 0

Project - Specific Safety Amendments



DOCUMENT REF. NO.
BHEL:PSWR:NSPCL BHILAI PP II:SUP:01

RENOVATION AND MODERNIZATION
NSPCL BHILAI PP-II



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**



Annexure 0 - Project-Specific Safety Requirements Amendments

Supplementary document of HSEP14 Rev.02 for R&M PP-II, NSPCL BHILAI Project site

This document, titled “Annexure–0: Project Specific Safety Requirements Amendments,” has been developed as a supplement to the BHEL APEX HSE document “HSEP14 Rev.02 – Health, Safety & Environment Plan for Site Operations by Subcontractors.”

This Annexure–0 is formulated based on, and intended to address, the specific HSE needs and concerns of the Customer, incorporating all applicable HSE requirements as stipulated in the contract document of R&M PP-II, NSPCL Bhilai.

This document shall be read, understood, and implemented in conjunction with HSEP14 Rev.02. In the event of any conflict between the provisions of this Annexure–0 and those of HSEP14 Rev.02 on any HSE issue, clause, or detail, the provisions contained in this document shall prevail.

While every effort has been made to include all relevant HSE guidelines and requirements in this document, it is not exhaustive. Any clarification or interpretation regarding HSE matters shall be subject to the discretion of BHEL.

Furthermore, any amendments, modifications, additions, or revisions to the existing rules, regulations, and guidelines contained in this document, the apex document (HSEP14 Rev.02), or any other related documents issued by BHEL, the Customer (NSPCL Bhilai), or any statutory authority during the course of project execution shall be binding and must be complied with.

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POWER SECTOR

**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

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5	FORMATS USED (Will be provided at site in Hard/ soft copy available in BHEL HSE Observer App) Inspection of First Aid Box Health Check Up HSE Induction Training Tool Box Talk Monthly Site HSE Report Inspection of PPE Inspection of T&Ps Status of T&Ps Inspection of Cranes Inspection of Winches Inspection on Height Working Inspection on Welding & Gas Cutting Inspection on Electrical Installation Inspection on Elevator HSE Penalty Incident Reporting Format Format for Inspection of Labour Colony Format for Maintaining Records of E-waste Handled / Generated Format for Maintaining Records of Hazardous Waste at the Facility Inspection of Illumination Levels Monthly HSE Planning & Review Format Daily HSE Reporting Format A & B HSE Performance Evaluation Checklist	AT SITE
6	WORK PERMITS (Will be provided at site in Hard/ soft copy available in BHEL HSE Observer App) General Work at Height Permit Burning/ Welding/ Hot Work Permit Confined Area Work Permit Excavation Work Permit Radiation/ Radiography Permit Heavy / Complex / Critical Lifting Activity Permit Night / Holiday Work Permit Material Loading / Unloading Permit Safety Facility Removal Permit (i.e. Grating, Safety Net etc) Lockout / Tag out Permit – (i.e. Live Electrical Maintenance etc.) Beam / truss/ duct/ structure alignment permit Drilling & Blasting Permit Winch Operation Permit Batching Plant Operation Work Permit Elect Motor Operated Sky Climber Operation Work Permit Abrasive Shot Blasting Permit Scaffolding Erect & Dismantle Permit Construction Db Installation Work Permit	AT SITE

1.0 SCOPE

<p>1.1</p>	<p>Health, Safety, and Environment (HSE) Plan for site operations by contractors is a mandatory framework applicable to all contractors, agencies, and sub-contractors engaged in the R&M PP-II, NSPCL BHILAI. This plan aligns with BHEL Apex level HSE document - HSEP14 rev.02 - Health, Safety & Environment plan for site operations by subcontractors and is designed to ensure comprehensive safety and environmental compliance across all project phases, including dismantling, material management, erection, commissioning, testing, civil works, and labour colony operations.</p> <p>BHEL's HSE Plan emphasizes the systematic identification, evaluation, prevention, and control of workplace hazards and environmental impacts. It mandates that all subcontractors adhere to this plan in conjunction with any customer-specific requirements, ensuring compliance with statutory and contractual HSE obligations. The plan outlines clear objectives, such as ensuring the health and safety of all personnel, protecting the environment, providing trained and competent personnel, and maintaining safe work systems. It also sets ambitious targets aiming for zero incidents across various categories, including explosions, fatalities, lost-time injuries, fires, vehicle incidents, and environmental incidents.</p> <p>As a dynamic and living document, the HSE Plan is subject to revisions to accommodate evolving project needs and regulatory requirements.</p>
<p>1.2</p>	<p>This document is applicable for BHEL's Agency/ contractors/ Sub contractor at all activities of R&M PPII, NSPCL BHILAI as per the relevant contractual obligations.</p>
<p>NOTE</p>	<p>A. The contractor shall also comply with HSE Targets/ Compliance stipulated by BHEL/ Customer from time to time.</p> <p>B. Contractor shall take all necessary precautions to protect all the existing equipment, structures, facilities and buildings etc. from damage. In case any damage occurs due to the activities of the contractor on account of negligence, ignorance, accidental or any other reason whatsoever, the damage shall be immediately made good by the contractor at his own cost to the satisfaction of the BHEL/ Customer (R&M PPII, NSPCL BHILAI). The contractor shall also take all necessary safety measures with specific reference to excavation in rock, at his own cost, to avoid any harm or injury to his workers and staff from the equipment and facilities of the power plant.</p>

2.0 REFERENCES

2.1	Contract Documents
2.2	Relevant Legislations
2.3	BHEL Power Sector HSE Management System
2.4	<p>BHEL to provide contractor hard / soft copies of all applicable HSE Procedures, Work Permits (Soft Copy/ via HSE observer App), Operational Control Procedures, Job Safety Analysis, Hazard Identification & Risk Assessment formats and any other instructions required to be followed by the contractors, as a minimum before commencing operations at site. These shall include, but not limited to:</p> <ol style="list-style-type: none"> i. HSE Procedures ii. Method Statements iii. JSA & HIRA Standard Format iv. Operational Control Procedures v. Work Permits vi. Inspection & HSE Formats
2.8	Relevant Indian & international standards in case of any ambiguity in/ lack of procedure/ specifications. All IS & BS standards mention in this HSE Plan must be followed wherever applicable.
NOTE	<ol style="list-style-type: none"> 1. All contractor must use HSE observer App for raising HSE observation, Near miss, weekly Safety Walk by top management, TBT, Asset Management system (T&Ps etc.), HSE Inspection, All Work Permit system etc.. In case of any technical error or any specific requirement, HARD Copy of work permit system shall be implemented at site, as per Work Permit Format (HSEP:12) and format provided by BHEL at Site. 2. However, in case Customer have their own Safety Work Permit system, then same shall be followed. 3. Contractor shall ensure availability and understanding of these requirements prior to commencing work at site. In case the statutory requirements i.e. State or Central Acts and / or applicable rules like the Building and Other Construction Workers Regulation of Employment and Conditions of Service- Act,1996 or State Rules (wherever notified), the Factories Act, 1948 or Rules (wherever notified), etc. are more stringent than the requirements stipulated in this document, they shall be applicable.

3.0 BHEL HEALTH, SAFETY & ENVIRONMENT POLICY



Health, Safety & Environment Policy

BHEL is committed to ensure occupational health & safety of its employees and other people working for the organisation and minimising the environmental footprints of its activities, products and services through active leadership and ensuring availability of required resources. Further, we commit to continually improve our Environmental, Social and Governance (ESG) performance by:

- Strengthening safety culture with an objective to attain Zero Harm,
- Taking up activities for protection of the environment, including prevention of pollution, protection of biodiversity & ecosystems and climate change mitigation & adaptation,
- Taking steps for attaining Net Zero emissions (Scope 1 and Scope 2) by 2047,
- Conserving resources and adopting sustainable waste management practices based on Reduce / Recycle / Reuse approach,
- Managing Environmental impacts and Occupational Health & Safety risks through elimination / substitution / reduction / control approach,
- Ensuring compliance with applicable legislations, regulations and BHEL Management Systems,
- Incorporating appropriate Occupational Health, Safety and Environment criteria into business decisions, conceptualisation and design of products, selection of plants, technologies and services, procurements and in outsourced processes,
- Ensuring consultation and participation of workers and other stakeholders for improvements in the HSE Management System (HSEMS) and reviewing periodically this policy and HSEMS to ensure their relevance, appropriateness and effectiveness,
- Imparting appropriate structured training to persons engaged at our workplaces and promoting awareness amongst customers, contractors and suppliers on HSE issues,
- Communicating this policy within BHEL and making it available to interested parties.

...

(This policy bears the approval of Chairman & Managing Director, BHEL)



Bharat Heavy Electricals Limited



4.0 MEMORANDUM OF UNDERSTANDING

This document will be followed as mention in HSEP14 Rev. 02 Section – A, Clause no. 17.

Memorandum of Understanding

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

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

M/s.....have gone through and understood all the HSE requirements of the contract including HSE manpower, tools & equipment, systems & procedures, and agree to fulfill the same as a minimum. Any additional resources and support required for ensuring fulfillment of HSE Objectives shall be provided by subcontractor at no extra cost.

M/s..... agree that in case they fail to comply to the HSE requirements as stipulated in the contract, BHEL shall have the right to implement the same and the cost shall be recovered from the subcontractor with applicable overheads.

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

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

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

M/s..... agree that the subcontractor shall seek HSE clearance as per BHEL format before each RA bill as mentioned in clause no. 9. The penalty amounts for not providing Safety manpower and various Safety violations have also been reviewed and agreed.

M/s..... agree to share the HSE Costs (running costs) of common facilities created by BHEL on proportional to contract value basis as calculated at Site by BHEL.

Signed by authorized representative of M/s _____

Name :

Place & Date:

5.0 AMOUNT LINK TO SAFETY ASPECT/ COMPLIANCE TO SAFETY RULES

5.1 **AMOUNT LINKED TO SAFETY ASPECTS/ COMPLIANCE TO SAFETY RULES IN LINE WITH/ UNDER HSEP14 REV. 02 & THIS SUPPLEMENT DOCUMENT i.e. TERMS & PROCEDURE FOR THE PAYMENT LINKED TO RA BILL FOR SAFETY: -**

5.2 **TERMS & PROCEDURE FOR THE PAYMENT LINKED TO RA BILL FOR SAFETY:**

There is an amount linked to each RA bill w.r.to safety. Contractor must fulfill all the details mentioned below to process the amount linked to RA bill for Safety aspect/ safety Rule/ Compliance etc.

Agency/ Contractor are advised to price their bids in such a manner that the component for 'Amount linked to Safety Aspects/ compliance to Safety Rules' should not be less than 5 % of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works etc.. In case 'Amount linked to Safety Aspects/ compliance to Safety Rules' is less than aforesaid minimum percentage specified of the cumulative total of Service Portion of the Contract, i.e. Civil + Installation/ Erection + Structural Works etc., the amount by which it is lower shall be retained proportionately from the other components mentioned below of the Contract price while releasing payments of each RA bill. No interest shall be payable on the amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to Safety Rules including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by Project Manager (Package In charge)/ Construction manager and Safety-in-charge on quarterly basis/ 3 month period.

5.2.1	The amount linked to Safety Aspects/ compliance to Safety shall be paid in two parts, viz,
5.2.1.A	10% of Y amount (calculated as 0.1 Y of the service portion amount of RA bill) shall be linked to Fatal/Major Accidents, and
5.2.1.B	90% of Y amount (calculated as 0.9 Y of the service portion amount of RA bill) shall be linked to various Safety Aspects specified in HSE Plan for Site operation by Contractor.
	NOTE : Y = 5 % of service portion of gross amount (excluding taxes as applicable) of each RA bill raised in 3 months, envisaged for Safety Aspect.
5.2.2	Contractor shall claim Amount linked to Safety Aspects/ Compliance to Safety in such a manner that amount claimed is equal to Y of service portion of gross amount (excluding taxes as applicable) of RA bill.
5.2.3	The amount as elaborated at PARA 5.2.1 (above) shall be withheld from first and second monthly RA bill of the respective quarter/three-month period and shall be released in part or full based on safety compliance duly certified by Project Manager and Safety-in-charge on quarterly basis. The amount for the entire quarter (i.e. RA bills raised during a 3-month period) shall be paid to the Contractors at the end of that three months period along with 3rd/last RA Bill for the quarter/three months period upon complying the following conditions:

5.2.3.A Amount of RA bill linked to FATAL/ Major Accidents (0.1Y as mention at clause 5.2.1.A).

I.No fatal injury or accident-causing death in that three months' period.
AND

II.No Major injury or accident causing 25% or more permanent disablement to workmen or employees in that three-month period. Permanent disablement shall have the same meaning as indicated in The Workmen's Compensation Act' 1923 or IS 3786.

In case of any fatal injury or accident as elaborated above occurs during that three-month period, the stipulated amount (0.1Y) subject to minimum of **Rs 10 Lakh per fatality** shall be forfeited and shall not be payable to the contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the contractor under the Contract.

In case of any Major injury or accident causing **25%** or more permanent disablement to workmen/worker or employees occurs during that three-month period, **Rs 4 lakh per Major injury** shall be deducted from the amount (0.1Y) linked to Fatal/ Major Accidents and shall not be payable to the Contractor under the contract. In case, the amount to be deducted/forfeited exceeds the amount linked to Fatal/ Major Accidents, the same shall be recovered from remaining Amount (0.9Y) linked to Compliance of Safety Rules and/or any other payments immediately due to the Contractor under the Contract.

Further, in case, Contractor doesn't raise RA Bills in any three-month period/quarter and if any fatal injury and/or major accident takes place in that period, Construction Manager shall deduct the amount [**Rs 10 Lakh per fatality and Rs 4 lakh per Major injury**] pertaining to this particular quarter from his next RA bill/due payment. In case, the amount to be deducted/forfeited exceeds the amount linked to Safety, the same shall be recovered from any other payments immediately due to the contractor under the Contract.

The amount deducted/forfeited as mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of the Work-men's Compensation Act' 1923 and rules framed there under or any other applicable laws as applicable from time to time.

5.2.3.B Amount of RA Bill linked to Compliance of Safety Rules (0.9Y i.e. 90% of amount as elaborated as mention at clause 5.2.1.B).

Aforesaid amount (on quarterly basis) shall be payable to Contractor in five equal parts under five heads as under:

(i) Amount payable on deployment of required Safety Personnel One fifth of the amount specified at clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that required number of Safety personnel/ Officer/ Supervisor etc. as per **HSEP14 Rev.02, Section – A, Clause 5 & their Sub clause vide heading HSE Personnel** to be solely provided by the subcontractor have been deployed. The aforesaid amount linked to deployment of requisite safety personnel shall be paid as under:

a. 50% of the amount referred at 5.2.3.B (i), for deployment of Safety Supervisors shall be paid on pro-rata basis depending upon the actual no. of Safety Supervisors deployed vis-à-vis actual requirement:
(Amount to = 0.09Y x Service portion of RA bill amount x (a/b) be paid)

Where 'a' is actual no. of Safety supervisors deployed.

And

'b' is required no. of Safety supervisors as per, This HSE Plan for site operation by contractor.

In case, actual no. of Safety supervisors deployed is more than requisite number (i.e. a/b is more than 1), the amount to be paid shall be restricted to 0.09Y.

b. 50% of the amount referred at clause 5.2.3.B (i), for deployment of Safety Officers shall be paid on pro-rata basis depending upon the actual no. of Safety Officers deployed vis-à-vis actual requirement:
(Amount to be paid) = 0.09Y x Service portion of RA bill amount x(a/b)

Where 'a' is actual no. of Safety Officers deployed

And

'b' is required no. of Safety Officers as per HSE plan for site operation by contractor.

In case, actual no. of Safety Officers deployed is more than requisite number (i.e. a/b is more than 1), the amount to be paid shall be restricted to 0.09Y.

c. In case aforesaid requisite no. of Safety personnel are not deployed by contractor, amount not to be paid as calculated above for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

NOTE: - In case as per HSEP14 Rev.02 and this Annexure – 0 (Supplementary document to HSEP14 Rev02), contractor/ agency has to deploy only Safety supervisor (where worker < 20) & only Safety officers (where worker >20 & <50), then Both a & b portion will be released/ deducted as per compliance.

5.2.3.B

(ii) Amount payable on providing requisite Personal Protective Equipment & Safety Equipment

One fifth of the amount specified at Clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements mention in HSEP14 Rev.02 & **Annexure – 1 of this document (List of Safety Enables - PPEs).**

In case of non-compliance by contractor, warning letter/Noncompliance shall be issued by Construction Manager/ Safety Officer of BHEL. Further, if more than two such warning letters/Non-Compliance Memos are issued in a quarter/three monthly period, above mentioned amount for that particular quarter/three- month period shall be forfeited and shall not be payable to the contractor under the contract.

Note: - The agency should ensure sufficient inventory of personal protective equipment (PPEs) prior to initial mobilization. After identifying the need of the required PPEs for various activities performed at the site, an additional inventory of approx. 20% of required PPEs should be maintained during the execution of the work. If sub agency fails to provide the PPEs to worker the same may be issued by BHEL and cost for the PPEs will be recovered from the contractor from regular RA Bill with overhead as per contract.

(iii) Amount payable on providing requisite Safety Induction and Training

One fifth of the amount specified at Clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements of imparting **Safety training as per HSEP14 Rev. 02 Clause 11- HSE Training & Awareness** to at least 90% of its employees/workmen (who have not been previously provided with requisite training) in a quarter/ three months' period. In case contractor fails in meeting the aforesaid requirement, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

5.2.3.B(iv) Amount payable on providing requisite Medical and First Aid Amenities

One fifth of the amount specified at clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements of **HSEP14 Rev.02 Section – A , Clause 1, Clause 2 & Annexure -A (i.e. Medical Centre and Ambulance) and This Annexure -0 (Project specific Safety Amendment) Clause 7.2 & their Sub clause, Clause 7.3 & their sub clause.** In case contractor fails to support BHEL in complying aforesaid mentioned Clauses in Both document HSEP14 Rev02 and this Annexure - 0, then even on one incidence in any quarter/three-month period, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

(v) Amount payable on compliance to Work Permit System

One fifth of the amount specified at Clause 5.2.3.B (calculated as 0.18Y of Service portion amount of RA Bill), on quarterly basis, shall be paid upon certification by Construction Manager in consultation with Safety dept. that contractor has adhered to the requirements of **HSEP14 Rev.02, SECTION – B Clause 13.2 Work Permit System.** In case of non-compliance by contractor, warning letters/Non-Compliance Memos shall be issued by Construction Manager/ Safety Officer of BHEL. In case of issuance of more than two such warning letters/Non-Compliance Memos in a quarter/three monthly period, above mentioned amount for that particular quarter/three-month period shall be forfeited and shall not be payable to the contractor under the contract.

NOTE :-

1. In case 'Amount linked to Safety Aspects / compliance to HSE Plan for site operation by contractor' is less than 5 % of the cumulative total of Service Portion of the Contract, i.e. Civil/ Installation/ Erection /Structural Works etc., the amount by which it is lower shall be retained proportionately from the other components of RA Bill while releasing payments of each RA bill. No interest shall be payable on the amounts linked and withheld for Safety Aspects / Compliance to HSE Plan for Site operation by contractor including aforesaid retained amount. The amounts linked to Safety Aspects / Compliance to HSE Plan for site operation by contractor including aforesaid retained amount shall be payable in part or full based on safety compliance duly certified by Construction Manager and Safety-in-charge on quarterly basis/ after 3-month period.
2. Amount deducted by customer against amount/ payment linked to RA bill for safety mentioned in above para, shall be distributed amongst the agencies responsible for the same proportionate to violation made by contractor/ agency.
3. In case BHEL have deducted any penalty for Safety violation and this penalty category matched with above mentioned terms & procedure for the Payment linked to RA bill for safety (Clause 5.2 of this document), then total higher amount penalty shall be deducted from quarterly claim raised for Safety amount withheld for safety aspect by contractor/ vendor.

6.0 HSE ORGANIZATION

6.1	Deployment (NUMBERS OF HSE PERSONNEL APPLICABLE FOR EACH SHIFT) : The contractor should deploy sufficient HSE Officers and HSE Supervisors, as per requirement given in HSEP14 Rev 02, since initial stage and add more in proportion to the added strength in work force. This clause is Supplement to HSEP14 Rev. 02, Section A, Clause 05 and its sub-clauses.
6.2	SITE HSE COMMITTEE - This clause is Supplement to HSEP14 Rev. 02, Section B Clause no. 20, Subclause 19.
6.2.1	Site HSE/ Safety committee shall be formed within each contracting agency comprising of worker representatives with equal no. of management representatives as per the provisions of BOCW Act/rules. This committee in each agency shall meet at least once in every month. The safety officer of the concerned agency shall coordinate these meetings. BHEL/ R&M PPII, NSPCL BHILAI shall be special invitee for Safety Committee meetings. The safety committee functioning shall be in line with the provisions of BOCW Act/Rules.
6.2.2	Apart from the above, each agency shall organize safety meetings every day before start of day's work to educate & motivate the workers about the necessity of safety. Case study of accident/ incident can be shared in these meetings.
6.2.3	The contractor shall also regularly organize safety meetings for all job supervisors/foremen.
6.2.4	Weekly meeting with contractors Safety Officers to be organized by safety department of BHEL/ R&M PPII, NSPCL BHILAI and minutes to be recorded, circulated and compliance status to be checked on regular basis.
6.2.5	Shall meet monthly and as and when required, to discuss ways and means to eliminate unsafe acts/condition.
6.2.6	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.
6.2.7	Site HSE committee shall consist of BHEL Project Director/ Construction Manager (Chairman), Site BHEL HSE coordinator (Secretary/Convener), BHEL HOS (Member), Site In charge of contractor (Member) and Safety officer of contractor (Member).
6.2.8	Shall monitor the performance of the HSE programs and suggest improvements as required.
6.2.9	Shall discuss exception points relating to HSE Audits, sub-contractor HSE practices, incident reports, near miss reports, etc.
6.2.10	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.
6.2.11	Shall inspect the site on regular intervals to locate unsafe conditions with reference to the inspection checklist.
6.2.12	Shall investigate all incidents and strengthening the safety programme by additional precautions, if any based on the incident investigate.



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

R&M PPII, NSPCL BHILAI

Annexure 0 - Project-Specific Safety Amendments

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6.3	HSE OFFICER & SAFETY SUPERVISOR - This clause is Supplement to HSEP14 Rev. 02, Section – A, Clause 5.2 (Qualification & Experience requirement of HSE personnel) & Section B, Clause 5.3 & Clause 5.4 and its sub-clauses.
6.3.1	The contractor shall submit the certificates of qualification & experience of HSE manpower at least 10 days before deployment for BHEL to assess suitability as per requirement detailed in this document.
6.3.2	The deployment of HSE personnel shall be part of payment terms.
6.3.3	BHEL shall have the right to reject in case of any deviation. In case of rejection, contractor shall arrange suitable candidates as a replacement and submit resume to BHEL. Penalties will be applicable during the period of non-deployment in such cases as well.
6.3.4	At any point of time (in case contractor is not deployed HSE officer), BHEL shall have the right to deploy the required HSE manpower at the risk and cost of contractor with applicable overheads at market determined rates with applicable overheads.
6.3.5	In such cases also, the provision of logistics, transportation, food and other logistical support to the HSE personnel shall be in the scope of contractor in addition to the salary.
6.3.6	Contractor shall ensure physical availability of safety personnel at the place of specific work locations. No work shall be started at any of the project sites until above safety personnel & concerned Site Engineer of contractor are physically deployed at site.
6.3.7	The Contractor shall prepare an organization chart identifying the areas of operations, responsibilities and reporting structure of all safety personnel for each shift and submit the same to BHEL.
6.3.8	Blood Alcohol test must be performed regularly/ daily basis by contractor Employee/ designated worker to ensure safe working environment at project site. In case of any employees or workers observed that they consume alcohol, same are not allowed at project site for the day.
6.3.9	Any worker found misbehaving, using abusive language, or engaging in physical altercation with fellow workers, BHEL staff, customer representatives, or any site personnel shall be liable for immediate removal from the site. Such action will be taken at the sole discretion of BHEL.

7.0 HSE PLANNING BY CONTRACTOR

7.1	PROVISION OF PERSONAL PROTECTIVE Equipment's (PPE's) - This clause is Supplement to HSEP14 Rev. 02, Section B, Clause 9 & its sub-clauses.	
7.1.1	The agency should ensure sufficient inventory of personal protective equipment (PPEs) prior to initial mobilization. After identifying the need of the required PPEs for various activities performed at the site, an additional inventory of approx. 20% of required PPEs should be maintaining during the execution of the work. A PPE plan shall be prepared which gives fair idea regarding issue of PPEs to various personnel. If sub agency fails to provide the PPEs to worker the same may be issued by BHEL and cost for the PPEs debited to the Sub agency from regular RA Bill. Overhead charges applicable as per contract.	
7.1.2	The following matrix recommends the minimum PPEs required for each respective job. However, this is not exhaustive; the BHEL HSE officer may also guide the agency on appropriate PPEs.	
	S. No	Type of work
	1	Concrete and asphalt mixing
	2	Welders/Grinders/Gas cutters
	3	Stone/ concrete breakers
	4	Electrical Work
	5	Insulation Work
	6	Work at height
	7	Grit/Sand blasting
	8	Painting
	9	Radiography
	10	Each contractor should maintain "breath analyzer" expected at the worksite if required.
7.1.3	At least two breathing apparatus sets (complying requirement as per IS: 10245) shall be provided at each site where excavation/tunneling works and Welding/ Cutting operations in confined areas are being carried out, to rescue the victims under exposure to harmful gases/vapors, if any.	
7.1.4	Eye Protection: - the contractor shall provide suitable personal protective equipment to his workmen depending upon the nature of hazards and ensure their usage by the workers engaged in operations like welding, cutting, chipping, grinding or similar operations which may cause injuries to his eyes.	
7.1.5	Safety PPE's, Equipment and Devices etc. shall be ensured as per Annexure - 1. However, it is not limited to Annexure - 1, contractor must comply for PPE's as per construction activities or instruction from BHEL. Note: The quantities required under Annexure-1 must be as per BHEL Site instruction. agency must comply with it during the execution of work.	

7.2 CONFINED SPACE ENTRY (CONTRACTOR TO HAVE OXIMETER AND TOXIC GAS METER) This clause is Supplement to HSEP14 Rev. 02.

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”.



7.3 The Contractor shall ensure that scaffolding is **designed by a competent person**, specifically a Certified Scaffolder. Furthermore, all Construction activity i.e. erection, excavation, or height work etc. activities related to uses of scaffolding must be carried out under the expert supervision of a Certified Scaffolder to maintain safety and compliance. It is to be noted that BHEL Site will inform or intimate the Contractor regarding the deployment of a Certified Scaffolder, as and when required, depending on the nature of work being executed at the site.

7.4 The Contractor shall ensure that rigging activities are carried out by a **competent person, specifically a Certified Rigger**. Furthermore, all construction activities involving rigging – such as lifting, shifting, or handling of heavy equipment and materials – must be executed under the expert supervision of a Certified Rigger to maintain safety and compliance. It is to be noted that BHEL Site will inform or intimate the Contractor regarding the deployment of a Certified Rigger, as and when required, depending on the nature of work being executed at the site.



8.0 HSE TRAINING AND AWARENESS

8.1	HSE INDUCTION TRAINING: This clause is Supplement to HSEP14 Rev. 02, including Section B, Clause 11 (HSE Training & awareness).
8.1.1	Each worker deployed by the agency shall be given 2-days induction training which shall include the medical examination and instructions related particular, firefighting, first aid and reporting of accidents. All employees shall be given safety training as per BOCW Act/Rules.
8.1.2	One safety trainer is to be deployed by contractor/ agency, where total number of worker exceeds 200 nos workers.
8.2	SAFETY MESSAGE PROPAGATION: This clause is Supplement to HSEP14 Rev. 02, including Section B, Clause 11.8 (HSE Promotion, Signage, Posters, Competition, Awards, Etc.)
8.2.1	Minimum one safety message board/hoarding of appropriate size for every 10 workers to be provided and maintained by the concerned agency.
8.2.2	Safety suggestion boxes shall be kept at each contractor's office at site for obtaining safety suggestions from the workers. Best suggestions should be implemented and may be rewarded suitably to encourage the workers for safety.



9.0 HSE COMMUNICATION AND PARTICIPATION

<p>9.1</p>	<p>REPORTING AND INVESTIGATION OF ACCIDENTS AND DANGEROUS OCCURRENCES: This clause is Supplement to HSEP14 Rev. 02, Section B, Clause 12 and their sub clause (HSE COMMUNICATION & PARTICIPATION).</p>							
<p>9.1.1</p>	<p>Reporting of accidents: Notice of any accident (the prescribed format is annexed to the manual) to a worker at the building or construction site that</p> <table border="1" data-bbox="416 645 1458 1144"> <tr> <td data-bbox="416 645 536 719">a.</td> <td data-bbox="536 645 1458 719">Causes loss of life; or</td> </tr> <tr> <td data-bbox="416 719 536 920">b.</td> <td data-bbox="536 719 1458 920">Disables a worker from working for a period of 48 hours or more immediately following the accident; Shall forthwith be sent by Telegram, Telephone, Fax, Email or similar other means including special Telephone/ Messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, besides the Engineer-in-charge, to</td> </tr> <tr> <td colspan="2" data-bbox="416 920 1458 1144"> <p>I. The Regional Labour Commissioner (Central); II. The Board with which the worker involved was registered as a beneficiary; III. Director General of Building and other construction (regulation of employment and conditions of service) Act/Rules; and IV. The next of kin or other relative of the worker involved in the accident;</p> </td> </tr> </table>		a.	Causes loss of life; or	b.	Disables a worker from working for a period of 48 hours or more immediately following the accident; Shall forthwith be sent by Telegram, Telephone, Fax, Email or similar other means including special Telephone/ Messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, besides the Engineer-in-charge, to	<p>I. The Regional Labour Commissioner (Central); II. The Board with which the worker involved was registered as a beneficiary; III. Director General of Building and other construction (regulation of employment and conditions of service) Act/Rules; and IV. The next of kin or other relative of the worker involved in the accident;</p>	
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<p>9.1.2</p>	<p>Further, notice of accident shall be sent in respect of an accident which</p> <table border="1" data-bbox="416 1189 1458 1503"> <tr> <td data-bbox="416 1189 536 1234">a.</td> <td data-bbox="536 1189 1458 1234">Causes loss of life; or</td> </tr> <tr> <td data-bbox="416 1234 536 1503">b.</td> <td data-bbox="536 1234 1458 1503"> <ul style="list-style-type: none"> ● Disables the injured worker from work for more that 10 days to I. The Officer-in-charge of the nearest Police Station; II. The District Magistrate or, if the District Magistrate by order so desires, to III. The Sub-Divisional Magistrate; </td> </tr> </table>		a.	Causes loss of life; or	b.	<ul style="list-style-type: none"> ● Disables the injured worker from work for more that 10 days to I. The Officer-in-charge of the nearest Police Station; II. The District Magistrate or, if the District Magistrate by order so desires, to III. The Sub-Divisional Magistrate; 		
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b.	<ul style="list-style-type: none"> ● Disables the injured worker from work for more that 10 days to I. The Officer-in-charge of the nearest Police Station; II. The District Magistrate or, if the District Magistrate by order so desires, to III. The Sub-Divisional Magistrate; 							
<p>9.1.3</p>	<p>Where any accident causing disablement that subsequently results in death, notice thereof in writing of such death, shall be sent the Authorities mentioned above within 48 hours of such death.</p>							
<p>9.1.4</p>	<p>In case of an accident causing minor injury, first aid shall be administered and that resulting in disability of 48 hours or more, the injured worker shall be given first aid and immediately transferred to a Hospital or other place for medical treatment.</p>							

9.1.5	All near-miss accidents shall be reported to BHEL Engineer and Safety Officer as per prescribed format.
9.1.6	Reporting of dangerous occurrences: The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:
I.	Collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of building or construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;
II.	Falling of objects from height;
III.	Collapse or subsidence of soil, any wall, floor, gallery, roof or any other part of any structure, platform, staging, scaffolding or means of access including formwork;
IV.	Contract work, excavation, collapse of transmission;
V.	Explosion of receiver or vessel used for storage at pa pressure than atmospheric pressure, of any gases or any liquid or solid used as building material;
VI.	Fire and explosion causing damage to any place on construction site where building workers are employed;
VII.	Spillage or leakage of any hazardous substance and damage to their container;
VIII.	Collapse, capsizing, toppling or collision of transport equipment;
IX.	Leakage or release of harmful toxic gases at the construction site;
X.	In case of failure of a lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authorities;
9.1.7	Every notice given for fatal accidents shall be followed by a written report to the concerned Statutory Authorities and the Engineer In-charge in the specified Form annexed as Schedule, under acknowledgement.
9.1.8	Incident / injury statistics shall be maintained by all agencies cause wise.
9.1.9	Investigation of accidents and dangerous occurrences
9.1.10	Besides reporting, it shall be the responsibility of the contractor to constitute a team (members as per the gravity of the incident) of responsible person to thoroughly investigate all incidents involving near-miss accidents, lost-time and reportable accidents and dangerous occurrences with a view to finding out the causative factor, taking remedial measures and fixing responsibility, and make a copy of the investigation report along with action-plan, specifying a definite time-frame for implementation of the findings, available to the Engineer in-charge forthwith.



POWER SECTOR

**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

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9.2	HSE COMMUNICATION This clause is Supplement to HSEP14 Rev. 02, Section B, Clause 12 & their sub clause (HSE COMMUNICATION & PARTICIPATION).	
9.2.1	MONTHLY & WEEKLY HSE REPORTING	
A	HSE information of Site shall be reported monthly and weekly through Monthly/Weekly Site HSE report (MSHR) as per format no. (HSEP:14-F05).	
B	Weekly, Monthly safety meeting conducted by BHEL/Customer are to be attended compulsorily by site in charge, senior area engineers, safety officers.	
C	In case Site-In-charge is not available on meeting day, next in command has to attend meetings.	
D	Preparation of MSHR shall be done as per” Guidelines for filling up Monthly HSE report”	
E	The period of reporting shall be 25 th of the preceding month to 24 th of the present month and shall be submitted to Regional HQ by the end of the calendar month.	
F	<p>The following documents and reports are to be maintained at site and submitted to BHEL site on monthly basis.</p> <ul style="list-style-type: none"> • 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 • 3rd 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 • Safety statistics monthly • Noise monitoring reports • Written safety violations • HSE committee and other MOM • HSE Plan & Emergency Plan • Weekly & Monthly HSE report <p>BHEL Site Office or Headquarters may request additional documents or reports not listed above, as and when required, for audit, review, or compliance purposes.</p>	



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10.0 SAFETY DURING WORK EXECUTION and T&Ps

10.1	General Safety terms & Conditions during Work Executions
a.	The contractor shall comply the provisions of Factories Act 1948, any other statutory provisions applicable to them to ensure occupational health and safety and shall strictly follow NSPCL Safety Rules/ BHEL HSEP 14 Rev 02 as issued from time to time relating to Operation & Maintenance of plants. The contractor shall make arrangements at all his work places for ensuring safety and absence of risks to health of the workers.
b.	The Contractor shall ensure proper safety of all workmen, materials, plant and equipment's belonging to him or to NSPCL (Station Name) or BHEL to other working at or near the site. The contractor shall also be responsible for Provision of all safety notices and safety equipment required both by the relevant legislation and the Engineer-In-Charge as he may deem necessary.
c.	Contractor shall adhere to the requirements of Work Permit System of NSPCL/ BHEL. In case Contractor fails to obtain work permit or fails to comply to any requirements of aforesaid Work permit system, he will be issued a warning letter/Non-compliance Memo by Engineer In-charge /Safety Officer of NSPCL/ BHEL regarding the same advising him to take corrective action. BHEL shall maintain written record of all such incidents when Warning letter / Non-compliance Memo is issued to Contractor for not complying with the requirements of Work Permit System.
d.	The contractor shall ensure that the equipment's/electrical installation system/facilities are provided and maintained by him as required under various statutes. He shall also ensure testing/examination of the equipment's wherever required, in accordance with the provisions of the Factories Act, CEA Regulations and any other prescribed statutes. The record of such inspection/testing and examination shall be kept at the site and shown to BHEL or to the person authorized by him on demand.
e.	The contractor shall ensure that all floors, steps, stairs, passages and gangways are to be properly maintained shall be kept free from obstruction and substances likely to cause persons to slip- and fall. Scrap is to be removed from site immediately. Spillage of oil to be avoided & if it occurs, it is to be cleaned immediately. Emergency exit way also to be kept clear of any obstacles and illumination to be ensured.
f.	The contractor shall not remove any part of equipment's like guards etc or gangways (like fencing, base etc.) or other systems without the permission of the Engineer In-charge/ BHEL. Whenever any guards/other parts of the system are removed for repair, it will be provided back to its place, before any operation or use of the equipment's. The contractor shall not handover / allow operation of these equipment's, till the guards are provided at its place.
g.	In case, any opening in gangway/ access etc. is caused due to removing any parts of base for lifting of material or otherwise, either the opening shall be suitably fenced or suitably covered to prevent fall of any person or material in such openings in consultation with Engineer in charge/ BHEL. Temporary fencing shall also be provided whenever required along with appropriate caution boards, lighting etc.
h.	The employees employed by the contractor should be skilled/ competent in accordance with the Job requirement to the satisfaction of the Engineer In-charge/ BHEL. Engineer In charge/ BHEL shall have a right to remove any employee of the contractor, whom he feels to be incompetent/unskilled. The contractor shall employ sufficient number of supervisors to ensure supervision at all places of his work at all the times.
i.	No person should be allowed to carry, lift or move any load manually so heavy which may likely to cause him injury as prescribed under concerned state factories rules.
j.	The contractor shall follow and comply with all the BHEL Safety rules mention under HSEP 14 Rev.02 & this supplementary document & relevant provisions of applicable laws pertaining to the safety of workman, employee's plant and equipment as may be prescribed from time to time



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without any demur, protest or contest or reservation. In case of any unconformity between statutory requirement and Customer Safety Rules etc. referred in HSEP 14 Rev 02 & this document shall be binding on the contractor unless the statutory provisions are more stringent.

10.2 PRECAUTIONS AGAINST THE FALL OF MATERIALS AND PERSONS AND COLLAPSE OF STRUCTURE: - This clause is Supplement to HSEP14 Rev. 02.

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

10.3 NIGHT SHIFT WORK EXECUTION/ ACTIVITY This clause is Supplement to HSEP14 Rev.02

- 10.3.1 **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 be developed. The following shall be ensured.**
- 10.3.2 Adequate illumination along access, work area and egress Supervision.
- 10.3.3 Issue of strict instruction to workmen not to stray away from the work area and earmarked approach.
- 10.3.4 Non-deployment of women workforce.
- 10.3.5 Non-deployment of fatigued workforce.
- 10.3.6 Vacating the area immediately on completion of the job
- 10.3.7 Informing Medical Centre and ambulance in advance

10.4 EMERGENCY PROVISIONS: This clause is Supplement to HSEP14 Rev. 02.

- a. Flushing and washing water supplies: Ample supplies of tepid flushing and washing water supplies shall be provided at all possible points of discharge, spillage or escape of chemicals.
- b. Adequate provisions shall be made for emergency treatment of the eyes, comprising eye wash bottles, located conveniently to places where discharge, spillage or escape of chemicals can occur.
- c. Safety shower and eye washer shall be provided near the location of chemical handling

	<p>place.</p> <p>d. Safety shower arrangement shall be provided in close proximity to the Ammonia dosing skid. i.e. Two (2) numbers of safety shower units and two (2) number of Eye-fountains.</p> <p>e. A suitable first aid treatment room with outside telephone facilities shall be provided within a reasonable distance of the place where chemicals are being used. Chemicals shall be stored with proper identification and with necessary caution boards.</p> <p>f. The protective clothing and apparatus required for emergency use shall be made available also near the acid cleaning area.</p> <p>g. If signs of skin irritation occur the persons should be removed from contact and referred for medical opinion/ emergency. In the event of the splashing of the chemical to skin, the affected area should be washed thoroughly avoiding spreading contamination to the face and eyes.</p> <p>h. Temperature limitations specified for various steps/ area should not be exceeded wherever applicable.</p> <p>i. Posters & Danger boards sign for chemicals.</p>								
<p>10.5</p>	<p>100W, 220V incandescent (or equivalent LED) DC Emergency lighting shall be provided as follows: This clause is Supplement to HSEP14 Rev. 02.</p> <p>(a) One (1) no. in each local control area, (b) Three (3) nos. in each MCC/ Switchgear room and control room (c) One (1) no. in each office room and each pump house (d) Six (6) nos. in Track hopper shed (e) Twelve (12) nos. in track hopper tunnels (f) Two (2) nos in each underground portion of TPs (g) One (1) no at every 5.0m height interval in the staircases of various TPs and buildings and one no in each drive floor in each TP.</p>								
<p>10.6</p>	<p>Site-in-charge / Safety Officer will make periodical review of the site Fire Protection, Prevention Preparedness Programme, Site conditions and available fire protection equipment. In addition to deployment of fire tender mention in this document.</p>								
<p>10.7</p>	<p>Emergency telephone number to be displayed at all conspicuous places.</p>								
<p>10.8</p>	<p>All the safety requirements recommended in NFPA -2001 or as specified by listing authorities shall be incorporated in the installation by the contractor.</p>								
<p>10.9</p>	<p>The Contractor shall abide by the following during Construction and Erection activities:</p> <table border="1" data-bbox="215 1590 1420 1899"> <tr> <td data-bbox="215 1590 311 1668">I</td> <td data-bbox="311 1590 1420 1668">Chain pulley block shall not be used for Holding loads more than 2 (Two) ton.</td> </tr> <tr> <td data-bbox="215 1668 311 1736">II</td> <td data-bbox="311 1668 1420 1736">Hydra shall not be used for material transport and any work at site.</td> </tr> <tr> <td data-bbox="215 1736 311 1814">III</td> <td data-bbox="311 1736 1420 1814">Cage shall necessarily be used to Monkey ladders of height more than 4m.</td> </tr> <tr> <td data-bbox="215 1814 311 1899">IV</td> <td data-bbox="311 1814 1420 1899">Fencing shall be provided to all Electrical Distribution boards and transformers for safety.</td> </tr> </table> <p>Note – Only Farana is allowed for work at site and BHEL Material Yard etc.</p>	I	Chain pulley block shall not be used for Holding loads more than 2 (Two) ton.	II	Hydra shall not be used for material transport and any work at site.	III	Cage shall necessarily be used to Monkey ladders of height more than 4m.	IV	Fencing shall be provided to all Electrical Distribution boards and transformers for safety.
I	Chain pulley block shall not be used for Holding loads more than 2 (Two) ton.								
II	Hydra shall not be used for material transport and any work at site.								
III	Cage shall necessarily be used to Monkey ladders of height more than 4m.								
IV	Fencing shall be provided to all Electrical Distribution boards and transformers for safety.								
<p>10.10</p>	<p>Any Heavy equipment (crane, winch machine, etc.) manufactured less than 15 years from the current year shall be only allowed to be used at our project Site's. Pre-safety Inspection of the equipment by safety deptt. shall be done before mobilizing the equipment at our project site.</p>								



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ANNEXURE – 1

This clause is Supplement to HSEP14 Rev. 02

List of Safety Equipment's & safety Personal Protective Equipment's, the list of minimum suggestive Safety Equipment's & Safety Personal Protective Equipment's to be deployed necessarily by the Contractor as per Instruction by BHEL. However, the actual deployment at site shall not be limited to these and additional equipment's if required shall be mobilized by the contractor. Safety Gadgets, Equipment and Measurement Devices to be ensured in total throughout the duration of the project.

Sl. No.	Minimum Suggested List of Safety Equipment's and Safety Personal Protective Equipment's	Minimum Quantity
1	<ul style="list-style-type: none"> ❖ Safety PPEs (Industrial Safety Helmet & Industrial Safety/Electrical Shoes) • Industrial Safety Helmet (IS:2995) • Industrial Safety/Electrical Shoes (IS: 15298) • Full Body Safety Harness double lanyard (conforming IS: 3521) • Retractable Fall arrestor as secondary fall protection (conforming IS or EN 360 standard) etc. 	As instructed by BHEL Site

ANNEXURE - 1 Cont.

This clause is Supplement to HSEP14 Rev. 02

List of Safety Equipment's & safety Personal Protective Equipment's mention in this table are, the list of minimum suggestive Safety Equipment's & Safety Personal Protective Equipment's. However, all the Safety Equipment's & Safety Personal Protective Equipment's to be deployed necessarily by the Contractor wherever required or as per instruction from BHEL HSE officer/ construction manager.

The actual deployment at site shall not be limited to these and additional equipment's if required shall be mobilized by the contractor. Safety Gadgets, Equipment and Measurement Devices to be ensured in total throughout the duration of the project.

Safety Gadgets & Equipment			
	Name	Quantity	Unit
1	Lifelines-steel wire rope min 8mm insulated (Length-100mtr)		
2	Retractable fall arrestors		
3	Safety nets (10m X 5m) or (10mX10m) or (15m X 15 m) etc.		
4	Sky climbers		
5	Fire blanket (5mX 5m)		
6	Honey Bee Removal Suit & Kit		
7	Flashback arrestors		
8	Barricading Tape (100mX 100 nos)		
9	Binoculars		
10	Walkie-Talkies		
11	LOTO kit		
12	24-Volt light		
13	Sand Buckets		
14	Hard barricading		
15	ELCB for welding machine & winches		
16	Fire extinguishers		
17	First aid box covering medicines as per BOCW		
18	Temporary platform material (grating)		



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19	Small size u clamps to tie life lines		
20	Vertical lifeline (16mm polyamide rope with fire resistant)		
21	Rescue harness		
22	Mini fogging machine		
23	Gas Welding Igniter		
24	Toe boards (height-150mm)		
25	Portable Aluminum ladder (Length- 3mtrX400mm)		
26	Eye/ Hand Wash Station		
27	Whistle		
28	Sintex plastic water tank-1000L		
29	Earth pits each electrical per panel & connected load		
30	Electrical shed covered for keeping welding machine and electrical panels		
31	Earth flat (Aluminum) (50mmX 400 m) for earthling		
32	Gas cylinder trolley for gas cutting sets.		
33	Sheds for segregating filled and unfilled gas cylinders		
34	100 W LED & its fixture/cable		
35	250 W LED & its fixture/cable		
36	Painting safety kit		
37	Double lanyard full body harness with shock absorber		
38	Multi-purpose Ladder		
39	Urinal provision		
40	As per requirement		
41	Tool carrying bags		
42	Bigger sized Bins for floor for scrap collection		
43	Ladder clamps for beam type of columns		
44	Ladder clamps for box type of columns (with stoppers where inclined or vertical boxes)		
45	Helmet torches		
46	Torches with good capacity		
47	Mobile Tower ladder with platform provision for hopper cavity 350x350		
48	Laser Distance meter		
49	Man Cage for standard wt and with standard wire ropes		
50	Temporary Ladders 3 meters		
51	Exhaust fans		
	Measurement Instruments (All measuring instrument must be calibrated)		
1	ELCB/RCCB Tester		
2	Multi meter (Light cables)		
3	Electric Tester (to checked low voltage up to 415 V)		
4	Earth Resistance Meter		
5	Lux Meter		
6	Anemometer		
7	Breath Analyzer (Alcohol)		
8	Multi-gas dozi-meter		
9	Gas leakage detector / alarm		
10	Gas monitor (confined space)		
11	Radiation meter & Badges		
12	Blood Pressure Monitor		
13	Fire detectors		
14	Sound level meter		
15	SCBA (Self-contained breathing apparatus)		
16	Siren		
17	Public address system		
18	Emergency lamp – (rechargeable)		
19	Oxygen Meter (while working in confined space etc)		

ANNEXURE – 2

This clause is Supplement to HSEP14 Rev. 02

Indicative List of Indian Standard Codes for Safety

S No	CODE NAME	TITLE
PERSONAL PROTECTIVE EQUIPMENT		
(1)	IS : 818-1968 (Reaffirmed 2003)	Code of Practice for safety and health requirements in Electric and Gas Welding and Cutting operations.
(2)	IS: 1179-1967 (Reaffirmed 2003)	Specification for Equipment for Eye & Face protection during welding.
(3)	IS : 1989 (Part 2):1986 (Reaffirmed 1997) IS: 5557-1969	Specification for Leather Safety Boots & Shoes Industrial & Safety Rubber Knee Boot
(4)	IS: 4770 : 1991 (Reaffirmed 2006)	Rubber Gloves – Electricals purposes-Specification
(5)	IS:8519 – 1977 (Reaffirmed 1983)	Guide for Selection of Industrial Safety Equipment for Body Protection.
(6)	IS:8520 – 1977 (Reaffirmed 2002)	Guide for Selection of Industrial Safety Equipment for Eye, Face and Ear Protection.
(7)	IS: 8807-1978	Code of practice for maintenance and care of industrialsafety equipment eye and face protection
(8)	IS: 1224-1985	Safety shoes
(9)	IS: 8940-1978	Code of practice for maintenance and care of industrial safety equipment eye and face protection
(10)	IS: 8990-1978	Code of practice for maintenance and care of industrial safety clothing
(11)	IS: 10667-1983	Guide for selection of industrial safety for protection of foot and leg
(12)	IS: 816-1969	Code of practice for safety and health requirements in electric and gas welding and cutting operations
(13)	IS: 7194-1994	Assessment of noise exposure during work for hearing conservation purposes
(14)	IS: 2925 – 1984 (Reaffirmed 2010)	Specification for Industrial Safety Helmets
(15)	IS: 3521 : 1999 (Reaffirmed 2002)	Industrial Safety Belts & Harnesses-Specification
(16)	IS: 14166:1994 (Reaffirmed 2002)	Respiratory Protective Devices-Full Face Masks Specification
(17)	IS: 14746 : 1999 (Reaffirmed 2003)	Respiratory Protective Devices-Half Masks and Quarter Masks - Specification
CIVIL ENGINEERING OR CONSTRUCTION WORK		
(18)	IS: 2750- 1967(Part II)	Steel scaffolds
(19)	IS: 875-1987	Structural safety of building: loading standards
(20)	IS: 4014-1967	Code of practice for steel tubular scaffolding
(21)	IS: 3646(Part II) – 1966(Reaffirmed 2003)	Code of Practice for Interior Illumination
(22)	IS:3696 (Part I) – 1987 (Reaffirmed 2002)	Safety Code for Scaffolds and Ladders
(23)	IS: 4138-1977	Safety code for working in compressed air
(24)	IS: 7293-1974	Safety code for working with construction machinery



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(25)	IS: 9944-1992	Recommendations on safe working load for natural and man-made rope slings
(26)	IS: 3696(Part 2) : 1991 (Reaffirmed 2002)	Scaffolds and Ladders-Code of Safety
(27)	IS:3786 – 1983 (Reaffirmed 2002)	Method for Computation of Frequency and Severity Rates for Industrial Injuries and Classification of Industrial Incidents
(28)	IS: 4912 : 1978 (Reaffirmed 2002)	Safety Requirements for Floor and Wall Openings, Railings and Toe Boards
(29)	IS: 5983 – 1980 (Reaffirmed 2002)	Specification for Eye-Protectors
(30)	IS:6519 – 1971 (Reaffirmed 1997)	Code of Practice for Selection, Care and Repair of Safety Footwear
(31)	IS:9167:1979	Specification for Ear-Protectors
(32)	IS:6994(Part I)-1973 (Reaffirmed 1996)	Specification for Industrial Safety Gloves Leather and Cotton Gloves
(33)	IS 11006 : 2011	Flash Back(Flame Arrestor) Specification
(34)	IS:9473:2002	Respiratory Protective Devices-Filtering Half Masks to protect Against Particles-Specification.
(35)	IS: 9944:1992 (Reaffirmed 2003)	Natural and Man-made Fiber Rope Slings- Recommendations On Safe working loads.
(36)	IS:11057 – 1884 (Reaffirmed 2001)	Specification for Industrial Safety Nets
(37)	IS: 12254:1993 (Reaffirmed 2002)	Polyvinyl Chloride (PVC) Industrial Boots-Specification
(38)	BS:1129	Portable timber ladders, steps, Trestles & lightweight staging
(39)	BS:1139	Metal scaffolds
(40)	BS:5973	Code of practice for access & working scaffolds
(41)	BS:5974	Code of practice for temporary installed scaffolds and access equipment
(42)	BS:5975	Code of practice for false work
FIRE PROTECTION		
(43)	IS: 2193-1992	Code of practice for selection, installation and maintenance of portable first aid fire extinguishers
(44)	IS: 5896	Code of practice for selection, operation and maintenance of fire-fighting appliances
(45)	IS: 8433-1984	Code of practice for dissolved acetylene cylinders
(46)	IS : 15397 :2003 (Reaffirmed 2008)	Portable Extinguisher Mechanical Foam Type(Stored Pressure)-Specification
ELECTRICAL		
(47)	IS: 3043-1987	Code of practice for earthing
(48)	IS: 5424-1969	Rubber mats for electrical purposes
(49)	IS: 3646 (Part II)	Artificial lightings
(50)	IS: 2148 & IS: 2206	Flame proof electrical fittings Machinery
MACHINERY		
(51)	IS:13367(Part 1):1992 (Reaffirmed 2003)	Safe Use of Cranes-Code of Practice
(52)	IS: 1860-1980	Code of practice for installation, operation and maintenance of electric passenger and goods lifts
(53)	IS: 1991-1987	Safety requirements for the use, care and protection of abrasive grinding wheels
(54)	IS: 5903-1970	Safety devices for gas cylinders



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR WESTERN REGION**

R&M PPII, NSPCL BHILAI

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(55)	IS: 8216-1976	Guide for inspection of lift wire ropes
(56)	IS: 8964-978	Recommendations for safety conditions for woodworking machines
(57)	IS: 9474-1980	Principles of mechanical guarding of machinery
(58)	IS: 11461- 1985	Code of practice for compressors safety
(59)	IS: 19311:2002	Guidelines for Quality and/or Environmental Management Systems Auditing
(60)	IS: 13367-1992	Code of practice for safe use of cranes
(61)	IS:1641	Code of practice for fire safety of buildings – General principles of fire grading and classification.
(62)	IS:1642	Code of practice for fire safety of buildings - Details of construction.
(63)	IS:4081	IS:4081 Safety code for blasting and related drilling operations.
(64)	IS:4130	Demolition of buildings - code of safety.
(65)	IS:5121	Safety code for piling and other deep foundations.
(66)	IS:5916	Safety code for construction involving use of hot bituminous materials
(67)	IS:7205	Safety code for erection of structural steel work.
(68)	IS:7969 (Indian Explosives Act 1940)	Safety code for handling and storage of building materials. (As updated)
(69)	IS:11769	Guidelines for safe use of products containing asbestos

ANNEXURE - 3

RIGGER HANDBOOK

बी एच ई एल

रिगर हैंडबुक

एक रिगर क्या है

• भारी वजन रिगर के चालक या नियंत्रक नहीं, किसी भार को सुरक्षित रूप से उठाने के लिए तकनीकी कौशल उपयोग करने वाले व्यक्ति को रिगर कहा जाता है।

एक योग्य रिगर को पता होना चाहिए कि कैसे...

- विभिन्न प्रकार की रस्सियों, सिंग्स, चंकीनी और सहायक उपकरणों का उपयोग करें।
- उठाने के लिए उपयोग की जाने वाली किसी भी रस्सी, सिंग या भार के सुरक्षित कार्य भर (एचएसएल) की गणना करें।
- भार उठाने के लिए भार का आकलन करें।
- उपयुक्त सुरक्षित सिंगिंग तकनीकों का चालक करें और उनका उपयोग करें।
- विभिन्न भारों और अकारों के सुरक्षित रूप से सिंग टोक का चालक करें।
- जब रोक (ब्रेक), ऑपरेटर को रुकने से बाहर होना है तो ड्रेन पर होल्डर ऑपरेटर को रोकने की भूमिका निभाते हैं।
- भार को नियंत्रित करने के लिए हाथों और पैरों से संकेत दें।
- संभलें जाने वाले कुछ भारों का भार विवरण उचित पर मुद्रित किया जा सकता है कि किस प्रकार से भार पर अधिक किया जा सकता है।

फ्लैट वेबिंग और राउंड सिंथेटिक सिंग्स (Flat webbing and round synthetic slings)

फ्लैट वेबिंग और राउंड सिंथेटिक सिंग्स को SWL के साथ लेबल किया जाता है। अगर लेबल गायब है तो भार न उठाएं। गुणवत्ता और रूप लेबलिंग के लिए निर्माता को सिंग सौदा। सिंथेटिक सिंग भारों को उचित रखें।

सिंग या चंकीनी डीक पर अधिक भार से बचाना रहे। उठावक के सिंग भारों को चंकीनी, चंकीनी होने पर 100 प्रतिशत भारी हो सकता है। चंकीनी में खसकने वाले को एक चंकीनी से उठावक पर रखें। लोड का द्रुम निर्मित गुण (Gushing) खसक में किसी मुद्रित भार सकता है। चटपट और टोक-अकार तलाक पर, लोड पर अकार भारों द्वारा भारों होना है।

सिंग के विभिन्न प्रकार

प्रत्यक्ष (direct) लोड सिंग

2 पैर सिंग

चोकर हिल्व गैसकार भार

चोकर हिल्व (वर्क) भार

सामान्य नियम (Thumb Rule)

सिंग का एक डबलिंग रोक (सुरक्षित) अधिकतम भार है। डिमेंसियन सामग्री के एचएसएल, सिंगिंग लाइन्स और सिंगिंग टैबिलेस को विधि का चोकर करने के बाद उठावक या खसक है।

अ) सही डाइमेंसियन साइज रस्सी (RWSB) सिंग के लिए SWL नीचे दिखने वाले सूत्र द्वारा दिया जाता है:-

सूत्र: $SWL (kg) = D^2 (mm) \times 8$
 $D (mm) = \sqrt{SWL (kg) / 8}$
 यहाँ, SWL = सुरक्षित कार्य भर और D = रस्सी व्यास

ब) चोकर (Chain) का SWL रोक (C) द्वारा नीचे दिखने वाले सूत्र द्वारा दिया जाता है:-

सूत्र: $SWL (फिटल) = D^3 (मिमी) \times G \times 0.4$
 यहाँ (a.e.), रोक (C) 80 चोकर, 0.4 का उपयोग करें।

WORKING LOAD LIMIT (WLL) IN TONNES UNDER GENERAL CONDITIONS OF USE

Chain Size (mm)	Single Leg Slings		60°		90°	
	Grade 80	Grade 100	Grade 80	Grade 100	Grade 80	Grade 100
6	0.02	0.03	0.01	0.01	0.01	0.01
8	0.03	0.04	0.02	0.02	0.02	0.02
10	0.05	0.07	0.03	0.03	0.03	0.03
13	0.08	0.11	0.05	0.05	0.05	0.05
16	0.12	0.16	0.07	0.07	0.07	0.07
20	0.18	0.24	0.11	0.11	0.11	0.11
25	0.28	0.37	0.17	0.17	0.17	0.17
32	0.45	0.60	0.27	0.27	0.27	0.27
40	0.72	0.96	0.45	0.45	0.45	0.45
50	1.13	1.50	0.68	0.68	0.68	0.68
63	1.80	2.40	1.08	1.08	1.08	1.08
80	2.88	3.84	1.72	1.72	1.72	1.72
100	4.50	6.00	2.58	2.58	2.58	2.58
125	7.08	9.44	3.96	3.96	3.96	3.96
160	11.52	15.36	6.24	6.24	6.24	6.24
200	18.00	24.00	9.45	9.45	9.45	9.45
250	27.00	36.00	14.18	14.18	14.18	14.18
315	39.60	52.80	21.27	21.27	21.27	21.27
400	60.48	80.64	32.40	32.40	32.40	32.40
500	90.72	120.96	48.60	48.60	48.60	48.60
630	135.36	180.48	72.90	72.90	72.90	72.90
800	216.00	288.00	113.40	113.40	113.40	113.40
1000	324.00	432.00	170.10	170.10	170.10	170.10

**On adjustable slings, some grade shortening breaks may deviate from WLL by 20%. Advice should be sought from the manufacturer.*

चित्र 1 - उपयोग की सामान्य परिस्थितियों में टन (1000 फिटल) में कार्य भर सीमा

सिंगल सिंग

प्रत्यक्ष भार (सोडिंग फैक्टर-1)

आपतकार भार (सोडिंग फैक्टर-0.5)

गोलाकार भार (सोडिंग फैक्टर-0.75)

बास्केट हिल्व - सिंगल सिंग बटिकल लेग्स - पैरों के बीच के कोण को शामिल करें

गोलाकार भार (सोडिंग फैक्टर-2)

आपतकार भार (सोडिंग फैक्टर-1)

गोलाकार भार (90°-1.00, 60°-1.23, 30°-1.41, 120°-1.00)

गोलाकार भार (90°-0.87, 60°-1.10, 30°-1.30, 120°-0.80)

अंतहीन सिंग

बास्केट हिल्व गोलाकार भार (45°-1.20, 60°-1.30, 90°-1.00, 120°-0.75)

प्रत्यक्ष भार (90°-1.00, 60°-1.23, 30°-1.41, 120°-1.00)

वायर रोप सिंग चोकर हिल्व के साथ

चोकर हिल्व कोन न्यूनिकरण चार्ट

चोकर हिल्व (कोन)	सीमित कारक
120-180	1.00
105-120	0.82
90-105	0.71
60-90	0.58
0-60	0.50

रिगर के हाथों के संकेत

ड्रेन को नियंत्रित करने के लिए ड्रेन एक रिगर को ड्रेन ड्राइवरी को सख्त नौटिक संकेत देना चाहिए। रिगर सख्त रूप से ड्रेन और ड्रेन के उदाहरणों को नया बनाए बिना पहले के ज्ञान से - फिर खसकें / घुमें को रिगर।

REQUIRE	HAAND SIGNAL	WAVELENGTH	BEHAVIOUR
Hoisting down		2 short ***	Walking down
Lifting load up		3 short ***	Lifting boom down
Hoisting right		1 long, 2 short ***	Hoisting left
No hooking (No) / unhooking (hook) / proceed		1 long, 2 short ***	No hooking for unhooking boom / proceed
Stand and observe		Not applicable	Stop

क्या करें और क्या न करें



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