

TENDER SPECIFICATION

SI No	E-Tender Specification Number	Description of Work
1	BHE:PW:NGP:PUR:BRM-BFG:3229	RENOVATION & MODERNIZATION OF RE-INTRODUCTION OF BLAST FURNACE GAS FIRING SYSTEM IN ALL 3 UNITS (2X30MW +1X14MW) AT PP-II, NSPCL BHILAI

VOLUME – I

FOR

VOLUME I – TECHNICAL BID

THIS TENDER SPECIFICATION CONSISTS OF:

Notice Inviting Tender	
Volume-IA	Technical Conditions of Contract
Volume-IB	Special conditions of Contract
Volume-IC	General conditions of Contract
Volume-ID	Forms & Procedures
Volume-IE	Technical Specifications
Volume II	Price Bid

Bharat Heavy Electricals Limited



(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

Registered Office: BHEL House, Siri Fort, New Delhi – 110 049, India Website: www.bhel.com

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E-Tender Specification Issue Details

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EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR TENDER SUBMISSION Refer Notice Inviting Tender

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING VOLUME-I AND VOLUME- II ARE ISSUED TO:

M/s.

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PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

GM (Purchase)

Place: Nagpur

Date:



Safety Terms & Conditions for Operation, Maintenance and Other Contract Works

1. General:

- 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 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 equipments belonging to him or to NSPCL (Station Name) or 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. 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 regarding the same advising him to take corrective action.
NSPCL Safety Officer / Engineer In-charge 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 equipments/electrical installation system/facilities are provided and maintained by him as required under various statutes. He shall also ensure testing/examination of the equipments 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 NSPCL Engineer In-charge 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.

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- f. The contractor shall not remove any part of equipments (like guards etc.) or gangways (like fencing, base etc.) or other systems without the permission of the Engineer In-charge. Wherever 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. The contractor shall not hand-over/allow operation of these equipments till the guards are provided at its place.
- g. In case, any opening in gangway/access etc. is caused due to removing any part 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. 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. Engineer In-charge 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 NSPCL Safety Rules relevant provisions of applicable laws pertaining to the safety of workman, employee's plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservation. In case of any unconformity between statutory requirement and NSPCL safety rules referred above the latter shall be binding on the CONTRACTOR unless the statutory provisions are more stringent.

2. Working at Heights:

- a. All working platforms, ways and other places of O&M work area shall be free from accumulations of any material causing obstructions and tripping.
- b. Wherever workers are exposed to the hazard of falling into water, the contractor shall provide adequate equipments for saving the employees from drowning and rescuing from such hazard. The contractor shall provide boat or launch equipped with sufficient number of life buoys, life jackets, guide ropes etc. manned with trained personnel at the site of such work.



- c. Every opening at elevation from ground level through which a worker, material, equipment etc. may fall at O&M work area shall be covered and/or guarded suitable by the contractor to prevent such falls.
- d. Wherever the workers are exposed to hazards of falling from the height, the contractor shall provide standard double lanyard full body harness safety belts with energy absorber fitted with fall arresting system to the employees working at the higher elevation and life line of 8mm diameter wire rope with turn buckles / 16mm dia PP rope as per requirement for anchoring of full body harness safety belts with double lanyard while working or moving at higher elevations. Safety nets shall also be provided for saving them from fall from heights and such equipment should be in accordance with BIS Standards.
- e. Wherever there is a possibility of falling of any material, equipment or workers while working at heights a suitable and adequate safety net should be provided. The area below it must be suitably barricaded. The safety net should be in accordance with BIS Standards.
- f. The contractor shall provide proper access like ladders, scaffold etc. where the workers are required to reach higher elevations and ensure that the workers use them as an access for higher elevations where a permanent access is not available. The workers shall be provided with Full body safety harness fitted with double lanyard with suitable fall arresting system (fall arrestors) for climbing/getting down through ladders to prevent fall from height.
- g. Contractor shall obtain height work permit from NSPCL for height more than 2 mtrs. Height vertigo test to be cleared by individual workman successfully for height work.

3. Opening:

The Contractor shall ensure that vessel, sump, tank, pit or opening in ground or in a floor which by reason of its depth, situation, construction or contains or may be source of danger at his workplace, shall be either securely covered or fenced and necessary measures for protection against falling materials/objects or workers from such platform are taken by providing suitable safety nets, safety belts or other similar means.

4. Fencing of Machinery:

The contractor shall not allow any worker to examine any part of the machinery or to carry out the lubrication or other adjusting operation while the machinery is in motion. Any such examination can only be done when machine is in isolated condition. The

workers near the machinery in motion shall be provided with tight fitting clothes as required under State Factory Rules.

5. Scaffoldings and Work platforms:

The contractor shall take all precautions to prevent any accidental collapse of scaffolding or working platforms or fall of person from scaffolding or working platforms. The contractor shall ensure that scaffolding erection and repairs are done under the expert supervision. The scaffolding shall meet the required strength and other requirements for the purpose of which the scaffolding/work platform is erected. The materials and fittings used for scaffold/work platform should conform to the BIS Standards. After erection of scaffolding clearance must be taken from EIC before use.

6. Confined Space:

- a. The contractor should not allow any worker to go into the confined space unless it is certified by Engineer (I/c) to be safe and fit for the entry to such work place. Proper written down procedure (including rescue operation), record and work permits should be followed to carry out such works.
- b. No portable electrical light or any other electrical appliances of voltage exceeding 24 volts shall be permitted for use inside any chamber/tank, wet pit, flue duct / pipe or other confined space unless adequate safety devices are provided where the inflammable gases, fumes or dust is likely to be present.

7. Handling of Hazardous Chemicals and hazardous waste:

- a. The contractor shall provide suitable personal protective equipments to the workers who are handling hazardous and corrosive substances including alkalis and acids.
- b. As a precautionary measure the contractor should keep the bottles filled with distilled water in cupboard/Boxes near work place for emergency eye wash by worker exposed to such hazardous chemicals.
- c. The Contractor will notify well in advance to the Engineer-in-Charge of his intention to bring to the site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals which may involve hazards. The Engineer-in-Charge shall have the right to prescribe the condition under which container it is to be stored, handled and used during the performance of works and the contractor shall strictly adhere to and comply with such instructions. The Engineer in-Charge shall have the right at his sole discretion to inspect any such container of such construction Plant/equipment for which material in the container is required to be used and if in his opinion its use is not safe, he may forbid its use. No



claim due to such prohibition shall be entertained by the owner nor the owner shall entertain any claim of the contractor towards additional safety provisions/ conditions to be provided for /constructed as per Engineer-in-Charge's instruction. Further any such decision of Engineer-in-Charge shall not, in any way absolve the contractor of his responsibilities as in case, use of such a container or entry thereof in to site area is forbidden by Engineer-in-Charge the CONTRACTOR shall use alternative methods with the approval of Engineer-in-Charge without any cost implication to NSPCL, (Name of Station) or extension of work schedule.

- d. Where it is necessary to provide and / or store petroleum products or mixtures and explosives the CONTRACTOR shall be responsible for carrying out such provisions and / or storage in accordance with the rules & regulations laid down under petroleum Act 1934 explosives Act 1948 and Petroleum and carbide of Calcium Manual published by the Chief inspector of Explosives of India. All such storage shall have prior approval of the Engineer-in Charge. In case any approval is necessary from the chief Inspector (Explosives) or any statutory authorities the CONTRACTOR shall be responsible for obtaining the same.
- e. In case of requirement of storage of radioactive substances/ sources, the contractor shall be fully responsible for the safe storage of his & his subcontractor's radioactive substances/sources in accordance with BARC/DAE and other applicable provisions. All precautionary measures stipulated by BARC/DAE in connection with use storage and handling of such material will be taken by CONTRACTOR. Contractor must follow AERB Safety guidelines for such works.
- f. Where explosives are to be used the same shall be used under the direct control and supervision of expert, experienced, qualified and competent person strictly in accordance with code of practices/rules Framed under Indian Explosives act pertaining to handling storage and use of the explosives.

8. Right to Stop Work:

- a. The Engineer I/C/NSPCL Safety Officer shall have right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property and/or equipments. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly. The CONTRACTOR after stopping specific work can if felt necessary appeal against the order of stoppage of work to the BUSINESS UNIT HEAD, NSPCL(Name of Station) within 8 days of such stoppage of work and decision of BUH in this respect shall be conclusive and binding on the CONTRACTOR.
- b. The contractor shall not be entitled for any damages/compensation for stoppage of work, due to safety reasons and the period of such stoppage of work shall not be

taken as an extension of time for Completion of the Facilities and will not be the ground for waiver of levy of liquidated damages.

9. Overhead protection:

- a. The contractor shall ensure that any area exposed to risk of falling materials, articles or objects is roped off or cordoned off or otherwise suitably guarded from inadvertent entry of any person. Suitable barricading to be provided as per safety requirement.
- b. Wherever there is a possibility of falling of any material, equipment or construction workers while working at heights a suitable and adequate safety net should be in accordance with BIS Standards.

10. Eye Protection:

The contractor should provide suitable personal protective equipments to his workmen depending upon the nature of hazards and ensure their usage by the workers engaged in operations like painting, Gas Cutting, welding, chipping, grinding or similar operations or wherever chances of exposure to hazardous chemical flash which may cause injuries to his eyes.

11. Electrical Hazards:

- a. The contractor should ensure that all electrical installations/equipments used in O&M work area comply with the requirements of latest electricity acts/rules/regulations.
- b. The CONTRACTOR shall not interfere or disturb electric fuses, wiring or electrical equipment.
- c. The contractor shall take all adequate measures to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuits which may cause electrical hazards during the construction/assigned work. The contractor shall provide the sufficient ELCBs / RCCBs for all the portable equipments, electrical switchboards, distribution panels etc. to prevent electrical shocks to the workers.
- d. The contractor shall ensure use of single/double insulated/plastic body hand tools or low voltage i.e. 110 volts hand tools, Non-contact type voltage detector for checking status of electrical supply as per the job requirement.



- e. The Contractor shall not undertake any work till the permit is obtained for the specific work in accordance with relevant applicable NSPCL Rules. Wherever "work permit" is required, "Danger Board" & "Danger Tape" should be used.
- f. No electrical appliances should be used without the supply connected through ELCB/RCCB (30 mA) which the contractor should provide. All electrical connections are to be taken by using industrial plug top and no tapping of power by hooking will be allowed.
- g. Before the CONTRACTOR connects any electrical appliances to any plug or socket belonging to the other CONTRACTOR or owner he shall:
- Satisfy the Engineer-in-Charge that the appliance is in good working conditions.
 - Inform the Engineer-in-Charge of the maximum current rating voltage and phases of the appliances.
 - Obtain permission of the Engineer-in-Charge detailing the sockets to which the appliances may be connected.
- h. The Engineer-in-Charge will not grant permission to connect until he is satisfied that:-
- The appliances are in good condition & are fitted with a suitable plug.
 - The appliances are fitted with a suitable cable having to earth conductors one of which shall be an earthed metal sheath surrounding the cores.
- i. No electric cable in use by the CONTRACTOR /Owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.
- j. No repair work shall be carried out on any live equipment. The equipment must be declared safe by Engineer-in-Charge and a permit to work shall be issued by Engineer-in-Charge or his authorized representative before any repair work is carried out by the CONTRACTOR. While working on electric lines /equipments whether alive or dead suitable type & sufficient quantity of tools will have to be provided by CONTRACTOR to electrician/workman/officers. The contractor shall ensure that the workmen working in MCC panels or areas specified by Engineer In-charge, must use PPEs such as Electrical Arc Flash protection suits, face shields and non-contact voltage detectors.
- k. The CONTRACTOR shall employ necessary number of qualified full time electricians/electrical supervisors to maintain his temporary electrical installations.

12. Lifting tools and tackles:



The Contractor shall ensure that the lifting appliances, tools & tackles including cranes etc. lifting gear including fixed or movable or any plant or gear, hoists, pressure plant and equipment etc. are in good condition and have been examined and tested by competent person and certified as per statutory requirements. The necessary register and records of the lifting appliances used in factory premises shall be maintained and shown to NSPCL Engineer In charge / Safety In-charge on demand.

13. Vehicular Traffic

The contractor should deploy vehicles with valid documents (RC/Insurance/Fitness) & employ vehicle drivers who hold a valid driving license under the Motor Vehicles Act, 1988 & are medically fit. The speed limits as notified from time to time by NSPCL will be strictly adhered to and it will be the responsibility of the contractor to ensure compliance in respect of vehicles deployed by him/her. The Contractor shall ensure that, all vehicles engaged by him/her shall adhere to prescribed Road safety Norms of site.

14. Hot Works:

Hot works to be executed by following proper JSA/ SOP/ SMP / Safety Guidelines prepared/ available in NSPCL (Name of the station). The contractor should ensure hot works (Welding, Gas Cutting, Grinding etc.) shall be executed by skilled & experienced person with all necessary fire & safety precautions. Gas cylinders must be kept atleast 30 mtr away from the hot work zone. Hot work permit must be taken for hot zone areas as declared by plant. Before doing hot work in a process pipeline, earthing must be ensured to discharge static charges. Gas cylinders must be vertically positioned with valve protection cap and secured properly to prevent falling. Standard flash back arrester must be used with (4 layer protection) at cylinder ends and cutting torch ends. Gas cylinders must be transported/ handled with Gas cylinder trolleys. PPEs like leather hand gloves and apron, Safety helmet with attached face shield for Welder, Gas cutter & Grinder must be used. For welding inside duct/ tank area proper arrangement for ventilation must be done. Safety guards must be ensured over the grinding wheel and shall be strong enough to withstand the bursting of the grinding wheel. All abrasive wheels shall be closely inspected and ring tested before mounting to ensure that they are free from cracks or defects. Fire blanket or fire resistance sheets must be used for hot work carried out in height to prevent hot sparkles / materials downwards and the below area must be barricaded to avoid unwanted movement below it.

15. Medical examination:

- a. The Contractor shall get the medical examination conducted of all his employees including his sub-contractor employees working in hazardous areas once before the employment and thereafter once in every year by a qualified medical practitioner as per the factories Act, 1948 and concerned State Factories Rules. The necessary registers and records relating to the medical examination of all the



employees should be maintained and shown to NSPCL Engineer In-charge/Safety In-charge on demand. Height medical examination and height vertigo test is must for person going to be engaged in height work.

- b. If the contractor fails to get the examination conducted as mentioned above, NSPCL will have the right to get the same conducted by NSPCL Medical Officer with intimation to the contractor and deduct the cost and overhead charges.
- c. The Contractor shall get the Medical Examination Certificate for all his Employees including Sub-contractor employees working at NSPCL before appearing to safety induction program. RA bill shall be release only after the submission of the same. The contractor shall have his own arrangements with nearby hospitals for shifting and treatment of sick and injured persons.
- d. **First Aid boxes** equipped with requisite articles as specified in the Factories Act, 1948 and concerned State Factories Rules shall be provided by the contractor for the use of workers. Requisite Training has to be provided on first aid to identified workmen & office bearers working at their site.

16. Safety Organization:

The CONTRACTOR employing more than 250 workmen whether temporary, casual, probationer, regular or permanent or on contract shall employ at least one full time officer exclusively as Safety Officer to supervise safety aspects of the equipments and workman who will coordinate with the project safety officer. In case of work being carried out through subcontractor, the sub-contractor's workman/ employees will also be considered as the contractor's employees /workman for above purpose. The name & address of safety officer of contractor will be promptly informed in writing to Engineer-in-Charge with a copy to NSPCL Safety Officer before he starts work or immediately after any change of the incumbent is made during currency of contract.

The major O&M contractors who are deploying number of agencies under his control shall appoint atleast one qualified safety officer. Appointment of number of safety Officer, qualifications, experiences, duties and responsibilities etc. shall be in accordance to the concerned States Factories Rules.

After awarding of a the contract and before commencement of work, contractor along with his workers shall report to Safety Officer of NSPCL for safety briefing on the job entrusted to him. This briefing shall cover general safety aspects as well as job specific instructions to be given by the EIC.



First bill of the contractor shall not be paid, until the safety clearance in the format as prescribed by Safety Officer is obtained from safety department confirming that the safety briefing has been done.

17. Reporting of accidents:

- a. In case of any injury to the worker of the contractor or its sub-contractor or to any person during the process related to the work, the contractor shall send the injured person to plant Hospital/Dispensary/First Aid center where the injured shall be given the first aid treatment and the quantum of injury including permanent disablement/temporary disablement shall be assessed to ensure payment for compensation to be paid, by the contractor to the victim.
- b. In case, the subsequent treatment is given in the hospital other than plant Hospitals, the contractor shall submit full information about the course of treatment of injured person including the address etc. till the person is certified fit by any Govt./NSPCL doctor. He shall submit such records to NSPCL safety department within 15 days from the date of fitness certificate issued by the doctor as mentioned above.
- c. In case of near miss incident or minor injury, the contractor shall report the same to NSPCL Safety Officer and Engineer In-charge immediately after referring the injured to Plant Hospital/ Dispensary/First Aid Center.
- d. In case any accident occurs during the construction / erection or other associated activities undertaken by the Contractor thereby causing major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform (positively within two hours of occurrence) the same to the Engineer I/C, NSPCL Safety Officer with a copy to NSPCL Head of Project in the prescribed form and also to all the authorities envisaged under the applicable laws. Within four hours of occurrence, the contractor shall submit full details of accident in writing to Safety Officer and Engineer In-charge on the prescribed format.
- e. Whenever asked by NSPCL, the contractor shall send his employee(s) to dispose in any enquiry arising out of any injury/fatality/loss etc. without any reservation.

18. Personnel Protective equipments:

- a. The contractor shall provide adequate ISI/ANSI/EN/CE standard (Good Quality) Safety PPEs (Helmet, Shoes, Eye Goggle, Dust Mask, Ear Plug/ ear Muff/Full Body Harness etc.) to all his employees including contractor Labour of his sub-contractor. Whenever any worker is engaged on a work at a place from which he is liable to fall more than two meters shall be provided with safety belt equipment



with lifelines which are secured to a fixed structure. Contractor has to ensure healthiness of all the PPEs and lifeline at frequent interval. The users should be instructed to check the condition of all PPEs daily before use.

- b.** Wherever the workers are exposed more than to the noise levels specified in the concerned State Factory Rules, they should be provided with suitable ear plugs/ear muffs so as to reduce the exposure below high noise level.
- c.** The Contractor shall provide the Personal protective Equipments as prescribed in the Factory Act/or State Factories Rules, to the workers. In case the Factories Act/State Factories Rules do not specify the personal protective equipments for the concerned work, the personal protective equipments prescribed by NSPCL Engineer In-charge/Safety Officer of NSPCL shall be provided by the Contractor. The quality of the personal protective equipments shall be as prescribed in concerned Indian Standards. In case, the Indian Standards do not exist for particular personal protective equipment, the approval of quality shall be obtained from Engineer In-charge/head of safety. It will be the responsibility of the contractor to ensure that all his employees use these equipments without fail.
- d.** In case NSPCL officials find that employee(s) of contractor working in NSPCL without use of appropriate safety equipments (personal protective equipments) NSPCL shall have a right to stop the work immediately and give warning instruction to contractor to provide the same immediately and resume the work. At least 10% (Of the number of manpower engaged) stock to be maintained by contractor for meeting the emergency requirements.

Contractor shall arrange special personnel protective equipments like fall arrestors, Safety Nets etc. on reimbursement / chargeable/ non-chargeable basis, on request of Engineer I/C.

19. Training:

- a.** The contractor shall arrange to provide safety training to all his employees before their engagement at work. Whenever asked by NSPCL also, the Contractor shall send his employee(s) for safety training and for such day the contractor shall pay the employee(s) average daily salary.
- b.** The contractor shall provide training of use of fire extinguisher and first aid to all his employees and records thereof shall be submitted to Engineer In-charge and Safety Officer of NSPCL. The training may be provided independently or may be nominated to the programmes being organized by NSPCL from time to time.



- c. The Contractor has to ensure that Safety Training of his employees including the Sub-contractor employees along with all required PPEs to be done before commencement of work. The Safety Training shall be conducted by safety Department and clearance from the Safety Department shall be issued thereafter. This Safety training certification shall also be a condition to release the RA Bill.

20. Penalties:

- a. If the contractor fails in providing safer working environment as prescribed in General Conditions of Contract relating to safety and health of workmen/workwomen and any contractor worker found working without using the safety equipment/PPEs like safety helmet, safety shoes, Full body harness safety belts, Fall Arrestor, safety hand gloves, safety goggles etc. or without anchoring the full body harness with double lanyard safety belts while working at height, the Engineer In-charge/ Safety Officer of NSPCL shall have the right to stop the work and penalize the contractor for the violation as per Annexure-I and such worker shall be sent out of the workplace immediately and shall not be allowed to work on that day. Engineer In-charge/ Safety Officer of NSPCL will also issue a notice in this regard to the contractor. For repeated safety violations the violator may be suspended or the gate pass of the violator may be cancelled and he may not be allowed again to enter inside the NSPCL plant premises.

However, in case of accident, causing major injury or fatal, the provisions contained below shall also apply in addition to the penalties mentioned in this cause.

- b. If the Contractor does not take all safety precautions and/ or fails to comply with the Safety Rules as prescribed by the Employer or under the applicable law for the safety of the plant and equipment and for safety of personal and the contractor does not prevent hazardous conditions which cause injury to his own employees or employees of the other contractors, or the Employers employees or any other person who are at site or adjacent thereto, the contractor shall be responsible for payment of penalty to NSPCL as per the following schedule.
 - i. For fatal accident/injury causing death, penalty @ 10% of the contract value or Rs.5 lakhs whichever is less for each fatal accident/injury causing death.
 - ii. For Major injury or accident causing 25% or more permanent disablement Penalty @ 2.5% of contract value or Rs.1 lakh whichever is less for each disablement in case of workmen injury.
- c. Permanent disablement shall have the same meaning as indicated in Workmen's Compensation Act, 1923. The penalty mentioned above shall be in addition to the compensation payable to the workmen/employees under the relevant provisions of the Workmen's Compensation Act and Rules framed thereunder or any other applicable laws as applicable from time to time.

Penalty to be imposed on Contractor for Safety Violations

Sl.no.	Minor Violations	Major Violations
		Penalty: Rs 5000 per violation for 1st Violation Rs 10000 for subsequent violations
(A)	PPEs	
	Penalty: Rs 1000 per person	
1.	Use of Poor quality or non-standard Personal Protective Equipment.	Not issuing of IS standard PPEs to the workmen.
2.	Not wearing safety helmet with chin strap at working sites and PPEs zone.	Safety Helmet – IS 2925 -1984 of ABS / HDPE material with chin strap fitted with six point suspension inner shell. Safety Shoes – IS 15298 (Part 2), upper shall be of leather, Sole shall be of double density PU sole, antiskid, oil and acid resistance. All relevant marking shall be available. Other PPEs as per job requirement shall be reputed or IS standard to be provided.
3.	Not wearing Industrial safety shoes with hard toe at working sites and PPEs zone.	
4.	Not using hand gloves as per job requirement.	
5.	Not using ear plug at high noise areas	
6.	Not using nose mask at dusty areas	
7.	Not using Face shield, goggles for welding, cutting, grinding, chipping etc.	
	Penalty for (B) to (H) Rs 3000 for first violation Rs 6000 for subsequent violations	
(B)	Work At Height	
8.	Not wearing full body harness with shock absorber at height jobs.	Working at Height without Height Pass.
9.	Not using all arrestors with rope grab for height jobs.	Non-use of Retractable fall arrestor for roof sheet and working in inclined areas at height.
10.	Not providing life lines.	Non-use of Cat ladder in roof sheeting job.
11.	Not providing safety nets.	Safe ascending/ descending, Railing not provided on working platforms.
12.	Not providing barricading.	Non Anchorage of Life Lines (Lanyard)
13.	Using of mobile phones while working at height	Non-use of full body harness for work at height (Roof sheeting changing, painting, Maintenance jobs etc.)
(C)	Road & Vehicle Safety	
14.	Use of mobile phones while riding of vehicles.	Driving of Vehicle in intoxicated condition.
15.	Not wearing seat belt while riding vehicles.	Driving of Vehicles without valid licence or other statutory documents.
16.	Not wearing Crash helmet while riding two-wheelers.	Reverse movement of vehicle without signal personnel.
17.	Over speeding (Violation of speed limit)	Transportation of Material by use of Hydra.
18.	Parking at unauthorized places.	Material not tight/chained or secured adequately for transportation (Structural beams, compressed gas cylinders etc.)
19.	Marching cranes, trailers and equipment's without signal man with red flag/ flash torch.	Loading & unloading of material(s) without Authorised plan / standard practices.
20.	Dropping / spillage of material on the road.	Flash light and signs not provided for oversize material transportation.

21.	No indicator light / brake light/ reflectors / reverse horn on vehicles.	Transportation of hazardous chemical on non-standard transportation vehicles.
22.	Not using wheel chokes/ wedges.	Fixed climbing arrangement for safe ascending & descending not provided on transportation vehicle (Chemical tanker, Oil tankers, ash bulkers etc.)
23.	Poor Condition of tyres, foot rest, seat belt, looking mirror etc.	Transportation of Material by use of Hydra.
(D) Compressed Gas Cylinders / Gas Cutting / Welding		
30.	Not using cylinder trolley for compressed gas cylinders handling and shifting.	Non-use of flame proof or non- sparking hand tools.
31.	Not using face shield or goggles for welding, cutting works etc.	Not providing NRVs and flash back arrestor on gas cutting sets.
32.	Tight crimping of hoses with jubilee clamp not done.	Non- use of industrial gas cutting cylinder.
33.	Not using friction lighter, condition of pressure gauges, hose pipes & other fittings not good.	Work without "HOT WORK PERMIT"
34.	Valve protection cap not fitted on cylinders.	Lifting of compressed cylinder at higher Elevation without cage or in Unsafe manner.
35.	Not providing fire protection arrangement on storage / working location.	Not providing arrangement to protect cylinders from of falling.
36.	Caution and Signage's not displayed at storage location.	Improper storage of cylinders (Placed on firm or level floor, storage under shed etc.)
(E) Electrical Safety		
34.	Loose connection taken from board without proper plug top.	Use of Metal ladder near electrical lines.
35.	Damaged electrical cables	Non deployment of qualified / licence electrical Personnel.
36.	Electrical distribution boards without RCCB or defective boards.	Welding work on wet surface.
37.	Non use of standard cable connectors and extension boards.	Damaged or non-insulated hand tools.
38.	Trailing cables on walkways and floor.	Non calibrated electrical machines / Equipment's.
39.	Improper grounding or earthing of electrical operated machines.	Grounding or earthing attach on containing Flammable Liquids or gases.
40.	Metal body portable power tools.	Use of Electrical equipment's or machines without "Fit Certificate"
41.	Use of power tools (grinding, cutting etc.) without guard's covers.	Not wearing arch flash suit with face Protection hood & Gloves.
42.	Damage holders, loose connection without lugs/copper thimble etc.	Work on Electrical Equipment without isolation or PTW.
(F) Scaffolding Safety		
43.	Not providing suitable ladder or arrangement for climbing and descending.	Use of Bamboo or other non-standard Material for Scaffolding (pipes, clamps, platform etc.)
44.	Not displaying Caution signage's "Men AT Work On Scaffolding" with caution ribbon wherever applicable.	Working on incomplete or unchecked scaffold Platform.
45.	Improper storage of Scaffolding pipes and fittings.	Deployment of unskilled scaffolding persons.
46.	Scaffold structures, platform left unattended or not removed after completion of work.	Clamping of scaffolding pipes with manila rope / GI wire.

(G)	Lifting Tools & tackles and Equipment	
47.	Fitness certificate of lifting tools & tackles and equipment's etc. not available.	Lifting of load beyond lifting capacity.
48.	Rope of crane, hydrant etc. not clamped properly.	Damaged or defective ropes and equipment's.
49.	SWL, Equipment Identification & Test Validity not marked / displayed on lifting tools & tackles and equipment.	Standing under lifted load.
50.	Condition of rope not ok	Slinging & lifting arrangement not done by skilled rigger.
(H)	General Safety	
51.	Taking rest or sleeping near machine or electrical installations area.	Starting of work without undergoing compulsory safety training.
52.	Storage of personal belonging near machine installations.	Permit To Work not obtained for hazardous jobs.
53.	Smoking in non-smoking zones.	Removal or Dismantling of structures without authorise plan.
54.	Hand lamp without cage cover.	Unguarded floor opening.
55.	Non removal of debris or waste generated during work.	Use of passenger lift for material lifting.
56.	Use of non -standard hand tools.	Absence of supervisor at work in hazardous area/ activity, confined space , and height working etc.
57.	Unsafe dropping of material from height.	Working in factory premises without valid gate pass.
58.	Shuttering / shoring not done (below 2 meter. Level) of excavation.	Overhanging burden in pit not removed in excavation.
59.	Illumination/ caution signage's not provided in road cutting / excavation.	Strong guardrails / barricades not provided in road cutting excavation.

CLAUSE NO.	ERECTION CONDITION OF CONTRACT		
1.00.00	GENERAL		
1.01.00	The following shall supplement the conditions already contained in the other parts of this specification and documents and shall govern that portion of the work or this Contract to be performed at Site.		
1.02.00	The Contractor upon signing of the Contract shall, in addition to a Project Co-ordinator, nominate another responsible officer as his representative at Site suitably designated for the purpose of overall responsibility and co-ordination of the Works to be performed at Site. Such person shall function from the Site office of the Contractor during the pendency of Contract.		
2.00.00	REGULATION OF LOCAL AUTHORITIES AND STATUTES		
2.01.00	The Contractor shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the Minimum Wages Act, 1948 and the Payment of Wages Act (both the Government of India) and the rules made thereunder in respect of any employee or workman employed or engaged by him or his Sub-Contractor.		
2.02.00	All registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the Contractor. However, any registration, statutory inspection fees lawfully payable under the provisions of the Indian Boiler Regulations and any other statutory laws and its amendments from time to time during erection in respect of the plant equipment ultimately to be owned by the Owner, shall be to the account of the Owner. Should any such inspection or registration need to be re-arranged due to the fault of the Contractor or his Sub-contractor, the additional fees to such inspection and/or registration shall be borne by the Contractor.		
3.00.00	OWNER'S LIEN ON EQUIPMENT		
	The Owner shall have lien on all equipment including those of the Contractor brought to the Site for the purpose of erection, testing and commissioning of the plant. The Owner shall continue to hold the lien on all such equipment throughout the period of Contract. No material brought to the Site shall be removed from the Site by the Contractor and/or his Sub-contractors without the prior written approval of the Engineer.		
4.00.00	INSPECTION, TESTING AND INSPECTION CERTIFICATES		
	The Provisions of the Clause entitled Inspection, Testing and Inspection Certificates under Technical Specification, Chapter-11 shall also be applicable to the erection portion of the Works. The Engineer shall have the right to re-inspect any equipment though previously inspected and approved by him at the Contractor's works, before and after the same are erected at Site. If by the above inspection, the Engineer rejects any equipment, the Contractor shall make good for such rejections either by replacement or modification/ repairs as may be necessary to the satisfaction of the Engineer. Such replacements will also include the replacements or re-execution of such of those works of other Contractors and/or agencies, which might have got damaged or affected by the replacement or re-work done to the Contractor's work.		
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CLAUSE NO.	ERECTION CONDITION OF CONTRACT	
5.00.00	ACCESS TO SITE WORKS ON SITE	
5.01.00	Suitable access to and possession of the Site shall be afforded to the Contractor by the Owner in reasonable time. The Owner shall provide access roads as per the agreed schedule.	
5.02.00	The Contractor is required to dismantle the existing foundation and cast new foundation if necessary for the new equipment supplied.	
5.03.00	The works so far as it is carried out on the Owner's premises, shall be carried out at such time as the Owner may approve and the Owner shall give the Contractor reasonable facilities for carrying out the works.	
5.04.00	In the execution of the Works, no person other than the Contractor or his duly appointed representative, Sub-contractor and workmen, shall be allowed to do work on the Site, except by the special permission, in writing of the Engineer or his representative.	
6.00.00	CONTRACTOR'S SITE OFFICE ESTABLISHMENT	
	The Contractor shall establish a Site Office at the Site and keep posted an authorised representative for the purpose of the Contract. Any written order or instruction of the Engineer or his duly authorised representative, shall be communicated to the said authorised resident representative of the Contractor and the same shall be deemed to have been communicated to the Contractor at his legal address.	
7.00.00	CO-OPERATION WITH OTHER CONTRACTORS	
7.01.00	The Contractor shall co-operate with all other contractors or tradesmen of the Owner, who may be performing other works on behalf of the Owner and the workmen who may be employed by the Owner and doing work in the vicinity of the Works under the Contract. The Contractor shall also arrange to perform his work so as to minimise, to the maximum extent possible, interference with the work of other contractors and their workmen. Any injury or damage that may be sustained by the employees of the other Contractors and the Owner, due to the Contractor's work shall promptly be made good at his own expense. The Engineer shall determine the resolution of any difference or conflict that may arise between the Contractor and the workmen of the Owner in regard to their work. If the work of the Contractor is delayed because of the any acts of omission of another Contractor, the Contractor shall have no claim against the Owner on that account other than an extension of time for completing his Works.	
7.02.00	The Engineer shall be notified promptly by the Contractor of any defects in the other Contractor's works that could affect the Contractor's Works. The Engineer shall determine the corrective measures if any, required to rectify this situation after inspection of the works and such decisions by the Engineer shall be binding on the Contractor.	
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CLAUSE NO.	ERECTION CONDITION OF CONTRACT	
8.00.00	<p>DISCIPLINE OF WORKMEN</p> <p>The Contractor shall adhere to the disciplinary procedure set by the Engineer in respect of his employees and workmen at Site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contractor at the Site, if in the opinion of the Engineer such employee has mis-conducted himself or is incompetent or is negligent or otherwise undesirable and then the Contractor shall remove such a person objected to and provide in his place a competent replacement.</p>	
9.00.00	<p>CONTRACTOR'S FIELD OPERATION</p>	
9.01.00	<p>The Contractor shall keep the Engineer informed in advance regarding his field activity plans and schedules for carrying out each part of the works. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contractor of any of his responsibilities towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the Owner or any of his representatives and no claim of the Contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The Contractor shall be solely responsible for the safety, adequacy and efficiency of plant and equipment and his erection methods.</p>	
9.02.00	<p>The Contractor shall have the complete responsibility for the conditions of the Work-Site including the safety of all person employed by him or his Sub-contractor and all the properties under his custody during the performance of the work. The requirement shall apply continuously till the completion of the Contract and shall not be limited to normal working hours. The construction review by the Engineer is not intended to include review of Contractor's safety measures in, on or near the Work-Site, and their adequacy or otherwise.</p>	
10.00.00	<p>PHOTOGRAPHS AND PROGRESS REPORT</p>	
10.01.00	<p>The Contractor shall furnish three (3) prints each to the Engineer of progress photographs of the work done at Site. Photographs shall be taken as and when indicated by the Engineer or his representative. Photographs shall be adequate in size and number to indicate various stages of erection. Each photograph shall contain the date, the name of the Contractor and the title of the photograph.</p>	
10.02.00	<p>The above photographs shall accompany the monthly progress report detailing out the progress achieved on all erection activities as compared to the schedules. The report shall also indicate the reasons for the variance between the scheduled and actual progress and the action proposed for corrective measures, wherever necessary.</p>	
11.00.00	<p>MAN-POWER REPORT</p>	
11.01.00	<p>The Contractor shall submit to the Engineer, on the first day of every month, a man hour schedule for the month, detailing the man hours scheduled for the month, skill-wise and area wise.</p>	
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11.02.00	The Contractor shall also submit to the Engineer on the first day of every month, a man power report of the previous month detailing the number of persons scheduled to have been employed and actually employed, skill-wise and the areas of employment of such labour.	
12.00.00	<p>PROTECTION OF WORK</p> <p>The Contractor shall have total responsibility for protecting his works till it is finally taken over by the Engineer. No claim will be entertained by the Owner or the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for complete restoration of the damaged works to original conditions to comply with the specification and drawings. Should any such damage to the Contractor's Works occur because of other party not being under his supervision or control, the Contractor shall make his claim directly with the party concerned. If disagreement or conflict or dispute develops between the Contractor and the other party or parties concerned regarding the responsibility for damage to the Contractor's Works the same shall be resolved as per the provisions of the Clause 7.0 above entitled "Co-operation with other Contractors". The Contractor shall not cause any delay in the repair of such damaged Works because of any delay in the resolution of such disputes. The Contractor shall proceed to repair the Work immediately and no cause thereof will be assigned pending resolution of such dispute.</p>	
13.00.00	EMPLOYMENT OF LABOUR	
13.01.00	The Contractor will be expected to employ on the work only his regular skilled employee with experience of his particular work. No female labourer shall be employed after darkness. No person below the age of eighteen years shall be employed.	
13.02.00	All travelling expenses including provisions of all necessary transport to and from Site. Lodging allowance and other payments to the Contractor's employees shall be sole responsibility of the Contractor.	
13.03.00	The hours of work on the Site shall be decided by the Owner and the Contractor shall adhere to it. Working hours will normally be eight (8) hours per day – Monday through Saturday.	
13.04.00	Contractor's employees shall wear identification badges while on work at Site.	
13.05.00	In case the Owner becomes liable to pay any wages or dues to the Contractor's labourers or any Government agency under any of the provisions of the Minimum Wages Act, Workmen Compensation Act, Contract Labour Regulation Abolition Act or any other law due to act of omission of the Contractor, the Owner may make such payments and shall recover the same from the Contractor's Bills.	
14.00.00	FACILITIES TO BE PROVIDED BY THE OWNER	
14.01.00	Space	



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	<p>The Contractor shall advise the Owner within Fifteen (15) days from the date of acceptance of the Letter of Award about his exact requirement of space for his office, mess-room, storage area, pre-assembly and fabrication areas, labour and staff colony area, toilets etc. The above requirement shall be reviewed by the Engineer and space will be allotted to the Contractor for construction of his temporary structures like office, storage sheds, labour and staff colony and other utilities etc. for his own as well as his Sub-Contractor's use.</p>	
14.02.00	<p>Electricity</p> <p>The Contractor shall submit to the Engineer within Fifteen (15) days from the date of acceptance of the Letter of Award, his electrical power requirement, if any, to allow the planning of the temporary electrical distribution by the Engineer. The Contractor shall be provided with free supply of electricity for the purposes of the Contract, only at one point in the Project Site. The Contractor shall make his own further distribution arrangement. All temporary wiring must comply with local regulations and will be subject to Engineer's inspection and approval before connection to supply. The free supply of power will not be provided for the use in the labour and staff colony. Power supply for labour and staff colony shall be provided at one point and the Contractor shall be charged at rates prevalent at the site.</p>	
14.03.00	<p>WATER</p> <p>Free supply of water will be made available for the construction purposes at an agreed single point in the Site. Any further distribution will be the responsibility of the Contractor. Free drinking water will also be provided at one agreed point in the Site. Further distribution either to his labour colony or his work site or to his office shall be the responsibility of the Contractor.</p>	
14.04.00	<p>Communication</p> <p>The Owner will extend the telephone & telex facilities, if available at Site, for purposes of Contract. The Contractor shall be charged at actuals for such facilities.</p>	
15.00.00	<p>FACILITIES TO BE PROVIDED BY THE CONTRACTOR</p>	
15.01.00	<p>Tools, tackles and scaffoldings</p> <p>The Contractor shall provide all the construction equipments, tools, tackles and scaffoldings required for pre-assembly, erection, testing and commissioning of the requirements covered under the Contractor. He shall submit a list of all such materials to the Engineer before the commencement of pre-assembly at Site. These tools and tackles shall not be removed from the Site without the written permission of the Engineer.</p>	
15.02.00	<p>First-aid</p>	
15.02.01	<p>The Contractor shall provide necessary first-aid for all his employees, representatives and workmen working at the Site. Sufficient number of Contractor's personnel shall be trained in administering first-aid.</p>	
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15.02.02	The Owner will provide the Contractor, in case of any emergency, the services of an ambulance for transportation to the nearest hospital.



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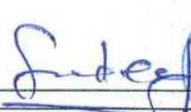
CLAUSE NO.	ERECTION CONDITION OF CONTRACT		
15.03.00	Cleanliness		
15.03.01	<p>The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of special personnel to thoroughly clean of Contract. The contractor shall employ enough number of special personnel to thoroughly clean his work-area at least once in a day. All such rubbish and scrap material shall be stacked or disposed in a place to be identified by the Engineer. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.</p>		
15.03.02	<p>Similarly the labour colony, the offices and the residential areas of the Contractor's employees and workmen shall be kept clean and neat to the entire satisfaction of the Engineer. Proper sanitary arrangement shall be provided by the Contractor, in work-areas, office and residential areas of the Contractor.</p>		
16.00.00	<p>LINES AND GRADES</p> <p>All the Works shall be performed to the lines, grades and elevations indicated on the drawings. The Contractor shall be responsible to locate and layout the Works. Basic horizontal and vertical control points will be established and marked by the Engineer at Site at suitable points. These points shall be used as datum for the works under the Contract. The Contractor shall inform the Engineer well in advance of the times and places at which he wishes to do work in the area allotted to him so that suitable datum points may be established and marked by the Engineer at Site at suitable points. These points shall be used as datum for the works under the Contract. The Contractor shall inform the Engineer well in advance of the times and places at which he wishes to do work in the area allotted to him so that suitable datum points may be established and checked by the Engineer to enable the Contractor to proceed with his works. Any work done without being properly located may be removed and/or dismantled by the Engineer at Contractor's expense.</p>		
17.00.00	FIRE PROTECTION		
17.01.00	<p>The work procedures that are to be used during the erection shall be those which minimise fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the Site at least once each day. Fuels, oils and volatile or flammable materials shall be stored away from the construction site and equipment and materials storage areas in safe containers. Untreated canvas, paper, plastic or other flammable flexible materials shall not at all be used at Site for any other purpose unless otherwise specified. If any such materials are received with the equipment at the Site, the same shall be removed and replaced with acceptable material before moving into the construction or storage area.</p>		
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17.02.00	Similarly corrugated paper fabricated cartons etc. will not be permitted in the construction area either for storage or for handling of materials. All such materials used shall be of water proof and flame resistant type. All the other materials such as working drawings, plans etc. which are combustible but are essential for the works to be executed shall be protected against combustion resulting from welding sparks, cutting flames and other similar fire sources.	
17.03.00	All the Contractor's supervisory personnel and sufficient number of workers shall be trained for fire-fighting and shall be assigned specific fire protection duties. Enough of such trained personnel must be available at the Site during the entire period of the Contract.	
17.04.00	The Contractor shall provide enough fire protection equipment of the types and number for the ware-houses, office, temporary structures, labour colony area etc. Access to such fire protection equipment, shall be easy and kept open at all time.	
18.00.00	<p>SECURITY</p> <p>The Contractor shall have total responsibility for all equipment and materials in his custody stores, loose, semi-assembled and/or erected by him at Site. The Contractor shall make suitable security arrangements including employment of security personnel to ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss. All materials of the Contractor shall enter and leave the project Site only with the written permission of the Engineer in the prescribed manner.</p>	
19.00.00	<p>CONTRACTOR'S AREA LIMITS</p> <p>The Engineer will mark-out the boundary limits of access roads, parking spaces, storage and construction areas for the Contractor and the Contractor shall not trespass the areas not so marked out for him. The Contractor shall be responsible to ensure that none of his personnel move out of the areas marked out for his operations. In case of such a need for the Contractor's personnel to work out of the areas marked out for him the same shall be done only with the written permission of the Engineer.</p>	
20.00.00	<p>CONTRACTOR'S CO-OPERATION WITH THE OWNER</p>	
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	<p>In case where the performance of the erection work by the Contractor affects the operation of the system facilities of the Owner, such erection work of the Contractor shall be scheduled to be performed only in the manner stipulated by the Engineer and the same shall be acceptable at all times to the Contractor. The Engineer may impose such restrictions on the facilities provided to the Contractor such as electricity, water etc. as he may think fit in the interest of the Owner and the Contractor shall strictly adhere to such restrictions and co-operate with the Engineer. It will be the responsibility of the Contractor to provide all necessary temporary instrumentation and other measuring devices required during start-up and operation of the equipment systems which are erected by him. The Contractor shall also be responsible for flushing and initial filling of all the oil and lubricants required for the equipment furnished and erected by him, so as to make such equipment ready for operation. The Contractor shall be responsible for supplying such flushing oil and other lubricants unless otherwise specified elsewhere in documents and specifications.</p>		
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CLAUSE NO.	ERECTION CONDITION OF CONTRACT 	
21.00.00	<p>PRE-COMMISSIONING TRIALS AND INITIAL OPERATIONS</p> <p>The pre-commissioning trials and initial operations of the equipment furnished and erected by the Contractor shall be the responsibility of the Contractor as detailed in relevant clauses in Technical Specification. The Contractor shall provide, in addition, test instruments, calibrating devices, etc. and labour required for successful performance of these trials. If it is anticipated that the above test may prolong for a long time, the Contractor's workmen required for the above test shall always be present at Site during such trials.</p>	
22.00.00	<p>MATERIALS HANDLING AND STORAGE</p>	
22.01.00	<p>All the equipments furnished under the Contract and arriving at Site shall be promptly received, unloaded and transported and stored in the storage spaces by the Contractor.</p>	
22.02.00	<p>Contractor shall be responsible for examining all the shipment and notify the Engineer immediately of any damage, shortage, discrepancy etc. for the purpose of Engineer's information only. The Contractor shall submit to the Engineer every week a report detailing all the receipts during the week. However, the Contractor shall be solely responsible for any shortages or damage in transit, handling and/or in-storage and erection of the equipment at Site. Any demurrage, warfare and other such charges claimed by the transporters, railways etc. shall be to the account of the Contractor.</p>	
22.03.00	<p>The Contractor shall maintain an accurate and exhaustive record detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the Engineer.</p>	
22.04.00	<p>All equipment shall be handled very carefully to prevent any damage or loss. No bare wire ropes, slings, etc. shall be used for unloading and/or handling of the equipment without the specific written permission of the Engineer. The equipment stored shall be properly protected to prevent damage either to the equipment or to the floor where they are store. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at Site.</p>	
22.05.00	<p>All electrical panels, control gears, motors and such other devices supplied under the scope of this specification shall be properly dried by heating they are installed and energised. Motor bearings, slip rings, commutators and other exposed parts shall be protected against moisture ingress and corrosion during storage and periodically inspected. Heavy rotating parts in assembled conditions shall be periodically rotated to prevent corrosion due to prolonged storage.</p>	
22.06.00	<p>All the electrical equipment supplied new shall be tested for insulation resistance at least once in three months from the date of receipt till the date of commissioning and a record of such measured insulation values maintained by the Contractor. Such records shall be open for inspection by the Engineer.</p>	
22.07.00	<p>The Contractor shall ensure that all the packing materials and protection devices used for the various equipments during transit and storage are removed before the equipment are installed.</p>	
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CLAUSE NO.	ERECTION CONDITION OF CONTRACT	
22.08.00	The consumables and other supplies likely to deteriorate due to storage must be thoroughly protected and stored in a suitable manner to prevent damage or deterioration in quality by storage.	
22.09.00	All the materials stored in the open or dusty location must be covered with suitable weatherproof and flameproof covering material wherever applicable.	
22.10.00	If the materials belonging to the Contractor are stored in areas other than those earmarked for him, the Engineer will have the right to get it moved to the area earmarked for the Contractor at the Contractor's cost.	
22.11.00	The Contractor shall be responsible for making suitable indoor storage facilities to store all equipment which require indoor storage. Normally, all the electrical equipments such as motors, control gear, and consumables like electrodes, lubricants etc. shall be stored in the closed storage space. The Engineer, in addition, may direct the Contractor to move certain other materials, which in his opinion will require indoor storage, to indoor storage areas which the Contractor shall strictly comply with.	
23.00.00	CONSTRUCTION MANAGEMENT	
23.01.00	The field activities of the Contractors working at Site, will be coordinated by the Engineer and the Engineer's decision shall be final in resolving any disputes or conflicts between the Contractor and other Contractors and tradesmen of the Owner regarding scheduling and coordination of work. Such decision by the Engineer shall not be a cause for extra compensation or extension of time for the Contractor.	
23.02.00	The Engineer shall hold weekly meetings of all the Contractors working at Site, at a time and place to be designated by the Engineer. The contractor shall attend such meetings and take notes of discussions during the meeting and the decisions of the Engineer and shall strictly adhere to those decisions in performing his Works. In addition to the above weekly meeting, the Engineer may call for any other meeting either with individual contractors or with selected number of contractor and in such a case the Contractor if called, will also attend such meetings.	
23.03.00	Time is the essence of the Contract and the Contractor shall be responsible for performance of his works in accordance with the specified construction schedule. If at any time, the Contractor is falling behind the schedule, he shall take necessary action to make good for such delays by increasing his work force or by working overtime accelerate the progress of the work comply with the schedule and shall communicate such actions in writing to the Engineer, satisfying that his action will compensate for the delay. The Contractor shall not be allowed any extra compensation for such action.	
23.04.00	The Engineer shall however not be responsible for provision of additional labour and/or materials or supply or any other service to the Contractor except for the co-ordination work between various Contractors as set out earlier.	
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CLAUSE NO.	ERECTION CONDITION OF CONTRACT 
24.00.00	<p>FIELD OFFICE RECORDS</p> <p>The Contractor shall maintain at his Site Office up-to-date copies of all drawings, specifications and other Contract Documents and any other supplementary data complete with all the latest revisions therto. The Contractor shall also maintain in addition the continuous record of all changes to the above Contract Documents, drawings, specifications, supplementary data, etc. effected at the field and on completion of his total assignment under the Contract shall incorporate all such changes on the drawings and other engineering data to indicate as installed conditions of the equipment furnished and erected under the Contract. Such drawings and engineering data shall be submitted to the Engineer in required number of copies.</p>
25.00.00	<p>CONTRACTOR'S MATERIALS BROUGHT ON TO SITE</p>
25.01.00	<p>The Contractor shall bring to Site all equipment, components, parts, materials, including construction equipment, tools and tackles for the purpose of the Works under intimation to the Engineer. All such goods shall, from the time of their being brought vest in the Owner, but may be used for the purpose of the Works only and shall not on any account be removed or taken away by the Contractor without the written permission of the Engineer. The Contractors shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.</p>
25.02.00	<p>The Owner shall have a lien on such goods for any sum or sums which may at any time be due or owing to him by the Contractor, under, in respect of or by reasons of the Contract. After giving a fifteen (15) days notice in writing of his intention to do so, the Owner shall be at liberty to sell and dispose off any such goods, in such manner as he shall think fit including public auction or private treaty and to apply the proceeds in or towards the satisfaction of such sum or sums due as aforesaid.</p>
25.03.00	<p>After the completion of the Works, the Contractor shall remove from the Site under the direction of the Engineer the materials such as construction equipment, erection tools and tackles, scaffolding etc. with the written permission of the Engineer. If the Contractor fails to remove such materials, within fifteen (15) days of issue of a notice by the Engineer to do so then the Engineer shall have the liberty to dispose off such materials as detailed under clause 25.02.00 above and credit the proceeds thereto the account of the Contractor.</p>
26.00.00	<p>PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY</p>
26.01.00	<p>The Contractor shall be responsible for any damage resulting from his operations. He shall also be responsible for protection of all persons including members of public and employees of the Owner and the employees of other Contractors and Sub-contractor and all public and private property including structure, building, other plants and equipments and utilities either above or below the ground.</p>



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26.02.00	The Contractor will ensure provision of necessary safety equipment such as barriers, signboards, warning lights and alarms, etc. to provide adequate protection to persons and property. The Contractor shall be responsible to give reasonable notice to the Engineer and the owners of public or private property and utilities when such property and utilities are likely to get damaged or injured during the execution of his Works and shall make all necessary arrangements with such owners, related to removal and/or replacement or protection of such property and utilities.				
27.00.00	<p>PAINTING</p> <p>All exposed metal parts of the equipment including pipings, structures railing etc. wherever applicable, after installation unless otherwise surface protected, shall be first painted with at least one coat of suitable primer which matches the shop primer paint used, after thoroughly cleaning all such parts of all dirt, rust, scales, greases, oils and other foreign materials by wire brushing, scraping or sand blasting and the same being inspected and approved by the Engineer for painting. Afterwards, the above parts shall be finished painted with two coats of allowed resin machinery enamel paints. The quality of the finish paint shall be as per the standards of ISI or equivalent and to be of the colour as approved by the Engineer.</p>				
28.00.00	<p>INSURANCE</p>				
28.01.00	In addition to the conditions covered under the Clause entitled "Insurance" in Section GCC, Conditions of Contract, the following provisions will also apply to the portion of works to be done beyond the Contractor's own or his Sub-contractor's manufacturing Works.				
28.02.00	<p>Workmen's Compensation Insurance</p> <p>This insurance shall protect the Contractor against all claims applicable under the Workmen's Compensation Act, 1948 (Government of India). This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his Sub-contractor's employees, which for any reason are not covered under the Workmen's Compensation Act, 1948. The liabilities shall not be less than the following :</p> <table border="0" data-bbox="379 1400 1165 1500"> <tr> <td>Workmen's Compensation</td> <td>As per statutory Provisions</td> </tr> <tr> <td>Employee's liability</td> <td>As per statutory Provisions</td> </tr> </table>	Workmen's Compensation	As per statutory Provisions	Employee's liability	As per statutory Provisions
Workmen's Compensation	As per statutory Provisions				
Employee's liability	As per statutory Provisions				
28.03.00	<p>Comprehensive Automobile Insurance</p> <p>This insurance shall be in such a form to protect the Contractor against all claims for injuries, disability, disease and death to members of public including the Owner's men and damage to the property of others arising from the use of motor vehicles during on or off the Site operations, irrespective of the ownership of such vehicles. The liability covered shall be as herein indicated.</p> <table border="0" data-bbox="379 1787 1276 1926"> <tr> <td>Fatal Injury</td> <td>: Rs. 1,00,000/- each person Rs. 2,00,000/- each occurrence</td> </tr> <tr> <td>Property Damage</td> <td>: Rs. 1,00,000/- each occur acne</td> </tr> </table>	Fatal Injury	: Rs. 1,00,000/- each person Rs. 2,00,000/- each occurrence	Property Damage	: Rs. 1,00,000/- each occur acne
Fatal Injury	: Rs. 1,00,000/- each person Rs. 2,00,000/- each occurrence				
Property Damage	: Rs. 1,00,000/- each occur acne				
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28.04.00 Comprehensive General Liability Insurance

28.04.01 The insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and Sub-contractors or from riots, strikes and civil commotion. This insurance shall also cover all the liabilities of the Contractor arising out of the Clause entitled "Defence of Suits" in Section GCC, Conditions of Contract.

28.04.02 The hazards to be covered will pertain to all the Works and areas where the Contractor, his Sub-contractors, his agents and his employees have to perform work pursuant to the Contract.

28.05.00 The above are only illustrative list of insurance covers normally required and it will be the responsibility of the Contractor to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect, in pursurance of the Contract.

29.00.00 UNFAVOURABLE WORKING CODITIONS

The Contractor shall confine all his field operations to those works which can be performed without subjecting the equipment and materials to adverse effects during inclement weather conditions, like monsoon, storms, etc. and during other unfavourable construction conditions. No field activities shall be performed by the Contractor under conditions which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the Contractor in a proper and satisfactory manner in the performance of such Works and with the concurrence of the Engineer. Such unfavourable construction condition will in no way relieve the Contractor of his responsibility to perform the Works as per the schedule.

30.00.00 PROTECTION OF MONUMENTS AND REFERENCE POINTS

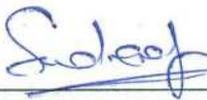
The Contractor shall ensure that any finds such as relic, antiquity, coins, fossils, etc. which he may come across during the course of performance of his Works either during excavation or elsewhere, are properly protected and handed over to the Engineer. Similarly the Contractor shall ensure that the bench marks, reference points, etc., which are marked either with the help of Engineer or by the Engineer shall not be disturbed in any way during the performance of his Works. If, any work is to be performed which disturb such reference, the same shall be done only after these are transferred to other suitable locations under the direction of the Engineer. The Contractor shall provide all necessary materials and assistance for such relocation of reference points etc.

31.00.00 WORK & SAFETY REGULATIONS

31.01.00 General



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	<p>i) The Contractor shall comply with all the requirements of "The Building and Other Construction Workers (Regulation of Employment & Conditions of Service) Act," 1996 and its Central Rule 1998 / State Rules and any other statutory requirements as applicable.</p> <p>ii) The Contractor shall follow NSPCL Safety Rules as issued from time to time with respect to safety in construction & erection.</p> <p>iii) The Contractor shall have the approved Safety, Health and Environment (SHE) Policy in respect of Safety and health of Building Workers and it shall be circulated widely and displayed at conspicuous place in Hindi and local language understood by the majority of the workers. A copy of the safety policy should be submitted to Engineer in charge.</p> <p>iv) The Contractor shall prepare the safety plan comprising of methods to implement the Safety Policy/ Rules, Risk assessment and ensuring Safety at work areas, Safety audits, inspections and its compliance, Supervision and responsibility to ensure Safety at various levels, Safety training to employees, review of Safety and accident analysis, ensure Health and Safety Procedures to prevent accidents and submit to Engineer I/C for approval as per the format of Safety plan as annexed with this Volume.</p> <p>v) The Contractor shall ensure proper safety of all the workmen, materials, plant and equipment belonging to him or to the Owner or to others, working at the Site.</p> <p>vi) All equipments used in construction and erection by the Contractor shall meet BIS / International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipments shall be strictly operated and maintained by the Contractor in accordance with manufacturer's operation manual. The Contractor should also follow Guidelines / Rules of the Owner in this regard.</p> <p>vii) The Contractor shall provide suitable latest Personal Protective Equipments of prescribed standard to all their employees and workmen according to the need. The Engineer I/c shall have the right to examine these safety equipments to determine their suitability, reliability, acceptability and adaptability. The Contractor should also ensure these before their use at worksite.</p> <p>viii) The Contractor shall provide safe working conditions to all workmen and employees at his workplace including safe means of access, railings, stairs, and ladders, scaffolding, work platforms, toe boards etc. The scaffoldings shall be erected under the control and supervision of an experienced and competent person. For erection of scaffolds, access, work platforms etc. shall be good and the Contractor shall use standard quality of material.</p>	
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	<p>ix) The Contractor shall follow and comply with all the Safety Rules, standards, code of practices of NSPCL and relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment as may be prescribed from time to time without any protest or contest or reservation. In case of any unconformity between statutory requirement and the Safety Rules of the Owner referred above, the latter shall be binding on the Contractor unless the statutory provisions are more stringent. As and when required he can refer / obtain copy of NSPCL safety documents as stated above.</p> <p>x) The Contractor shall have his own arrangements with nearby hospitals for shifting and treatment of sick and injured. The <i>medical examination of the workers</i> employed in hazardous areas shall be conducted as per Rule 223 Of The Building and Other Construction Worker (Regulation of Employment and Condition of Service) Central Rule 1998 Their health records shall be maintained accordingly and to be submitted to Engineer I/c when asked for. If any worker found suffering from occupational health hazard, the worker should be shifted to suitable place of working and properly treated under intimation to Engineer I/c. The medical fitness certificate to be submitted to Engineer (I/c).</p> <p>xi) <i>First Aid boxes</i> equipped with requisite articles as specified in the Rule 231 of The Building and Other Construction Worker (Regulation of Employment and Condition of Service) Central Rule 1998 shall be provided at construction sites for the use of workers. Training has to be provided on first aid to workmen & office bearers working at site.</p>		
31.01.01	<p>Emergency Action Plan</p> <p>The Contractor shall prepare an emergency action plan approved by his competent authority to handle any emergency occurred during construction work. Regular mock drills shall be organized to practice this emergency plan. The Emergency Action Plan should be widely circulated to all the employees and suitable infrastructure shall be provided to handle the emergencies.</p>		
31.01.02	<p>Flood Monitoring (Hydro Projects)</p> <p>The Contractor shall take necessary measures for monitoring of flood / water levels and develop a forewarning system to evacuate people to safer places well before the flood occurs. For this purpose he may maintain liaison with meteorological department and NSPCL. The Contractor shall make suitable communication and transporting system to rescue the workers to safer places. The Contractor shall provide suitable shelters, food, drinking water and other requisite facilities till they are brought back to their colonies and normalcy is restored.</p>		
31.01.03	<p>Scaffolding</p>		
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	<p>The Contractor shall take all precautions to prevent any accidental collapse of scaffolding or fall of persons from scaffolding. The Contractor should ensure that scaffolding are designed by a competent person and its erection and repairs should be done under the expert supervision. The scaffolding shall meet the required strength and other requirements for the purpose for which the scaffold is erected. The material used for scaffold should conform to the BIS / International standards.</p>		
31.01.04	Opening	<p>The Contractor shall ensure that there is no opening in any working platform/any floor of the building, which may cause fall of workers or material. When ever an opening on a platform/any floor of the building is unavoidable, the opening should be suitably fenced and necessary measures for protection against falling objects or building workers from such platform are taken by providing suitable safety nets, safety belts or other similar means.</p>	
31.01.05	Explosives	<p>The Contractor shall take all precautions while handling, using, storing or transporting of all explosives. Before usage of any explosive necessary warning / danger signals be erected at conspicuous places to warn the workers and general public. The Contractor should strictly ensure all measures and precautions required to be complied for use, handling, storing or transportation of explosives under the rules framed under the Explosives Act, 1884.</p>	
31.02.00	Coffer Dam and Caissons	<p>The Contractor shall ensure that the cofferdam and caissons are of good construction and adequate strength. The cofferdam and caissons should be provided with adequate means for workers to reach safely at the top of such dams in the event of an in rush of water. The workers should be allowed to work in a cofferdam or caisson only after inspection and found safe by Engineer (I/c). Such inspection report is to be maintained in a Register.</p> <p>Where the workers are employed to work in a compressed air environment at the work site of coffer dam or caissons, a construction Medical Officer assisted by a Nurse or trained first aid attendant should be available at all the times during such work.</p>	
31.03.00	Fencing of Machinery	<p>The Contractor shall provide suitable fencing or guard to all dangerous and moving parts of machinery.</p> <p>The Contractor shall not allow any of the employees to clean, lubricate, repair, adjust or examine during machinery in motion, which may cause injury to the person.</p>	
31.04.00	Carrying of Excessive Weight by a Worker		
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31.05.00

Dangerous and Harmful Gases / Equipment

The Contractor shall ensure that the workers are not exposed to any harmful gases during any construction activity including excavation, tunneling, confined spaces etc.

The Contractor should not allow any worker to go into the confined space unless it is certified by Engineer (I/c) to be safe and fit for the entry to such work place. Proper record and work permits should be followed to carry out such works.

31.06.00

Overhead Protection

The Contractor shall ensure that any area exposed to risk of falling materials, articles or objects is roped off or cordoned off or otherwise suitably guarded from inadvertent entry of any person.

Wherever there is a possibility of falling of any material, equipment or construction workers while working at heights, a suitable and adequate safety net should be provided. The safety net should be in accordance with BIS Standards.

31.07.00

Working at Heights

All working platforms, ways and other places of construction work shall be free from accumulations of debris or any other material causing obstructions and tripping.

Wherever workers are exposed to the hazard of falling into water, the Contractor shall provide adequate equipment for saving the employees from drowning and rescuing from such hazards. The Contractor shall provide boat or launch equipped with sufficient number of life buoys, life jackets etc. manned with trained personnel at the site of such work.

Every opening at elevation from ground level through which a building worker, vehicle, material, equipment etc. may fall at a construction work shall be covered and/or guarded suitably by the Contractor to prevent such falls.

Wherever the workers are exposed to the hazards of falling from height, the Contractor shall provide full harness safety belts fitted with fall arresting systems to all the employees working at higher elevations and life line of 8 mm diameter wire rope with turn buckles for anchoring the safety belts while working or moving at higher elevations. Safety nets shall also be provided for saving them from fall from heights and such equipment should be in accordance with BIS standards.

Wherever there is a possibility of falling of any material, equipment or construction workers while working at heights, a suitable and adequate safety net should be provided. The safety net should be in accordance with BIS Standards.



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31.08.00	<p>The Contractor shall provide standard prefabricated ladders on the columns where the workers are required to use them as an access for higher elevations till permanent staircase is provided. The workers shall be provided with safety belts fitted with suitable fall arresting system (Fall arrestors) for climbing/getting down through ladders to prevent fall from height.</p> <p>Handling of Hazardous Chemicals</p> <p>The Contractor will notify well in advance to the Engineer I/c of his intention to bring to the Site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals which may involve hazards. NSPCL shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the Contractor shall strictly adhere to and comply with such instructions. The Engineer I/c shall have the right at his sole discretion to inspect any such container or such construction plant / equipment for which material in the container is required to be used and if in his opinion, its use is not safe, he may forbid its use. No claim due to such prohibition shall be entertained by NSPCL and NSPCL shall not entertain any claim of the Contractor towards additional safety provisions / conditions to be provided for / constructed.</p> <p>Further, any such decision of the Engineer I/c shall not, in any way, absolve the Contractor of his responsibilities and in case, use of such a container or entry thereof into the Site area is forbidden by NSPCL, the Contractor shall use alternative methods with the approval of the NSPCL without any cost implication to the NSPCL or extension of work schedule.</p> <p>Where it is necessary to provide and / or store petroleum products or petroleum mixtures and explosives, the Contractor shall be responsible for carrying-out such provision and / or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosives Act 1948, and Petroleum and Carbide of Calcium Manual published by the Chief Inspector of Explosives of India. All such storage shall have prior approval of the Engineer I/c. In case any approvals are necessary from the Chief Inspector (Explosives) or any statutory authorities, the Contractor shall be responsible for obtaining the same.</p> <p>The Contractor shall be fully responsible for the safe storage of his and his Sub-Contractor's radio-active sources in accordance with BARC/DAE (Bhabha Atomic Research Centre/ Department of Atomic Energy, Govt. of India) Rules and other applicable provisions. All precautionary measures stipulated by BARC/DAE in connection with use, storage and handling of such material, will be taken by the contractor.</p> <p>The Contractor shall provide suitable personal protective equipments to the workers who are handling the hazardous and corrosive substances including alkalis and acids.</p>		
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	<p>As a precautionary measure the Contractor should keep the bottles filled with distilled water in cupboard / Boxes near work place for emergency eye wash by worker exposed to such hazardous chemicals.</p>	
31.09.00	<p>Eye Protection</p> <p>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.</p>	
31.10.00	<p>Excavation</p> <p>The Contractor shall take all necessary measures during excavation to prevent the hazards of falling or sliding material or article from any bank or side of such excavation which is more than one and a half meter above his footing by providing adequate piling, shoring, bracing etc. against such bank or sides.</p> <p>Adequate and suitable warning signs shall be put up at conspicuous places at the excavation work to prevent any persons or vehicles falling into the excavation trench. No worker should be allowed to work where he may be stuck or endangered by excavation machinery or collapse of excavations or trenches.</p>	
31.11.00	<p>Electrical Hazards</p> <p>The Contractor should ensure that all electrical installations at the construction work comply with the requirements of latest electricity acts / rules.</p> <p>The Contractor shall take all adequate measures to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuits which may cause electrical hazards during the construction work. The Contractor shall provide the sufficient ELCBs / RCCBs for all the portable equipments, electrical switchboards, distribution panels etc. to prevent electrical shocks.</p> <p>The Contractor should ensure use of single / double insulated hand tools or low voltage i.e., 110 volts hand tools.</p> <p>The Contractor should also ensure that all temporary electrical installations at the construction works are provided with earth leakage circuit breakers.</p>	
31.12.00	<p>Vehicular Traffic</p> <p>The Contractor should employ vehicle drivers who hold a valid driving license under the Motor Vehicles Act, 1988.</p>	



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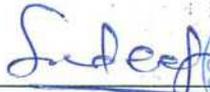
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31.13.00	<p>Lifting Appliances, Tools & Tackles, Lifting Gear And Pressure Plant & Equipment etc.</p> <p>The Contractor shall ensure all the lifting appliances, tools & tackles including cranes etc., lifting gear including fixed or movable and any plant or gear, hoists, Pressure Plant and equipment etc. are in good condition and shall be examined by competent person and only certified shall be used at sites. Periodical Examination and the tests for all lifting / hoisting equipment & tackles shall be carried out. A register of such examinations and tests shall be properly maintained by the Contractor and will be promptly produced as and when desired by the Engineer I/c or by the person authorized by him.</p>		
31.14.00	<p>Excessive Noise, Vibration</p> <p>The Contractor shall take adequate measures to protect the workers against the harmful effect of excessive noise or vibration. The noise should not exceed the limits prescribed under the concerned rules, Noise Pollution (Regulation and Control) Rules, 2000.</p>		
31.15.00	<p>Electrical Installations</p>		
31.15.01	<p>The Contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the Owner or other Contractors under any circumstances, whatsoever, unless expressly permitted in writing by the Engineer I/c to handle such fuses, wiring or electrical equipment.</p> <p>Before the Contractor connects any electrical appliances to any plug or socket belonging to the other Contractor or the NSPCL, he shall</p> <p>Satisfy the Engineer I/C that the appliance is in good working condition;</p> <p>Inform the Engineer I/C of the maximum current rating, voltage and phases of the appliances;</p> <p>Obtain permission of the Engineer I/C detailing the sockets to which the appliances may be connected.</p> <p>The Engineer I/C will not grant permission to connect until he is satisfied that:</p> <p>The appliance is in good condition and is fitted with suitable plug; having earth connection with the body.</p> <p>Wherever armored / metallic sheathed multi core cable is used, the same armor / sheath should be connected to earth.</p> <p>No repair work shall be carried out on any live equipment. The Engineer I/c must declare the equipment safe and a permit to work shall be issued by the NSPCL / Contractor as the case may be to carry out any repair / maintenance work. While working on electric lines / equipments whether live or dead, suitable type and sufficient quantity of tools will have to be provided by the Contractor to electricians / workmen / Officers.</p> <p>The Contractor shall employ necessary number of qualified, full time Electricians / Electrical Supervisors to maintain his temporary electrical installation.</p>		
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	<p>The installations shall be provided with suitable ELCBs and RCCBs wherever required.</p>	
31.16.00	Safety Organisation	
31.16.01	<p>The Contractor employing more than 250 workmen whether temporary, casual, probationary, regular or permanent shall employ at least one full time safety officer exclusively to supervise safety aspects of the equipments and workmen, who will coordinate with the NSPCL Safety Officer. Further requirement of safety officers, if any, shall be guided by Rule 209 of The Building and Other Construction Worker (Regulation of Employment and Conditions of Service) Central Rule 1998. In case the work is being carried out through subContractor, the employees / workmen of the sub Contractor shall also be considered as the Contractor's employees/workmen for the above purpose.</p>	
31.06.02	<p>In case of Contractor deploying less than 250 workmen he should designate one of his Engr / supervisor or the Contractor himself (if he is directly supervising the work) as safety officer in addition to his existing responsibilities. The Engr./ supervisor should get atleast 2days safety training from any reputed organization or from NSPCL before resuming the work. If already trained in past the declaration along with trg. certificate to be furnished to NSPCL safety officer.</p> <p>The name and address of such Safety Officer of the Contractor will be promptly informed in writing to the Engineer IC with a copy to the Project Safety Officer before he starts work or immediately after any change of the incumbent is made during currency of the Contract.</p>	
31.17.00	Reporting of Accident and Investigation	
	<p>In case any accident occurs during the construction / erection or other associated activities undertaken by the Contractor thereby causing any near miss, minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform the same to the Engineer I/C, NSPCL Safety Officer with a copy to NSPCL Head of Project in the prescribed form and also to all the authorities envisaged under the applicable laws.</p>	
31.18.00	Right to stop Work	
31.18.01	<p>The Engineer I/C shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and / or property, and / or equipments. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible injury / accident and he shall comply to remove shortcomings promptly. The Contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the Project Manager within 3 days of such stoppage of work and decision of the Project Manager in this respect shall be conclusive and binding on the Contractor.</p>	



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31.18.02	<p>The Contractor shall not be entitled for any damages / compensation for stoppage of work, {Sub-Clause 31.18.01} due to safety reasons and the period of such stoppage of work shall not be taken as an extension of time for Completion of the work and will not be the ground for waiver of levy of liquidated damages.</p>	
31.19.00	<p>Fire Protection</p> <p>The Contractor shall provide sufficient fire extinguishers at place /s of work. The fire extinguishers shall be properly maintained as per relevant BIS Standards. The employees shall be trained to operate the fire extinguishers / equipment.</p>	
31.20.00	<p>Penalties</p>	
31.20.01	<p>If the Contractor fails in providing safe working environment as per the Safety Rules of NSPCL or continues the work even after being instructed to stop the work by the Engineer I/C as provided in Clause 31.18.01 above, the Contractor shall be penalized at the rate of Rs. 25,000/- per day or part thereof till the instructions are complied with and so certified by the Engineer I/C. However, in case of accident, the provisions contained in Sub-Clause 31.20.02 below shall also apply in addition to the penalties mentioned in this sub-clause.</p>	
31.20.02	<p>If the Contractor does not take all safety precautions and / or fails to comply with the Safety Rules as prescribed by the Owner or under the applicable law for the safety of the plant and equipment and for the safety of personnel and the Contractor does not prevent hazardous conditions which cause injury to his own employees or employees of other Contractors, or NSPCL's employees or any other person who are at the Site or adjacent thereto, the Contractor shall be responsible for payment of penalty to NSPCL as per the following schedule:-</p> <p>a) Fatal injury or accident causing death:</p> <p style="padding-left: 40px;">Penalty @10% of contract value or Rs. 5,00,000/- per person, which ever is less.</p> <p>b) Major injuries or accident causing 25% or more permanent disablement to workmen or employees:</p> <p style="padding-left: 40px;">Penalty @2.5% of contract value or Rs. 1,00,000/- per person which ever is less</p> <p>Permanent disablement shall have the same meaning as indicated in The Workmen's Compensation Act' 1923. The penalty mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of the Workmen's Compensation Act' 1923 and rules framed there under or any other applicable laws as applicable from time to time.</p>	
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31.20.03	<p>If any Contractor worker found working without using the safety equipment like safety helmet, safety shoes, safety belts, etc. or without anchoring the safety belts while working at height, the Engineer I/c / Safety Officer of NSPCL shall have the right to penalize the Contractor for Rs. 200/- per person per day and such worker shall be sent out of the workplace immediately and shall not be allowed to work on that day. Engineer I/c / Safety Officer of NSPCL will also issue a notice in this regard to the Contractor.</p>		
31.20.04	<p>If two or more fatal accidents occur at same NSPCL site under the control of Contractor during the period of contract and he has</p> <ol style="list-style-type: none"> (1) not complied with keeping adequate PPEs in stock or (2) defaulted in providing PPEs to his workmen (3) not followed statutory requirements of NTPC / NSPCL safety rules (4) been issued warning notice/s by NTPC/ NSPCL head of the project on non observance of safety norms (5) not provided safety training to all his workmen, <p>the Contractor can be debarred from getting tender documents in NSPCL for two years from the date of last accident.</p> <p>The safety performance will also be one of the overriding criteria for evaluation of overall performance of the Contractors by NSPCL. The Contractor shall submit the accident data including fatal / non-fatal accidents for the last 3 years where he has undertaken the construction activities Projects-wise along with the tender documents. This will also be considered for evaluation of tender documents. If the information given by the Contractor is found incorrect, his contract will be liable to be terminated.</p>		
31.21.00	<p>Award</p> <p>If the Contractor's performance on safety front is found satisfactory i.e. without any fatal/reportable accident in the year of consideration; he may be considered for suitable award "ACCIDENT FREE SAFETY MERITORIOUS AWARD" as per scheme of the Owner.</p>		
32.00.00	<p>FOREIGN PERSONNEL</p>		
32.01.00	<p>The Contractor shall submit to the Owner data on all personnel he proposes to bring into India for the performance of the Works under the Contract, at least sixty (60) days prior to their departure to India. Such data will include for each person the name, his present address, his assignment and responsibility in connection with the works, and a short resume of his qualification, experience etc. in relation to the work to be performed by him.</p>		
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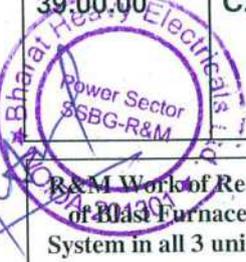
CLAUSE NO.	ERECTION CONDITION OF CONTRACT		
32.02.00	Any person unsuitable and unacceptable to the Owner shall not be brought to India. Any person brought to India, if found unsuitable or unacceptable by the Owner, the Contractor shall within a reasonable time make alternate arrangements for providing a suitable replacement and repatriation of such unsuitable personnel.		
32.03.00	No person brought to India for the purpose of the works shall be repatriated without the consent of the Owner in writing, based on a written request from the Contractor for such repatriation giving reasons for such an action to the Engineer. The Owner may give permission for such repatriation provided he is satisfied that the progress of work will not suffer due to such repatriation.		
32.04.00	The cost of passports, visas and all other travel expenses to and from India, incurred by the Contractor shall be to his account. The Owner will not provide any residential accommodation and/or furniture for any of the Contractor's personnel including foreign personnel and Contractor shall make his own arrangements for such facilities in the area allotted at Site, to him by the Owner for that purpose.		
32.05.00	The Contractor and his expatriate personnel shall respect all Indian Acts, Laws, rules and regulations and shall not in any way interfere with Indian political and religious affairs and shall conform to any other rules and regulations which the Government of India, the Owner and the Engineer may establish from time to time on them. The Contractor's expatriate personnel shall work and live in close co-operation and coordinate with their co-workers and the community and shall not engage themselves in any other employment neither part-time or full-time nor shall they take part in any local politics.		
32.06.00	The Owner shall assist the Contractor, to the extent possible, in obtaining necessary permits to travel to India and back, by issue of necessary certificates and other information needed by the Government agencies.		
33.00.00	<p>CODE REQUIREMENTS</p> <p>The erection requirements and procedures to be followed during the installation of the equipment shall be in accordance with the relevant Indian Boiler Regulations, ASME codes and accepted good engineering practice, the Engineer's Drawings and other applicable Indian recognised codes and laws and regulations of the Government of India.</p>		
34.00.00	<p>FOUNDATION DRESSING AND GROUTING</p>		
34.01.00	The surfaces of foundations shall be dressed to bring the top surface of the foundations to the required level, prior to placement of equipment/equipment bases on the foundations.		
34.02.00	All the equipment bases and structural steel base plates, shall be grouted and finished as per these specifications unless otherwise recommended by the equipment manufacturer.		
34.03.00	The concrete foundation surfaces shall be properly prepared by chipping, grinding as required to bring the type of such foundation to the required level, to provide the necessary roughness for bondage and to assure enough bearing strength. All laitance and surface film shall be removed and cleaned.		
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34.04.00	<p>Grouting Mix</p> <p>The grouting mixture shall be composed of portland cement, sand and water. The portland cement to be used shall conform to ISI No. 269 or equivalent and the sand shall conform to ISI No. 383/2386 or equivalent. The grout proportions for flat bases where the grouting space does not exceed 35 mm shall be 50 Kg bag of cement to 75 Kg of sand. Only the required quantity of water shall be added so as to make the mix quaky and flowable and the mix shall not show excess water on top when it is being puddled in place. For thicker grout beds upto 65mm, the amount of sand shall be increased to 105 kg per bag of cement. Bases which are hollow and are to be filled full of grouting shall be filled to a level of 25 mm above the outside rim with a mortar mix in the volumetric proportions of one part of cement and 1.5 part sand and 1.5 part 6 mm granite gravel. Ann acceptable plasticiser may be added to the grout mixture in a proportion recommended by the plasticisers manufacturer. All such grouts shall be thoroughly, mixed for not less than five minutes in an approved mechanical mixer and shall be used immediately after mixing.</p>	
34.05.00	<p>Placing of Grout</p>	
34.05.01	<p>After the base has been prepared, its alignment and level has been checked and approved and before actually placing the grout a low dam shall be set around the base at a distance that will permit pouring and manipulation of grout. The height of such dam shall be at least 25mm above the bottom of the base. Suitable size and number of chains shall be introduced under the base before placing the grout, so that such chains can be moved back and forth to push the grout into every part of the space under the base.</p>	
34.05.02	<p>The grout shall be poured either through grout holes if provided or shall be poured at one side or at two adjacent sides giving it a pressure head to make the grout move in a solid mass under the base and out in the opposite side. Pouring shall be continued until the entire space below the base is thoroughly filled and the grout stands at least 25mm higher all around than the bottom of the base. Enough care should be taken to avoid any air or water pockets beneath the bases.</p>	
34.06.00	<p>Finishing of the Edges of the Grout</p> <p>The poured grout should be allowed to stand undisturbed until it is well set. Immediately thereafter, the dam shall be removed and grout which extends beyond the edges of the structural or equipment base plates shall be cut off, flushed and removed. The edges of the grout shall then be pointed and finished with 1:2 cement mortar pressed firmly to bond with the body of the grout and smoothed with a tool to present a smooth vertical surface. The work shall be done in a clean and scientific manner and the adjacent floor spaces, exposed edges of the foundations, and structural steel and equipment base plates shall be thoroughly cleaned of any spillage of the grout.</p>	
34.07.00	<p>Checking of Equipment After Grouting</p>	



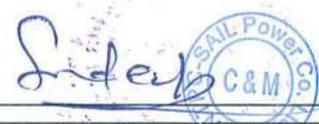
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	<p>After the grout is set and cured, the Contractor shall check and verify the alignment of equipments, alignment of shafts of rotating machinery, the slopes of all bearing pedestals, centering of rotors with respect to their sealing bores, couplings, etc. as applicable and the like items to ensure that no displacement had taken place during grouting. The values recorded prior to grouting shall be used during such post grouting check up and verifications. Such pre and post grout records of alignment details shall be maintained by the Contractor in a manner acceptable to the Engineer.</p>		
35.00.00	<p>SHAFT ALIGNMENTS</p>	<p>All the shafts of rotating equipment under the scope of supply shall be properly aligned to those of the matching equipments to as perfect an accuracy as practicable. The equipment shall be free from excessive vibration so as to avoid overheating of bearings or other conditions which may tend to shorten the life of the equipment. All bearings, shafts and other rotating parts shall be thoroughly cleaned and suitably lubricated before starting.</p>	
36.00.00	<p>DOWELLING</p>	<p>All the replaced motors and equipments shall be suitable dowelled after alignment of shafts with tapered machined dowels as per the direction of the Engineer.</p>	
37.00.00	<p>CHECK OUT OF CONTROL SYSTEMS</p>	<p>After completion of erection and commissioning of items covered under the specification the Contractor shall check out the operation of all control systems for the equipment furnished and installed under this specifications.</p>	
38.00.00	<p>COMMISSIONING SPARES</p>		
38.01.00		<p>It will be the responsibility of the Contractor to provide all commissioning spares including consumable spares like indicating lights/ lamps, diodes, fuses recorder charts, ink pads/ pens etc. required for initial operation till the equipment is declared by the Owner as having satisfactorily completed the Trial Operation. The Contractor shall furnish a list of all commissioning spares within 60 days from the date of Letter of Award and such list shall be reviewed by the Owner and mutually agreed to. However, such review and agreement will not absolve the Contractor of his responsibilities to supply all commissioning spares so that initial operation do not suffer for want of commissioning spares. All commissioning spares shall be deemed to be included in the scope of the Contractor at no extra cost to the Owner.</p>	
38.02.00		<p>These spare will be received and stored by the Contractor atleast 3 months prior to the schedule date of commencement of trial operation of the respective equipment and utilised as and when required. The unutilised spares and replaced parts, if any, at the end of successful completion of performance and guarantee test shall be the property of the Contractor and he will be allowed to take these parts back at his own cost with the permission of Engineer.</p>	
39.00.00	<p>CABLING</p>		
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39.01.00	All cables shall be supported by conduits or cable tray run in air or in cable channels. These shall be installed in exposed runs parallel or perpendicular to dominant surfaces with right angle turn made of symmetrical bends for fittings. When cables are run on cable trays, they shall be clamped at a minimum intervals of 2000mm or otherwise as directed by the Engineer.	
39.02.00	Each cable, whether power or control, shall be provided with a metallic or plastic tag of an approved type, bearing a cable reference number indicated in the cable and conduit list (prepared by the Contractor), at every 5 meter run or part thereof and at both ends of the cable adjacent to the terminations. Cable routing is to be done in such a way that cables are accessible for any maintenance and for easy identification.	
39.03.00	Sharp bending and kinking of cables shall be avoided. The minimum radii for PVC insulated cables 1100V grade shall be 15 D where D is the overall diameter of the cable. Installation of other cables like high voltage, coaxial, screened, compensating, mineral insulated shall be in accordance with the cable manufacturer's recommendations. Wherever cables cross roads and water, oil, sewage or gaslines, special care should be taken for the protection of the cables in designing the cable channels.	
39.04.00	In each cable run some extra length shall be kept at a suitable point to enable one or two straight through joint to be made, should the cable develop fault at a later date.	
39.05.00	Control cable terminations shall be made in accordance with wiring diagrams, using identifying codes subject to Engineer's approval. Multicore control jackets shall be removed as required to train and terminate the conductors. The cable jacket shall be left on the cable, as far as possible, to the point of the first conductor branch. The insulated conductors from which the jacket is removed shall be neatly twined un bundles and terminated. The bundles shall be firmly but not tightly tied utilising plastic or nylon ties or specifically treated fungus protected cord made for this purpose. Control cable conductor insulation shall be securely and evenly out.	
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	<p align="center"><u>ANNEXURE-1</u></p> <p>SAFETY PLAN</p> <ol style="list-style-type: none"> 01. Safety Policy of the Contractor to be enclosed 02. When Was the Safety Policy last reviewed 03. Details of implementation Procedure / methods to implement Safety policy / safety Rules 04. Name ; qualification; experience of safety officer 05. Review of Accidents analysis method ; methods to ensure safety and health 06. Unit executive responsible to ensure safety at various levels in work area 07. List of employees trained in safety employed before execution of the job . give the details of Training 08. Safety training targets, schedules ,methods Adopting to providing safety training to all employees 09. Details of checklist for different jobs \ work and Responsible person to ensure compliance [copy of checklist to be enclosed] 10. Regular safety inspection methods and periodicity and list of members to be enclosed 11. Risk assessment; safety audit by professional agencies periodicity 12. Implementation of recommendations of Audit / Inspections. Procedures for implementation and follow up. 13. Provision for treatment of injured persons at work site. 14. Review of overall safety by top Management and Periodicity 15. System for Implementation of Statutory legislations. 16. Issue of PPEs to employees, Periodicity / stock on hand etc. 	
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