

SPECIAL CONDITIONS OF CONTRACT

FOR

MECHANICAL WORKS

BAP:ERN :SPN :MECH: ESP:02



**ERECTION SERVICES DEPARTMENT
BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
BOILER AUXILIARIES PLANT
INDIRA GANDHI INDUSTRIAL COMPLEX
RANIPET – 632 406**

SECTION –IV

SPECIAL CONDITIONS OF CONTRACT FOR ERECTION

- 4.1 SPECIAL CONDITIONS FOR ESP** The special conditions for ESP shall be comprising of but not limited to the following:
- 4.1.1** Any fixtures, concrete block supports, steel structures, required for temporary supporting for pre-assembly, checking, welding, lifting and handling during pre-assembly and erection shall be arranged by contractor, at his cost.
- 4.1.2** The scope of equipments to be erected under this contract are detailed in tender specification, Technical Description etc. The schedule of weights given are approximate and are meant only to give a general idea to the Tenderer about the magnitude of the work involved.
- 4.1.3** All works such as cleaning, leveling, blue-matching, aligning, assembling for temporary erection and alignment, dismantling of certain equipments for checking/cleaning, surface preparation, fabrication of tubes and pipes as per general engineering practice at site. Cutting, grinding, straightening, chamfering, filling, chipping, drilling, reaming, scraping, shaping, fitting up etc., as may be applicable in such erection work are to be treated as incidental to erection and necessary to complete the work satisfactorily, shall be carried out by the Contractor, as part of the work.
- 4.1.4** It shall be the responsibility of the contractor to provide ladders on columns for initial work till such time stairways are completed. For this, the ladder should not be welded on the column and should be pre-fabricated clamping type ladders. Temporary welding on any structural member is permitted under special circumstances only with the approval of BHEL.
- 4.1.5** No member of the structure/platform should be cut without specific approval of BHEL.
- 4.1.6** Welding of necessary instrumentation tapping points, will also be the responsibility of the Contractor and will be done as per the instructions of BHEL Engineer. The welding of all the above items will be Contractor's responsibility even if the
- 1) Product groups under which these items are not specifically indicated in the technical Specifications.
 - 2) Items are supplied by an agency other than BHEL.
- 4.1.7** All welded joints should be painted with anti-corrosive paint. Daily welding reports in the proforma suggested by BHEL should be submitted the next day morning without fail.
- 4.1.8** All rotating machineries and equipment shall be cleaned, lubricated, checked for their smooth rotation if necessary by dismantling and refitting before erection. If in the opinion of BHEL Engineer, the equipment is to be checked for clearance at any stage of work or during commissioning period, all such works are to be carried out by Contractor at his cost.
- 4.1.9** Contractor shall carry out chipping and blue matching of foundation concrete with the packer plates. The packer plates shall be supplied by BHEL. Necessary machining and blue matching of packer plates shall be carried out by the contractor with in the quoted rates.
- 4.1.10** The contractor shall take all reasonable care to protect the materials and equipments during stacking and erection. Preservative painting required to be done on any equipment or part during the course of stacking and erection will have to be done by the Contractor at no extra cost to BHEL. Paints and all other materials shall be arranged by the contractor.
- 4.1.11** Electrostatic precipitator collecting electrodes may require strengthening and repair due to minor transport damages before erection and spot heating in position to get correct alignment. This shall be carried out by the contractor as part of the work.
- 4.1.12** Erection, alignment/ fixing in final position of HIGH VOLTAGE RECTIFIER Transformer of ESP are in the scope of work. However testing and commissioning will be done by other agencies.
- 4.1.13** Installation of **High voltage Interlocks** (excepting rotary switch interlock in EC Panels) is in the scope of work.
- 4.1.14** **AIR-IN LEAKAGE TEST , if required / called for**, has to be carried out after erection of ESP and before clearing for insulation. Necessary equipment like air blower, venturi, instrumentation etc. will be provided by BHEL free of charges. Handling at stores, transport, erection, commissioning, carrying out the leakage test and attending to leakages till satisfactory sealing / leak proof shall be in the scope of work. Contractor shall dismantle the test equipment and return to BHEL stores in good condition after due reconciliation, cleaning, servicing. No separate/ additional payment is envisaged for the above.

- 4.1.15** Complete erection, alignment, testing, pre-commissioning etc. of drive motors of collecting electrode and emitting electrode rapping mechanism is in the scope of work.
- 4.1.16** Additional platforms of permanent nature for approaching different equipments, as per site requirements which may not be indicated in drawings, shall be installed by the contractor. The materials required for platforms will be supplied by BHEL in running meters at free of cost.
- 4.1.17** All welders shall be tested and approved by BHEL Engineer / client of BHEL before they are actually engaged on work. BHEL reserve the right to reject any welder without assigning any reason.
- 4.1.18** In case of any class of work for which there is no such specifications as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of BHEL Engineer at the quoted rates only.
- 4.1.19** BHEL Engineer is entitled to stop any welder from his work if found unsatisfactory for any technical reason or there is a high percentage of rejection the work welded by him which, in the opinion of BHEL Engineers, which adversely affect the quality of welding, though the welder has earlier passed the tests.
- 4.1.20** All charges for testing of welders including destructive and non-destructive tests shall have to be borne by the contractor.
- 4.1.21** All welded joints shall be subject to acceptance by BHEL Engineer/client.
- 4.1.22** The contractor shall make suitable security arrangements including employment of security personnel (round the clock) to ensure the protection of all materials/equipments and works from theft, fire, pilferage and any other damage and loss at stores/storage yard/pre-assembly area/erection site, till the contract is getting over.

4.1.23 APPLICATION OF INSULATION & CLADDING

1. Application of insulation and sheet metal covering includes leading the materials from stacking area/storage sheds to the place of work
2. The insulation work should be carried out with contractor's own scaffolding materials, tools etc.
3. Welding of hooks, supports as per pitch/applying red oxide paint to welded portion as directed and as per the drawings before application of Mineral Wool / Glass Wool mattresses and as instructed by BHEL Engineer.
4. Wool insulations are received at site as bonded / unbonded mattresses in standard sizes. These are to be dressed / cut to suit site requirement by the Contractor.
5. Applying anti-corrosive paint to the inner surface of GI/ALUMINIUM Cladding, Cutting suitable to size, shape grooving and fixing on holders as instructed and as per drawings and specifications. Application of Bituminous Sealing Compound on top of cladding joints shall be done. SUPPLY OF BITUMINOUS SEALING COMPOUND AND ANTICORROSIVE PAINT IS UNDER THE SCOPE OF CONTRACTOR.
6. The contractor should ensure that the finished surface of insulation confirms to dimensions and tolerances given in the drawings. Aesthetic finish & accuracy of work and time are most important.
7. Details of application of insulation and GI/Aluminium cladding are given in the various drawings of BHEL supplied to the Contractor.
8. Insulation of ESP shall be by welding of studs with retainers in a spacing of 480mm X 240mm, lagging of mineral wool/ LRB wool mattresses over the retainers, sewing the mattress, fixing up of top retainers, fixing casing supports, tying binding wire over the wool, fixing of GI/Al sheets over the wool mattresses, using self tapping screws (at spacing of 150mm for both vertical and horizontal joints) and application of bituminous sealing compound for vertical joints of sheets. The cladding sheets shall be end grooved and creased to obtain proper shape and strength as per drawing of BHEL. The contractor shall arrange required scaffoldings to undertake the work.
9. Insulation of ESP inner roof shall be by welding of studs in a spacing of 480mmX480mm, lagging of mineral wool/LRB wool mattresses, sewing the mattresses, fixing the top retainers and tying of binding wire over the wool mattresses.

4.1.24 APPLICATION OF PAINT:

4.1.25 TESTS

1. The contractor shall supply manpower and consumables to carry out the required tests on the equipment such as Air-in leakage Test (using air blower provided by BHEL), Gas tightness test by smoke test method or kerosene method and other tests such as Gas Distribution test, Performance Guarantee test etc., to be specified by the Resident Engineer, BHEL at free of cost. Contractor's quoted

rate shall include blanking of hopper, funnel and ducts to conduct air-in leakage test, smoke test etc. and all other contingencies such as checking of coupling alignments, various clearances between stator and rotor components, bearing clearing, trial runs etc.

2. All the above tests should be repeated till all the equipments satisfy the requirement/obligation of BHEL to their customer.

3. **PRE-COMMISSIONING TEST AND COMMISSIONING OF THE UNITS:**

- 9.1.1. Commissioning of the equipments will involve trial runs of all the equipments erected, and any other works incidental to commissioning. Contractor shall supply labour for all these without any extra cost under this contract.
- 9.1.2. In case any defect is detected during tests, trial runs such as loose components, undue noise or vibration, strain on connected equipment etc., the Contractor shall immediately attend to these defects and take necessary corrective measures. If any re-adjustment and re-alignment are necessary, the same shall be done as per BHEL Engineer's instructions. If any part of the equipment needs repair, rectifications or replacement, the same shall be done by the Contractor at his cost. The parts to be replaced shall be provided by BHEL.
- 9.1.3. During this period, though the BHEL's/Client's staff will also be associated in the work, the Contractor's responsibility will be to arrange for the complete labour requirement for the successful trial run of equipment till it is handed over to customer.
- 9.1.4. It shall be specifically noted that the above employees of Contractor may have to work round the clock along with the BHEL Commissioning Engineers and hence any overtime payment so involved, the Contractor's quoted rates shall be inclusive of all these factors also.
- 9.1.5. During commissioning, re-aligning of rotating and other equipment, attending to leakages and minor adjustment of erected equipment may arise. The quoted rate of Contractor shall be inclusive of all such works.
- 9.1.6. In case any rework is required because of Contractor's faulty erection which is noticed during commissioning the same has to be rectified by the contractor at his cost. If, during commissioning, any improvement or rectification due to design requirements is involved the same shall be paid at man-hour rates quoted. For this purpose, daily labour report indicating there in, nature of work carried out, consumables used etc., shall be maintained by contractors and for signed by BHEL Engineers every day.

4.1.26 PROGRESS OF ERECTION WORK:

1. During the course of Erection, if the progress is found unsatisfactory, or if the target dates are to be advanced, or in the opinion of BHEL if it is found that the welders employed are not sufficient, BHEL will induct on work their own welders, in addition to Contractor's welders working and recover from the Contractor's bills the charges incurred for engaging the welders with the overheads. This is binding on the Contractor.
2. In case the Contractor's progress is found unsatisfactory, BHEL may deploy unskilled, semi-skilled, skilled operators, Technicians and other required manpower and will assist in improving the progress. All the expenses incurred for, will be recovered from Contractor's bills with overheads.
3. It is obligatory on the part of the Contractor to give daily feed back on progress of erection.

4.1.27 PAYMENTS FOR WORK COMPLETED:

1. The Tenderer shall quote separate rates for each of the categories of work in the rate schedule appended. No eraser should be used and no overwriting is acceptable.
2. Subject to any deduction which BHEL may be authorized to make under the contract, the Contractor shall on the certificate of the Engineer at site, be entitled for payment as explained in the payment terms.

4.2 SCOPE OF DISMANTLING:

The Scope of work will comprise of but not limited to following:

- 4.2.1 Disconnection and dismantling of existing mechanical structures / components to the extent required at site for revamping of the system as per the instruction of Site in-charge, loading of dismantled components to transport equipments, transportation to BHEL'S Clients storage yard after weighment if required and unloading etc., by supplying required manpower, all consumables and using contractors own trucks, lorries, tractors, trailers, cranes and other unloading, transporting and material handling equipments (having valid permission for their operation)

4.2.2 PROGRESS OF DISMANTLING WORK:

1. During the course of dismantling if the progress is found unsatisfactory, or if the target dates to be advanced, or in the opinion of BHEL if it is found that the workers employed are not sufficient BHEL will induct on work their own workers in addition to contractor's workers and recover from the contractors bills the charges incurred for engaging the workers with the overheads. This is binding on the contractor.
2. In case the contractor's progress is found unsatisfactory, BHEL may deploy gas cutters, fitters and technicians etc., and will assist in improving the progress. All the expenses incurred for will be recovered from contractors bill with overheads.
2. It is obligatory on the part of the contractor to give daily feedback on progress of dismantling.

4.3 SPECIAL REQUIREMENTS

- 4.3.1** The entire work of erection, testing and commissioning of the ESP shall be completed within the time specified in the time schedule.
- 4.3.2** The contractor has to indicate their ability in completing the contract in all respects shorter than the period mentioned in the time schedule.
- 4.3.3** As time is the essence of this contract, the contractor shall be able to mobilize his manpower round the clock for the entire period to complete the work within the stipulated time.
- 4.3.4** The contractor should be able to mobilize all the tools, plants and consumables necessary for three shifts operation to meet the requirements.

4.4 IMPORTANT GENERAL & SPECIAL CONDITIONS OF CONTRACT :

4.4.1 RETURN OF SECURITY DEPOSIT:

If the contractor fully performs and completes the work in all respects to the entire satisfaction of BHEL and their client and presents an absolute "No Demand Certificate" in the prescribed form and returns properties belonging to BHEL, handed over / lent to them for carrying out the said works, security deposit will be released to the contractor after deducting all the cost of expenses, if any, under other contracts entered in to with the contractor. It may be noted that in no case the security deposit shall be refunded /released prior to passing of the final bill.

4.4.2 IDLE LABOUR

If the contractor suffers delay in the due execution of the contractual obligation due to delays caused by FORCE MAJEURE conditions, the agreed time of completion of the contract shall be extended by a period of time equal to the period of delay provided that on the occurrence of any such contingency, the contractor immediately reports to BHEL in writing about the causes of delay. The contractor shall not be eligible for any other compensation.

4.5 RIGHTS OF BHEL IN CASE OF POOR PROGRESS OF WORK:

To get the work done through other agencies at the risk and cost of the contractor, in the event of contractor's poor progress or inability to execute work, persistent disregard to instructions of BHEL, assignment transfer, subletting of contract without the permission of BHEL, non-fulfillment of any contractual obligation etc., and to recover compensation for such losses from the contractor including BHEL's supervision charges and overheads from the security deposit / other dues.

SECTION-V

5.1 Scope of Contract

The indent of this specification is to provide services for execution of projects according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards the work allotted shall not relieve the contractor of the responsibility of providing such services/facilities to complete the project or portion of project awarded to him. The quoted rate shall deem to be inclusive of all such contingencies.

- 5.1.2 The contractor shall carry out the work in accordance with instructions/drawings/specification standard practices supplied by BHEL from time to time.
- 5.1.3 Provision of all types of labour, supervisors, Stores staff, watch and ward as required, tools and tackles, consumables as specified under various clauses of Tender Specification for unloading, erection, testing and commissioning and dismantling of existing structures.
- 5.1.4 Proper out turn as per BHEL plan and commitment.
- 5.1.5 Completion of work in time.
- 5.1.6 Good quality and accurate workmanship for proper performance of equipment.
- 5.1.7 Repair and rectification.
- 5.1.8 Re-conservation/preservation of all components.

5.2 FACILITIES TO BE PROVIDED AND DEVELOPED BY THE TENDERER AT HIS COST

- 5.2.1 It shall be the responsibility of the contractor to construct his own office shed, stores shed, labour tonements, with all facilities like electricity, water supply, sanitary arrangements in the area allotted to him for the purpose.
- 5.2.2 Distribution of water for construction purposes and as well as drinking purpose from the single point provided by BHEL to various works fronts shall be the Contractor's responsibility and at his cost.
- 5.2.3 Necessary meters for recording consumption of water and power for cost analysis purpose and maintenance of the same during execution period shall be Contractor's responsibility.
- 5.2.4 Provision for distribution of electrical power from the given single central point to the required places with proper distribution boards, approved cable laying, including supply of all materials like cables, switch boards, pipes, etc., observing the safety rules laid down by the Electricity Authority of the State/BHEL/their customer shall be the responsibility of the tenderer /contractor.
- 5.2.5 As there are bound to be interruptions in regular power supply, power cut/load shedding in any construction site due to inherent power shortage in State on this account, suitable extension of time only be given and contractor is not entitled for any compensation. Such interruptions should be intimated to BHEL by the contractor timely It shall be the responsibility of the contractor to have at least a few diesel operated welding generator sets to get urgent and important work done with out interruption.
- 5.2.6 Adequate lighting facilities such as flood lamps, 24V Safety lamps and area flood lighting shall be arranged by the Contractor at the site of constructions, pre-assembly area, Contractor's material storage area and at access roads etc., at his cost.
- 5.2.7 For the purpose of Planning, Contractor shall furnish along with tender, the estimated requirement of power (month wise) for execution of work in terms of maximum KW demand.
- 5.2.8 On completion of work, all the temporary buildings, structures, pipelines, cables etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, the same will be arranged to be removed and expenditure therefore will be recovered from the Contractor. The decision of BHEL Engineer in this regard is final.
- 5.2.9 The Contractor shall provide all materials required for scaffolding, form work and centering wherever necessary for erection should arrange at his cost.
- 5.2.10 Depending upon the nature of work and availability of facilities locally, Contractor may have to arrange for a temporary work-shop for facilitating uninterrupted progress of work.
- 5.2.11 The contractor shall secure and maintain comprehensive including third party insurance for appropriate amount to protect your and our interest against all risk and claims to the men/women or for labour force. If failure in securing the insurance policies in this regard shall not absolve you from reimbursing to us for any loss / damages / injuries or death to any person.

- 5.2.12** The contractor shall be fully responsible for obtaining labour licence/approval if any, from State/Central/Local authorities at his own cost and risk.
- 5.2.13** It is the responsibility of contractor to obtain approval from statutory authorities like pollution control board, Factory Inspectorate etc., if necessary.
- 5.3 GASES**
- 5.3.1** All required gases like oxygen / Acetylene / LPG for the work shall be supplied by the Contractor at his cost. It shall be the responsibility of the Contractor to plan the activities and store sufficient quantity of these gases. Non-availability of gases cannot be considered as reason for not attending the required progress.
- 5.3.2** In case of improper arrangement of above gases, BHEL reserves the right to procure the same from any source and recover the cost from the Contractor's bill at market value plus BHEL departmental charges as may be fixed from time to time and postponement of recoveries is not permissible. The decision of BHEL Engineer in this regard is final and binding on the Contractor.
- 5.3.2** BHEL reserves the right to reject the use of any gas in case the required purity is not maintained.
- 5.3.3** The Contractor shall submit Weekly / fortnightly / monthly statements / reports regarding consumption of above gases for cost analysis programme.
- 5.3.4** The Contractor shall ensure safekeeping of the inflammable cylinders at separate place away from normal habit with proper security etc.
- 5.4 ELECTRODES**
- 5.4.1** All the electrodes required shall be arranged by Contractor at his cost. It shall be the responsibility of the Contractor to obtain prior approval of BHEL before procurement, regarding suppliers, type of electrodes etc. On receipt of the electrodes at site, it shall be subjected to inspection and approval of BHEL. The Contractor shall inform BHEL, the details regarding type of electrode, batch number, date of expiry etc.
- 5.4.2** Storage of electrode shall be done in an air-conditioned / controlled humidity room as per requirement.
- 5.4.3** Shortage of any of the electrodes for the equipment suggested by BHEL shall not be quoted as reason for deficiency in progress or for additional rate.
- 5.4.4** BHEL reserves the right to reject the use of any electrodes at any stage, if found defective because of bad quality, improper storage, quality, date of expiry, unapproved type of electrodes etc. It shall be the responsibility of the Contractor to replace at his cost with out loss of time.
- 5.4.5** All electrodes shall be dried in the electrodes drying oven to the temperature and period specified by BHEL Engineer before they are used for erection work. Electrode drying ovens shall be provided by the contractor.
- 5.4.6** In case of improper arrangement for procurement of above electrodes, BHEL reserves the right to procure the same from any source and recover the cost from the Contractor's first subsequent bills at market value plus the departmental charges of BHEL communicated from time to time. Postponement of such recovery is not permitted.
- 5.4.7** Contractor shall submit weekly / fortnightly / monthly statement / reports regarding consumption of electrodes of all types for cost analysis purpose.
- 5.5 CRANE AND OTHER TOOLS AND TACKLES**
- 5.5.1** All the T&P including Cranes, trucks, Lorries, tractors, trailers etc required for the satisfactory execution of work shall be arranged by the Contractor. BHEL will not arrange any Tools and Plants.
- 5.5.2** All the T&P arranged by the Contractor including electrical connection wherein required shall be reliable / proven tested with necessary test certificate.
- 5.5.3** All the T&P, lifting tackles including wire ropes, slings, shackles and electrically operated equipments arranged by Contractor shall be got approved by BHEL Engineer before they are actually put on use.
- 5.5.4** Civil works required for safe and efficient operation of tools and tackles shall be the Contractor's responsibility.
- 5.5.5** Contractor shall take into consideration the above clauses and quote the rates as called for in the rare Schedule.
- 5.6 SUPERVISORY STAFF AND WORKMEN**
- 5.6.1** The Contractor shall supply all skilled workmen like welders, gas cutters, riggers, erectors, carpenters, fitters, electricians etc., in addition to other skilled, semi-skilled, unskilled workmen required for all the works of receipt, material handling, transportation, erection, testing and commissioning & dismantling

contemplated under this specification. Only fully trained and competent men with previous experience in the job shall be employed. They shall hold certificates wherever necessary. BHEL reserves the right to decide on the suitability of the workers and other personnel who will be employed by the contractor. BHEL reserves the right to insist or removal of any employee of the Contractor shall for with remove him.

- 5.6.2** The supervisory staff employed by the Contractor shall ensure proper out-turn of work and discipline on the part of the labour put on the job by Contractor and in general see that the works are carried out in a safe and proper manner and in co-ordination with other labour and staff employed directly by BHEL or other contractors of BHEL or BHEL'S client.
- 5.6.3** The contractor shall also furnish daily labour report showing by classification the number of employees engaged in various categories of work and a progress report of work as required by BHEL Engineer.
- 5.6.4** The work shall be executed under the usual conditions affecting major power plant constructions and in conjunction with numerous other operations at site. The Contractor and his personnel shall co-operate with other personnel and proceed in a manner that shall not delay or hinder the progress of work as a whole.
- 5.6.5** The Contractor's supervisory staff shall execute the work in the most substantial and work man like manner in the stipulated time Accuracy of work and aesthetic finish are essential part of this contract. The contractor shall be responsible to ensure that assembly and workmanship confirm to the dimensions and tolerances given in the drawings/instructions given by BHEL Engineers, from time to time.
- 5.6.6** The Contractor shall employ the necessary number of qualified and approved full time electricians at his cost to maintain his temporary electrical installation till the completion of work.
- 5.6.7** It is the responsibility of the Contractor to engage his workmen in shifts or on over time basis for achieving the target set by BHEL and also during the period of commissioning and testing The Contractor's quoted rate shall include all these contingencies.
- 5.6.8** In case Contractor's progress is found unsatisfactory BHEL may deploy fitters, welders, operators and technicians on BHEL rates and will assist in improving the progress. All expenses incurred for will be recovered from Contractor's bill.
- 5.6.9** If the Contractor or his workmen or employees shall break, deface, injure or destroy any part of building, road kerb, fence, enclosure, water pipes, cables, drains, electric or telephone posts or wires, trees or any other property or to any part of erected components etc., the Contractor shall make the same good at his own expense or in default, BHEL may cause the same to be made good by other workmen or by other means and deduct the expenses (of which BHEL'S decision is final) from any money due from the Contractor.
- 5.7** CIVIL WORKS : NOT APPLICABLE
- 5.8** **Scope of material handling**
- 5.8.1** While BHEL will endeavor to store/stack/identify materials properly in their open/closed storage yard/shed, it shall be Contractor's responsibility to assist BHEL in identifying materials well in time for erection, taking delivery of the same, following the procedure indicated by BHEL and transport the materials safely to pre-assembly yard, erection site in time, according to programme.
- 5.8.2** The Contractor shall identify necessary supervisor/labour for the above work in sufficient quantity as may be needed by BHEL for areas covering their scope.
- 5.8.3** It shall be the Contractor's responsibility to arrange for necessary crane/tractor/trailor or trucks/slings/tools and tackles /labour/including operators for loading from storage yard on to transport equipment, move it to erection site/pre-assembly yard and unload the same at pre-assembly yard/erection site and to erect the ESP and the quoted rate shall include the same. Tenderers may please note that the storage yards are at an approximate distance of 5.0.km from erection site.
- 5.8.4** All equipments so used by Contractor shall be of proven quality and safe in operation as approved by BHEL Site Engineer's from time to time.
- 5.8.5** Any loss/damage to materials issued to Contractor shall be made good by him or BHEL will arrange for replacement at cost recovery basis and decision of BHEL shall be final.
- 5.8.6** The Contractor shall take delivery of components and equipment and special consumables from storage area after getting the approval of BHEL Engineer on standard indent forms.
- 5.8.7** In the event of Contractor's inability to arrange in time any of the above equipment/T&P etc., if possible BHEL shall provide the same on specific written request from the Contractor subject to the availability of equipment on the normal hire charges of BHEL, applicable from time to time and recoverable from Contractor's subsequent month's running bills.

- 5.8.8** All the surplus, damaged unused materials, package materials/containers, special transporting frames, gunny bags etc. supplied by BHEL shall be returned to BHEL Stores by the Contractor.
- 5.8.9** The Contractor shall have total responsibility for all equipment and materials in his custody, stores, loose, semi-assembled, assembled or erected by him at Site.
- 5.8.10** The Contractor shall make suitable security arrangements (round the clock) including employment of security personnel to ensure the protection of all materials/equipments and works from theft fire, pilferage and any other damage and loss at Site.
- 5.8.11** The Contractor shall ensure that all the packing materials and protection devices used for the various equipments during transit and storage are removed before these equipments are installed.
- 5.8.12** All equipment shall be handled very carefully to prevent any damage or loss. No bars, 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 from the storage yard shall be moved to the actual site of erection/location at the appropriate time as per the direction of BHEL Engineer so as to avoid damage for such equipment at Site.
- 5.8.13** The Contractor shall take all reasonable care to protect the materials and work till such time the erected equipment has been taken-over by BHEL/their client. Whenever necessary suitable temporary fencing and lighting shall have to be provided by the Contractor as a safety measure against accident and damage of property of BHEL, suitable caution notices shall be displayed where access to any part may be deemed to be unsafe and hazardous.
- 5.8.14** The Contractor shall be responsible for taking all safety precautions during the constructions and leaving the site safe at the end of each working day and at all times. When the work is temporarily suspended, he shall protect all construction materials, equipment and facilities from causing damage to existing property interfering with the operation of the station when it goes into service. The contractor shall comply with all applicable provisions of the safety regulations, clean up programme and other precautionary measures, which the BHEL has in effect at the Site.
- 5.8.15** All lifting tackles including wire ropes, slings, shackles etc., used by the Contractor shall be got approved by BHEL Engineer at Site before they are actually put on the work.
- 5.8.16** The Contractor shall take delivery of equipment from storage yard/stores/sheds. He shall also make arrangements for verification of equipment, scrupulously maintain records and keep safe custody, watch and ward of equipment after it has been handed over to him till these are fully erected and tested and commissioned and taken over by BHEL's client. The stolen/lost/damaged good shall have to be made good by the contractor at his own cost.

5.9 Preservation of Components

- 5.9.1** The Contractor shall effectively protect the finished work from action of weather and from damage or defacement and shall cover the finished parts then and there for their protection.
- 5.9.2** Any failure on the part of the Contractor to carry out works according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from the Contractor.

5.10 DRAWING AND DOCUMENTS:

- 5.10.1** The detailed drawings, specifications, available with BHEL Engineers will form part of this Tender Specification. These documents will be made available to the Contractor during execution of work at site.
- 5.10.2** One set of necessary drawings to carry out the erection work will be furnished to the Contractor by BHEL on loan, which shall be returned to BHEL Engineer at Site after completion of work. Contractor's personnel shall take care of these documents given to them.
- 5.10.3** Should any error/ambiguity be found in the specification or information, the Contractor shall bring the same to the notice of BHEL before commencement of work. BHEL's interpretation in such cases shall be final and binding on the Contractor.
- 5.10.4** The data furnished in various appendices and the drawings enclosed with this tender specification describes the equipment to be installed, tested and commissioned under this specification briefly. However, the changes in the design and in the quality may be expected to occur as is usual in any such large scales of work.
- 5.10.5** Deviation from design dimensions should not exceed permissible limit. The Contractor shall not correct or alter any dimension/details, without specific approval of BHEL.

5.11 SITE CLEANLINESS AND SAFETY REQUIREMENTS:

- 5.11.1** During the course of construction, alternation or repairs, scrap lumber with protruding nails, sharp edges etc., and all other debris shall be kept cleared from working areas, passageways and stairs in and around Site. Proper house keeping is the responsibility of the Contractor.
- 5.11.2** Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided by the Contractor to facilitate such removal. If this is not done regularly, BHEL will get the job done and debit the cost to Contractor.
- 5.11.3** Rigging equipment for material handling shall be inspected prior to use of each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service. Necessary test certificates have to be provided by the Contractor for the rigging and handling equipment brought by them. Otherwise this will be got to be done by BHEL and the cost will be debited to Contractor.
- 5.11.4** Rigging equipment shall not be loaded in excess of its recommended safe working load.
- 5.11.5** Rigging equipment when not in use shall be removed from the immediate work area so as not to present a hazard to employees.
- 5.11.6** The Contractor will notify the Engineer his intention to bring on to site any equipment or any container with liquid or gaseous fuel or other substance which may create a hazard. The Engineer shall have the right to prescribe the conditions under which such equipment or container may be handled and used during the performance of the works and the Contractor shall strictly adhere to such instructions. BHEL Engineers shall have the right to inspect any construction plant and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition shall be entertained.
- 5.11.7** Where it necessary to provide and/or store petroleum products or petroleum mixture 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 the relevant petroleum Act., Explosive Act and Petroleum and Carbide of Calcium Manual, published by the Chief Inspectorate of Explosives of India. All such storage shall have prior approvals of BHEL Engineer. In case any approvals are necessary from the Chief Inspector of Explosives of any other statutory Authorities, the Contractor shall be responsible for obtaining the same.
- 5.11.8** Valve protection caps shall be in place and secured.
- 5.11.9** Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dropped, struck or permitted to strike each other violently.
- 5.11.10** When cylinders are transported by powered vehicles, they shall be secured in vertical position.
- 5.11.11** All the hand lamps used by the contractors workmen shall be of 24V only. Adequate step-down transformers should be installed at site to cater to the complete requirement. (230V hand lamps should not be used).
- 5.11.12** All workmen of the Contractor working in construction areas shall wear safety shoes, safety helmets, & safety belt (with double harness - when working at heights). Contractor shall insure his workmen against all accidents, and the policy shall be presented to BHEL. In case of failure to do so BHEL will arrange the same and the expenditure towards this will be debited to the Contractor including BHEL overheads. In case the Contractor fails to provide necessary safety equipment to workmen, BHEL will provide the same to the workers and recover the cost of equipment along with BHEL overheads.
- 5.11.13** All the above safety conditions are not exhaustive but gives an idea for the Contractor and the Contractor shall adhere to all the safety precautions given by the BHEL Engineer at Site. Such of those workmen who do not follow safety precautions shall be turned out from Site. They will not be allowed to work until they fulfill safety regulations.
- 5.11.14** Contractor shall arrange at his cost suitable flood lighting arrangement at various levels for safe and proper working operations during night hours at the work spot as well as at the pre-assembly area.
- 5.11.15** The Contractor shall be responsible for provision of all the safety notices and safety equipment as enjoined on him by the application of relevant statutory regulations/provisions and/or as called upon by the BHEL Engineer and their client from time to time.
- 5.11.16** The Contractor shall provide temporary fencing wherever required as a safety measure against accident and damage to properties. Suitable caution notices shall be displayed where access to any part is found to be unsafe and hazardous.
- 5.11.17** The Contractor shall ensure the safety of all the workmen, material and equipment either belonging to him or to others working at site.
- 5.11.18** It will be the responsibility of the Contractor to ensure safe lifting of the equipment, taking due precaution to avoid any accidents and damages to other equipment and personnel.

- 5.11.19** The Contractor shall provide necessary first aid facilities for all his employees, representatives and workmen working at Site.
- 5.11.20** 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 number of such trained personnel must be available during the tenure of the Contract. Contractor should nominate one of his supervisors to co-ordinate and for implementation of safety measure.
- 5.11.21** Contractor shall provide enough fire fighting equipment of the types and numbers at his office, temporary structures, labour colony area etc. Access to such fire fighting equipment shall be easy and kept open at all times. Compliance of the above requirement under fire protection shall in no way relieve the Contractor of any of his responsibilities and liabilities to fire accident occurring.
- 5.11.22** The Contractor shall at his cost remove from the vicinity of work, all scrap packing materials rubbish unused and other materials and deposit them in places specified by BHEL engineer to keep the work Site clean and tidy.
- 5.11.23** For this purpose the mechanical completion of erection work shall be deemed to be completed in all respects only when the trial runs of motors and gas tightness tests are completed and certified so by BHEL Engineer. The decision of BHEL in this respect shall be final and binding on the contractor.
- 5.11.24** The commissioning of the unit shall be deemed to be completed in all respects only when all the equipments are tested and commissioned and the Unit is ready for commercial operation.

SPECIAL CONDITIONS OF CONTRACT**SECTION - VI****6.0 PRICE ESCALATION:**

- 6.0.1** The Contractor has to keep his quoted rates firm for the entire contractual period including total extended period, if any, and no claim for revision of rates is allowed under any circumstances.
- 6.0.2** However, the Contractor shall maintain sufficient work force and other resources required for completion of the job expeditiously for the entire contractual period including total extended period.
- 6.0.3** In case due to unforeseen circumstances and due to reasons not attributable to the Contractor, the work gets delayed and completion time gets extended as per Bar Chart from the date of actual start of work at Site, the Contractor shall not be entitled for any over run compensation for a period of first 3 months after the Contractual completion date. However, the contractor shall be paid over run charges for extension in the completion period beyond 3 months as stated above and for reasons not attributable to the Contractor. This shall be mutually discussed and settled at that time.

SPECIAL CONDITIONS OF CONTRACT

SECTION - VII

7.0 EXTRA CHARGES FOR MODIFICATION AND RECTIFICATION WORKS:

- 7.1** BHEL may consider payment for extra works on man-hour basis for such of those works which require major modification of the supplied components which is totally unusual to normal revamping / erection / commissioning work and which are not due to contractor's faulty erection.
- 7.2** The decision of BHEL in this regard shall be final and binding on the contractor. The contractor may submit his work claim bills (specifically agreed by BHEL Engineer) along with the labour sheets duly certified by BHEL Engineer at site. But BHEL may opt to get those work done through other agencies if they so desire.
- 7.3** All the extra works, if any, carried out should be done by a separate gang which should be identified prior to start of work for certification of man-hours. Daily labour sheets should be maintained and should be signed by the contractor's representative and BHEL Engineer. Signing of labour sheets does not necessarily mean the acceptance of extra works. Only those works which are identified as not usual to normal revamping / erection and certified so by the Site-in-Charge of BHEL and accepted by designers/supplier's competent authority only will be considered for payment. The decision of BHEL in this regard shall be final and binding on the contractor.
- 7.4** Average single manhour rate including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, **including consumables** for carrying out any rework / rectification that may arise during the course of revamping shall be **Rs. 40/- per man hour**.
- 7.5** Average single manhour rate including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, **excluding consumables** for carrying out any rework / rectification that may arise during the course of erection shall be **Rs. 25/- per man hour**.
- 7.6** Extra works are broadly defined as below:
- i) Design changes which will be intimated to the contractor after the start of the work which call for dismantling of the erected components, rectification, modification, etc.
 - ii) Repair / rectification of the components damaged during transit and intimated to BHEL before drawing the materials from BHEL stores.
 - iii) Modification, rectification of components wrongly manufactured/fabricated at works subject to acceptance of the approving authority. Any such modification work costing less than 48 Man Hours per work of a DU shall be considered as incidental to erection and shall not be considered for payment.
 - iv) Jobs which require major modification, major repair, major reworks etc. which will be identified as major and warrant extra payment, certified as such by the Site-in-Charge of BHEL and accepted by the designers/competent authority of BHEL. The decision of BHEL in this regard shall be final and binding on the contractor.

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## SPECIAL CONDITIONS OF CONTRACT

### SECTION – VIII

#### **8.0 GENERAL TERMS AND CONDITIONS OF REVERSE AUCTION**

- 8.1 For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- 8.2 BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on Internet.
- 8.3 BHEL will inform the vendor in writing, in case of reverse auction, the details of service provider to enable them to contact and get trained.
- 8.4 Business rules like event date, time, start price, bid decrement, extensions, etc. also will be communicated through service provider for compliance.
- 8.5 Vendors have to fax the compliance form in the prescribed format (provided by service provider) before start of Reverse auction. Without this the vendor will not be eligible to participate in the event.
- 8.6 BHEL will provide the rate schedule (e.g. EXCEL sheet) for the vendor to enable them to fill-in the price and keep it ready for keying in during the auction. In the event of discrepancy in rate and amount against any item of work, the least of the two will be taken for bid price. In case of discrepancy between the total price indicated in price bid and the arithmetic sum arrived based on rate quoted, then also the least of the two will be taken for the bid price. The bids are compared on the total price quoted and NOT on individual ITEM of works.
- 8.7 Reverse auction will be conducted on scheduled date & time.
- 8.8 At the end of reverse auction event, the lowest bidder value will be known on the network.
- 8.9 The lowest bidder has to fax the duly signed filled-in prescribed format as provided on case-to-case basis to BHEL through Service provider within 24 hours of auction without fail.
- 8.10 Opening bid in reverse Auction: The opening bid (in the reverse Auction) of the bidders shall be same as that quoted in their final sealed price submitted to BHEL (along with Technical offer). The bidder shall confirm in writing to BHEL that their opening bid (in reverse auction) shall be same as that quoted in their final sealed price bids submitted to BHEL against this NIT along with Technical Bid (Patr-1). **If any bidder offered a unsolicited discount or rebate, in separate cover etc. in any place other than the sealed price bid, then the opening price bid in reverse auction, by such a bidder in Reverse Auction, shall be the price offered in final sealed price bid submitted (against this NIT) minus discount offered in any place other than the sealed price bid.**
- 8.11 BHEL reserves the right to cancel Reverse Auction (RA) without assigning any reasons and resort to considering the sealed bids submitted by vendor for processing and finalizing the tender.
- 8.12 In case the process of reverse auction is found unsuccessful by BHEL, then BHEL at its discretion may decide to call the L1 bidder of reverse auction for further negotiation.
- 8.13 Any variation between the on-line bid value and signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHEL as per prevailing procedure.
- 8.14 In case BHEL decides not to go for Reverse auction procedure for this tender enquiry, the Price Bids and price impacts, if any already submitted and available with BHEL shall be opened as per BHEL's standard practice.
- 8.15 Only those vendors, who participate in the Online Initial Opening Bid, will be eligible to participate in the subsequent Online English Reverse Auction.
- 8.16 Price bids offered by the bidders during reverse auction process is considered as an offer to execute the work. Bids once made by a bidder cannot be cancelled/withdrawn and bidders shall be bound to execute the work at the final bid price. BHEL shall take appropriate action if the bidder fails to do so.