



## VOLUME I

### SECTION 3.0

# ERECTION & COMMISSIONING CONDITIONS OF THE CONTRACT (ECC)



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### **SECTION – 3 ERECTION & COMMISSIONING CONDITIONS OF THE CONTRACT (ECC)**

#### **1.0 GENERAL**

- 1.1 The following shall supplement the conditions already contained in the other parts of the specifications and documents governing the scope of contract related to 'Plant' erection package to be executed for the "2x660 MW Udangudi Supercritical Thermal Power Project Stage-1 at Udangudi"
- 1.2 The Contractor shall, in addition to their respective Project Managers stationed at Head Quarters nominate one of the responsible officers as their residential representative suitably designated for the purposes of overall responsibility and coordination of the services to be performed in respect of erection etc. at site. Such person shall function from the site office established by the Contractor, during the pendency of Contract.

#### **2.0 SCOPE OF SERVICES**

- 2.1 The scope of work and duties and responsibilities of the Contractor shall broadly include the following, though not restricted to them.
- 2.2 Assisting the Owner/Purchaser, whenever required by him in checking and verification of equipment and materials supplied by the Contractor.
- 2.3 Erection, Technical supervision of erection including disassembly, preassembly etc., adjustments of the equipment supplied by the Contractor and performing trial and pre-commissioning tests.
- 2.4 Technical supervision of the initial operation of the equipment supplied by the Contractor till successful completion of trial operation and also maximum loading of the equipment followed by P.G. Tests.
- 2.5 Technical supervision of the work of repairs, modifications and alterations, etc., of equipment, wherever necessary.
- 2.6 Rendering technical assistance, clarifications and guidance on technical problems and drawing/documents relating to equipment supplied by the Contractor.
- 2.7 Providing necessary guidance for preparation of detailed programmes / schedules for erection and testing and commissioning of equipment including material and manpower planning.
- 2.8 To conduct performance guarantee tests.
- 2.9 Any other related services though not specifically mentioned herein before but necessary for proper execution of the work, as stipulated.

#### **3.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES**

- 3.1 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, Payment of Wages Act and Contractor Labour (Regulation and Abolition Act) or any other law



and the rules made there under in respect of any employee or workman employed or engaged by him or his sub-Contractor.

- 3.2 All registration and statutory inspection fees Boiler hydraulic testing, electrical inspectorate fees, local body planning permission fee, pollution control board fee, PWD /Highways clearance fees, Railway clearance fees etc in respect of his work pursuant to this Contract shall be to the account of the Contractor. Any registration, statutory inspection fees lawfully payable under the provisions of the Indian Regulations and any other statutory laws in respect of the plant equipment shall be to the account of the Contractor. Should any such inspection or registration need to be rearranged due to the fault of the Contractor or his Sub-Contractor, the additional fees for such inspection and/ or registration shall be borne by the Contractor. It is the responsibility of the contractor to obtain the license/clearances from the above statutory bodies on behalf of the owner.

#### **4.0 ACCESS TO SITE AND WORKS ON SITE**

- 4.1 Necessary access to the site shall be made by the contractor after handing over of the site to the contractor by the owner within one week from the date of receipt of LOI.
- 4.2 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.
- 4.3 In the execution of works, no persons 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 Owner or his representative.

#### **5.0 CONTRACTOR'S SITE OFFICE ESTABLISHMENT**

- 5.1 The Contractor shall establish a site office at the site as required in the foregoing paras. Any written order or instruction of the Engineer or his duly authorized representative shall be communicated to the aforesaid authorized representative at the site office and same shall be deemed to have been communicated to the Contractor at his legal address & head office. The contractor shall employ a competent representative as required above to deal with work schedules & negotiations at site. He shall be assigned with authority & responsibility towards the above and he shall always be present at site during working hours.

#### **6.0 COOPERATION WITH OTHER CONTRACTORS**

- 6.1 The Contractor shall co-operate with all other Contractors or tradesmen and staff of the Owner/Purchaser, who may be performing other services on behalf of the Owner/Purchaser and the workmen who may be employed by the Owner/Purchaser and doing work in the vicinity of the works under the contract. The Contractor shall also so arrange to perform his work as to minimize, to the maximum extent possible, interference with the work of other contractors and his 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 other contractors or between the Contractor and the workmen of the Owner in this regard to their work. If the works of the Contractor is so delayed because of any acts or 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.



- 6.2 The Engineer shall be notified promptly by the Contractor of any defects in the other contractor's work that could affect the contractor's work. The Engineer shall determine the corrective measures, if any, required rectifying this situation after inspection of the works and such decisions by the Engineer shall be binding on the Contractor.

## **7.0 DISCIPLINE OF WORKMEN**

- 7.1 The Contractor shall adhere to the disciplinary procedure set by the Purchaser/ 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 misconduct himself or be incompetent or negligent or otherwise undesirable and then the Contractor shall remove such a person objected to and provide in his place a competent replacement.
- 7.2 The Contractor at all time shall take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his employees and for preservation of peace and protection of persons and property at and in the neighborhood of works.

## **8.0 CONTRACTORS ASSISTANCE IN WORK PLAN FOR FIELD OPERATION**

- 8.1 Erection net work submitted by the Contractor and discussed with the Owner/Purchaser and finalised with necessary modifications form a part of contract documents & will be the essence for planning erection activities. The Contractor will furnish the detailed working schedules in respect of each of the activities.
- 8.2 The Contractor shall keep the Engineer informed in advance regarding his field activity plans and schedule for carrying out each part of the work. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contractor of any of his responsibility towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the Purchaser or any of his representatives and no claim of the Contractor will be entertained because of the failure of 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 plants and equipment, his erection methods.
- 8.3 The Contractor shall have the complete responsibility for the conditions of the work site including the safety of all persons 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 erections reviewed by the Engineer is not intended to include review of Contractor's safety measures in, on or near the works site, and their adequacy or otherwise.
- 8.4 The first preparation of such erection plan will cover erection activities to be performed for the whole period of erection. Every subsequent plan in the last week of every month will contain updated report for reflecting progress achieved up to 20th day of the month (hereinafter reporting month) a firm programme for the first ensuing month and tentative programme for the second ensuing month. The firm erection programme for the first ensuing month will reflect the progress of the reporting month, erectable equipment and material available at site, resources at the immediate disposal and the inputs to be provided by the Owner/Purchaser. The firm work plan shall be broken down by the Contractor in week wise erection plan. The tentative work plan must set target for the complete month based on progress achieved through firm work plan of first ensuing month and identify constraints.



- 8.5 The erection work plan will be reviewed by the Owner with the assistance of the Contractor and Consultants where necessary.

**8.6 WORK TO BE OPEN FOR INSPECTION AND CONTRACTOR TO BE PRESENT**

All works under or in course of execution or executed under the contract shall at all times be open to the inspection & supervision by engineer. Contractor shall at all times during the working hours and at other times with notice of engineer's visit to works shall have responsible representative available to receive instructions from the engineer, orders/instructions given to authorized representative shall be considered as if they are given to the contractor himself.

**8.7 NOTICE BEFORE WORK IS COVERED UP**

The Contractor shall give adequate notice (normally seven days) to Engineer in writing before covering up or otherwise placing beyond the reach of inspection and measurement any work in order that the same may be measured & correct dimension thereof recorded. If contractor covers such works without notice, then Engineer reserves the right to get the same uncovered at the risk & cost of the Contractor.

**9.0 MANPOWER REPORT**

- 9.1 The Contractor shall submit to the Engineer, on the first day of every month, a man power schedule for the next month, detailing the man power scheduled for the month, skill wise and area wise.
- 9.2 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.
- 9.3 The Contractor shall decide mutually with the Owner/Purchaser, from time to time, in regard to Contractors manpower deployment, plan and schedules for providing the services under the contract to match the erection programme.
- 9.4 The Contractor shall also intimate the programme of the visit of his personnel to site and departure from site. The Engineer will have the right to review the list of such personnel and ask for increase in the strength or reschedule the visits of such personnel, if in the opinion of the Engineer, the list of personnel furnished by the Contractor is not sufficient for effective performance of the Contract.

**10.0 PROTECTION OF WORK**

- 10.1 The Contractor shall have total responsibility for protecting his work till it is finally taken over by the Engineer. No claim will be entertained by the Purchaser or the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the Specifications and Drawings. Should any such damage to the Contractor's works occur because of other party not 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 provision of the clause: '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.

## **11.0 SECURITY**

- 11.1 The Contractor shall have total responsibility for all equipment and materials in his custody stored, 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 with the written permission of the Engineer in the prescribed manner. Inadequate provision in this regard will result in owner making security arrangements at contractor's cost.

## **12.0 EMPLOYMENT OF LABOUR**

- 12.1 The Contractor shall employ on the work only his regular skilled employees with experience of his particular work.
- 12.2 Contractor's employees shall wear identification badges, safety helmets and applicable protective gear while on work at site.
- 12.3 In case the owner becomes liable to pay any wages or dues to the labour or to 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.
- 12.4 As far as possible unskilled labour shall be engaged from local area of site.
- 12.5 The Contractor shall at all time have due regard to the local religious, festivals & customs.
- 12.6 Contractor shall comply with all the provisions of labour, civil, State & Central laws, statutory rules, regulations under the law. In case of his non-compliance with any provision, he will indemnify the owner from and against all liabilities, damages, penalties, demand etc.
- 12.7 The Contractor in the event of his engaging 20 (twenty) or more workmen at site shall obtain independent license under contract labour (Regulation and abolition act) from the concerned state labour authorities for which necessary certificate (Form 2) shall be issued by an Engineer.
- 12.8 Contractor's Employees: The Contractor shall provide and employ on the site in connection with the execution and maintenance of the works the following:
- a) Technical personnel, skilled and experienced in their respective trades and are competent to give proper supervision to the work they are required to supervise and execute. The regular skilled employees with experience of the particular work are expected to be employed by the Contractor.





- b) Such skilled, semi-skilled labour as is necessary for the proper work strictly as per Specification and timely execution and maintenance of the works. No female labour shall be employed after darkness. No person below the age of 18 Years (eighteen years) shall be employed.
  - c) Where required by Law Regulation of Local or other authority, such personnel shall be duly licensed by the Competent Authority to practice their trades, professions and callings.
  - d) The same technical personnel of the Contractor shall continue till completion of work and if at all it is necessary to withdraw any of the technical personnel of the Contractor to any other site, the same shall be done with written approval of Engineer or Purchaser unless it is a case of resignation.
  - e) If any of the personnel is not found to be performing his services in a manner as expected of him, under the contract, the Contractor on advice from the Engineer shall replace such person(s) at his cost with those acceptable to the Engineer, by mutual agreement.
- 12.9 The Contractor shall be responsible for payment of salaries to the said labour/ employees. The Contractor shall also be liable to extend/ provide all the benefits admissible to said labour/ employee under various laws in force.
- 12.10 All travelling expenses including provisions of all necessary transport to and fro from site, lodging allowances and other payments to the Contractor's employees shall be sole responsibility of the Contractor.

### **13.0 FIRST AID**

- 13.1 The Contractor shall provide necessary first aid facilities for all his employees, representatives and workmen working at the site. Sufficient number of Contractor's personnel shall be trained in administering first-aid. The contractor shall maintain transport facilities needed for emergency treatment at hospitals.

### **14.0 CLEANLINESS**

- 14.1 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 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.
- 14.2 Similarly the offices of the Contractor shall be kept clean and neat to the entire satisfaction of the Engineer. Proper sanitary arrangements shall be provided by the Contractor, in the work-areas and office of the Contractor.
- 14.3. In the event Contractor fails to keep his work area clean, the Engineer shall be free to engage alternate labour, after serving written notice to that effect to the Contractor, to clean up the Contractor's work area and realize the amount spent on this account from the Contractor.



## **15.0 LINES AND GRADES**

- 15.1 All the works shall be performed to the lines, grades and elevation indicated on the drawings. The Contractor shall be responsible to locate the layout of the works. Basic horizontal and vertical control points will be established and marked by the Engineer at site at suitable points. The Contractor shall inform the Engineer well in advance of the time 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.

## **16.0 FIRE PROTECTION**

- 16.1 The work procedures that are to be used during the erection shall be those which minimize 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 erection 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 purposes unless otherwise specified. If any such materials are received with the equipment at the site, the same shall be removed and replaced with acceptable materials before moving into the erection area or storage.
- 16.2 Similarly corrugated paper fabricated cartons, etc shall not be permitted in the erection area either for storage or for handling of materials. All such materials used shall be water proof and flame resistant type. All the other materials such as working drawings, plans etc., which are combustible but essential shall be protected against combustion resulting from welding sparks, cutting flames and other similar fire sources.
- 16.3 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 No. of such trained personnel must be available at the site during the entire period of the Contract.
- 16.4 The Contractor shall provide enough fire protection equipment of the types and number for the warehouses, office, temporary structures, labour colony area, etc. Access to such fire protection equipment shall be easy and kept open at all times. The compliance of the above requirements under fire protection shall in no way relieve the Contractor of any of his responsibilities and liabilities due to fire accidents occurring other to his materials and equipment or to those of others working in the area.

## **17.0 CONTRACTOR'S AREA LIMITS**

- 17.1 The Engineer will mark out the boundary limits of access roads, parking spaces, storage and erections area for the Contractor and the Contractor shall not tress-pass the areas not so marked out from 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.

## **18.0 CONTRACTOR'S COOPERATION WITH THE OWNER/ PURCHASER**

- 18.1 In cases where the performance of the erection work by the Contractor affects the operation of the system facilities of the Purchaser, 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 Purchaser and the Contractor shall strictly adhere to such restrictions and cooperate with the Engineer. It shall 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.

- 18.2 The Contractor shall be responsible for first fill of oils, lubricants and essential chemicals etc which will be required under the scope of specification unless specifically excluded under exclusions in these documents and Specifications.

## **19.0 PRE-COMMISSIONING TRIALS & INITIAL OPERATIONS**

- 19.1 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 of this document. The Contractor shall provide, in addition, test instruments, calibration devices, etc and the labour required for the 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.

Pre-commission's Tests including but not restricted to the following and as listed in General Technical Specification clause 10.2.0 and sub clauses section -1, should be conducted by the Contractor:

1. Hydraulic Test of Boiler pressure parts after completion of erection.
  2. Acid cleaning of Pressure parts.
  3. Steam Blowing after acid cleanings.
  4. Gas tightness test of all ducts. (Air, Flue and mill) before insulation.
  5. Air leak test of Boiler, before insulation.
  6. Floating of Safety Valves.
- 19.2. Hydraulic Test should be conducted in the presence of Chief Inspector of Boiler to obtain Boiler license. The Contractor should arrange for the above.

## **20.0 MATERIALS HANDLING AND STORAGE**

- 20.1 All the equipment furnished under the Contract and arriving at site shall be promptly received, unloaded and transported and stored in the storage spaces by the Contractor including re-handling re-transporting to erection works.
- 20.2 Contractor shall be responsible for examining all the consignments and notify the Engineer immediately of any damages, 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 the site. Any demurrage, wharf age and other such charges claimed by the transporters, railways etc., shall be to the account of the Contractor.



- 20.3 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 at any time.
- 20.4 All the equipment shall be handled very carefully to prevent any damage or loss. No bare wire rope 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 stored. The equipment from the storage shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site.
- 20.5 All electrical panels, control gears, motors and such other devices shall be properly dried by heating before they are installed and energized. Motor bearings, slip rings, commutators and other exposed parts shall be protected against moisture ingress and corrosion during storage and periodically treated to prevent corrosion due to prolonged storage.
- 20.6 All the electrical equipment/accessories, such as motors, generators, cables, etc 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.
- 20.7 The Contractor shall ensure that all the packing materials, and protection devices used for the various equipment during transit and storage are removed before the equipment are installed. The packing materials and protection devices shall remain the property of the Purchaser and shall be handed over to him by the Contractor after the completion of works.
- 20.8 The consumable 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.
- 20.9 All the materials stored in the open or dusty location must be covered with suitable weather proof and flame proof covering material wherever applicable.
- 20.10 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.
- 20.11 The Contractor shall be responsible for making suitable indoor storage facilities to store all equipment which require indoor storage. Normally, all the electrical equipment such as motors, control gears, generators, exciters 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.
- 20.12. Dismantling work should be done with due diligence so as not to damage the equipment. The dismantled materials / equipment should be handed over to the owner at the storage place & site indicated by the owner.



## **21.0 CONSTRUCTION/ERECTION MANAGEMENT**

- 21.1 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 co-ordination of work. Such decision by the Engineer shall not be a cause for extra compensation or extension of time for the Contractor.
- 21.2. The Engineer shall hold weekly meetings of all the Contractors working at Site, at a time and a place to be designated by the Engineer. The Contractor shall attend meetings and take notes of discussions during the meeting and the decisions of the Owner and shall strictly adhere to that decision in performing his works. In addition to the above weekly meetings, the Owner may call for other meetings either with individual contractors or with selected number of contractors and in such a case the Contractor, if called, will also attend such meetings.
- 21.3 Time is the essence of the Contract and the Contractor shall be responsible for performance of his works in accordance with the specified erection 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 or otherwise accelerate the progress of the work to 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.
- 21.4. The Engineer shall, however, not be responsible for provision of additional labour and / or materials or supply or any other services to the Contractor except for the co-ordination work between various Contractors as set out earlier.

## **22.0 FIELD OFFICE RECORDS**

- 22.1 The Contractor shall maintain at his site office up to date copies of all drawings, Specification and other Contract Document and any other supplementary data complete with all the latest revisions there to. The Contractor shall also maintain in addition the continuous record of all changes to the above Contract documents drawings, Specification, 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.

## **23.0 CONTRACTOR'S MATERIALS BROUGHT ON TO SITE**

- 23.1 The Contractor shall bring to site all equipment component, parts, materials, including erection equipment, tools and tackles for the purpose of the works under intimation to the Engineer. The right on all such goods shall, from the time of their being brought shall rest with the Purchaser 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 Contractor shall be solely liable and responsible for any loss or destruction thereof and damage thereto.
- 23.2 The Owner shall have a lien on such goods throughout the period of contract 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 15 (fifteen) days notice in writing of his intention to do so,



the Owner shall be at liberty to sell and dispose of 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.

- 23.3 After the completion of the works, the Contractor shall remove under the direction of the Engineer, the materials such as construction/ erection tools and tackles, erection equipment, scaffolding, etc. from the site after written permission of the Engineer. If the Contractor fails to remove such materials, within fifteen (15) days of a notice by the Engineer to do so, then the engineer shall have the liberty to dispose of such materials as detailed in above clause and credit the proceeds thereof to the account of the Contractor.

#### **24.0 PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY**

- 24.1 The Contractor shall be responsible for any damage resulting from his operation. He shall also be responsible for protection of all persons including members of public and employees of the Purchaser and Engineer and the employees of the Contractors and Sub-Contractors and all public and private property including structures, buildings, other plants and equipments and utilities either above or below the ground.
- 24.2 The Contractor shall ensure provision of necessary safety equipment such as barriers, sign boards, 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 Purchaser of public or private property and utilities when such property and utilities are likely to get damaged or injured during the performance of his works and shall make all necessary arrangements with such Purchasers, related to removal and/ or replacement or protection of such property and utilities.

#### **25.0 PAINTING**

- 25.1 All exposed metal parts of the equipment including piping, structures, railings 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 with two coats of alloyed resin machinery epoxy paints. The quality of the finish paint shall be as per the Indian Standards or equivalent and to be of the colour as approved by the Engineer.

#### **26.0 UNFAVOURABLE WORKING CONDITIONS**

- 26.1 The Contractor shall confine all his field operations to those works which can be performed without subjecting the equipment and materials/ works to adverse effects during inclement weather conditions, like monsoon, storms etc. and during other unfavourable working/ erection 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 Contractor in a proper and satisfactory manner in the performance of such works and with the concurrence of the Engineer. Such unfavourable working/ erection conditions will in no way relieve the Contractor of his responsibility to perform the works as per the schedule.





## **27.0 PROTECTION OF MONUMENTS & REFERENCE POINTS**

- 27.1 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 out either with the help of Owner or by the Owner shall not be disturbed in any way during the performance of his works. If any work is to be performed which may disturb such references, the same shall be done only after these are transferred to other suitable location under the direction of the Engineer. The Contractor shall provide all necessary materials and assistance for such relocation of reference points etc.

## **28.0 WORK & SAFETY REGULATIONS**

- 28.1 The Contractor shall ensure the safety of all the workmen, materials and equipment either belonging to him or to others working at site.
- 28.2 The Contractor will notify the Engineer of his intention to bring on to site any equipment or any container, with liquid or gaseous fuel or other substance which may create 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. The Engineer shall have the right to inspect any erection plant for fabricated item and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition shall be entertained by the Purchaser.
- 28.3 Where it is necessary to provide and/or store petroleum products or petroleum mixture and explosive, the Contractor shall be, responsible for carrying out such provisions and/or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosive Act 1948, and Petroleum and Carbide of Calcium manual published by the Chief Inspector of Explosives of India. All such storage shall have prior approvals of the Engineer. In case any approvals are necessary from the Chief Inspector of Explosive or any statutory authorities, the Contractor shall be responsible for obtaining the same.
- 28.4 The Contractor shall be responsible for provision of all safety notices and safety equipment required both by the relevant legislations and the Engineer as he may deem necessary.
- 28.5 The Contractor shall be responsible for the same storage of his and his Sub-Contractor's radioactive sources, if any.

## **29.0 ELECTRICAL SAFETY REGULATIONS**

- 29.1 In no circumstances will the Contractor interfere with fuses and electrical equipment belonging to the Purchaser.
- 29.2 Before the Contractor connects any electrical appliances to any plug or socket belonging to the Purchaser, he shall: Satisfy the Engineer that the appliances are in good working condition. Inform the Engineer of the maximum current rating, voltage and phases of the appliances. Obtain permission of the Engineer detailing the socket to which the appliances may be connected.



- 29.3 The Engineer will not grant permission to connect until he is satisfied that: The appliance is in good condition and is fitted with suitable plug. The appliance is fitted with a suitable cable having two earth conductors, one of which shall be earthed metal sheath surrounding the cores.
- 29.4 No electric cable in use by the Contractor/Purchaser shall be disturbed without prior permission. No weight of any description shall be imposed on any such cable and no ladder or similar equipment shall rest against or be attached to it.
- 29.5 No work shall be carried out on any live equipment. The equipment must be made safe and a permit to work issued by the Engineer should be obtained before any work is carried out.
- 29.6 The Contractor shall employ the necessary number of qualified, full time electricians to maintain his temporary electrical installation.
- 29.7 The major equipments & plants erection, testing & commissioning shall be as per IER 1956 & CEIG's clearance and approval shall be obtained by the contractor at his cost.

### **30.0 FOREIGN PERSONNEL**

- 30.1 The Contractor shall submit to the Purchaser list on all foreign personnel he proposed to deploy 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.
- 30.2 Any person unsuitable and unacceptable by the Purchaser shall not be deployed at site. Any person deployed at site if found unsuitable or unacceptable by the Purchaser, the Contractor shall within a reasonable time make alternative arrangements for providing a suitable replacement and repatriation of such unsuitable personnel.
- 30.3 No person deployed at site for the purpose for the works shall be repatriated without the consent of the Purchaser in writing based on a written request from the Contractor for such repatriation giving reasons for such an action to the Engineer. The Purchaser may give permission for such repatriation provided he is satisfied that the progress of work will not suffer due to such repatriation.
- 30.4 The cost for passports, visas and other travel expenses to and from India incurred by the Contractor shall be to his account. The Purchaser will not provide any residential accommodation and/or furniture for any of the Contractor's personnel including foreign personnel and the Contractor shall make his own arrangements for such facilities.
- 30.5 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 of the Government of India, the Purchaser and the Engineer may establish from time to time on them. The Contractor's expatriate personnel shall work and live in close cooperation and coordination with other co-workers and the community and shall not engage themselves in any other employment either part time or full time nor shall they take part in any local politics.





- 30.6 The Purchaser shall assist the Contractor, to the extent possible in obtaining necessary permits to travel to India and back, by issuing necessary certificates and other information needed by the Government of India.

### **31.0 CODE REQUIREMENTS**

- 31.1 The erection requirements and procedures to be followed during the installation of the equipment shall be in accordance with the relevant Indian Regulations, ICE, IECC, BSS, ASME codes and accepted good engineering practice, the Engineer's drawings and other applicable Indian recognized codes and the laws and regulations of the Government of India.

### **32.0 FACILITIES TO BE PROVIDED BY THE OWNER/ PURCHASER**

- 32.1. The following facilities alone shall be provided by the Owner to the Contractor for execution of this work. Any other facility, whatsoever required to complete the works shall be arranged by the Contractor within the contract price.

#### **32.2 SPACE**

- 32.2.1 The Contractor shall advise the Purchaser within seven (7) days from the date of acceptance of the Letter of Intent, about his exact requirement of space for his office, canteen, storage area, pre-assembly and fabrication areas, toilets, etc., the above requirement shall be reviewed by the Engineer and available open space will be allotted to the Contractor for erection of his temporary structures like office, storage sheds, and other utilities, etc., for his own as well as his Sub-Contractor's use. No space will be provided by the Purchaser for the Contractor's labour. All facilities for labour housing shall be the sole responsibility of the Contractor. The balance requirement of space over and above what is allotted by TANGEDCO shall be met by the Contractors through his own means.
- 32.2.2 Available open space shall be provided to the Contractor for storage of materials during the period of storage and erection. Available area for the project site is less. Only minimum area can be spared for construction purpose. The bidder shall visit the site and if required shall make his own arrangement for extra space if required at his cost. Bidder shall indicate the storage space requirements in his offer and this shall be discussed and finalized subject to availability.
- 32.2.3 The Contractor shall make proper arrangement for safe storage and protection of the equipment/materials during storage and erection till commissioning.

#### **32.3 ELECTRICITY**

- 32.3.1 As the Project Construction activities cannot be confined to a particular point, the Contractor shall be provided with 33kV HT power supply at one location inside the plant site near boundary for erection works at the rates prevailing at the time of usage on chargeable basis for which the contractor has to make an application with SE/EDC/Thoothukudi deposit and other connection charges shall be paid by the contractor. Peak construction power requirement shall be assessed and indicated in the Bid. The Contractor shall make his own further distribution arrangement to the spots of requirements. All initial deposit, installation and connection charges shall be borne by the contractor.
- 32.3.2 All temporary wiring must comply with safety erection regulations and shall be subjected to Engineers inspection/ approval before connection to supply. Purchaser shall not be responsible



for any interruption in power supply. Contractor shall make his own arrangement for alternative source of power supply through deployment of adequate capacity and number of DG sets to meet the construction needs. The non-availability of supply or its quality shall not be cited as hindrance of work execution.

**32.4 WATER**

The Contractor shall make his own arrangement for water for erection & drinking purposes.

**32.5 POWER STATION RAILWAY SIDING AND SHUNTING LOCOMOTIVE**

Not Applicable.

**32.6 ERECTION TOOLS AND EQUIPMENT**

32.6.1 The Purchaser shall not be responsible or held liable for any damage to person or property consequent upon the use, misuse or failure of any construction/ erection tools and equipment used by the Contractor or any of his Sub-Contractors, such construction/ erection tools and equipment may be furnished, rented or loaned to the Contractor or any of his Sub-Contractors.

32.6.2 The acceptance of such construction/ erection tools and equipment by the Contractor or his Sub-Contractors shall be construed to mean that the Contractor accepts all responsibility for and agrees to indemnify and save harmless the Purchaser from any and all claims for said damages resulting from said use, misuse or failure of such construction tools and equipment.

**32.7 FACILITIES DURING STARTUP, COMMISSIONING, TESTING**

32.7.1 Owner will provide fuel and startup power required during testing, commissioning, PG testing, retesting etc, free of cost.

Bidder to indicate the quantity of fuel required for the above mentioned purposes in the bid to enable TANGEDCO to plan for the requirement. However, the quantities projected by the bidder shall be subject to validation before commencement of testing and commissioning of the units, post award and the decision by TANGEDCO in this regard shall be final.

**33.0 CLOSING OF SITE OFFICE**

33.1 After completing the works at site, the contractor shall remove all temporary works constructed by him as identified by the Owner and hand over back to the Owner the balance clear space & undismantled closed space as constructed. No cost shall be paid for the sheds handed over to the owner after closing of the office / storage yard.

33.2 The contractor shall remove all erection equipment brought by him to site for execution of the contract as directed by the owner within the time limits to be stipulated then by the owner, failing which site rent at applicable rates shall be intimated and levied on the Contractor.

33.3 All the balance supplies left over after completing the erection works & belonging to the Owner shall be deposited and stacked in the stores as instructed by the Owner.



33.4 Unless all material are removed and clear space is handed over back to the owner, the final bill payment as well as release of contract performance security shall not be considered by the owner.

33.5 On completion of the erection activities the contractor shall return the labour license to the Labour Commissioner and submit a proof of having cancelled the labour license to the owner.

#### **34.0 DEFECTIVE WORKS**

34.1 If the works or any portion thereof shall be damaged in any way excepting by the acts of the Purchaser, or if defects not readily detected by prior inspection shall develop before the final completion and acceptance of the whole work, the Contractor shall forthwith make good, without compensation, such damage or defects in a manner satisfactory to the Purchaser/Engineer. In no case shall defective or imperfect work be retained.

#### **35.0 PROGRESS PAYMENT FOR SITE WORK**

35.1 All progressive payments for erection/ construction works shall be based on milestone progress achieved. The Contractor shall submit a detailed schedule for such milestones which shall be mutually discussed and agreed between Purchaser and Contractor.

35.2 The Contractor shall not demand nor be entitled to receive payment for the work or portion thereof, except in the manner set-forth in his 'Contract' and only after the Purchaser/ Engineer shall have given a certificate for such payment.

#### **36.0 FACILITIES TO BE PROVIDED BY THE CONTRACTOR**

##### **36.1 TOOLS, TACKLES AND SCAFFOLDINGS**

The Contractor shall provide at his own expense, all the erection equipment, erection tools, machine tools, power tools, tackles, hoists cranes, derricks, cables sling, skids, scaffolding, work benches, tools for rigging, cribbing and blocking, welding machines, preheating and stress relieving equipment, X-ray and all associated protection equipment, instruments, appliances, materials and supplies required for unloading, transporting, storing, erection, testing and commissioning that may be required to accomplish the work under the Contract unless otherwise to final determination of the Purchaser/ Engineer. He shall submit a list of all such material to the Purchaser/ Engineer before the commencement of preassembly at 'site'. These tools and tackles shall not be removed from the 'site' without the written permission of the Purchaser/ Engineer.

36.2 The Contractor shall also furnish all necessary expandable devices like anchors, grinding and abrasive wheels, hacksaw blades, taps, dies, drills, reamers, chisels, files, carborundum stones, wire brushes, necessary scaffolding, ladders, wooden planks, timbers, sleepers and consumable materials like oxygen, acetylene, argon, lubricating oils, greases, cleaning fluids, graphite powder and flakes, fasteners, gaskets, temporary supports, stainless steel shims of various thickness as required, cotton waste, cheese cloth and all other miscellaneous supplies of every kind required for carrying out the work under the 'Contract'.

36.3 The Contractor shall provide all reasonable facilities including tools, personnel, etc., and ensure co-ordination with the Purchaser/ Engineer and the Manufacturer's erection supervisors to enable them to carry out all supervision, measurements, checks etc., in a satisfactory manner.



- 36.4 The Contractor shall inform the Purchaser about arrival of all tools, tackles and scaffoldings. The Contractor shall not dispose or transport or withdraw any tools, tackles, equipment and material provided by him for the 'Contract' without taking prior written approval from the Purchaser/Engineer, and the Purchaser/ Owner at all times shall have right to refuse permission for disposal, transport or withdrawal of tools, tackles, equipment and materials, if in his opinion, the same will adversely affect the efficient and expeditious completion of the 'Project'.

### **37.0 COMMUNICATION**

- 37.1 The Contractor shall make his own arrangement for all his communication needs such as telephone; telex etc., at his site office. Purchaser will assist the Contractor in getting the above facilities, in case he finds any difficulties.

### **38.0 INSURANCE**

- 38.1 In addition to the conditions covered under the clause entitled "Insurance", the following provisions shall also apply to the portion of the works to be done beyond the Contractor's own or his Sub-Contractor's manufacturing works. Comprehensive insurance of equipment during erection and commissioning, workmen's Compensation Insurance, comprehensive Automobile insurance and Comprehensive General Liability Insurance shall be the responsibility of the Contractor. Contractor shall generally take the insurance from nationalized insurance companies.

#### **38.2 WORKMEN'S COMPENSATION INSURANCE**

The 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:

Workmen's compensation : As per statutory provisions

Employee's liability : As per statutory provisions

Recoveries will be made from Contractor's bills for any liability for the accident and refund shall be considered later after the claim is fully settled by the insurance authorities.

#### **38.3 COMPREHENSIVE AUTOMOBILE INSURANCE**

The 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 Purchaser'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 per Motor Vehicles Act.

#### **38.4 COMPREHENSIVE GENERAL LIABILITY INSURANCE**

- 38.4.1 This insurance shall protect the Contractor against all claims arising from injuries, disabilities, diseases 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 representative 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 45.0 entitled “Defense of Suits” under Section – 2 General Terms and Conditions of Contract.

- 38.4.2 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.

### 38.5 FIRE INSURANCE

Unless otherwise instructed by the Purchaser/ Engineer, the Contractor shall, on signing the ‘Contract’, insure the works and keep them insured until the completion of the ‘Contract’ against loss or damage by fire, with the Company to be approved by the Purchaser/Engineer, in the joint names of the Purchaser and the Contractor for such amount and for any further sum, if called upon to do so by the Purchaser/Engineer, the premium of such further sum being allowed to the Contractor as an authorized extra. Such policy shall cover the property of the Purchaser only and shall not cover any property of the Contractor or any Sub-Contractor, or his employees. The Contractor shall deposit the policy receipts for the premium with the Purchaser/Engineer within twenty one (21) days from the date of signing the ‘Contract’ unless otherwise instructed by the Purchaser/Engineer. In default of the Contract insuring as provided above, the Purchaser may so insure and may deduct the premiums paid from any money due, or which may become due to the Contractor. The Contractor shall, as soon as the claim under the policy is settled, or the work reinstated by the Insurance Office should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the fire had not occurred and in all respects under the same conditions of ‘Contract’. The Contractor will arrange all the replacement material damaged during fire accident if any without for finalization of his claim with insurance Company. The claim received if any will be passed on to the Contractor.

- 38.6 The above are only illustrative list of insurance covers normally required and it shall 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 pursuance of the Contract.

### 39.0 ADHERENCE TO MANUFACTURER’S INSTRUCTION

- 39.1 Adherence to instructions of the Manufacturer’s supervisory engineers, where provided, is compulsory. The Contractor shall work under the guidance of the Manufacturer’s supervisors to ensure that erection procedure adopted by the Contractor as well as completed erection of equipment is such as not to interfere with or prevent equipment from functioning as intended, as well as to the entire satisfaction of the Manufacturer’s supervisor/ Purchaser/ Engineer.

The Contractor shall also permit and provide all facilities for the Manufacturer’s erection supervisors to carry out all checks that they may wish to and approve any erection procedure and / or final setting and alignment of component, in order to satisfy themselves that erection has been carried out as intended by them. This shall, however, in no way relieve the Contractor of his responsibility for providing adequate and competent supervision and quality workmanship. In case of any dispute, the decision of the Purchaser/ Engineer/ Manufacturer’s erection supervisor shall be final.



#### **40.0 MODIFICATIONS**

- 40.1 The Contractor shall carry out all modifications at site as directed by the Purchaser/Engineer to complete the work covered in this Contract. It is the responsibility of the Contractor to get the prior approval for such modifications from the Purchaser/ Owner before such works are taken final.

#### **41.0 HANDING OVER**

- 41.1 In the event of the Contractor being prevented by causes not attributable to him from proceeding with erection or from completing erection before he withdraws from the site he shall hand over to the Purchaser for safe keeping during his absence such Contract material that he is usable to erect, and the Purchaser will furnish a receipt for material so handed over.
- 41.2 If the executions of Performance Guarantee Tests (PG tests) are delayed for reasons beyond the control of the Contractor, the plant may be handed over to the Purchaser. However, the Contractor has to complete the PG tests at the appropriate time and establish the Guaranteed Parameters. The Guarantee cover for equipment and spares etc. will take effect only from the date of satisfactory completion of PG tests, and written acceptance of the results by the Purchaser. However the maximum delay shall be limited to 6 months beyond the stipulated date or a mutually agreed period.

#### **42.0 WASTE MATERIALS & DE MOBILISATION**

- 42.1 All waste materials as decided by the site Engineer should be let out of the compound at Contractor's cost and the Contractor should keep the site always clean during progress of work.
- 42.2 On Completion of work, the Contractor shall promptly demobilize from the site and leave the place within two months from the date of handing over of site to TANGEDCO, in a manner, as directed by the owner/ Engineer.

#### **43.0 INCIDENTAL WORKS**

- 43.1 All the works such as cleaning, checking, leveling, assembling, temporary erection for alignment, dismantling of certain equipments for checking and cleaning, preparation, fabrication of plates/ sheets, tubes and pipes as per general engineering practice at site, cutting, gauging, grinding, straightening, filling, chipping, drilling, reaming, lapping, shaping, fitting, heat treatment cable laying, etc. and minor civil works as incidental to the erection and necessary to complete the work satisfactorily shall be carried out by the Contractor's workers at no extra cost, to the Owner.

#### **44.0 LIABILITY FOR ACCIDENTS AND DAMAGE**

- 44.1 In EPC contract the contractor shall be entirely responsible for all loss, damage or depreciation to the plant until the plant has been delivered at the site on the plinth/ structure or as decided by the Engineers.
- 44.2 The Contractor shall, during the progress of the work, properly cover up and protect the plant from injury by exposure to the weather, and shall take every reasonable , proper, timely and useful precaution against accident or injury to the same from any cause and shall be and remain answerable and liable for all accidents or injuries thereto which until the same be, occasioned by the acts or omissions of the Contractor or his workmen or Sub-Contractors and all losses and





damages to the plant arising from such accidents or injuries as aforesaid shall be made good in the most complete and substantial manner by and at the sole cost of the Contractor and to the reasonable satisfaction of the Engineer.

- 44.3 Until the plant shall be or deemed to be taken over as aforesaid, the Contractor shall also be liable for and shall be deemed to have indemnified the Purchaser in respect of all damage or injury to any person or to any property of the Purchaser or of others occasioned by the negligence of the Contractor or his workmen or Sub-Contractors or by defective design, work or material, but not otherwise.
- 44.4 Provided that the Contractor shall not be liable under the Contract for any loss or profit or loss of Contracts or any claims made against the Purchaser not already provided for in the Contract, nor for any damage or injury caused by or arising from the acts of the Purchaser or of others, or (save as to damage by fire as hereinafter provided) due to circumstances over which the Contractor has no control, nor shall his total liability for loss, damage or injury exceed the total value of the Contract.
- 44.5 The Contractor shall be deemed to have indemnified and save harmless to the Purchaser against all actions, suits, claims, demands, costs or expenses arising in connection with injuries suffered prior to the date when the plant shall have been taken over by person employed by the Contractor or his Sub-Contractor on the works whether under the general law or under the Workmen's Compensation Act VIII of 1923, or any other statute in force on the date of the Contract dealing with the question of the liability of employers for injuries suffered by employees and to have taken steps properly to insure against any claims there under.
- 44.6 On the occurrence of an accident which results in the death of any of the workmen employed by the Contractor or which is so serious as to be likely to result in the death of any such workmen, the Contractor shall, within 24 hours of the happening of such accident intimate in writing to the Engineer, the fact of such accident. The Contractor shall indemnify the TANGEDCO against all loss or damage sustained by the TANGEDCO resulting directly or indirectly from his failure to give intimation in the manner aforesaid including the penalties or fines if any payable by the TANGEDCO as a consequence of the TANGEDCO's failure to give notice under the workmen's Compensation Act or otherwise, to conform to the provision of the said act in regard to such accident.
- 44.7 In the event of any claim being made or action brought against the Purchaser involving the Contractor and arising out of the matters referred to and in respect of which the Contractor is liable under this clause, the Contractor shall be immediately notified thereof' and he shall, with the assistance if he so requires of the Purchaser, but at the sole expense of the Contractor conduct all negotiations for the settlement of the same or of any litigation that may arise there from. In such case, the Purchaser shall, at the expense of the Contractor, afford all available assistance for any such purpose.
- 44.8 In the event of an accident in respect of which compensation may become payable under the Workmen's Compensation Act VIII of 1923, whether by the Contractor or by the Government as Principal, it shall be lawful for the Owner to retain out of money due and payable to the Contractor such sum or sums of money as may, in the opinion of the Engineer, but sufficient to meet such liability. The opinion of the Owner shall be final in regard to all matters arising under this clause.
- 44.9 Safety instructions issued by the HSE ( Health Safety and Environment ) authorities/ such authorized personnel of TANGEDCO shall be adhered by the Contractor.



#### **45.0 NIGHT WORK**

- 45.1 The Contractor may work during the night hours to complete the work. Engineer may consider granting permission for working during night hours, if he considers it essential in order to complete the work in the stipulated time, on a specific request by the Contractor. Night work shall not entitle the Contractor to any extra payment. Where night work is in progress sufficient lights shall be provided by the Contractor at his cost, to safeguard the workmen and the public and he shall take suitable precautions to prevent accidents. Excavated areas shall be barricaded and provided with red lights as a caution to prevent accidental falls.

#### **46.0 SUBLETTING OF CONTRACT**

- 46.1 The contract is not transferable. No part of the contract shall be sublet without the written permission of the Chief Engineer/Projects.

#### **47.0 CONTRACT QUALITY ASSURANCE**

The Contractor shall submit immediately after the issue of LOI, the Quality Assurance Programme containing the overall quality management and procedures which he proposes to follow in the performance of the works during various phases as detailed in relevant clauses of the "Technical Specification and Scope of supply and Work" covered in this Specification and this Quality assurance programme will be reviewed by the OWNER.

#### **48.0 PENALTY FOR THE VIOLATION OF FACTORY ACT & RULES**

- 48.1 The contract is liable for termination, if any of the provisions of the factory act and the rules there-under is violated. Contractors obligations to ensure security for the power project shall be complied with.

#### **49.0 FIELD ENGINEERING CLARIFICATIONS**

- 49.1 The Contractor shall provide all necessary field engineering clarifications to the Owner/Purchaser for the overall engineering/startup of equipment supplied by the Contractor.

#### **50.0 CLEANING AND SERVICING**

- 50.1 Upon completion of the work, the Contractor shall remove from the vicinity of the work all plant, buildings, rubbish unused materials, concrete forms and other materials, belonging to him or used under his discretion, during construction and in the event of his failure to do so, the same will be removed by the Purchaser and the relevant expenditure recovered from the Contractor.
- 50.2 The Contractor shall ensure that, inside of all tubes, pipes, valves, fittings and actuators shall be free from dirt and loose scales by thoroughly blowing and/or flushing or servicing before being erected.

#### **51.0 IMPLEMENTATION AND FIELD QUALITY PLANS**

- 51.1 It will be the responsibility of the Contractor to ensure that the erection of the equipment supplied by the Contractor is being carried out according to the quality plans and standard manufacturing practice/instructions as given by the manufacturer. In case of any deviations noticed in performing





the erection in accordance with such quality plan etc., the Contractor shall forthwith inform the Owner/Purchaser of such deviations. However the Contractor shall be fully responsible for any consequential liability.

- 51.2 The contractor shall ensure quality norms in pressure parts welding/heating as per the requirements of Chief Inspector of Boilers Tamilnadu.

## **52.0 TOKENS FOR LABOUR**

- i. The Contractor must issue tokens to his workers in the prescribed form and subject to such conditions as pre-scribed by the Owner in charge and enter the list of persons holding such tokens in a separate register. The Contractor must maintain details of the men employed by him for each work in this register. This register must be produced for inspection by the TANGEDCO's officers as and when required.
- ii. Except on specific permission of the Engineer in charge shall the Contractor's workmen enter into the parts of the power house where they have normally no works to do. Any violation of this condition by the Contractor's workmen will be considered as trespass and dealt with accordingly.
- iv. The Contractor will be held responsible for the theft of any materials belonging to the TANGEDCO if found detected in the Sub Contractor's Lorries plying within the power Project.

## **53.0 PURCHASER'S LIEN ON EQUIPMENTS**

- 53.1 The Purchaser shall have lien on all equipment including those of the Contractors brought to the site for the purposes of erection, testing and commissioning of the plant. The Purchaser shall continue to hold the lien on all such equipment till final acceptance of plant. 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.

## **54.0 INSPECTION, TESTING AND INSPECTION CERTIFICATES**

- 54.1 The provisions of the clause entitled "Inspection, Testing and Inspection Certificates" under the Technical Conditions of the Contract 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 Owner rejects any equipment the Contractor shall make good for such rejections either by replacement or modifications/ repairs as may be necessary, to the satisfaction of the Engineer. Such replacements shall also include the replacements or re-execution of such of those works of other Contractor and/ or agencies, which might have got damaged or affected by the replacements or re-work done to the Contractor's work.

## **55.0 PHOTOGRAPHS AND PROGRESS REPORT**

- 55.1 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 schedule and actual progress and the action proposed for correction wherever necessary.
- 55.2 The Contractor shall furnish three (3) prints each; of photographs showing milestone activity at site to the Owner. Photographs shall be taken as and when required and shall be submitted



quarterly for progress review. 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.

55.3 In addition to the above, the erection of critical equipment is to be video-graphed and provided to the Purchaser in the Compact Disc (CD) form for future reference.

**56.0 A WRITTEN STATEMENT BY THE CONTRACTOR STATING THAT HE WILL FULLY MEET THE REQUIREMENTS OF THE SPECIFICATION SHALL BE GIVEN IN THE AGREEMENT SIGNED BY THE CONTRACTOR**

The Contractor shall submit the following before the commencement of work:

- a) To furnish details of special precautions and instructions to be followed and checklist for erection, testing and commissioning of the plant.
- b) To furnish all required drawings, documentation for assembly, erection, testing and commissioning of the plant. Instructions regarding storage, handling, precautions etc., and checklists at various stages till the plant is installed.
- c) Time schedule for design, manufacture, testing and shipment is to be furnished, taking into account the time schedule given by TANGEDCO.

57.0 Safety and security of material and equipment during contract period is the responsibility of the contractor.

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