

TENDER SPECIFICATION

No. PW/NGP/PUR/UKAI-BLR-4/458

FOR

REPAIR / REPLACEMENT WORK OF BOILER, ETC AT GSECL,
UKAI, SONGARH, UNIT- 4 (120MW) DIST- SURAT, GUJRAT

PART I - TECHNICAL BID

SPECIAL & GENERAL CONDITIONS OF CONTRACT

BOOK NO.



BHARAT HEAVY ELECTRICALS LIMITED

(A GOVERNMENT OF INDIA UNDERTAKING)

POWER SECTOR - WESTERN REGION

SHREEMOHINI COMPLEX

345-KINGSWAY, NAGPUR - 440 001

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Special Conditions of Contract			
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LEGEND:

§: PLACED BEFORE 'GENERAL CONDITIONS OF CONTRACT' IN BOTH HARD AND SOFT COPY DOCUMENTS.

#: ATTACHED AT THE END OF HARD COPY OF TENDER SPECS. PART-I (TECHNICAL BID) AND AS A SEPARATE FILE TITLED 'WEB_NIT_GCC' AS SOFT COPY HOSTED IN WEB PAGE.

@: ISSUED AS SEPARATE BOOKLET IN HARD COPY AS PART-II (PRICE BID) AND AS SEPARATE FILE TITLED 'PRICE_BID' AS SOFT COPY HOSTED IN WEB PAGE.

BHARAT HEAVY ELECTRICALS LIMITED

(A GOVERNMENT OF INDIA UNDERTAKING)

POWER SECTOR - WESTERN REGION

345, KINGS WAY - NAGPUR 440 001

TENDER SPECIFICATION NO. : BHE/PW/PUR/UKAI-BLR-4/458

NAME OF THE WORK :

**REPAIR / REPLACEMENT WORK OF BOILER, ETC AT GSECL, UKAI,
SONGARH, UNIT- 4 (120MW) DIST- SURAT, GUJRAT**

EARNEST MONEY DEPOSIT: Please see Section-15 of Special Conditions of Contract.

LAST DATE AND TIME FOR

RECEIPT OF OFFERS: Please visit web page www.bhel.com -> “Tender
Notification” and “View Corrigendum”

THESE TENDER DOCUMENTS CONTAINING PART-I TECHNICAL BID AND PART- II PRICE BID,
ARE ISSUED TO:

M/s.

.....

PLEASE NOTE:

- 5) THESE TENDER DOCUMENTS ARE NOT TRANSFERABLE.
- 6) TENDERER SHALL NOTE THAT THEIR OFFER WILL BE CONSIDERED SUBJECT TO
THE APPROVAL OF BHEL'S CUSTOMER M/s GESCL.

For Bharat Heavy Electricals Limited

SR MANAGER (PURCHASE)

PLACE: NAGPUR

DATE:

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
POWER SECTOR - WESTERN REGION-SAS
345, KINGS WAY - NAGPUR 440 001

PROCEDURE FOR SUBMISSION OF SEALED TENDERS

THE TENDERER MUST SUBMIT THEIR TENDERS AS REQUIRED IN TWO PARTS IN SEPARATE SEALED COVERS PROMINENTLY SUPERSCRIBED AS PART-I TECHNICAL BID AND PART-II PRICE BID AND ALSO INDICATING ON EACH OF THE COVERS THE TENDER SPECIFICATION NUMBER AND DUE DATE AND TIME AS MENTIONED IN THE TENDER NOTICE.

PART-I (TECHNICAL BID) COVER-I

EXCEPTING RATE SCHEDULE, ALL OTHER SCHEDULES, DATA SHEETS AND DETAILS CALLED FOR IN THE SPECIFICATION SHALL BE ENCLOSED IN PART-I "TECHNICAL BID" ONLY.

PART-II (PRICE BID) COVER-II

ALL INDICATIONS OF PRICE SHALL BE GIVEN IN THIS PART-II "PRICE BID". **EMD SHALL NOT BE INCLUDED IN THIS COVER.**

THESE TWO SEPARATE COVERS-I AND II (PART-I AND PART-II) SHALL TOGETHER BE ENCLOSED IN A THIRD ENVELOPE (COVER-III) ALONGWITH REQUISITE EMD AS INDICATED EARLIER AND THIS SEALED COVER SHALL BE SUPERSCRIBED AND SUBMITTED TO ADDL. GEN MANAGER (PURCHASE) AT THE ABOVE MENTIONED ADDRESS ON OR BEFORE THE DUE DATE AS INDICATED.

THE QUALIFIED TENDERER WILL BE INTIMATED SEPARATELY ABOUT THE STATUS OF THEIR OFFER.

TENDERER ARE REQUESTED TO MAKE SPECIFIC NOTE OF THE FOLLOWING CONDITIONS:

1. CONTRACTOR SHOULD HAVE ADEQUATE RESOURCES INCLUDING MAJOR T&P AT HIS DISPOSAL FOR THIS JOB.
2. CONTRACTOR SHOULD HAVE SOUND FINANCIAL STABILITY.
3. TENDERER SHOULD MEET QUALITY REQUIREMENT REGARDING WORKMANSHIP, DEPLOYMENT OF PERSONNEL, ERECTION TOOLS AND NECESSARY INSPECTION, MEASUREMENT & TESTING INSTRUMENTS.
4. ALL INFORMATION AS CALLED FOR IN VARIOUS APPENDICES AND CLAUSES OF TENDER SPECIFICATION, SHOULD BE FURNISHED IN COMPLETENESS. PLEASE REFER THE CHECKLIST.
5. THE TENDERER, SHALL OBTAIN CLARIFICATION ON TENDER IF ANY, BEFORE SUBMITTING THEIR OFFER.
6. OFFERS MUST BE SUBMITTED WITHOUT ANY DEVIATION.
7. OFFERS RECEIVED WITH ANY DEVIATION OR WITHOUT RELEVANT INFORMATION AS DESCRIBED ABOVE ARE LIABLE TO BE REJECTED. PRICE BIDS RECEIVED IN THE FORM OTHER THAN SPECIFIED IN PART-II (PRICE BID) ARE LIABLE TO BE REJECTED.

PROJECT INFORMATION

7.0 INTRODUCTION

BHEL has undertaken the work of Repair/ replacement work of Boiler-4 at Ukai TPS.

The following are the three major parts of works to be carried out:

- g. Replacement / erection , commissioning of of water wall panels, buck stays, Steam cooled wall panels of 200 MW Unit No.4 Boiler at Ukai TPS.
- h. Dismantling ,Replacement / Erection & commissioning of Pent house roof sealing of 200MW unit no.4 Boiler at Ukai TPS.
- i. Dismantling, Erection/Replacement and commissioning of various hangers and supports in 200MW Unit NO. 4 at ukai TPS.

STATUS OF PLANT:

Unit –4 (200MW) of Ukai TPS commissioned in the year 1979 and in operation .

The Ukai TPS is about 90Km from Surat The site is approachable by road.

The nearest railway station is Ukai-Songarh.

LOCATION & APPROACH

- 1) Project: Thermal Power Station Unit # 1 (120MW),
UKAI
- 2) Project location: UKAI, DIST: SURAT, GUJARATSTATE
- 7) Transport facilities:
 - A) Nearest railway SONGARH on the broad gauge, connected from SURAT junction on Howrah Main line.
 - B) Name of railway:
 - a) Power Station is having broad gauge private railway siding served through Rly. Station at distance of about 10kms.
 - b) The site is also connected by all weather road from SURAT through State Highway at a distance of 100 kms from the power station.

4) Climate condition:

Maximum temp:	45 Deg.C
Minimum temp:	5 Deg C
Max daily average Temp	35 Deg C
Max yearly average Temp	30 Deg C
Max Humidity :	85%
Minimum humidity	15%
Annual average rain fall	1500 mm (During June –Sep)

CHECK LIST		
(VIDE PARA 1.3 OF SECTION-I - GENERAL CONDITIONS OF CONTRACT)		
1	Name of the Bidder with Postal Address for Correspondence	
2	Name of Contact Person with Telephone & Fax No.	Mr./Ms Tel No. Fax No.
3	Nature of the firm	PROPRIETARY / PARTNERSHIP / LIMITED CO.
4	Details of EMD Please Indicate whether 4) One Time EMD or, 5) Only for this Tender	DD No. DD Date..... Name of Bank..... Amount: Rs.....
5	Validity of Offer (BHEL's Requirement: 180 days from Last Date for tender submission)	
6	Mobilization Time (Please refer Section-11 of SCC)	
7	Whether Bidder has visited the project site and acquainted themselves with the local conditions and situations.	YES/NO
8	Whether "Certificate of No-Deviation" Furnished	YES/NO
9	Details of similar jobs executed during the last seven years as in " Appendix-VII enclosed	YES/NO
10	Whether copies of previous Work Orders (with detailed BOQ and total order value) and Completion Certificates in support of above furnished	YES/NO
11	Details of Concurrent Jobs Furnished in " Appendix-VI " furnished	YES/NO
12	Headquarter Organization Chart furnished	YES/NO
13	Names & Particulars of Directors/Partners/Proprietor furnished	YES/NO
14	Proposed Site Organization Chart indicating executives and	YES/NO

CHECK LIST		
(VIDE PARA 1.3 OF SECTION-I - GENERAL CONDITIONS OF CONTRACT)		
	supervisors furnished	
15	Financial Viability furnished as in Annexure-I of GCC	YES/NO
16	Profit & Loss account for the preceding three financial years furnished	YES/NO
17	Copy of Latest Solvency Certificate from Govt. Authority or Certification by Bidder's Banker on Overdraft & BG Limits is Furnished (Certificate shall not be older than six months from the Last Date for offer submission)	YES/NO
18	Latest Income Tax Clearance Certificate or copy of IT Return along with copy of PAN Card is Furnished	YES/NO
19	Monthly Manpower Deployment plan as in ' Appendix-IV ' enclosed	YES/NO
20	Deployment plan for major T&P and MMD enclosed as in ' Appendix-V '	YES/NO
21	Month-wise Erection & Commissioning plan enclosed	YES/NO
22	Analysis of Unit Rate Quoted as in ' Appendix-III ' furnished	YES/NO
23	List of other tools and plants/tackles/ instruments contractor proposes to deploy for the work and special tools and instruments in his possession.	ENCLOSED / NOT ENCLOSED
24	Whether the bidder has left any job unfinished? If so, give reasons.	YES/NO
25	Whether any client has terminated the contractor's work before completion? If so, furnish reasons for the same	YES/NO
26	Whether the bidder has understood all Quality Control & Quality Assurance requirements?	YES/NO
27	Whether the bidder is aware of all safety rules/codes? Whether the list of safety equipments proposed to be employed for this work is enclosed.	YES/NO
28	Whether Power of Attorney in favour of the person making this offer enclosed?	YES/NO
29	Whether all the pages are read, understood and signed and the signed copy of tender book submitted?	YES/NO

Note: strike off 'yes' or 'no' as applicable

Date:

Signature of Bidder

Note: strike off **yes** or **no**, as applicable

DECLARATION BY BIDDER'S AUTHORIZED REPRESENTATIVE

I, _____ HEREBY CERTIFY THAT ALL THE INFORMATION AND DATA FURNISHED BY ME WITH REGARD TO THE TENDER SPECIFICATION NO. **BHE/PW/PUR/UKAI-BLR4/458** ARE TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE. I HAVE GONE THROUGH THE SPECIFICATIONS, CONDITIONS AND STIPULATIONS IN DETAIL AND AGREE TO COMPLY WITH THE REQUIREMENTS AND INTENT OF THE SPECIFICATION. I FURTHER CERTIFY THAT I AM DULY AUTHORIZED REPRESENTATIVE OF THE UNDER-MENTIONED TENDERER AND A VALID POWER OF ATTORNEY TO THIS EFFECT IS ALSO ENCLOSED.

AUTHORISED REPRESENTATIVE'S SIGNATURE WITH
NAME AND ADDRESS

DATE:

TENDERER'S NAME AND ADDRESS

CERTIFICATE OF NO DEVIATION

TENDER SPECIFICATION NO.

BHE/PW/PUR/UKAI-BLR4/458

I/WE, M/s

HEREBY CERTIFY THAT NOTWITHSTANDING ANY CONTRARY INDICATIONS/ CONDITIONS ELSEWHERE IN OUR OFFER DOCUMENTS, I/WE HAVE NEITHER SET ANY TERMS AND CONDITIONS NOR THERE IS ANY DEVIATION TAKEN FROM THE CONDITIONS OF BHEL'S TENDER SPECIFICATIONS, EITHER TECHNICAL OR COMMERCIAL, AND I/WE AGREE TO ALL THE TERMS AND CONDITIONS MENTIONED IN BHEL'S TENDER SPECIFICATION WITH ASSOCIATED AMENDMENTS AND CLARIFICATIONS.

DATE:

SIGNATURE OF BIDDER

**SECTION-3
OFFER OF THE BIDDER**

To,
DGM (PURCHASE)
BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR - WESTERN REGION
SHREEMOHINI COMPLEX
345, KINGS WAY
NAGPUR 440 001

DEAR SIR,

I/WE HEREBY OFFER TO CARRY OUT THE WORK DETAILED IN TENDER SPECIFICATION NO. **BHE/PW/PUR/UKAI-BLR4/458** FOR 120 MW, UNIT # 1 **GESCL , UKAI THERMAL POWER PLANT ,** SONGARH ISSUED BY BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR-WESTERN REGION, NAGPUR, IN ACCORDANCE WITH THE TERMS AND CONDITIONS THEREOF.

I/WE HAVE CAREFULLY PERUSED THE FOLLOWING DOCUMENTS CONNECTED WITH THE ABOVE WORK AND AGREE TO ABIDE BY THE SAME.

1. INSTRUCTIONS TO TENDERERS
2. GENERAL CONDITIONS OF CONTRACT
3. SPECIAL CONDITIONS OF CONTRACT
4. OTHER SECTIONS, APPENDICES, SCHEDULES AND DRAWINGS.

I/WE HAVE DEPOSITED / FORWARDED HERewith THE EARNEST MONEY DEPOSIT AS SPECIFIED IN THE TENDER SPECIFICATION. DETAILS OF EMD PAYMENT ARE FURNISHED IN THE CHECK LIST.

EMD SHALL BE REFUNDED SHOULD OUR OFFER NOT BE ACCEPTED / EMD **NEED NOT BE REFUNDED AND THE AMOUNT MAY BE TREATED AS "ONE TIME EMD" FOR ERECTION AND COMMISSIONING TENDERS OF BHEL-PSWR, NAGPUR.** SHOULD OUR OFFER BE ACCEPTED, I/WE FURTHER AGREE TO DEPOSIT SECURITY DEPOSIT FOR THE WORK AS PROVIDED FOR IN THE TENDER SPECIFICATION WITHIN THE STIPULATED TIME AS MAY SBE INDICATED BY BHEL, POWER SECTOR-WESTERN REGION, NAGPUR.

OR,

WE HAVE ALREADY DEPOSITED ONE TIME EMD OF Rs. 2,00,000/- (RUPEES TWO LACS ONLY), DETAILS OF WHICH ARE FURNISHED IN THE CHECK LIST.

I/WE FURTHER AGREE TO EXECUTE ALL THE WORKS REFERRED TO IN THE SAID DOCUMENTS UPON THE TERMS AND CONDITIONS CONTAINED OR REFERRED TO THEREIN AND AS DETAILED IN THE APPENDICES ANNEXED THERETO.

PLACE:
DATE:

SIGNATURE OF TENDERER:
ADDRESS:

WITNESSES WITH THEIR ADDRESS

SIGNATURE	NAME	ADDRESS
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1.

2.

SECTION-4

SPECIAL CONDITIONS OF CONTRACT

4.0 SCOPE OF WORK

ANNEXURE-1

SCOPE OF WORK: DISMANTLING, REPLACEMENT OF WATER WALL PANELS, BUCK-STAYS, STEAM COOLED WALL PANELS AND ASSOCIATE WORKS INCLUDING INSULATION & OUTER CLADDING FOR BOILER UNIT-4 (200 MW UNIT) AT UKAI TPS.

PLEASE NOTE THAT IT IS REPAIR JOB AND NO EXTRA WORK ON WHATSOEVER REASONS SHALL NOT BE PAID. CONTRACTOR HAS TO TAKE THIS INTO CONSIDERATION WHILE QUOTING AND ACQUANT THEMSELVES WHILE QUOTING.

- 01) Erection of sky climber, scaffolding and temporary platforms for removal/re-erection work as per requirement and restoration of the same. Operation/maintenance of sky climber and dismantling shall be carried out by the contractor.
- 02) Scaffolding/ structural materials as required shall be arranged by the contractor. However, if some of the items are available with GEB and spared by them, it will be issued on returnable basis.
- 03) Removal of insulation / cladding and refractory shall be carried out for dismantling of WW panels, buck stays and related materials. Re-insulation/cladding and refractory shall be applied and restored as per the instruction of Engineer in Charge of BHEL. Required material like thermal insulation/cladding and refractory shall be supplied free of cost.
- 04) Removal of all local instrument and connections wherever required is to be co-ordinated with GEB.
- 05) Cutting and removal of platform/grill/handrails and drains/vents connection, wherever required, for removal and erection of new WW panels, buck stays and restoration of above.
- 06) Drawl and transporting of all the required material to execute this work from the customers store/wherever stacked inside the premises of GEB. All surplus/dismantled material shall be returned to GEB store/locations as shown by engineer in charge and reconciliation of materials shall be carried out in all the respects.
- 07) Arranging of suitable mobile crane for loading/ unloading and trailer for transporting of material to/from storage yard/Store is covered in the scope of contractor.
- 08) WW panels, steam cooled wall panels in the first and second pass including buck stays beams to be replaced as per site requirement and as per the instruction of Engineer in Charge of BHEL. Supply of WW panels and buck stay beams include soot blower bends. Peephole bends, seal boxes, scalloped bars, stirrups, fin plates and

other attachments which shall be supplied loose so that these can be used at appropriate locations. Angles and channels for outer casing supports, leveller guide channels, buck stay channels and corner plates/links shall be supplied as spares for replacement, wherever required.

- 09) Removal and Rectification / replacement of buck stays in first and second pass which are bowed/ distorted is included in the scope of work.
- 10) WW panels are to be cut and removed. Panels are to edge prepared, fitted, aligned and welded Fin welding shall be completed in all respects and DP test/Radiography shall be conducted. Soot blowers, soot blower piping, peephole doors and instrument inserts shall be restored including application of refractory.
- 11) Any corrections due to the fouling of soot blower and soot blower piping , after replacement of WW panels is also covered in the scope the work. Further all the associated works, like replacing/shifting/cutting/welding of furnace guides, buck stay beams, Pressure parts tube, buck stays channels, leveller guides, corner plates, outer casing supports etc. are also including in the scope the work. Minor corrections of bows in water wall panel/buck stay beams, if any, shall be carried out as part of scope of this work.
- 12) After the completion of replacement of WW panels, ring header shall be inspected by cutting of stubs/hand hole plates and same shall be welded after cleaning/flushing of the ring header.
- 13) In addition to the work covered in this scope, subcontractor has to set right any deformation of furnace. To correct the deformation cutting of fins, tubes etc and re-welding of the same is included in the scope of work.
- 14) During the erection of water wall panels, buck stays and steam cooled wall and any connected / related component of this work, if any member / coil/ tube is required to be cut for shifting / dismantling, the same should be carried out by the contractor along with the restoration / re-welding and re-erection, with out any extra cost.
- 15) **Minimum 30% of joint are to be radiographed.** Any defect noticed shall be repaired and re-radiographed as per IBR norms at no extra cost. All pre-weld and post weld heat treatment as per IBR norms and record keeping of the same is the responsibility of the contractor.
- 16) Radiography activities shall be carried out with all the safety norms and to be carried out by the certified radiographers registered with the Gujarat boiler inspectorate..
- 17) Hydro test be carried out as per the instruction of the Engineer in charge of BHEL and the same shall be repeated in the presence of the Boiler inspector. Contractor has to arrange on his own the required Hyd Test/Pressurizing pump and associated material, install and the conduct the Test. This is included in the scope the work.
- 18) TIG wire for root welding and welding electrodes, as approved by BHEL oxygen, acetylene and other consumables shall be arranged by the contractor at his own cost.
- 19) It shall be the responsibility of the contractor to obtain required approval from CIB, Gujarat. And necessary coordination with Boiler Inspectorate including ground

inspection, stage inspection, hydro test etc. till completion and acceptance of all works, is in the scope of contractor.

- 20) M/s GSECL may arrange general cleaning and cleaning of area by removing of ash and other disposable items before taking up the work. However localized cleaning of the area before and during the course of execution is covered under the scope of the work.
- 21) Work is to be executed round the clock. Close liaison to be maintained with GSECL/BHEL authorities for day- to day co-ordination.
- 22) Rain protection to be provided during execution of the job. Total arrangement for such protection and safe working during the raining season is in the scope of the contractor.
- 23) Total and periodical housekeeping is also in the scope of the contractor. Surroundings shall be kept clean and approachable during the total execution of the job.
- 24) The details of daily progress achieved, manpower and consumables deployed shall have to maintained and submitted to BHEL on daily basis and after completion of the job.
- 25) Contractor shall submit detailed schedule of the works in the form of bar chart and execution methodology.
- 26) Air, water and electricity shall be provided at one point. Further distribution, as required, shall have to be carried out by the contractor at his own cost.

TENTATIVE QUANTIFICATION OF WORK:

FIRST PASS:

1. Replacement of water wall panel front side from elevation 29734 mm to 47734.5mm
2. Replacement of water wall panel rear side from elevation 29793 mm to 32793.0 mm
3. Replacement of water wall panel left side from elevation 29890 mm to 41490.0 mm
4. Replacement of water wall panel right side from elevation 29890 mm to 41490.0 mm
5. Replacement of seal boxes for peep hole opening –21 Nos.
6. Replacement of seal boxes for wall blower opening –27 Nos
7. Replacement of seal boxes for Instrument insertion opening –8 Nos
8. Replacement of seal boxes for Temperature probe opening –2 Nos
9. Replacement of seal boxes for LRSB opening –8 Nos
10. Replacement of Buckstay beams – 13 Nos.
11. Replacement of observation doors – 21 Nos.

For the replacement work mentioned above, WW panels will be supplied with out opening . Bends and seal boxes are supplied separately. Contractor has to make the provision at site with loose items.

SECOND PASS:

1. Replacement of steam cooled wall left side panels and buckstays from elevation 38m to 44.3m
2. Replacement of steam cooled rear wall from elevation from 38 m to 44.3 m.
Steam cooled wall panels will be supplied in different panel width to meet the above requirement. Total number of Buckstays to be replaced in Second pass is approximately 5 Nos.

ANNEXURE-2

SCOPE OF WORK: ERECTION / REPAIRING & COMMISSIONING WORK OF PENTHOUSE ROOF (FIRST PASS AND SECOND PASS) REFRACTORY APPLICATION AND SEALING ALONG WITH ASSOCIATED WORKS FOR BOILER AT UKAI-4 (200 MW UNIT)

PLEASE NOTE THAT IT IS REPAIR JOB AND NO EXTRA WORK ON WHATSOEVER REASONS SHALL NOT BE PAID. CONTRACTOR HAS TO TAKE THIS INTO CONSIDERATION WHILE QUOTING AND ACQUANT THEMSELVES WHILE QUOTING.

- 01) Erection of sky climber, scaffolding and temporary platforms inside furnace as well as in pent house as needed for removal of existing skin casing, refractory, roof supports item as needed / re-erection and re-application of refractory, skin casing work including welding to achieve complete sealing as per requirement. Operation/maintenance of sky climber and dismantling shall be carried out by the contractor. The sky climber provided may have to be share between various agencies working on other on boiler.
- 02) The contractor shall arrange for Scaffolding/structural material required. However, if some of the item are available with GSECL and spared by them, it will be issued by returnable basis. It will be the responsibility of the contractor to draw from GSECL stores for the work and return after work completion duly accounting for items taken on loan.
- 03) Removal/dismantling of insulation/ pourable insulation/cladding, skin casing sheets metal and refractory shall be carried out in the pent house at the boiler roof and other associated areas as directed by BHEL Engineer- IN-Charge. The Insulation/ pourable insulation/skin casing, cladding and refractory shall be applied / erected welded for the total sealing of boiler roof and associated areas as per detailed drawing provided and as per the instruction of Engineer –In-Charge of BHEL. Restoration of total area wherever insulation/pour able insulation/cladding and refractory are dismantled/ removed shall be carried out so that the entire pent house area is made ready for normal operation after Air Leak Test. Required materials like thermal insulation/ pourable Insulation, skin casing sheets, cladding and refractory shall be supplied free of cost from the Stores of GSECL. The contractor will have to account for the material taken on loan and actually used for the work. Any mis-use/ lost/damage will have to be made good by the contractor on his own. In case such item are supplied by BHEL or their customer, the same will be charged to the contractor. The removal of existing skin casing and refractory is to be carried out taking due care to avoid any damage to roof and other coils/items. Any damage will have to be made good by the contractor at his own cost.
- 04) After application of refractory on boiler roof, same will have to cured properly as per standard practise and as per the instruction of BHEL Engineer- In – Charge before taking up the work of fixing and welding of skin Casing over it.

- 05) The skin casing items will be supplied in standard sheets and with scalloped bars and the contractor will have to suitably cut to size as required to have the proper fitting and welding with the coils, water wall and any other pressure part and between the skin casing sheets. The expansion bellow/ joints/arrangements are also to be erected /fixed as required . The boiler roof supports steel/channels, wherever removed are to be replaced with new ones and the support tie-rod, hangers are to be restored as part of the scope of the work .
- 06) The welding electrodes, filler wires etc and other consumables required for the work are to be arranged by the contractor and the same will be within his quoted price. The attachment welding with the pressure part such as SH coils, water wall etc are to be carried out by deploying IBR Qualified welder only.
- 07) Removal of the local instrument if any and the connection of the same wherever required and the same shall be restored after completion of works.
- 08) Cutting/removal of platform/grills/handrails/pent hose covering and drains /vents connections, wherever required and their restoration, for the work of the roof sealing in the paint house –First and second Pass are including in the scope.
- 09) Attending roof leakages bellow drum, first pass and second pass of boiler including top position of furnace, PSH coils zone, RH coil area, SHH7 to SHH8 area, the front & rear side and left & right side header area.
- 10) Inspection rectification and alignment of damage roof tube (SHH1 TO SHH2 & SHH7 TO SHH8) if any.
- 11) Application of refractory, welding of plates, expansion bellows etc.
- 12) Radiography: 30% radiography of all HP weld joints as per IBR and approval thereof.
- 13) Hydraulic test inspection by IBR inspector and completing all related works for Erection & commissioning of pent house roof sealing.
- 14) The scope of work also calls for ground inspection by IBR authorities, hydro-test Inspection and other IBR requirement before, during and after executing and commissioning work of pent house roof sealing 1st and 2nd pass of boiler Unit –4 .
- 15) Drawl and transportation of all required material to execute this contract work from customer store/main gate/wherever stacked inside the premises or stored by GEB. All surplus /dismantling materials/debris shall be returned to GEB stores/locations as shown by BHEL Engineer in charge and reconciliation of material shall be carried out in all respects.
- 16) It will be the responsibility of the contractor to arrange for the suitable winches/other alternative arrangements to lift the material such as sheet metals, refractory etc from the ground to the level/height where the work are to be executed. It will also be responsibility of the contractor to make the necessary arrangements to be draw the water line from the terminal point identified near boiler up to level of pent house for mixing, curing etc. Any pump required for this also have to arranged by the contractor.
- 17) Arranging of suitable mobile crane for loading/unloading and trailer/truck etc for transporting of the materials to/ from storage Yard/stores is covered in the scope of the contractor.
- 18) Contractor shall have IBR approval for the work and their certification shall be submitted to BHEL/GSECL.
- 19) Removal of all the plates, expansion bellows / refractory of pent house radiant roof, upper corners, transition area and refractory work in the pent house to be carried out in quoted rate only.
- 20) Provision of pipe / tube for sky climber wire rope insert / fitting shall be extended in the pent house as per the instruction of engineer in charge.

- 21) Complete seal proof sealing of furnace roof & second pass roof by seal welding and fin welding inside the furnace and second pass at different zone including PSH coil zone, RH coil area, FSH area, SHH- 7 to 8 Front/rear LHS-RHS. The necessary leak test to be carried out by maintaining positive draught with FD fan running and attend the leakage to make their seal proof.
- 22) During the inspection if any damaged tubes / coils requires for repositioning, the necessary cutting and re-welding of pent house of roof plate is in party's scope. No extra payment shall be made for lifting and positioning of tubes / coils.
- 23) Removal and application of insulation, refractory, and/or other parts(Channels, plates, bellow etc, Which are repaired / required to be replace for the said work) is in Contractor's scope.
- 24) During the erection / repairing of pent house roof sealing any connected works related to this work including shifting / cutting, re- welding, dismantling and re-erection of any of any supports, I-beam, channels, coils, hangs etc. shall be done by BHEL in quoted rate only. Also rectification and alignment of damage roof tubes (SHH-1 to SHH-2 andSHH-7 to SHH- 8) shall be done by BHEL..
- 25) Boiler roof and penthouse sealing may be require cutting/removal/ modification /welding of angles, channels, beams etc. The same shall be carried out and is including in the scope of the contractor. The material shall be supplied loose/various sizes and shall have to assembled/cut to shape and size on location/ site . Minor modifications/ adjustments etc arising during sealing/assembly work to complete the system in all the respects will have to carried out by the contractor as the part of this work. Further any minor works of repair/ replacement/modification of roof sheeting as per the instruction of Engineer in charge are also included in the scope of the contractor.
- 26) M/s GSECL may have to arrange general cleaning and cleaning of penthouse area by removing of ash and other disposable items before taking up the work. However, localized cleaning of the area on " AS IS WHERE IS BASIS" before and during the course of execution is covered under the scope of work.
- 27) Work is to be executed if required on round the clock. Basis to meet the over all schedule of work completion, Close liaison is to be maintained with GSECL/BHEL authorities for day-today works and for required co-ordination as many other works are also being carried out by various other agencies.
- 28) Rain protection as required is to be provided during execution of the work. Total arrangement for such protection and safe working during the raining season is in the scope of the contractor.
- 29) Total and periodical housekeeping is also in the scope of the contractor. Surroundings shall be kept clean and approachable during total execution of the job.
- 30) The details of Daily plan and progress achieved, manpower and consumables deployed shall have to maintained and submitted to BHEL on daily basis and duly complied after completion of the work.
- 31) Contractor shall submit detailed schedule of the work in the form of bar chart including execution methodology.
- 32) Air, water and electricity shall be provided at one point . Further distribution, as required, shall have to carried out by the contractor at his own cost.
- 33) Air leak test(by soap-bubble and/or candle) will have to be carried out after entire welding works are completed on skin casing and related areas by running fans and any leakage noticed will have to be attended till the leak test is found within acceptable limit by BHEL and their customer.
- 34) The area of work includes the area below drum, 1st pass of furnace, 2nd pass of boiler in toto. 1st and 2nd pass includes top portion of furnace, platen superheater coil zone, cold and hot reheat coil area , final super heater coils tubes making the roof of 2nd

pass , the SHH-7 to SHH-8 area. The front and rear side headers forming the vertical wall galleries including galleries up to roof level. In a nut shell any area from where the ash is susceptible to leak in to the roof is to be arrested bearing in mind the boiler is 25 years old.

- 35) The contractor will also ensure that after the area are released after due completion and clearing and when boiler is lighted up and loaded, in case of any leakage noticed same shall have to be attended as per requirements and clearance given to attend.
- 36) Contractor has to submit bar-chart of the relevant works showing day to day activity in details and submission of daily work progress report to BHEL/GSECL.
- 37) All the general terms & condition as per annexure are applicable to the contractors.

ANNEXURE -3

SCOPE OF WORK ERECTION OF HANGERS & SUPPORT FOR 200 MW UKAI UNIT – 4

PLEASE NOTE THAT IT IS REPAIR JOB AND NO EXTRA WORK ON WHATSOEVER REASONS SHALL NOT BE PAID. CONTRACTOR HAS TO TAKE THIS INTO CONSIDERATION WHILE QUOTING AND ACQUANT THEMSELVES WHILE QUOTING.

The hangers and supports replacement work has to be carried out in the following system of Unit-4 Boiler and piping:

1. Pent house Hangers and supports as identified by BHEL/GSECL Engineers
2. Critical piping (MS/CRH/HRH) hangers and supports as listed
3. Down comer hangers and supports as listed.
4. Feed piping system hangers and supports as listed.

The tentative scope of replacement of hangers and support for Ukai unit-4 boiler is as below :-

The hangers & support are to be replaced in the following system :-

- (a) Pent House hangers & supports (Approx.215 nos) as identified by BHEL /GSECL Engineer.
 - i) Water wall header suspension and riser tube support.
 - ii) Suspension above roof tie rod assy (Eco)
 - iii) Tie rod assembly for SH area. Etc.,
- (b) Critical Piping
 - i) Main Steam line (approx. 41 nos) - LMSH & RMSH
 - ii) Hot Reheat line (approx.66 nos) - LHRH & RHRH
 - iii) Cold Reheat line (approx.33 Nos) - LCRH & RCRH
- (c) Boiler Feed water lines - CLH 1162 - 3 Nos.
Hangers & support - 31Nos.
- (a) Hangers & supports for - 7 Nos. with hanger rods, U rods, plates
Downcomer lines channels & fasteners

Note: The quantity mentioned in the tender are tentative and approximate. The actual number of hangers may vary as per the present condition of the existing support. Contractor is requested to visit the site before quoting for better understanding of the scope. No additional payment will be made for any variation in the number of hangers being replaced.

- (1) The cladding sheet and insulation are to be removed wherever required and reinstalled after completion of work.
- (2) Before removing the existing hanger & supports, equipment/piping has to be supported properly till new hanger is erected and loaded.
- (3) All the cold settings are to be noted before hydro test and after boiler in full load all the loads are to be checked in hot condition.
- (1) Any correction required is to be done as instructed by BHEL Engineers.
- (2) After replacement of permanent supports, temporary supports are to be removed and area cleaned.
- (3) Other terms and conditions are as per Annexure 'A'.
- (4) The pent house supports are to be done after removing insulation, refractory and sheet casing wherever required and will be replaced the same. Most of the pent house area is common for both pent house sealing work and hanger and support work
- (5) If on any account, only partial quantity of supports could be erected, the payment for such hangers shall be proportionately.
- (6) The components of hangers to be replaced will be supplied loose, Contractor has to suitably assemble the components while replacing the existing hangers.

**TECH. AND SPECIAL CONDITIONS OF CONTRACT SCOPE OF WORK:
REPLACEMENT OF SUPPORT AND HANGERS ASSOCIATED WORKS FOR UKAI-4 –
200 MW BOILER:**

- O1) Erection of sky climber , scaffolding and temporary platforms for removal/re-erection works as per requirement and restoration of the same. Operation/ maintenance of sky climber and dismantling shall be carried out by the contractor.
- 10) Scaffolding/structural materials as required shall be arranged by the contractor. However, if some of the items are available with GEB and spared by them, it will be issued on returnable basis.
- 11) Removal of insulation/pourable insulation/cladding sheets and refractory shall be carried out by the contractor and application of same after completion of the work. Material has to be stored as per the instruction of Engineer in Charge of BHEL. Required material like thermal insulation/ cladding sheets and refractory shall be supplied free of cost and to be collected from GEB stores.
- 12) Removal of all local instruments and to be connection wherever required and the same shall be restored after completion of works.
- 13) Cutting and removal of platforms/grills/handrails and drains/vents connections etc. wherever required for removal old H&S and erection of new penthouse H&S and restoration of the same.

- 14) Drawl and transportation of all required materials to execute this contract work from customer stores/wherever stacked/stored inside the premises of GEB. All surplus/dismantled material shall be returned to GEB stores/locations as shown by engineer in charge and reconciliation of material shall be carried out in all respects.
- 15) Arranging of suitable mobile crane for loading/unloading and trailer for transporting of the material to / from Storage Yard/Stores is covered in the scope of the contractor.

16) Pent house supports which are to replaced are as under:

SI.NO.	Row Name	Description of Rows	No.of Hangers& Tie Rods	Remarks
01	A1	SHHI Support To Drum	5Nos ; D40	Tie Rods, Clevis & Fasteners
02	B	Roof Support before WW Platen	10Nos Pipe Dia 108	-do-
03	B1	Roof Support before after WW Platen	10Nos. Pipe dia 108	-do-
04	C	Suspension of Platen SH Links & RAD Roof	Different Types	This row consists of 36 items of Tie Rods of different sizes Beams, Stings, Channels, Fasteners etc.
05	D			
06	E	Suspension of RH Front	Different Types	Row E&F consist of Tie Rod Dia 40 with different length, clevis plate & pin, Washers, nuts, channel etc.
07	F			
08	H	Suspension of RH Rear	24 Nos. Dia	Tie Rods, Clevis Plate Washers, Split Pins, Seal Plates, Fasteners etc.
09	J			
10	K	Support of SHH2	10 Nos. Dia 40	Tie Rods, Split Pins, Fasteners
11	M	Support of final SH	16 No.; Dia 40 Dia 31	Tie Rods, Plates, Weided Beams, Channels Split Pins, Fasteners
12	N			
13	O	Supports for SHH7	12 Nos. Dia 80	Tie Rods, Plates, Split Pin, Washers, Fasteners
14	R ,R1,R2	Suspension of SHH10 and DESH Links	4Nos. Dia 50 2 NOS. Dia 32	Tie Rods, Beams, Springs, Plates, Fasteners etc.
15	U	Suspension of Rear Roof Tubes	Pipe Dia 108 10 Nos	Pipe Supports Washers, Plates and Fasteners
16	W	Suspension of Rear Wall Tubes	Dia 80-12 Nos. Dia 40-48 Nos.	Tie Rods, Welded Beams, Channels, Fasteners, Washers etc.

17	SEC 'AA'	Suspension of SH Side Wall	Dia 50-24 Nos Dia 40-4 Nos Dia 32-4 Nos	Tie Rod, Welded Beam, Fasteners, Split Pins, Plates.
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- 17) The work of replacement of penthouse supports may require cutting/removal/modification /welding of angles, channels, beams etc. Which are included in the scope of the contractor. The material for new supports shall be supplied loose and shall have to be assembled at site. Minor modifications/ fabrications arising during assembly have to be carried out by the contractor as part during assembly have to be carried out by the contractor as part of this work.. Further minor works of repair/replacement/modification of roof sheeting as per the instruction of Engineer in Charge are included in the scope of the contractor.
- 18) After completion of work, cold/hot readings shall have to be taken at various locations as per the instruction of Engineer in Incharge. All arrangements required for this purpose including taking of readings is included in the scope of the contractor.
- 19) M/s GEB may arrange general cleaning and cleaning of penthouse area by removing of ash and other disposable items before taking up the work. However localized cleaning of the area before and during the course of executing is covered under the scope of work.
- 20) Work is to be executed round the clock. Close liaison to be maintained with GEB/BHEL authorities for day-to-day co-ordination
- 21) Rain protection to be provided during execution of the job. Total arrangement for such protection and safe working during the raining season is in the scope of the contractor.
- 22) Total and periodical housekeeping is also in the scope of the contractor. Surroundings shall be kept clean and approachable during total execution of the job.
- 23) The details of Daily progress achieved, manpower and consumable deployed shall have to be maintained and submitted to BHEL on daily basis and after completion of the job.
- 24) Contractor shall submit detailed schedule of works in the form of bar chart and execution methodology.
- 25) Air ,water and electricity shall be provided at one point. Further distribution, as required , shall have to be carried out by the contractor at his own cost.
- 26) Pent House Hangers & supports include tie rods and attachments coming in the pent house, except any hanger rods and attachments for drum.
- 27) As it is a repair work so no extra work shall be payable in any case.

4.1.1

SPECIAL MAN POWER: IN ADDITION TO PROVIDING REGULAR MANPOWER, CONTRACTOR IS REQUIRED TO PROVIDE EXPERTS WHO HAVE WORKING EXPERIENCE OF MORE THAN 5 TO 10 YEARS IN THE RESPECTIVE AREA AS PER FOLLOWING TABLE:

S. NO.	AREA OF SERVICE
1	PRESSURE PARTS
2	WELDING (HP WELDERS)
3	HP
4	ASSISTANCE FOR COMMISSIONING

VENDOR SHOULD DEPLOY ADEQUATE AND EXPERIENCED MANPOWER IN ABOVE WORK AREAS AS PER OUR REQUIREMENT. THE ABOVE ENGINEERS/SUPERVISORS ARE REQUIRED IMMEDIATELY AFTER MOBILIZATION OF SITE. IN CASE OF FAILURE OF DEPLOYMENT OF ABOVE ENGINEER/SUPERVISORS, A DEDUCTION OF **RS.1200/- PER DAY** FOR SHORTAGE OF PER EXPERT SUPERVISOR SHALL BE MADE BY BHEL. BHEL SHALL EXERCISE ITS DISCRETION IN ASCERTAINING THE SUITABILITY OF EXPERT SUPERVISION, REQUIREMENT AT PROJECT SITE AND ALSO IN PERMITTING THE ABSENCE OF SUCH SUPERVISION DUE TO ANY REASONS

4..2

IN THE EVENT OF CONTRACTOR FAILING TO ARRANGE THE REQUIRED RESOURCES IN HIS SCOPE, BHEL WILL MAKE THE ALTERNATE ARRANGEMENT AT THE RISK AND COST OF THE CONTRACTOR.

4.3

BIDDER MUST ENSURE THAT THE MANPOWER REQUIRED FOR COMPLETION OF THIS WORK SHALL BE ADEQUATE, QUALIFIED AND EXPERIENCED . IN CASE INSUFFICIENT MANPOWER DEPLOYED BY THE CONTRACTOR, BHEL WILL ASK BIDDER TO FULFILL THE MANPOWER AS PER SITE REQUIREMENT.

4.4

Major responsibilities of Agency; To dismantle, erect / replace and commission the works mentioned in the scope of work. The other responsibilities are

Arrangement of entry passes for the contract employees

Arrangement of ground inspection of materials to the boiler inspector and coordination with him for further follow up of till completion.

Arrangement of all necessary resources like crane, material handling equipments, consumables etc.

Maintenance of welding / heat treatment records as per IBR.

Providing safety equipments, PPEs to all the employees working at site

Disposing the dismantled items as per the instruction of BHEL/ GSECL.

- a. Job requirement and conditions are indicative only and not exhaustive. All Requirements to fulfill requirement of customer i.e. Getting completion Certificate from customer.
- a. Quality of work / supervision provided by the agency & also the numbers will be reviewed by BHEL engineer from time to time keeping in view the requirements to achieve desired results for which the agency has been engaged & incase unsatisfactory supervision / workmanship is noticed, the agency shall take urgent actions to ensure in restoring the satisfactory work force, failing which BHEL reserves the right to terminate the contract with the agency.

4.9

BIDDERS MUST SUBMIT ALL RELEVANT DOCUMENT AS PER THIS TENDER SPECIFICATION AND AS PER QUALIFYING REQUIREMENT (QR) OF NIT. BIDDER MUST VISIT OUR WEB SITE www.bhel.com FOR NIT, TECHNICAL SPECIFICATION, BOQ, AMENDMENTS ETC TO KEEP UPDATED FOR ANY CHANGES/ AMENDMENTS. INCOMPLETE DOCUMENT SUBMITTED BY BIDDER SHALL NOT BE CONSIDER FOR EVALUATION .

SECTION-5

SPECIAL CONDITIONS OF CONTRACT

7.0 OBLIGATIONS OF THE CONTRACTOR (TOOLS, TACKLES, CONSUMABLES ETC.)

5.1 ACCOMMODATION, DRINKING WATER & LOCAL TRANSPORTATION FOR LABOUR / OTHER EMPLOYEES

BHEL/Client will be providing only the space for labour colony. Contractor shall make his own arrangements for accommodation with necessary facilities such as drinking water, sanitation and lighting etc for his workmen and the staff. The electricity for labour accommodation shall be on chargeable basis on the prevailing rate basis. taxes, duties, levies over and above the rates etc shall also be born by the contractor. Also, the contractor has to make his own arrangement for transportation of his workmen and other employees. BHEL/client shall not provide any facility in this regard.

2.0 TOOLS AND TACKLES, MEASURING AND MONITORING DEVICES:

5.2.1

BHEL WILL NOT PROVIDE ANY CRANE , TRAILER, T&PS ETC. CONTRACTOR HAS TO MAKE HIS OWN ARRANGEMENTS FOR ALL SUCH REQUIREMENTS.

4.7.4.2

SPECIAL TOOLS WHICH ARE SUPPLIED BY BHEL AS PART OF MAINTENANCE TOOLS TO BE HANDED OVER TO CUSTOMER UNDER REGULAR DU/DESS NUMBERS IN VARIOUS PRODUCT GROUPS MAY BE ISSUED TO THE CONTRACTOR FREE OF CHARGES FOR SPECIFIC ACTIVITIES, AT THE DISCRETION OF BHEL. CONTRACTOR SHALL RETURN THEM AFTER THE COMPLETION OF THE SPECIFIC ACTIVITY FOR WHICH THE TOOLS WERE SPARED, IN GOOD WORKING ORDER.

4.7.4.3

THE CONTRACTOR MUST NOT USE THESE EQUIPMENTS FOR ANY PURPOSE OTHER THAN WHAT THEY ARE INTENDED FOR. MISUSE, IF ANY, WILL RESULT IN PENALTY.

4.7.4.4

IF THE ABOVE ITEMS ISSUED TO CONTRACTOR ARE FOUND NOT UTILISED/NOT MAINTAINED TO THE SATISFACTION OF BHEL ENGINEER OR MISUSED, THESE WILL BE WITHDRAWN AND NO REPLACEMENT WILL BE DONE FOR SUCH ITEMS.

4.7.5

REQUIRED TEMPORARY STRUCTURAL STEEL, PIPES & FITTINGS, VALVES FOR INSTALLATION OF TEMPORARY SYSTEM FOR CONDUCT OF HYDRAULIC TEST, CHEMICAL CLEANING/STEAM BLOWING/OIL FLUSHING/ACID CLEANING ETC. SHALL BE PROVIDED BY BHEL FREE OF CHARGE SUBJECT TO AVAILABILITY AT SITE. HOWEVER FOR ANY ADDITIONAL REQUIREMENT, CONTRACTOR SHALL ARRANGE THE SAME AT THEIR OWN COST.

4.7.6

ALL AVAILABLE DRAWINGS, DOCUMENTS, SPECIFICATIONS, ONE COPY OF WHICH WILL BE MADE AVAILABLE TO THE CONTRACTOR AS AND WHEN REQUIRED. REVISION OF DRAWINGS/DOCUMENTS MAY TAKE PLACE DUE TO VARIOUS CONSIDERATIONS AS IS NORMAL IN SUCH LARGE PROJECT.

WORK WILL HAVE TO BE CARRIED OUT AS PER REVISED DRAWINGS/DOCUMENTS. THESE DOCUMENTS WILL BE MADE AVAILABLE TO THE CONTRACTOR DURING EXECUTION OF WORK AT SITE.

4.7.7

IN CASE OF ANY CONFLICT BETWEEN GENERAL INSTRUCTIONS TO TENDERERS AND GENERAL CONDITIONS OF CONTRACT CONTAINED IN SECTIONS 1 & 2 RESPECTIVELY AND OTHER SPECIAL CONDITIONS OF CONTRACT CONTAINED IN SECTIONS 4 TO 6 AND APPENDICES, PROVISIONS CONTAINED IN SECTIONS 4 TO 6 AND APPENDICES SHALL PREVAIL.

The contractor shall provide all (in addition to those in BHEL scope) required tools and plants, monitoring and measuring devices (MMD) and handling & transportation equipments for the scope of work covered under these specifications. contractor has to provide suitable cranes for material handling at BHEL/client's stores/storage yard. BHEL's crane will not be available for this purpose other than specified. please refer relevant **Appendix** for the list of T&P being provided by BHEL free of charges on sharing basis.

5.2.2

Contractor has to provide spanners of all sizes, Bolt stretching devices etc. as required for satisfactorily carrying out the complete erection / commissioning works. No spanners will be provided by BHEL to the contractor.

5.2.3

Contractor has to arrange slings of all sizes for completing the works covered under these specifications except the special slings for Generator Stator Lifting/Handling, which will be provided by BHEL free of charges on returnable basis.

5.2.4

All tools and tackles to be deployed by the contractor for the work shall have the prior approval of BHEL engineer with regard to brand, quality and specification. The indicative list of major T&P to be arranged by the contractor has been furnished in relevant appendix. Contractor shall also mobilize all other T&P as necessary for timely and satisfactory completion of the work in scope.

5.2.5

BHEL shall not provide any Chemical Cleaning /Flushing pump / equipment as required for Chemical cleaning/flushing of piping and related equipments / system. However these Chemical pumps are kept under the scope of Boiler erection agency as part of their scope of work. Contractor for convenience of work, may decide and discuss with Boiler agency to avail the services of their arrangements and after their consent, shall settle the commercial issue directly or shall have to make his own arrangement of required capacity Chemical cleaning pumps with all aux. & accessories for satisfactory completion of activity. However, contractor shall arrange / provide the required Chemical cleaning arrangements as per requirement and instructions of BHEL engineer without any delay/lapse.

5.2.6

Timely deployment of adequate quantity of T & P is the responsibility of the contractor. The contractor shall be prepared to augment the T & P at short notice to match the planned programme and to achieve the milestones.

5.2.7

Complete set of hydraulic jacks of 50 tonnes and 100 tonnes capacity shall be arranged by the contractor for use during erection and commissioning of Turbine. Also, hydraulic jacks of 100 tonnes and 63 tonnes capacity along with long high pressure hoses of suitable length for Generator erection and alignment shall be arranged by the contractor. These jacks shall of internationally reputed make, highly reliable and maintained in excellent working condition.

They shall be tested for safe working before deploying in actual work. These jacks shall not be permitted for use anywhere other than Steam Turbine / Generator area.

5.2.8

All jack bolts that are required during erection for carrying out roll-check etc. will have to be arranged by the contractor. No jack bolts will be provided by BHEL.

5.2.9

Contractor shall maintain and operate his tools and plants in such a way that major breakdowns are avoided. In the event of major breakdown, contractor shall make alternative arrangements expeditiously so that the progress of work is not hampered.

5.2.10

In the event of contractor failing to arrange the required tools, plants, machinery, equipment, material or non-availability of the same owing to breakdown, BHEL will make the alternative arrangement at the risk and cost of the contractor.

5.2.11

The T&P to be arranged by the contractor shall be in proper working condition and their operation shall not lead to unsafe condition. Contractor shall obtain prior approval of BHEL for all the T&P before deploying in actual work. The movement of cranes, and other equipment should be such that no damage / breakage occurs to foundations, other equipments, material, property and men. All arrangements for the movement of the T&P etc shall be the contractor's responsibility. The necessary test certificates for Equipments to be submitted.

5.2.12

Normally, use of welding generators only is permitted for welding. The use of welding transformers will be subject to specific and prior approval of BHEL Engineer.

5.2.13

The contractor at his cost shall carry out periodical testing of his construction equipments and calibration of Measuring & Monitoring Devices (MMD). Test / Calibration certificates shall be furnished to BHEL. MMD shall be calibrated only at accredited laboratory as per the list available with BHEL or any other laboratory approved by BHEL. All calibration shall be traceable to national or international standards.

5.2.14

BHEL T&P will be issued in basic assembled condition; contractor shall transport these T&P to & fro between BHEL stores and site. Additional loose components/ sub-assemblies / attachments as and when necessary, will be issued by BHEL, to & fro movement between BHEL stores and site of such items shall also be done by the contractor. Assembly of such additional loose components/sub-assemblies/ attachments is in contractor's scope. Any boom reduction/ extension of BHEL cranes for contractor's use and restoration to previous state or as directed by BHEL shall be the contractor's responsibility. Contractor shall provide all enabling services with tools and tackles for assembly/dismantling and boom extension/reduction as above.

ALL ARRANGEMENTS, INCLUDING PROVIDING & LAYING OF SLEEPER BEDS, BACKFILLING OF APPROACHES WHEREVER NECESSARY FOR SAFE MOVEMENT OF THE CRANES AS DIRECTED BY BHEL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SLEEPERS FOR THIS PURPOSE SHALL BE PROVIDED BY THE CONTRACTOR.

5.2.15

ANY BOOM REDUCTION, EXTENSION FOR THE USE OF CRANES AND RESTORATION TO PREVIOUS STATE IS TO BE DONE BY THE CONTRACTOR AS PER THE REQUIREMENT OF JOB AND AS DIRECTED BY BHEL .

5.2.16

IN CASE OF RAIN WATER ACCUMULATION / WATER LOGGING DURING RAINY SEASON , CONTRACTOR HAS TO ARRANGE SUFFICIENT NUMBER OF D-WATERING PUMPS WITH FUEL TO CLEAR THE WATER FOR CARRYING OUT THE WORK. ALSO CONTRACTOR SHOULD ASSIST BHEL IN CLEARING THE ROADS FOR MATERIAL MOVEMENT.

5.3 CONSUMABLES

5.3.1

The contractor shall provide all consumables required for carrying out the work covered under these specifications excepting those which are specifically indicated as BHEL scope.

TG Special Consumables like Hylomar / Golden Hermetite / Stag-B / Molykote/ Anabond compounds / Rubber fixing compounds etc. will have to be arranged by the contractor.

5.3.2

All consumables to be used for the work shall have prior approval of BHEL engineer with regard to brand and quality specifications. Test reports / certificates in respect of these consumables, wherever applicable, shall be submitted to BHEL engineer.

5.9.2 PRIMERS & PAINTS

BHEL will provide paint & primer for only the specified areas herein; all other requirements are in contractor's scope.

5.10 WELDING ELECTRODES, TIG WELDING FILLER WIRES AND GASES

5.4.1

Contractor, at his cost shall arrange all the required welding electrodes including the filler wires / TIG wires etc. as required and as approved by BHEL. It shall be the responsibility of the contractor to obtain prior approval of BHEL, before procurement, regarding manufacturer, type of electrodes etc. On receipt of the electrodes at site, it shall be subject to inspection and approval by BHEL regarding type of electrodes, batch number, date of expiry etc. Batch test certificates shall be made available for verification & record before the actual use of the welding consumables.

BHEL reserves the right to reject the use of any electrodes, if found non-acceptable because of bad quality, deterioration in quality due to improper storage, shelf life expiry, unapproved type / brand etc.

5.4.2

Gases like Argon, Oxygen and Acetylene etc. that are required for erection related activities shall be arranged by the contractor at his cost.

5.4.3

Nitrogen gas is required for preservation during chemical cleaning process of piping system, will be arranged by BHEL free of charges. Contractor shall arrange necessary connector, Nipple, Regulator, Header and piping for usage of such Gas from Cylinders.

5.11 FIELD OFFICE

5.5.1

The contractor shall make his own arrangements for field office and stores for accommodating necessary equipments, tools room for execution of the work. Only open space will be provided by BHEL / customer, free of charges within the project premises as per the availability of space.

5.5.2

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, BHEL will arrange to remove and expenditure thereof including overhead expenses (presently @30%) will be recovered from the contractor. The decision of BHEL engineer in this regard shall be final. However, the scope of dismantling and leveling the area is limited only to the contractor's site office, yard and other spaces occupied by the contractor.

1.1 AREA LIGHTING

5.6.1

Contractor shall arrange adequate floodlights, hand lamps and area lighting. Contractor shall use his own materials like cables, fuses, switchboards etc. BHEL/client will not provide anything in this regard.

1.2 CONSTRUCTION POWER & WATER

5.7.1

Construction power (three phase, 415v / 440v, will be provided at single point on Chargeable basis as per the prevailing rate of M/s GESCL. All taxes, duties, levies, charges etc, as applicable, shall also be born by the contractor. Accordingly, required energy meter, all cables, fuses, distribution boards, switches, switchboards, bus bars, earthing arrangements, protection devices e.g. ELCB, if any, and any other installation as specified by Statutory Authority, Client in this regard, for drawl of construction power shall be arranged by the contractor. Obtaining approvals, payment of necessary fees, duties etc towards the clearance of such installations, if any, prior to these being put to use or as may be specified, shall be the responsibility of the contractor.

5.7.2

It shall be the responsibility of the contractor to provide, maintain the complete installation on the load side of the supply with due regard to the safety requirements at site. All cabling and installations shall comply in all respects with the appropriate statutory requirements. The installation and maintenance of this shall be done by licensed and experienced Electrician.

5.7.3

The Customer will provide **water for Construction purpose** at a single point free of charge. However, Taxes, Duties, Levies, charges if any shall be borne by the contractor. All arrangements for further distribution beyond this point have to be made by contractor.

5.7.4

In case of non-availability of customer supplied power, it is the responsibility of the contractor to make alternative arrangements for back-up power supply arrangement like DG set and Diesel operated welding machine etc. to tackle the situations arising due to failure of

customer supply power, so as to ensure continuity and completion of critical processes that are underway at the time of power failure or important activities planned in immediate future.

5.7.5

BHEL is not responsible for any loss or damage to the contractor's equipment as a result of variations in voltage or frequency or interruptions in power supply. Contractor shall take suitable insurance policy for such accidental loss/ damages.

1.3 RESPONSIBILITIES WITH REGARD TO LABOUR EMPLOYMENT ETC.

5.8.1

Refer clause 2.8 of General Conditions of Contract in this regard.

5.8.2

Contractor shall also comply with the requirements of local authorities/ project authorities calling for police verification of antecedents of the workmen, staff etc.

5.8.3

BHEL / customer may insist for witnessing the regular payment to the labour. They may also like to verify the relevant records for compliance with statutory requirements. Contractor shall enable such facilities to BHEL / customer.

5.8.4

It is the responsibility of the contractor to arrange gate pass for all his employees, T&P etc for entering the project premises. Necessary coordination with customer officials is the responsibility of the contractor. Contractor to follow all the procedures laid down by the customer for making gate passes. Where permitted, by customer / BHEL, to work beyond normal working hours, the contractor shall arrange necessary work permits for working beyond normal working hours.

5.8.5

Contractor shall provide at different elevation suitable arrangement for urinal and drinking water facility with necessary plumbing & disposal arrangements including construction of septic tank. These installations shall be maintained in hygienic condition at all times.

5.8.6

If at any time during the execution of work, it is noticed that the work is suffering on account of non-availability/shortfall in provision of resources from the contractor's side BHEL will make suitable alternate arrangements at the risk and cost of contractor. The expenditure incurred with overheads thereby shall be recovered from the contractor.

5.9 TAXES, DUTIES, LEVIES

5.9.0

Refer to Clause 2.8.4 of General Conditions of Contract. Notwithstanding anything contained therein, the following provisions shall be applicable for this contract.

5.9.1

The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods and services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

2.0.0 Service Tax & Cess on Service Tax

Service Tax and Cess on Service Tax as applicable on output Services are excluded from contractor's scope; therefore contractor's price/rates shall be **exclusive of Service Tax and Cess on Output Services**. In case, it becomes mandatory for the contractor under provisions of relevant act/law to collect the Service Tax & Cess from BHEL and deposit the same with the concerned tax authorities, such applicable amount will be paid by BHEL. Contractor shall submit to BHEL documentary evidence of Service Tax registration and remittance record of such tax immediately after depositing the tax with concerned authorities. Contractor shall obtain prior written consent from BHEL before billing the amount towards such taxes.

With introduction of Cenvat Credit Rules 2004, which came into force w.e.f. 10.09.2004, Excise Duty paid on Input Goods including Capital Goods and Service Tax paid on Input Services that are used for providing the output services can be taken credit of against the Service Tax payable on output services. However BHEL may opt for availing the abatement provision in which case cenvat credit may not be available on input duty.

3.0.0 Sales Tax /WCT

As regards Sales Tax on transfer of property in goods involved in Works Contract applicable as per local laws, the price quoted by the contractor shall be **exclusive** of the same. Where such taxes are required to be paid by the contractor, this will be reimbursed on production of proof of payment made to the authorities by the Contractor. In any case the Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the first RA bill. The contractor has to take all necessary steps to **minimize tax on input goods** by purchasing the materials from any registered dealer of the concerned state only. In case contractor opts for composition, it will be with the prior express consent of BHEL. Deduction of tax at source shall be made as per the provisions of law unless otherwise found exempted. In case tax is deducted at source as per the provisions of law, this is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made unless specifically agreed to.

4.0.0 Modalities of Tax Incidence on BHEL

Wherever the relevant tax laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor.

5.0.0 New Taxes/Levies

In case the Government imposes any new levy/tax on the output service/ goods/work after award of the work, the same shall be reimbursed by BHEL at actual.

In case any tax/levy/duty etc. becomes applicable after the date of Bidder's offer, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same **before opening of Price Bid**. Claim for

any such impact after opening the Price Bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price Variation/Adjustment Clause (PVC) if any. In case PVC is not applicable for the contract, Bidder has to make his own assessment of the impact of future variation if any, in rates of taxes/duties/ levies etc. in his price bid.

0.0 SUBMISSION OF PERIODICAL REPORTS

Contractor shall submit periodical reports in respect of following aspects of operation:

- 1) Consumption of consumables like welding electrodes, gases and paints
- 2) Consumption of construction power
- 3) Availability and utilization of BHEL's Tools & Plants
- 4) Availability and utilization of contractor's Tools & Plants
- 5) Daily manpower reports
- 6) Daily progress reports of activities & incidents
- 7) Calibration reports
- 8) Records of wages payment
- 9) Any other report/record as may be specified by BHEL/client.

BHEL at site will suggest formats for these reports.

5.10

It is the responsibility of the contractor to arrange gate pass for all his employees, T&P etc. Necessary coordination with customer officials is the responsibility of the contractor. Contractor to follow all the procedures laid down by the customer for making gate passes. Where permitted, by customer/ BHEL, to work beyond normal working hours, the contractor shall arrange necessary work permit for working beyond normal working hours.

SECTION-6

SPECIAL CONDITIONS OF CONTRACT

8.0 CONTRACTOR'S OBLIGATION IN REGARD TO EMPLOYMENT OF SUPERVISORY STAFF AND WORKMEN

6.1

The contractor shall deploy all the skilled/semiskilled/ unskilled labour including highly skilled workmen etc. These workmen should have previous experience on similar job. They shall hold valid certificates wherever necessary. BHEL reserves the right to insist on removal of any employee of the contractor at any time if he is found to be unsuitable and the contractor shall forthwith remove him. Contractor should furnish a tentative deployment plan of his manpower as required vide relevant Appendix. Also the actual deployment will be so as to satisfy the erection and commissioning targets set by BHEL.

6.2

It is the responsibility of the contractor to engage his workmen in shifts and or on overtime basis for achieving the targets set by BHEL. This target may be set to suit BHEL's commitments to its customer or to advance date of completion of events or due to other reasons. The decision of BHEL in regard to setting the erection and commissioning targets will be final and binding on the contractor.

6.3

Contractor shall deploy only qualified and experienced engineers/ supervisors. They shall have professional approach in executing the work.

6.4

The contractor's supervisory staff shall execute the work in the most professional manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. They shall be responsible to ensure that the assembly and workmanship conform to dimensions and tolerances given in the drawings/instructions given by BHEL engineer from time to time.

6.5

The supervisory staff employed by the contractor shall ensure proper outturn of work and discipline on the part of the labour put on the job by the contractor. Also, in general they should see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other contractors of BHEL or BHEL's client.

6.6

If at any time, it is found that the contractor is not in a position to deploy the required engineers/supervisors/workmen due to any reason, BHEL shall have the option to make alternate arrangements at the contractor's risk and cost.

6.7 SITE ORGANISATION

The contractor shall provide adequate staffing in the following areas in addition to the staffing requirements of execution as instructed/informed by BHEL:

- **Overall Planning, Monitoring & Control**
- Materials Management
- Quality Control and Quality Assurance
- Safety, Fire & Security
- Industrial Relations and fulfillment of Labour Laws and other statutory obligations.

SECTION-7

SPECIAL CONDITIONS OF CONTRACT

9.0 OBLIGATIONS OF BHEL

9.1 FACILITIES TO BE PROVIDED BY BHEL

7.1.1 Space for site office / stores

Refer section-5 in this regard.

1.0.0 Construction Power & Water

Refer Section-5 in this regard.

2.0.0 Other materials and consumables:

BHEL shall not provide any material / consumables except those specifically mentioned in this tender specification.

1.0.0 TEST MATERIALS (PLATES & PIPES)

BHEL will provide suitable plates and pipes free of cost only for site test of welders including IBR welders before their deployment. Contractor shall prepare the required test pieces from such raw materials and shall arrange all destructive and non-destructive examinations of test blanks / pieces as scope of work. Responsibilities with regard to deployment of IBR welders and meeting the stipulations shall be the responsibility of contractor.

2.0 FILLER WIRE FOR TIG WELDING

BHEL will not provide any filler wire/TIG wires etc. and all these shall be arranged by contractor at his cost.

3.0 EQUIPMENTS – TOOLS & PLANTS

BHEL will make available only those T&P that are listed in **Appendix-IV** free of charge. All other required T&P shall be arranged by the contractor. Further details are as under:

CRANES, TRAILERS, T&P ETC

BHEL will **not** provide any crane, trailers, any T&P except special T&P as specified in this tender. As such contractor has to make his own arrangement for all such requirement

4.0 OTHER T&P

7.4.1

Special tools which are supplied by BHEL as part of maintenance tools to be handed over to customer under regular Packages / DU / DESS Numbers in various product groups may be issued to the contractor free of charges for specific activities only, at the discretion of BHEL. Contractor shall return them in good working condition after the completion of the specific activity for which the tools were spared.

7.4.3

Lubricants like engine oil, Cadmium compound, hydraulic oil, gear oil, grease etc for BHEL's T&P will be provided by BHEL free of charge. All other consumables like cotton waste, cleaning agents etc shall be in the contractor's scope.

7.4.4

BHEL engineer will inspect all the tools and plants issued to contractor periodically. In case contractor fails to make good, the damages caused, BHEL will do the same at contractor's cost. The tools and tackles will be issued only to persons nominated by the contractor.

7.4.5

Required temporary structural steel, pipes & fittings, valves for conducting hydraulic test, chemical cleaning / steam blowing / oil flushing / acid cleaning etc shall be provided by BHEL on returnable basis.

5.0 CHEMICALS, GASES AND LUBRICANTS FOR PRE-COMMISSIONING AND COMMISSIONING

7.5.1

All lubricants/Lube oil and chemicals required for testing, chemical cleaning, acid cleaning, oil/chemical/gas flushing required for testing, pre-commissioning & commissioning up to trial operation of equipments/unit will be provided by BHEL. Flushed/fresh oil for flushing of lube oil/governing/control oil system and filling with day today topping, Carbon-dioxide & Hydrogen gas for purging and filling in Turbo-generator will also be supplied by BHEL. Contractor shall arrange for taking delivery and loading of all such consumables from BHEL/ Customer Stores/ yard, transportation to site of work and unloading thereon, filling in the system and return the used lube oil, balance quantity of consumables etc, to BHEL stores duly reconciled for quantity.

SECTION-8

SPECIAL CONDITIONS OF CONTRACT

10.0 INSPECTION / QUALITY ASSURANCE / QUALITY CONTROL/ STATUTORY INSPECTION

8.1

Various inspection/quality control/quality assurance procedures /methods at various stages of erection and commissioning will be as per BHEL/customer quality control procedure/codes/IBR and other statutory provisions and as per BHEL Engineer's instructions.

8.2

Preparation of quality assurance log sheets and protocols with customer's engineers, welding logs and other quality control and quality assurance documentation as per BHEL Engineer's instructions, is within the scope of work/specification.

The protocols between contractor and customer/BHEL shall be made prior to installation for correctness of foundations, materials, procedures, at each stage of installation, generally as per the requirement of customer/BHEL. This is necessary to ensure elimination of errors or keeping them within tolerable limits and to avoid accumulation and multiplication of errors.

8.3

A daily log book should be maintained by every supervisor/engineer of contractor on the job in duplicate (one for BHEL and one for contractor) for detailing and incorporating alignment/clearance / centring / levelling readings and inspection details of various equipments etc.

8.4

The performance of HP welders will be reviewed from time to time as per BHEL / IBR standards, High pressure welder's performance record shall be furnished periodically. Corrective action as informed by BHEL shall be taken in respect to those welders not conforming to these standards. This may include removal /discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately.

High pressure welding details like serial number of weld joints, welders name, date of welding, details of repair, heat treatment etc. Will be documented in welding log as per BHEL Engineer's instructions.

Record of radiography containing details like serial number of weld joints, date of radiography, repairs, if any, re-shots etc. Shall also be maintained as per BHEL engineer's instructions.

Record of heat treatments performed shall be maintained as prescribed by BHEL. Similarly, performance report of all welders shall be furnished for scrutiny of BHEL Engineer.

8.5

All the welders including HP welders shall carry identity cards as per the proforma prescribed by BHEL. Only welders duly authorised by BHEL/Boiler inspector / customer /consultant shall be engaged on the work.

8.6

Contractor shall provide all the measuring and monitoring devices (MMD) required for completion of work satisfactorily. These MMD shall conform to job requirement in respect of measurement range, accuracy level and any other standard specification.

8.7

The MMD deployed by the contractor shall, at all stages of works, have valid and current calibration certificate. The calibration of these MMD shall be got done from the agencies accredited/approved by BHEL/Client. Copy calibration certificate in respect of these MMD has to be submitted to BHEL. Periodical status report regarding validity of calibration has to be submitted to BHEL. Re-calibration/re-validation shall be done for the continuity of usage, as per BHEL specifications. Contractor shall conform to the specification of BHEL regarding storage of these MMD.

8.8

Re-work necessitated on account of usage of invalid MMD shall be entirely to the contractor's account. He shall be responsible to take all corrective actions, including resource augmentation if any, as specified by BHEL to make-up the loss of time.

8.9

In the course of erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. Such instruments whenever necessary, will be provided by BHEL, on returnable basis, on specific authorisation by BHEL Engineer.

8.10

Vibration indicators/vibration recorders/vibration analysers will be provided by BHEL for checking and analysing vibration levels of rotating equipments with necessary operators. Contractor shall provide necessary labour for carrying out such tests.

8.11

Total quality is the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and quality standards. Contractor shall provide for the services of quality assurance engineer.

8.12 STAGE INSPECTION BY FES / QA ENGINEERS

8.12.1

Apart from day-to-day inspection by BHEL engineers stationed at site and also by customer's engineers, stage inspection of equipments under erection and commissioning at various stages of erection and commissioning by teams of engineers from field engineering services of BHEL's manufacturing units and quality assurance teams from field quality assurance unit/factory quality assurance and commissioning engineers from technical services of BHEL will also be conducted. Contractor shall arrange all labour, tools and tackles etc. for such stage inspections free of cost.

8.12.2

Any modifications suggested by BHEL FES and QA Engineers team shall be carried out. Claims of contractor, if any, shall be dealt as per clause 13.1 to 13.8, provided such modifications have not arisen for reasons attributable to the contractor.

13 .STATUTORY INSPECTION.

8.13.1

The scope includes getting the approvals from the statutory authorities (like Boiler Inspector, Factory Inspector, Electrical Inspector, P.F. Commissioner, Labour Commissioner and any other Authority connected to this project work). This includes arranging for inspection visits of Statutorily Authority periodically as per BHEL Engineer's instructions, arranging materials for ground inspection, taking rub outs for pressure parts /IBR material parts to be offered for inspection, submitting co-related inspection reports, documents, radiographs etc. and following up the matter with them. Contractor shall also make all arrangements for offering the products/systems for inspection at location, as applicable to the concerned Authority.

8.13.2

The contractor shall pay all fees connected with testing his welders / men / workers and testing, inspection, calibrating of his MMD instrument and T&P equipments.

8.13.3

It shall be contractor's responsibility to obtain approval of statutory authorities, wherever applicable, for the conducting of any work which comes under the purview of these authorities. Any cost arising from this shall be contractor's account.

8.13.4

Refer clause No.2.8.5 of SECTION-2 OF GENERAL CONDITIONS OF CONTRACT for BHEL's responsibility with regard to payment of Inspection fee of Boiler Inspectorate.

8.13.5

Contractor should be qualified to execute pressure parts & piping work coming under the purview of IBR, for which he should register himself with CIB of state concerned. Contractor should be aware of the latest IBR regulations and Electricity act, including the amendments thereof.

8.14

The quality management system of BHEL, Power Sector – Western Region (PSWR) has already been certified and accredited with ISO 9001:9002 standards in this regard. The basic philosophy of the Quality Management System is to define the organisational responsibility, work as per documented procedures, verify the output with respect to acceptance norms, identify the non-conforming product/procedure and take corrective action for removal of non-conformance specifying the steps for avoiding recurrence of such non-conformities, and maintain the relative quality records. The non-conformities are to be identified through the conduct of periodical audit of implementation of Quality Systems at various locations/stages of work. Suppliers/vendors of various products/services contributing in the work are also considered as part of the Quality Management System. As such the contractor is expected not only to conform to the Quality Management System of BHEL but also it is desirable that they themselves are accredited under any Quality Management system Standard.

Section-9
Special Conditions of Contract
Safety, Occupational Health and Environmental Management

Introduction:-

BHEL PSWR has been certified for Environmental Management under ISO 14001:1996 standard and Occupational Health & Safety under OHSAS 18001 by DNV. In order to comply with the above standards, it shall be the endeavor of BHEL and all its subcontractors to meet and implement the requirements by following the guidelines issued under Environmental, Occupational Health and Safety Management (EHS) manual a copy of which will be available with the BHEL Site-in-charge.

Contractor shall also enter into a "Memorandum of Understanding" as given in clause 9.9 in case of award of contract.

9.2 Responsibility Of The Contractor In Respect Of Safety Of Men, Equipment, Material And Environment.

9.3 The Contractor Shall

9.1.1 Abide by the Safety Regulations applicable for the Site/Project and in particular as mentioned in the booklet "Safe Work Practices" issued by BHEL. Contractors are also to ensure that their employees and workmen use safety equipments as stipulated in the Factories Act (Latest Revision) during the execution of the work. Failure to use safety equipment as required by BHEL Engineer will be a sufficient reason for issuance of memo, which shall become part of Safety evaluation of the contractor at the end of the Project. Also all site work may be suspended if it is found that the workmen are employing unsafe working practice and all the costs/losses incurred due to suspension of work shall be borne by contractor. A comprehensive list of National Standards from which the contractor can draw references for complying with various requirements under this section is given under 9.10

9.1.1 Hold BHEL harmless and indemnified from and against all claims, cost and charges under Workmen's Compensation Act 1923 and 1933 and any amendment thereof and the contractor shall be solely responsible for the same.

9.1.2 Abide by the Procedure governing entry/exit of the contractor's personnel within the Customer/Client premises. All the contractors employees shall be permitted to enter only on displaying of authorized Photo passes or any other documents as authorised by the Customer/Client

9.1.3 Be fully responsible for the identity, conduct and integrity of the personnel/workers engaged by them for carrying out the contract work and ensure that none of them are ever engaged in any anti national activity

9.1.4 Prepare a sign board giving the following information and display it near the work site:

- . Name of Contractor
- . Name of Contractor Site-in-charge & Telephone number
- . Job Description in short
- . Date of start of job
- . Date of expected completion
- . Name of BHEL Site-in-charge.

- 9.1.5 Abide by the rules and regulations existing during the contract period as applicable for the contractors at the Project premises.
- 9.1.6 Observe the timings of work as advised by BHEL Engineer-in-charge for carrying out the contract work.

9.1 **SPECIAL CONDITIONS**

9.2.1 **Safety**

9.2.1.1 **Safety Plan**

Before commencing the work, contractor shall submit a "safety plan" to the authorised BHEL official. The safety plan shall indicate in detail the measures that would be taken by the contractor to ensure safety to men, equipment, material and environment during execution of the work. The plan shall take care to satisfy all requirements specified hereunder.

The contractor shall submit "safety plan" before start of work. During negotiations, before placing of work order and during execution of the contract, BHEL shall have right to review and suggest modifications in the safety plan. Contractor shall abide by BHEL's decision in this respect.

9.2.1.2

The contractor shall take all necessary safety precautions and arrange for appropriate appliances and/or as per direction of BHEL or it's authorised person to prevent loss of human lives, injuries to men engaged and damage to property and environment.

9.2.1.3

The contractor shall provide to his work force and also ensure the use of Personnel Protection Equipment (PPE) as found necessary and/or as directed and advised by BHEL officials without which permission is liable to be denied.

- Safety helmets conforming to IS 2925/1984 (1990)
- Safety belts conforming to IS 3521/1989
- Safety shoes conforming to IS 1989 part-II /1986(1992)
- Eye and face protection devices conforming to IS 2573/1986(1991), IS 6994 (1973), part-I (1991), IS 8807/1978 (1991), IS 8519/1977(1991).
- Other job specific PPEs of standard ISI make as may be prescribed

9.2.1.4

All tools, tackles, lifting appliances, material handling equipment, scaffolds, cradles, cages, safety nets, ladders, equipment, etc used by the contractor shall be of safe design and construction. These shall be tested and certificate of fitness obtained before putting them to use and from time to time as instructed by authorised BHEL official who shall have the right to ban the use of any item found to be unsafe

9.2.1.5

All electrical equipment, connections and wiring for construction power, its distribution and use shall conform to the requirements of Indian Electricity Act and Rules. Only electricians licensed by the appropriate statutory authority shall be employed by the contractor to carryout all types of electrical works. All electrical appliances including portable electric tools used by the contractor shall have safe plugging system to source of power and be appropriately earthed.

9.2.1.6

The contractor shall not use any hand lamp energised by electric power with supply voltage of more than 24 volts. For work in confined spaces, lighting shall be arranged with power source of not more than 24 volts.

9.2.1.7

The contractor shall adopt all fire safety measures as per relevant Indian Standards

9.2.1.8

Where it becomes necessary to provide and/or store petroleum products, explosives, chemicals and liquid or gaseous fuel or any other substance that may cause fire or explosion, the contractor shall be responsible for carrying out such provisions and/or storage in accordance with the rules and regulations laid down by the relevant government acts, such as petroleum act, explosives act, petroleum and carbides of calcium manual of the chief controller of explosives, Government of India etc. The contractor in all such matters shall also take prior approval of the authorised BHEL official at the site.

9.2.1.9

Proper means of access must be used e.g. ladders, scaffolds, platforms etc. No makeshift access such as oil drums or pallets shall be used. Design of these will be in accordance with relevant standards and certified by competent persons before use.

9.2.1.10 Temporary arrangements made at Site for lifting , platforms, approach, access etc should be properly designed and approved before being put to use.

9.2.1.11 All excavations and openings must be securely and adequately fenced/barricaded and warning signs erected when considered necessary as per relevant code of practice.

9.2.1.12 No persons shall remove guard rails, covers or protective devices unless authorised by a responsible supervisor and alternative precautions have been taken

9.2.1.13 Access ways, means of escape and fire exits shall be clearly marked, kept clear and unobstructed at all times

9.2.1.14 Only authorised persons holding relevant license will drive and operate site plant and equipments eg cranes, dumpers, excavators, transport vehicles etc

9.2.1.15 Only authorised personnel are allowed to repair, commission electrical equipments.

9.2.1.16 Gas cylinders shall be handled and stored as per Gas Cylinder Rules and relevant safe working practices

9.2.1.17 All wastes generated at Site shall be segregated and collected in a designated place so as to prevent spillage/ contamination/ scattering at Site, until the waste is lifted for disposal to designated disposal area as advised by BHEL official.

9.2.1.18 The contractor shall arrange at his cost (wherever not specified) appropriate illumination at all work spots for safe working when natural day light is not adequate for clear visibility.

9.2.1.19 The contractor shall train adequate number of workers/supervisors for administering "FIRST AID". List of competent first aid administrators should be prominently displayed.

9.2.1.20 The contractor shall display at strategic places and in adequate numbers the following in fluorescent markings

- Emergency telephone numbers
- Exit, Walkways
- Safe working load charts for wire ropes, slings, D shackles etc
- Warning signs

9.2.1.21 The contractor shall be held responsible for any violation of statutory regulations (local, state or central) and BHEL instructions that may endanger safety of men, equipment, material and environment in his scope of work or other contractors or agencies. Cost of damage, if any, to life and property arising out of such violation of statutory regulations and BHEL instructions shall be borne by the contractor.

9.2.1.22 In case of a fatal or disabling injury/accident to any person at construction sites due to lapses by the contractor, the victim and/or his/her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary, BHEL shall have the right to impose appropriate financial penalty on the contractor and recover the same from payments due to the contractor for suitably compensating the victim and/or his/her dependents. Before imposing any such penalty, appropriate enquiry shall be held by BHEL giving opportunity to the contractor to present his case.

9.2.1.23 In case of any damage to property due to lapses by the contractor, BHEL shall have the right to recover cost of such damages from payments due to the contractor after holding an appropriate enquiry.

9.2.1.24 In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor, BHEL shall have the right to recover cost of such delay from payments due to the contractor after notifying the contractor suitably and giving him opportunity to present his case.

9.2.1.25 If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given a reasonable opportunity to do so, and/or if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions regarding safety issued by the authorised BHEL official, BHEL shall have the right to take corrective steps at the risk and cost of the contractor after giving a notice of not less than seven days indicating the steps that would be taken by BHEL.

9.2.1.26 **Emergency Response**

9.2.1.15.1 BHEL will have an Emergency Response Plan for each Project Site in consultation with the Owner as the case may be, detailing the procedure for mobilisation of personnel and equipment, and defining the responsibilities of the personnel indicated, in order to prepare for any emergency that may arise in order to ensure the priorities of

- Safeguard of life
- Protect assets under construction or neighbouring

- Protect environment
- Resumption of normal operations as soon as the emergency condition is called off

All Contractors shall also be part of the Emergency response Plan and the personnel so nominated shall be aware of their duties and responsibilities in an emergency response situation.

9.2.1.15.2 At least 5% Contractors supervisors and workmen shall undergo training in administering 'First Aid'. The trained persons should represent for all categories of work and for all areas of work. Adequate number of trained persons should be available for each shift. These first aiders shall be included in the emergency response team. Contractor employees and workmen are encouraged to participate in first aid training programmes whenever organised by BHEL.

9.2.1 OCCUPATIONAL HEALTH

9.2.2.0 Specific occupational health hazards will be identified through the hazard evaluation processes in consultation with BHEL engineers and the necessary prevention/reduction/elimination methods implemented.

9.2.2.1 All personnel working in an activity with a potential risk to health shall be made aware of all those risks and the actions they must take to reduce/control/eliminate the risk

9.2.2.2 Safety coordinator shall conduct periodic checks to ensure that every group of workers engaged in similar activities are aware of potential risks to health and the actions required to be taken to mitigate the risk

9.2.2.3 In order to protect personnel from associated health hazards, the following main areas will be focussed

- Issue of approved Personnel Protective Equipment
- Verification that the PPEs are adequate/maintained and worn by all staff involved in operations that are potentially hazardous to their health
- Ensure that the personnel deployed are physically fit for the operation/work concerned
- Provide hygienic and sanitary working conditions

9.2.2.4 Contractor workers employees engaged in noise risk areas shall be issued with hearing protection aids and the use of the same will be enforced. Further, these workers will be educated on the hazards of noise

9.2.2.5 Contractor workers engaged in dust environment shall be issued with necessary dust protection aids and the use of the same shall be enforced

9.2.2.6 Workers engaged in exposure to bright light/rays as in welding or radiation shall be issued with eye protection devices and the use of the same shall be enforced

9.2.2.7 Adequate arrangements shall be made to provide safe drinking water

9.2.2.8 Health monitoring records on at least sample basis for contractor employees & workmen shall be maintained for persons engaged in specified categories of work. These shall include

- Noise induced hearing loss
- Lung Function test
- Ergonomic Test
- Eye Test for Welders, Grinders, Drivers etc

9.2.3.11 HYGIENE and HOUSEKEEPING

9.2.3.12 Good house keeping and proper hygiene is one of the key requirements of Occupational Health Safety and Environment management. Towards this the contractor shall encourage his workers and supervisors to maintain cleanliness in their area of work.

9.2.3.13 The Contractor shall arrange to place waste bins/chutes at convenient locations for the collection of scrap and other wastes. The bins shall be clearly marked and segregated for metal, non-metal, hazardous and non hazardous wastes.

9.2.3.14 BHEL may take up appropriate remedial measures at the cost of the contractors if the contractors fail good house keeping and if there is an imminent risk of pollution

9.2.0 ENVIRONMENT MANAGEMENT

9.2.4.6 BHEL has a sound environmental management system, which is to be maintained and implemented by all the contractors. The system allows for project specific objectives to be set and developed sensitive to client requirements, applicable environmental legislation and BHEL's own objectives and policy. BHEL engineers will assess and monitor the environmental impact of their work and lay out objectives for their minimisation. The contractors shall implement the objectives for continual improvement of environmental performance. BHEL shall regularly audit environmental impacts and their improvements.

9.2.4.7 WASTE MANAGEMENT

9.2.4.3.1 The objective of waste management is to ensure the safe and responsible disposal of waste, ensuring that it is correctly disposed of and being able to audit the process to ensure compliance.

9.2.4.3.2 Chemical wastes if any shall be collected separately and disposed of to BHEL designated refuse yard as per BHEL advise

9.2.4.3.3 No dangerous chemicals, noxious waste products or materials will be disposed off on or off site without approval obtained through BHEL.

9.2.4.3.4 All disposal of wastes generated during construction shall be in accordance with all relevant legislation.

9.2.4.3.5 Acid and alkali cleaning wastes shall be neutralised to acceptable norms before disposal to the designated area.

9.2.4.3.6 All necessary measures shall be taken to ensure safe collection and disposal of waste oils. In particular to ensure the prevention of their discharge into surface waters, ground waters, coastal waters or drainages

9.3 SUPERVISION

9.3.1

Contractor must provide at least one full time on site safety coordinator when the manpower engaged is in excess of 50 for the contract activities in the premises. If the manpower is less than 50, the on site safety coordination responsibilities shall be assumed by any one of

the contractor's other supervisory staff; however in both the cases, the contractor must specify in writing the name of such persons to the BHEL Engineer in Charge.

9.3.2

Contractor's safety coordinator or his supervisor responsible for safety as the case may be shall conduct at his work site, and document formal safety inspection and audits at least once in a week. Such documents are to be submitted to BHEL Engineer in Charge for his review and record. Contractor, supervisor must attend all schedule safety meetings as would be intimated to him by the BHEL Engineer in Charge.

9.3.3

Before starting work under any contract, the contractor must ensure that a job specific safety procedures/field practices as required over and above the safety permit conditions are prepared and followed .He should also ensure that all supervisors and workers involved understand and follow this procedures /field practices.

9.3.4

Contractor must ensure that in his work site appropriate display boards are put displaying signs for site safety , potential hazards and precautions required

9.4.2 **TRAINING & AWARENESS**

9.4.3

Contractor shall deploy experienced supervisors and other manpower who are well conversant with the safety and environment regulations of the Project. The electricians to be deployed on the job should have wireman license.

9.4.4

All Supervisors & Workmen of the Contractor shall undergo Fire safety training/demonstration whenever arranged by BHEL with the help of either Customer's Fire and Safety department or outside faculty so as to acquire knowledge of fire prevention and also to be able to make use of appropriate fire extinguishers.

9.4.5

Contractor must familiarize himself from BHEL Engineer in Charge about all known potential fire, explosion or toxic release hazards related to the contract. He in turn will ensure that same information has been passed to the supervisors and workmen

9.4.6

Contractor must ensure that all his supervisors are properly trained and each employee has received and understood from his supervisor necessary training and briefing about the safety requirement. Necessary document as a means to verify that employees have understood the training is to be maintained.

9.4.7

The contractor supervisors shall also give a small safety briefing to all the workmen under his charge before undertaking any new work and specially understand the safety requirements that are mandatory

9.5.11 **REPORTING**

9.5.12

The contractor shall submit report of all accidents, fires and property damage, dangerous occurrences to the authorised BHEL official immediately after such occurrence but in any

case not later than twelve hours of the occurrence. Such report shall be furnished in the manner prescribed by BHEL and also to meet statutory requirement.

9.5.13

Any injury sustained by any of the contractor's employees within the Project premises must be reported to BHEL supervisor and FIRST AID should be immediately administered. The Contractor shall be responsible for keeping and maintaining proper records of Accidents to his personnel.

9.5.14

Contractor must arrange to immediately investigate, properly document and report any injury, accident or near miss involving any of his employees and take appropriate follow up action. He must furnish within 12 hours of the incident a written report to BHEL Engineer in charge and the Safety Section.

9.5.15

According to the Factory Act and the Employees state Insurance Act & regulation, any person sustaining any injury within the project premises and absenting himself from work for more than 46 hours, his accident report has to be sent to the respective Government Authorities. Therefore contractor shall inform the owner's representative such matter immediately for their needful action.

9.5.16

In addition, contractor shall submit periodic reports on safety to the authorised BHEL official from time to time as prescribed.

9.5.17

Before commencing the work, the contractor shall appoint/nominate a responsible officer to supervise implementation of all safety measures and liaison with his counterpart of BHEL.

9.11 **AUDIT REVIEW AND INSPECTION**

9.6.11

BHEL shall conduct audit on the contractor performance and compliance with the project specific requirements of the Environment and Occupational Health & Safety Management systems. The programme of audit shall cover all activities under the contract but will focus particularly on high-risk activities. The Construction Manager shall decide the schedule of audit. The audit findings shall be communicated to the contractors and necessary remedial action as advised by BHEL Engineers shall be under taken within the stipulated time.

9.6.12

BHEL Engineers shall carry out inspections regularly by the contractors and on activities, facilities, equipment and documentation, to cover the following aspects.

- Compliance with procedures and systems
- Availability, condition and use of PPEs
- Condition of maintenance tools, equipments, facilities
- Availability of fire fighting equipments and its condition
- Use of fire fighting equipments and first aid kit
- Awareness of occupational health hazard
- Awareness of safe working practices
- Presence of quality supervision
- Housekeeping

The Safety Co-ordinator shall visit and inspect work sites daily. All unsafe acts, unsafe conditions that have imminent potential for causing harm/injury/damage will be immediately

corrected. He shall maintain a daily logbook giving details of unsafe acts or conditions observed and the corrective action taken and recommendations for preventing recurrence. Adequacy of corrective actions will be verified

The contractor shall take remedial measures as per the findings of each inspection

Besides the above, the contractor shall be required to carry out the following inspections

Sl no	Equipment	Scope of inspection	Inspection by	Schedule
1	Hand tools	To identify unsafe/defective tool	User	Daily
2	Power tools	To identify unsafe/defective tool	User	Daily
3	Fire Extinguisher	To check pressure and any defect	User / Safety Coordinator	Daily Every month
4	Lifting equipment/tacles	To check for defects and efficacy of brakes	User Third party	Daily Every Year
5	PPE	To check for defects	User	Daily

9.7 NON COMPLIANCE: -

9.7.12

NONCONFORMITY OF SAFETY RULES AND SAFETY APPLIANCES WILL BE VIEWED SERIOUSLY AND THE BHEL HAS RIGHT TO IMPOSE FINES ON THE CONTRACTOR AS UNDER **for every instance of violation noticed:**

SNo.	Violation of Safety Norm	Fine (Rs.)
01.	Not Wearing Safety Helmet	50/-
02.	Not wearing Safety Belt	100/-
03.	Grinding Without Goggles	50/-
04.	Not using 24 V Supply For Internal Work	500/-
05.	Electrical Plugs Not used for hand Machine	100/-
06.	Not Slings property	200/-
07.	Using Damaged Sling	200/-
08.	Lifting Cylinders Without Cage	500/-
09.	Not Using Proper Welding Cable With Lot of Joints And Not Insulated Property.	200/-
10.	Not Removing Small Scrap From Platforms	200/-
11.	Gas Cutting Without Taking Proper Precaution or Not Using Sheet Below Gas Cutting	200/-
12.	Not Maintaining Electric Winches Which are Operated Dangerously	500/-
13.	Improper Earthing Of Electrical T&P	500/-
14.	Accident Resulting in Partial Loss in Earning Capacity	25,000/- per victim
15.	Fatal Accident/Accidents Resulting in total loss in Earning Capacity	1,00,000/- per victim

Any other non-conformity noticed not listed above will also be fined as deemed fit by BHEL. The decision of BHEL engineer is final on the above. The amount will be deducted from running bills of the contractor. The amount collected above will be utilised for giving award to

the employees who could avoid accident by following safety rules. Also the amount will be spent for purchasing the safety appliances and supporting the safety activity at site.

1.0

CITATION:-If safety record of the contractor in execution of the awarded job is to the satisfaction of safety department of BHEL, issue of an appropriate certificate to recognise the safety performance of the contractor may be considered by BHEL after completion of the job.

2.0 Memorandum of Understanding

After Award Of Work, Contractors Are Required To Enter Into A Memorandum Of Understanding As Given Below:

Memorandum of Understanding

BHEL, PSWR is committed to Health, Safety and Environment Policy (EHS Policy) as given in the booklet titled “ Safe Working Practices” issued to all contractors.

M/s _____ do hereby also commit to the same EHS Policy while executing the Contract Number _____

M/s _____ shall ensure that safe work practices not limited to the above booklet are followed by all construction workers and supervisors. Spirit and content therein shall be reached to all workers and supervisors for compliance.

BHEL will be carrying out EHS audits twice a year and M/s _____ shall ensure to close any non-conformity observed/reported within fifteen days.

Signed by authorised representative of M/s-----

Name :

Place & Date:

3.0

Comprehensive list of National Standards for reference and use wherever applicable in the execution of Civil, Erection and Commissioning Contracts

IS No	YEAR	Amd upto	DESCRIPTION
IS 10204	1982		PORTABLE FIRE EXTINGUISHERS MECHANICAL FOAM TYPE
IS 10245	1994		SPECIFICATION FOR BREATHING APPARATUS
IS 10291	1982		SAFETY CODE FOR DRESS DRIVERS IN CIVIL ENGINEERING WORKS
IS 10658	1983		HIGHER CAPACITY DRY POWDER FIRE EXTINGUISHERS (TROLLEY MOUNTED)
IS 10662	1992		COLOUR TELEVISION
IS 10667	1983		GUIDE FOR SELECTION OF INDUSTRIAL SAFETY EQUIPMENT FOR PROTECTION OF FOOT AND LEG
IS 11037	1984		ELECTRONIC FAN REGULATORS

IS No	YEAR	Amd upto	DESCRIPTION
IS 11057	1984		INDUSTRIAL SAFETY NETS
IS 11451	1998		RECOMMENDATION FOR SAFETY AND HEALTH REQUIREMENT RELATING TO OCCUPATION EXPOSURE TO ASBESTOS
IS 1169	1967		PEDESTAL FANS
IS 1179	1967		SPECIFICATION FOR EQUIPMENT FOR EYE AND FACE PROTECTION DURING WELDING
IS 11833	1986		DRY POWDER FIRE EXTINGUISHERS FOR METAL FIRES
IS 11972	1987		CODE OF PRACTICE FOR SAFETY PRECAUTION TO BE TAKEN WHEN ENTERING A SEWAGE SYSTEM
IS 1287	1986		ELECTRIC TOASTER
IS 13063	1991		STRUCTURAL SAFETY OF BUILDINGS ON SHALLOW FOUNDATIONS ON ROCKS
IS 13385	1992		SPECIFICATIONS FOR FIRE EXTINGUISHERS 50 LITRE WHEEL MOUNTED WATER TYPE (GAS CARTRIDGES)
IS 13386	1992		SPECIFICATIONS FOR FIRE EXTINGUISHERS 50 LITRE MECHANICAL FOAM TYPE
IS 13415	1992		CODE OF SAFETY FOR PROTECTIVE BARRIERS IN AND AROUND BUILDINGS
IS 13416	1992		RECOMMENDATIONS FOR PREVENTIVE MEASURES AGAINST HAZARDS AT WORKING PLACE PART 1 TO PART 5
IS 13430	1992		CODE OF PRACTICE FOR SAFETY DURING ADDITIONAL CONSTRUCTION AND ALTERATION TO EXISTING BUILDINGS
IS 13849	1993		PORTABLE FIRE EXTINGUISHERS DRY POWDER TYPE (CONSTANT PRESSURE)
IS 1446	1985		CLASSIFICATION OF DANGEROUS GOODS (FIRST REVISION)
IS 1476	1979		REFRIGERATORS
IS 1641	1988		CODE OF PRACTICE FOR FIRE SAFETY OF BUILDINGS (GENERAL): GENERAL PRINCIPLES OF FIRE GRADING AND CLASSIFICATION
IS 1642	1989		CODE OF PRACTICE FOR FIRE SAFETY OF BUILDINGS- DETAILS OF CONSTRUCTION
IS 1643	1988		CODE OF PRACTICE FOR FIRE SAFETY OF BUILDINGS (GENERAL): EXPOSURE HAZARD
IS 1646	1997		CODE OF PRACTICE FOR FIRE SAFETY OF BUILDINGS (GENERAL): ELECTRICAL INSTALLATIONS
IS 1904	1986		CODE OF PRACTICE FOR DESIGN AND CONSTRUCTION OF FOUNDATIONS IN SOIL
IS 1905	1987		STRUCTURAL SAFETY OF BUILDINGS MASONRY WALLS
IS 2082	1985		ELECTRICAL GEYSERS
IS 2171	1985		PORTABLE FIRE EXTINGUISHERS DRY POWDER TYPE (CARTRIDGE)
IS 2309	1989		PRACTICE FOR THE PROTECTION OF BUILDINGS AND ALLIED BUILDINGS AGAINST LIGHTENING
IS 2312	1967		EXHAUST FANS

IS No	YEAR	Amd upto	DESCRIPTION
IS 2361	1994		SPECIFICATION FOR BUILDING GRIPS - FIRST REVISION
IS 2418	1977		TUBULAR FLUORSCENT LAMPS IS 2418 (FT-1)
IS 2750	1964		STEEL SCAFFOLDINGS
IS 2762	1964		SAFE WORKING LOADS IN KGS FOR WIRE ROPE SLINGS
IS 2878	1986		FIRE EXTINGUISHERS CARBON DIOXIDE TYPE (PORTABLE AND TROLLEY MOUNTED)
IS 2925	1984		SPECIFICATION FOR INDUSTRIAL SAFETY HELMETS
IS 3016	1982		CODE OF PRACTICE FOR FIRE PRECAUTIONS IN WELDING AND CUTTING OPERATIONS- FIRST REVISION
IS 3315	1974		DESERT COOLERS
IS 3521	1989		INDUSTRIAL SAFETY BELTS AND HARNESS
IS 368	1983		IMMERSION WATER HEATERS
IS 3696	1991		SAFETY CODE OF SCAFFOLDS AND LADDERS PART 1 TO 2
IS 3737	1996		LEATHER SAFETY BOOTS FOR WORKERS IN HEAVY METAL INDUSTRIES
IS 374	1979		CEILING FANS INCLUDING REGULATORS
IS 3764	1992		EXCAVATION WORK - CODE OF SAFETY
IS 3786	1983		METHOD FOR COMPUTATION OF FREQUENCY AND SEVERITY RATES FOR INDUSTRIAL INJURIES AND CLASSIFICATION OF INDUSTRIAL ACCIDENTS
IS 3935	1966		CODE OF PRACTICE FOR COMPOSITE CONSTRUCTION
IS 4014	1967		CODE OF PRACTICE FOR STEEL TUBULAR SCAFFOLDING
IS 4081	1986		SAFETY CODE FOR BLASTING AND RELATED DRILLING OPERATIONS
IS 4082	1977	1996	STACKING AND STORAGE OF CONSTRUCTION MATERIALS AND COMPONENTS AT SITE
IS 4130	1991		DEMOLITION OF BUILDINGS - CODE OF SAFETY PART 1 TO 2
IS 4138	1977		SAFETY CODE FOR WORKING IN COMPRESSED AIR (FIRST REVISION)
IS 4155	1966		GLOSSARY OF TERMS RELATING TO CHEMICAL AND RADIATION HAZARDS AND HAZARDOUS CHEMICALS
IS 4209	1967		CODE OF SAFETY FOR CHEMICAL LABORATORY
IS 4250	1980		FOOD MIXERS
IS 4262	1967		CODE OF SAFETY FOR SULFURIC ACID
IS 4756	1978		SAFETY CODE FOR TUNNELING WORK
IS 4912	1978		SAFETY REQUIREMENTS FOR FLOOR AND WALL OPENINGS, RAILINGS AND TOE BOARDS

IS No	YEAR	Amd upto	DESCRIPTION
IS 5121	1969		SAFETY CODE FOR PILING AND OTHER DEEP FOUNDATIONS
IS 5182	1969	1982	METHODS FOR MEASUREMENT OF AIR POLLUTION
IS 5184	1969		CODE OF SAFETY FOR HYDROFLUORIC ACID
IS 5216	1982	2000	RECOMMENDATIONS ON SAFETY PROCEDURES AND PRACTICE IN ELECTRICAL WORK PART I AND II
IS 555	1979		TABLE FANS
IS 5557	1995		INDUSTRIAL AND SAFETY LINED RUBBER BOOTS (SECOND REVISION)
IS 5916	1970		SAFETY CODE FOR CONSTRUCTION INVOLVING USE OF HOR BITUMINOUS MATERIALS
IS 5983	1980		SPECIFICATION FOR EYE PROTECTORS - FIRST REVISION
IS 6234	1986		PORTABLE FIRE EXTINGUISHERS WATER TYPE (STORED PRESSURE)
IS 692	1994		CRITERIA FOR SAFETY AND DESIGN OF STRUCTURES SUBJECTED TO UNDERGROUND BLASTS
IS 6994	1973		SPECIFICATION FOR SAFETY GLOVES
IS 7155	1986		CODE OF RECOMMENDED PRACTICE FOR CONVEYOR SAFETY (PART 1 TO 8)
IS 7205	1974		SAFETY CODE FOR ERECTION OF STRUCTURAL STEEL WORK
IS 7293	1974		SAFETY CODE FOR WORKING WITH CONSTRUCTION MACHINERY
IS 7323	1994		GUIDELINES FOR OPERATIONS OF RESERVOIRS
IS 7812	1975		CODE OF SAFETY FOR MERCURY
IS 7969	1975		SAFETY CODE FOR HANDLING AND STORAGE OF BUILDING MATERIALS
IS 8089	1976		CODE OF SAFE PRACTICE FOR LAYOUT OF OUTSIDE FACILITIES IN AN INDUSTRIAL PLANT
IS 8091	1976		CODE OF PRACTICE FOR INDUSTRIAL PLANT LAYOUT
IS 8095	1976		ACCIDENTS PREVENTION TAGS
IS 818	1968	1997	CODE OF PRACTICE FOR SAFETY AND HEALTH REQUIREMENTS IN ELECTRIC AND GAS WELDING, AND CUTTING OPERATIONS
IS 8448	1989		AUTOMATIC LINE VOLTAGE CORRECTOR (STABILISER)
IS 8519	1977		GUIDE FOR SELECTION OF INDUSTRIAL SAFETY EQUIPMENT FOR BODY PROTECTION
IS 8520	1977		GUIDE FOR SELECTION OF INDUSTRIAL SAFETY EQUIPMENT FOR EYE, FACE AND EAR PROTECTION
IS 875	1987		STRUCTURAL SAFETY OF BUILDING: LOADING STANDARD PART 1 TO 5
IS 8807	1978		GUIDE FOR SELECTION OF INDUSTRIAL SAFETY EQUIPMENT FOR PROTECTION OF ARMS AND HANDS
IS 8978	1985		INSTANTANEOUS WATER HEATERS

IS No	YEAR	Amd upto	DESCRIPTION
IS 8989	1978		SAFETY CODE FOR ERECTION OF CONCRETE FRAMED STRUCTURES
IS 940	1989		PORTABLE FIRE EXTINGUISHERS WATER TYPE (GAS CARTRIDGE)
IS 9457	1980		SAFETY COLOURS AND SIGNS
IS 9679	1980		CODE OF SAFETY FOR WORK ENVIRONMENTAL MONITORING
IS 9706	1997		CODE OF PRACTICE FOR THE CONSTRUCTION OF AERIAL RPEWAYS FOR THE TRANSPORTATION OF MATERIAL
IS 9759	1981		GUIDELINES FOR DEWATERING DURING CONSTRUCTION
IS 9815	1989		SERVO MOTOR OPERATED LINE VOLTAGE CORRECTOR (SERVO STABILISER)
IS 9944	1992		RECOMMENDATIONS ON SAFE WORKING LOAD FOR NATURAL AND MAN-MADE FIBRE ROPE SLINGS
IS 996	1979		SINGLE PHASE ELECTRIC MOTORS
ISO 3873	1977		SAFETY HELMET

SECTION-10

SPECIAL CONDITIONS OF CONTRACT

10.0 Drawings and Documents

10.1

The detailed drawings, specifications available with BHEL engineers will also form part of this tender specification. Revision of drawings/documents may take place due to various considerations as is normal in such large project. Work will have to be carried out as per revised drawings/ documents. These documents will be made available to the contractor during execution of work at site.

10.2

One set of necessary drawings/documents to carry out the erection work will be furnished to the contractor by BHEL on loan that shall be returned to BHEL after completion of the work. Contractor's personnel shall take care of these documents given to them.

10.3

The data furnished in various sections and appendices and the drawings enclosed with this tender specification describe the equipment to be installed, tested and commissioned under this specification, briefly. However, the changes in the design and in the quantity may be expected to occur as is usual in any such large scale of works.

10.4

If any error or ambiguity is discovered in the specification/information contained in the documents/ drawings and tender, the contractor shall forthwith bring the same to the notice of BHEL before submission of offer.

10.5

In case an ambiguity is detected after award of work, the same must be brought to the notice of bhel before commencement of the work/activity. BHEL's interpretation in such cases will be final and binding on the contractor.

10.6

In case of any conflict between general instructions to tenderers, general conditions of contract contained in sections 1 & 2 respectively and special conditions of contract contained in sections 4 to 15 and appendices, provisions contained in special conditions of contract in sections 4 to 15 and appendices shall prevail.

10.7

In case of discrepancy between quoted item rate and corresponding amount in the Rate Schedule, the **quoted item rates shall be reckoned as correct and amount recalculated**. Quoted item rates shall also prevail for arriving at the total price. Evaluation of offer will be done by BHEL on Total Price of the Rate Schedule.

10.8

Bank Guarantees to be furnished by the Contractor towards Security Deposit and Performance Guarantee (Last 5% payment against Workmanship Warranty/Defect Liability) shall have a claim period of six months over and above the validity period required for the case.

SECTION-11

SPECIAL CONDITIONS OF CONTRACT

TIME SCHEDULE, MOBILIZATION, PROGRESS MONITORING, OVER RUN, VARIATION ETC.

6.6 TIME SCHEDULE & MOBILIZATION

11.1.1 INITIAL MOBILIZATION AND TENTATIVE SCHEDULE

Contractor shall reach site, make his site establishment and be ready to commence the work within **One week** from the date of fax Letter of Intent or as per directions of construction manager of BHEL. In case of forced shutdown of unit, BHEL will ask contractor to mobilize the site within one week of intimation of shutdown.

11.1.3

Contractor shall specifically note that there is likely to be some delay in supplies of materials / release of work fronts / other reasons. Contractor shall have to work round the clock on such critical activities as a part of catch up programme to meet the project requirement to the extent possible and shall also provide required resources as part of scope of work.

1.1.1 Start of Contract Period and Duration.

The total contract period for completion of entire work shall be **60 (Sixty) days** from the date of start of work. The date of start of work at site shall be as certified by BHEL engineer.. However the contractor shall have to mobilize his resources earlier than the start of contract period for preparatory work like taking over and chipping of foundations, blue matching and grouting of packer plates etc.

The contractor shall complete all the work in the scope of this contract within the contract period.

In case of forced shutdown, BHEL will intimate for shutdown of unit and contractor has to mobilize the site within seven days from the date of intimation. In such case date of start of work shall be one week from the date of intimation of forced shutdown.

15.1.1.1 Grace Period

Grace period of 1 **(One) month** beyond the contract period of 60 days is provided for this contract. However, all milestone events as per actual requirement of project schedule shall have to be achieved by the contractor without taking recourse to the Grace Period.

9.8 Progress Monitoring, Contract Extension and Over Run

9.8.1 Progress Monitoring

Progress will be reviewed periodically (daily / weekly / monthly) including month end review vis-a-vis the plans drawn as above. The contractor shall submit periodical progress reports, and other reports / information including manpower, consumables etc as desired by BHEL.

9.8.2 Ascertaining and Establishing the Reasons for Shortfall

The onus probandi that the causes leading to extension of the contract period is not due to any reasons attributable to the contractor is on him (the contractor). Review of the performance as stated vide Clause 11.2.1 above will be made considering the availability of components to be erected and other inputs / constraints over which the contractor has no

control. The programme will be reviewed area-wise and the following facts will be recorded in case of shortfall at the end of every month:

9.8.2.1

A) Erection / Commissioning programme not achieved owing to non-availability of fronts.

A) Erection/Commissioning programme not achieved owing to non-availability of materials.

9.8.2.2 Erection/Commissioning programme not achieved owing to non-availability of tools and plants, manpower and consumables by the contractor or any other reason attributable to the contractor.

9.8.2.3 Erection / Commissioning programme not achieved due to any other reasons not attributable to the contractor.

9.9 Contract Extension

11.3.1

If the completion of work as detailed in these specification gets delayed beyond the end of contract period and grace period then depending on the balance work left out, BHEL at its discretion may extend the contract.

11.3.2

A joint programme shall be drawn for the work to be completed during the extended contract period. Review of the program and record of shortfall as describe vide clause 11.2.2 shall be done during the extended period. The overrun charges will be paid in proportion to the achievement of the respective month vis-à-vis the plan for the month (for assessing the performance, the agreed plan shall be reduced by shortfall attributable to the BHEL). BHEL may disallow contractor's claim for over run charges, if the monthly programme as mentioned here not made by him.

11.3.3

The part of extension attributable to the contractor, if any, in total contract extension shall be exhausted first i.e. immediately after end of grace period. This shall be followed by the extension on account of force majeure conditions, if any, and lastly on account of BHEL.

9.10 Overrun Compensation

Not Applicable

9.11 Price Variation

Agreed price/rate shall remain firm through out the contract period including grace period and extended period thereof. No price variation/adjustment shall be applicable for this contract and clause No.2.15 of General Conditions of Contract shall not be applicable.

9.12 Interest Bearing Recoverable Advance

Interest bearing (rate of interest 12% per annum) advance limited to 5% of the award value may be paid by BHEL at its discretion against specific request of Contractor and after receipt & acceptance of Bank Guarantee for the amount sought. This Bank Guarantee shall be kept valid by the Contractor for specific period, with timely renewals if need be, till the entire amount is recovered by BHEL. Recovery of this amount will be made @ 10% of the running bill amount from the first applicable running bill onwards after the advance is paid.

9.13 Definition of Work Completion

The contractor's scope of work under these specifications will be deemed to have been completed in all respects, only when all the activities are completed satisfactorily and so certified by BHEL site in charge. The decision of BHEL in this regard shall be final and binding on the contractor.

9.14 Contract Variation

BIDDER SHALL QUOTE LUMP SUM PRICE IN THE PRICE BID. The agreed LUMP SUM RATE shall remain firm for any variation on individual quantity or total quantity/ value. Payment shall be made as per LUMP SUM rates. The contractor has to take note of this and quote his rates accordingly.

9.15 AS Liquidated damages (L D)

L D shall be applicable as per General Terms & Conditions (GCC) of contract.

11.10 Defect Liability Period:

Any defect attributable to contractor's workmanship noticed within 60 days from synchronization of unit shall be attended by the contractor immediately, free of charge

SECTION-12 SPECIAL CONDITIONS

12.0 TERMS OF PAYMENT

12.0.1

The contractor should submit his monthly on account bills with all the details required by BHEL on specified date every month covering progress of work in all respects and areas from the 25 of previous calendar month to 24th of the current month.

12.0.2

Clause 2.6 of general conditions of contract shall be referred to as regards mode of payment, and measurement of the work completed.

12.0.3

Release of payment in each running bill will be restricted to 95% of the value of work admitted, as per the percentage break-up for the stage of work completion stipulated vide clauses hereinafter.

The 5% thus remaining shall be on account of workmanship guarantee of work executed. The same will be released after completion of the guarantee period of 12 months from the date of completion of entire work as certified by BHEL engineer. However, this amount may be released earlier on receipt and acceptance of bank guarantee (BG) of equal amount in BHEL's prescribed format. The BG shall be valid at least for one-year period and renewed if necessary to cover the entire Defect Liability period and an additional six months of claim period.

12.0.4

The payment for running bills will normally be released within 30 days of submission of running bill. Contractor shall make his own arrangement for making payment of impending labour wages and other dues in the meanwhile.

1.1 STAGES OF PROGRESSIVE PRO-RATA PAYMENTS

The progressive pro-rata payment will be released based on accepted price/item rates in following manner:

I) DISMANTLING, REPLACEMENT OF WATER WALL PANELS, BUCK-STAYS, STEAM COOLED WALL PANELS AND ASSOCIATE WORKS INCLUDING INSULATION & OUTER CLADDING FOR BOILER UNIT-4 (200 MW UNIT) AT UKAI TPS.

AMOUNT ALLOCATED : **50%** OF TOTAL LUM SUM VALUE QUOTED.

Payment terms: The payments will be made on progressive work completion as mentioned :

20 % after dismantling & disposing the old components.

30 % after Erection / Replacement , alignment and welding and heat treatment

20 % on completion of Radiography , Hydro test and Insulation.

10 % on successful commissioning and putting boiler in operation.

10% against the deputation of expert for the entire period of work as per direction of BHEL. Payment shall be released after satisfy BHEL about the competent expert is posted.

10 % after successful completion of all works including clearing and handing over of the site and successful commissioning of unit against the certification of BHEL's site incharge.

II. ERECTION / REPAIRING & COMMISSIONING WORK OF PENTHOUSE ROOF (FIRST PASS AND SECOND PASS) REFRACTORY APPLICATION AND SEALING ALONG WITH ASSOCIATED WORKS FOR BOILER AT UKAI-4 (200 MW UNIT)

AMOUNT ALLOCATED : **15%** OF TOTAL LUM SUM VALUE QUOTED

Payment terms: The payments will be made on progressive work completion as mentioned below:

50 % after dismantling & disposing the old components. Erection / Replacement , alignment and welding of new components.

20 % on completion of radiography , Leak test, Hydro test and Insulation.

10 % on successful commissioning and putting boiler in operation.

10% against the deputation of expert for the entire period of work as per direction of BHEL. Payment shall be released after satisfy BHEL about the competent expert is posted.

10 % after successful completion of all works including clearing and handing over of the site and successful commissioning of unit against the certification of BHEL's site incharge

III. ERECTION OF HANGERS & SUPPORT FOR 200 MW UKAI UNIT – 4

AMOUNT ALLOCATED : **35%** OF TOTAL LUM SUM VALUE QUOTED

Payment terms:

20% after completion of dismantling and disposition of existing hangers and supports.

30% after assembly/ Erection of new hangers and supports

30% on successful commissioning of hangers against cold set values protocols.

10% against the deputation of expert for the entire period of work as per direction of BHEL. Payment shall be released after satisfy BHEL about the competent expert is posted.

10% after putting the boiler on operation and ensuring the performance.

The payment shall be made within 30 days from the date of presentation of invoices after recovering prevalent taxes & other dues, if any, as per the government rules and the operational reports as per given schedule.

Considering 95% of the accepted price/item rates as 100% for various items/activities of work under these specifications will be released, based on certified completion by BHEL Engineer, as pro-rata progressive payment as per the stage break up given here:

THE PERCENTAGES OF PAYMENT TERMS SHOWN HERE IS ONLY FOR THE CONVENIENCE OF PAYMENT AND SHOULD NOT BE USED FOR ASSESMENT OF SCOPE OF WORK.

THE PAYMENT WILL BE MADE TO THE CONTRACTOR SUBJECT TO THE PRESENTATION OF BILLS ALONG WITH THE SIGNED PROTOCOLS / WORK COMPLETION CERTIFICATES FROM THE RESPECTIVE AREAS OF GSECL AND BHEL AUTHORITIES.

IN CASE OF ANY ERROR / DEVIATION OBSERVED IN THE FOLLOWING PAYMENT PERCENTAGES, DECISION OF BHEL EXECUTIVE AT SITE WILL BE CONSIDERED AS FINAL.

1.1.1 STAGES OF PROGRESSIVE PRO-RATA PAYMENTS

MEASUREMENT OF THE WORK COMPLETED

BHEL ENGINEER'S DECISION REGARDING STAGE OF PAYMENT CORRESPONDING TO PROGRESS OF WORK, CALCULATION OF WEIGHT ETC. WILL BE FINAL AND BINDING ON THE CONTRACTOR..

1.2 PAYMENT FOR WORK COMPLETED

12.2.1

The contractor should submit his on account bills with all the details required by BHEL on 26th of every month covering progress of work in all respects and areas up to 24th day of the same month.

12.2.2

The payment for running bills will normally be released within around 30 days of submission of running bill with measurement sheets. Contractor shall make his own arrangement for making payment of impending labour wages and other dues in the meanwhile.

12.2.3

On receipt of the bill, joint measurement and checking of the work done will be carried out by the concerned BHEL engineer as per clause 2.6 of General Conditions of the Contract and break-up given vide clause 12.0. It shall be final and binding on the contractor.

12.2.4

The payment for running bills will normally be released in around 30 days of submission of running bill with measurement sheets. Contractor shall make his own arrangement for making payment of impending labour wages and other dues in the meanwhile.

SECTION-13

SPECIAL CONDITIONS OF CONTRACT

13.0 EXTRA CHARGES FOR RECTIFICATION AND MODIFICATION

13.1

IF EXTRA WORKS (REQUIRING LESS THAN **100 MAN-HOURS**) FOR MODIFICATION, REWORK, REVAMPING, IN BRIEF, ANY WORK DONE TO CHANGE THE STATE EXISTING TO A STAGE DESIRED AND ALSO FABRICATION, ALL OR ANY, ARE NEEDED DUE TO ANY CHANGE IN OR DEVIATION FROM THE DRAWINGS AND DESIGN OF EQUIPMENT, OPERATION/ MAINTENANCE REQUIREMENTS, MISMATCHING, TRANSIT DAMAGES AND OTHER ALLIED WORKS WHICH ARE NOT VERY SPECIFICALLY INDICATED IN THE DRAWINGS, BUT ARE FOUND ESSENTIAL FOR SATISFACTORY COMPLETION OF THE WORK, ARE DONE, NO EXTRA CHARGES WILL BE PAID. THE TENDERERS ARE REQUESTED TO TAKE THIS ASPECT INTO ACCOUNT AND THE QUOTED RATE SHOULD INCLUDE ALL SUCH CONTINGENCIES.

13.2

IT MAY ALSO BE NOTED THAT IF ANY SUCH SAID EXTRA WORKS ARISE ON ACCOUNT OF THE CONTRACTOR'S FAULT, IRRESPECTIVE OF TIME CONSUMED IN RECTIFICATION OF THE DAMAGE/LOSS, IT WILL HAVE TO BE CARRIED OUT BY THE CONTRACTOR FREE OF COST. UNDER SUCH CIRCUMSTANCES, ANY MATERIAL AND CONSUMABLE REQUIRED FOR THIS PURPOSE WILL ALSO HAVE TO BE ARRANGED BY THE CONTRACTOR AT HIS COST.

13.3

HOWEVER, BHEL MAY CONSIDER FOR PAYMENT AS EXTRA, FOR SUCH OF THOSE WORKS DETAILED IN CLAUSE 13.1 WHICH REQUIRE MORE THAN **100 MAN-HOURS** AND SUCH PAYMENT WILL BE REGULATED BY THE TERMS, CONDITIONS AND STIPULATIONS CONTAINED IN THE CLAUSES 13.4 TO 13.8 AND/OR 14.2.1 TO 14.2.10 AS THE CASE MAY BE. IT MAY BE SPECIFICALLY NOTED THAT THE DECISION OF BHEL AS TO WHETHER SUCH PAYMENT IS DUE SHALL BE FINAL AND BINDING ON THE CONTRACTOR. IT MAY ALSO BE NOTED THAT ONLY THOSE WORKS THAT ARE IDENTIFIED AS MAJOR AND WARRANT EXTRA PAYMENT AND CERTIFIED AS SUCH BY THE SITE ENGINEER AND ACCEPTED BY THE DESIGNERS AND/OR COMPETENT AUTHORITY OF BHEL, WILL BE CONSIDERED FOR EXTRA PAYMENT.

13.4

FOR EXTRA WORKS ARISING OUT OF TRANSIT, STORAGE AND ERECTION DAMAGES, PAYMENT, IF FOUND DUE, WILL BE REGULATED BY CLAUSES 14.2.1 TO 14.2.10.

13.5

ALL THE EXTRA WORK SHOULD BE CARRIED OUT BY A SEPARATELY IDENTIFIABLE GANG, WITHOUT AFFECTING ROUTINE ACTIVITIES. DAILY LOG SHEETS IN THE PRO-FORMA PRESCRIBED BY BHEL SHOULD BE MAINTAINED AND SHALL BE SIGNED BY THE CONTRACTOR'S REPRESENTATIVE AND BHEL ENGINEER. NO CLAIM FOR EXTRA WORK WILL BE CONSIDERED/ENTERTAINED IN THE ABSENCE OF THE SAID SUPPORTING DOCUMENTS I.E. DAILY LOG SHEETS. IT MAY, HOWEVER BE NOTED THAT SIGNING OF LOG SHEETS BY BHEL ENGINEER DOES NOT MEAN THE ACCEPTANCE OF SUCH WORKS AS EXTRA WORKS. ALL ADMISSIBLE CLAIMS SHALL BE SUBMITTED TO BHEL

1.1

BHEL RETAINS THE RIGHT TO AWARD OR NOT TO AWARD ANY OF THE MAJOR REPAIR/REWORK/MODIFICATION/RECTIFICATION/FABRICATION WORKS UNDER CLAUSES 13.1 TO 13.6 TO THE CONTRACTOR, AT THEIR DISCRETION WITHOUT ASSIGNING ANY REASON FOR THE SAME.

1.2

EXTRA WORKS THAT ARISE ON ACCOUNT OF CONTRACTOR'S FAULT WILL HAVE TO BE CARRIED OUT BY THE CONTRACTOR FREE OF COST INCLUDING THE SUPPLY OF MATERIAL AND CONSUMABLES

13.8

AFTER ELIGIBILITY OF EXTRA WORKS IS ESTABLISHED AND FINALLY ACCEPTED BY BHEL ENGINEER/DESIGNER, PAYMENT WILL BE RELEASED ON COMPETENT AUTHORITY'S APPROVAL AT THE FOLLOWING RATE.

MAN-DAY RATE FOR ELIGIBLE EXTRA WORKS :

SINGLE AVERAGE MAN-DAY RATE, INCLUDING OVERTIME IF ANY, AND OTHER SITE EXPENSES AND INCIDENTALS, INCLUDING CONSUMABLES, TOOLS AND TACKLES, FOR CARRYING OUT ANY MAJOR REWORK/ REPAIRS/ RECTIFICATION/ MODIFICATION/ FABRICATION OF 8 HOURS AS MAY ARISE DURING THE COURSE OF ERECTION. (REFER CLAUSES 13.1 TO 13.8 AND 14.2.1 TO 14.2.10) WILL BE **RS. 320/- (RUPEES THREE HUNDRED AND TWENTY ONLY)**

NO PAYMENT WILL BE MADE IF AN ITEM OF WORK LASTS LESS THAN 100 MANHOURS.

SECTION-14

SPECIAL CONDITIONS OF CONTRACT

INSURANCE

14.1

BHEL HAS ARRANGED A COMPREHENSIVE MARINE, STORAGE CUM ERECTION INSURANCE COVER ALL RISKS INCLUDING DAMAGES/LOSS OCCURRING DURING INLAND TRANSPORT. BUT SUCH COVER IS LIMITED TO ONLY THE MATERIALS TRANSPORTED.

14.2

THE CONTRACTOR HAS TO ARRANGE ON HIS OWN, INSURANCE COVER FOR ALL THE T&P AND OTHER CONSTRUCTION EQUIPMENTS DEPLOYED AT SITE. SUCH ASSETS ARE NOT COVERED IN INSURANCE POLICY TAKEN BY BHEL.

14.3

IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO ARRANGE FOR ACCIDENT RISK POLICY/WORKMEN COMPENSATION POLICY FOR THE STAFF AND WORKMEN.

14.4

THE CONTRACTOR HAS TO PROVIDE ASSISTANCE IN LODGING AND REALIZING THE INSURANCE CLAIMS COVERED BY THE MCE INSURANCE POLICY THAT IS TAKEN BY BHEL. SCOPE SHALL INCLUDE RECEIPT INSPECTION (SHORTAGE/DAMAGE/LOSS REPORTING) IMMEDIATELY ON ARRIVAL OF CONSIGNMENT, RECORDING SUCH DAMAGE/LOSS/SHORTAGE INTIMATION ON THE LR/RR/LWB DULY COUNTERSIGNED BY THE DRIVER/TRANSPORTER'S REPRESENTATIVE WHILE ACKNOWLEDGING RECEIPT OF CONSIGNMENT TO THE CONCERNED TRANSPORTER, INTIMATING THE LOSS/DAMAGE/SHORTAGE TO BHEL, PROVIDING ASSISTANCE FOR INSPECTION OF THE REPORTED CONSIGNMENT AT THE TIME OF INSURANCE SURVEY, LIAISONING WITH THE TRANSPORTER AND INSURANCE COMPANY ETC.

14.5

IN CASE OF THEFT / DAMAGE / LOSS OF MATERIALS DUE TO NEGLIGENCE OR FAILURE ATTRIBUTABLE TO THE CONTRACTOR, THE EXPENSES INCURRED ON ACCOUNT OF REPAIR/ REPLACEMENT OF SUCH COMPONENTS INCLUDING BHEL'S OVERHEAD EXPENSES AS APPLICABLE (PRESENTLY @ 30%) IN EXCESS OF THE AMOUNT REALIZED FROM THE UNDERWRITERS SHALL BE RECOVERED FROM THE CONTRACTOR. RECOVERY WILL BE LIMITED TO NORMAL DEDUCTIBLE FRANCHISE (DF) / EXCESS AS PER APPLICABLE INSURANCE TARIFF (TAC) GUIDELINES. HOWEVER, IN CASE SUCH INSURANCE CLAIM IS SUMMARILY REJECTED BY THE UNDERWRITERS DUE TO **WILFUL** DAMAGE/LOSS ON THE PART OF THE CONTRACTOR, THE TOTAL COST OF REPAIR/ REPLACEMENT SHALL BE RECOVERED FROM THE CONTRACTOR.

14.6 INSURANCE BY THE CONTRACTOR AND INDEMNIFICATION OF BHEL

BHEL HAVE TAKEN A THIRD PARTY LIABILITY INSURANCE, INDICATING IN THE PROPOSAL FOR SUCH INSURANCE THAT SUB-CONTRACTORS WILL BE TAKING PART IN THE ERECTION WORK DETAILED IN THIS TENDER. HOWEVER, THE TENDERER HAS TO BEAR ANY EXPENSES/ CONSEQUENCES OVER AND ABOVE THE AMOUNT THAT MAY BE REIMBURSED TO BHEL BY SUCH COVERAGE OF THIRD PARTY LIABILITY INSURANCE TAKEN BY BHEL.

SUCH ADDITIONAL LIABILITY WILL BE TO COVER AND INDEMNIFY BHEL AND ITS CUSTOMER OF ALL LIABILITIES WHICH MAY COME UP AND CAUSE HARM/DAMAGE TO OTHER CONTRACTORS/ CUSTOMER/BHEL PROPERTIES/PERSONNEL OR ALL OR ANYBODY RENDERING SERVICE TO BHEL/CUSTOMER OR IS CONNECTED WITH BHEL / CUSTOMER'S WORK IN ANY MANNER WHATSOEVER. THE TENDERER'S SPECIFIC ATTENTION IS ALSO INVITED TO CLAUSE 2.10 OF GENERAL CONDITIONS OF CONTRACT.

CONTRACTOR SHALL OBTAIN AND OPERATE SUITABLE INSURANCE POLICIES TO COVER THE RISK PERTAINING TO THE ASSETS/PROPERTIES AND PERSONNEL BELONGING TO OR DEPLOYED BY HIM.

SECTION-15

SPECIAL CONDITION OF CONTRACT

15.0 EARNEST MONEY DEPOSIT & SECURITY DEPOSIT

15.2 EARNEST MONEY DEPOSIT:

EMD for this tender is Rs. 1,00,000/- (Rupees One lakh only). Bidders who have already deposited One Time EMD of Rs. 2.00 lakh will be exempted from submission of any EMD now for this tender.

EMD is to be paid in **cash** (as permissible under Income Tax Act), Pay order or **Demand Draft** only in favour of Bharat Heavy Electricals Limited and payable at Nagpur. **No other form of EMD is acceptable.**

15.2.1 EMD by the Tendered will be forfeited as per Tender Documents if

- i) After opening the tender, the tendered revokes his tender within the validity period or increases his earlier quoted rates.
- ii) The tendered does not commence the work within the period as per LOI / Contract. In case the LOI / contract is silent in this regard then within 15 days after award of contract.

15.2.2 EMD shall not carry any interest.

15.3 SECURITY DEPOSIT

15.3.1 The successful bidder shall furnish security Deposit. The rate of Security Deposit shall be as below:

SN	Contract Value	Security Deposit Amount
1	Up to Rs. 10 lakhs	10% of Contract Value
2	Above Rs. 10 lakhs upto Rs.50 lakhs	1 lakh + 7.5% of the Contract Value exceeding Rs. 10 lakhs.
3	Above Rs. 50 lakhs	Rs 4 lakhs + 5% of the Contract Value exceeding Rs. 50 lakhs.

The Security Deposit based on award value shall be furnished before start of the work by the Contractor. Amount of Security Deposit shall be aligned with the actual executed value at appropriate stages of the contract period if there is variation from the award value.

15.3.2 Security Deposit may be furnished in any one of the following forms

- i) Cash (as permissible under the Income Tax Act)
- ii) Pay Order, Demand Draft in favour of BHEL.
- iii) Local cheques of scheduled banks, subject to realization.
- iv) Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc. (Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back).
- v) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act subject to a **maximum of 50%** of the total security deposit value. The

balance 50% has to be remitted either by cash or in the other form of security. The Bank Guarantee format should have the approval of BHEL.

- vii) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/c BHEL, duly discharged on the back.
- viii) Security deposit can also be recovered at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be furnished in the form of BG/DD/Securities from Post Office/FDR by the Contractor before start of the work and the balance 50% may be recovered from the running bills.
- viii) EMD of the successful tendered shall be converted as Security Deposit, excepting those bidders who have remitted One Time EMD.
- ix) The Security Deposit shall not carry any interest.

NOTE: Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.

15.2.2

Security Deposit shall not be refunded to the Contractor except in accordance with the terms of the contract.

APPENDIX-I

LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS

NO T&P WILL BE PROVIDED BY BHEL TO THE CONTRACTOR FOR THIS PROJECT EXCEPT SOME SPECIAL TOOLS BEING SUPPLIED BY THE MANUFACTURING UNIT AS PART OF REGULAR SUPPLY.

ANNEXURE -II

LIST OF TOOLS AND PLANTS TO BE ARRANGED BY CONTRACTOR

Guidelines for contractor:

Crawler cranes – 90Mt and above

Tire mounted Hydra cranes

Trailers

Feeler gauge sets, feeler strips of 0.03 to 0.10 mm size.

Dial indicators with magnetic bases (at least 2 dials of diameter 40 mm travel - 5 mm).

Micrometers (inside and outside upto 300 mm, 450mm, 600mm & 1000mm).

Try square.

Set of parallel blocks/ V blocks.

Vernier calipers, (150 and 300 mm), measuring steel tapes and 5 meters steel rulers.

Precision spirit level.

2 sets of D.E. and Ring spanners (6-36mm).

2 sets of Box spanners (6 to 20mm and 22-50mm).

Allen keys of various sizes (from 2mm. Onwards).

U.T. and D.P. Test Kit (with consumables)

Complete kit for carrying out Radiography and evaluating aids

Crowbars tin cutters, pliers (cutting plier, nose plier grip plier circlip-outside and inside).

Screwdrivers and sledge hammers – 10 lbs – 1 lbs.

Adjustable wrenches, pipe wrenches and heck saws.

Single ended spanners (36 Mm and above).

Flat, half round, triangular bearing scrappers-8", to 12".

Files flat round, half round and square, rough and smooth (sizes6", 9" and 12").

Bench Grinders, straight grinders GQ4 and GQ6, Angle grinders.

Reamers upto 30 mm. Taper reamers.

Drilling machine with magnetic stand upto –30 mm with drill bits.

Flexible grinders with grinding stones and cutters of different Shapes and sizes, Angles Grinders and Sander machine.

Number punch, letter punch, centre punch and hole punches etc.

Steel wire brushes, wire brush wheels, nylon wire brushes and Painting bushes.

Lifting devices eye bolts, D-shackles, slings of various sizes Guide rods etc.

Chain pulley blocks 10T, 5 tons, 2 tons pull/lift.

Copper/Brass rods dia ½” to 1 ½”X450 mm.

Tap and die sets 6 to 36 mm.

Surface plate 450 X 450 mm.

Torch light/hand lamps with cables, 230/24 V transformer.

Torque wrench and torque multiplier.

Wooden mallet, Nylon Mallet.

Hand glover-asbestos, Manila rope, asbestos cloth leather and Rubber gloves.

Set of needle files.

Air blower – electric.

Electric drills – ¼”, ½”, 5/8” etc

Ball pen hammer of various sizes.

Gas cutting and heating set with torches regulators, hoses and cylinder minimum two sets).

Arc welding generator/rectifiers with regulator, cables, Electrode holders and shields, TIG welding holders.

Huck bolting machine.

Tube bending machine.

Pneumatic – grinders.

Hose pipes for compressed air.

Bench vices.

Hydraulic jacks 5, 10, 25 & 50, 100 tons capacity, screw jack 5 to 10 tons.

Ash blasting nozzles with hose pipes and tarpaulin for covering And covering arrangement while carrying out blasting so that dust does not fly off.

Hydraulic pump for testing coolers.

Electric switchboards and flood light arrangements with fuse boxes and isolating switches, plugs and sockets.

In addition to above T and P contractor will be required to fabricate fixtures such as pullers etc. for removal of any other equipments related to the scope of work.

Pedestal fans/air coolers.

Wooden sleepers..

Magnifying glass.

Fibre helmet.

Gas cutting/welding goggles, Grinding goggles.

Bearing pullers.

Tarpaulin.

Generator wedging tools.

Small Portable air compressors

Any other T and P as per requirement and as per our General and special conditions of contracts.

NOTE

The above list is only indicative and not exhaustive. Arrangement for any other T and P required for completion of the job shall be the responsibility of the contractor and shall be arranged by him.

APPENDIX- III

ANALYSIS OF UNIT RATE QUOTED

SL.NO.	DESCRIPTION	% OF QUOTED RATE	REMARKS
01	SITE FACILITIES VIZ., ELECTRICITY, WATER OTHER INFRASTRUCTURE.		
02	SALARY AND WAGES + RETRENCHMENT BENEFITS		
03	CONSUMABLES		
04	T&P DEPRECIATION & MAINTENANCE		
05	ESTABLISHMENT & ADMINISTRATIVE EXPENSES		
06	OVERHEADS		
07	PROFIT		

SIGNATURE OF THE TENDERER

DATE:

APPENDIX-IVFORMAT FOR MONTH-WISE MANPOWER DEPLOYMENT PLAN
(CATEGORY-WISE NUMBERS TO BE INDICATED FOR EACH MONTH)

SL. NO.	CATEGORY	MONTHS										
		1	2	3	4	5	6	7	8	9	10	SO ON
01	RESIDENT ENGINEER											
02	ERECTION ENGINEERS											
03	ERECTION SUPERVISORS											
04	QUALITY ASSURANCE ENGINEER											
05	SAFETY ENGINEER											
06	MATERIALS MANAGEMENT SUPERVISORS											
07	HIGH PRESSURE WELDERS											
08	STRUCTURAL & OTHER WELDERS											
09	FITTERS											
10	CRANE OPERATOR											
11	TRUCK/TRAILER DRIVERS											
12	STORE KEEPERS											
13	ELECTRICIANS											
14	SEMISKILLED/ UNSKILLED WORKERS											
SO ON												
	MONTH WISE TOTAL											

SIGNATURE OF TENDERER

DATE:

APPENDIX-V

FORMAT FOR DEPLOYMENT PLAN FOR MAJOR TOOLS AND PLANTS

SL. NO.	DESCRIPTION & CAPACITY OF T&P	MONTHS										
		1	2	3	4	5	6	7	8	9	10	SO ON
01												
02												
03												
04												
05												
06												
07												
08												
09												
10												
SO ON												

SIGNATURE OF THE TENDERER

DATE:

**APPENDIX-VI
CONCURRENT COMMITMENTS**

SN	FULL POSTAL ADDRESS OF CLIENT AND NAME OF OFFICER IN-CHARGE	DESCRIPTION OF THE WORK	VALUE OF THE CONTRACT	COMMENC-EMENT DATE	SCHEDU-LED COMPLE-TION	% COMPL-TD. AS ON DATE	ANTICIPA-TED COMPLN. DATE	REMARKS

DATE

SIGNATURE OF THE TENDERER

APPENDIX-VII

DETAILS OF SIMILAR WORK DONE DURING THE LAST SEVEN YEARS

SL. NO.	FULL POSTAL ADDRESS OF CLIENT & NAME OF OFFICER IN CHARGE	DESCRIPTION OF WORK	VALUE OF CONTRACT	DATE OF AWARD OF WORK	DATE OF COMMENCEMENT OF WORK	ACTUAL COMPLETION TIME (MONTHS)	DATE OF ACTUAL COMPLETION OF WORK	REMARKS
1								
2								
3								
4								
5								
6								

BIDDERS SHALL ENCLOSE COPIES OF DETAILED WORK ORDER (GIVING BILL OF QUANTITIES AND SCOPE OF WORK) AND COMPLETION CERTIFICATE IN SUPPORT OF THIS STATEMENT.

DATE

SIGNATURE OF TENDERER WITH SEAL