भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)

TCN – 04

Ref: PSER:SCT:NBN-M2117:TCN-04 Date: 21-10-2021

Sub	Tender Change Notice (TCN) – 04.	
Job	Erection, Testing, Commissioning, Start Up ,Trial Operation and Handing Over of Mechanical Systems and Shop Fabricated Structures for Flue Gas Desulpherisation (FGD) System of 3 X 660 MW NPGCL Nabinagar FGD, Bihar.	
Ref	1.0	Tender no PSER:SCT:NBN-M2117:21.
	2.0	BHEL's NIT, vide reference no PSER:SCT:NBN-M2117:8720, Date: 27-09-2021.
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:NBN-M2117:TCN-01, Date: 07-10-2021.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:NBN-M2117:TCN-02, Date: 11-10-2021.
	5.0	BHEL's TCN-03, vide reference no PSER:SCT:NBN-M2117:TCN-03, Date: 19-10-2021.
	6.0	All other pertinent issues till date.

With reference to above, following points/documents, relevant to tender, may please be noted and complied with while submitting the offer.

1. Bidders are requested to note that EMD is not applicable for this tender. All relevant clauses shall be read accordingly.

2. Revised Volume-IF-TCC-CML-Rev-01 is attached herewith, superseding Volume-IF-TCC-CML-Rev-00 issued earlier along with NIT. Bidders are requested to go through entire volume before submitting their offer.

3. Revised `No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.

4. All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

DY. MNGR (SCT)

Encl : As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)
POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091
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This volume shall be construed as part of tender document and shall be read along-with others volumes of tender. Unless otherwise specified, in case of any conflict or inconsistency between the general and technical conditions, the same shall be brought out by the bidder in writing to BHEL for clarification during pre-bid discussions, if applicable; failing which most stringent interpretation/ clause in favour of BHEL shall be adopted and the same shall be binding to the bidder. Unless otherwise specified, all terms & conditions shall be applicable for entire scope and for each package of the tender.

CLAUSE NO	DESCRIPTION
1.0	**PROJECT SYNOPSIS AND GENERAL INFORMATION**
1.1	NABINAGAR POWER GENERATING COMPANY LTD. is setting up three units of 3x660 MW Super Thermal Power Project (coal based) with FGD at Nabinagar, in Aurangabad district of Bihar, India. Nabinagar Super Thermal Power Project is located at a distance of about 15 kms. from Barun in Aurangabad district of Bihar and is approachable from NH-2 through a 20 kms (approx.) long single lane metalled road. The Aurangabad city is about 55 kms. from project site. Nearest railway station is Ankorha on Sone – Garwa Road Section of Eastern Central Railway at about 1.0 Kms. from the project site. The nearest airport at Gaya is at a distance of about 120 Kms from project site. The distances of site from Patna Airport and Varanasi Airport are about 250 Km & 220 Km respectively. NABINAGAR POWER GENERATING COMPANY LTD.) is setting up three units of 3x660 MW Super Thermal Power Project (coal based) with FGD at Nabinagar, in Aurangabad district of Bihar, India.
2.0	**SITE VISIT**
	The contractor should visit project site and acquire full knowledge and information about conditions prevailing at site and in & around the plant premises, together with all the statutory, obligatory, mandatory requirements of various authorities before submission of the bid.
3.0	**NAME OF WORK**
	Erection, Testing, Commissioning, Start Up ,Trial Operation and Handing Over of Mechanical Systems and Shop Fabricated Structures for Flue Gas Desulpherisation (FGD) System of 3 X 660 MW NPGCL Nabinagar FGD, Bihar
4.0	**SCOPE OF WORK**
4.1	The scope broadly covers providing labour, supervision, materials (except those which will be supplied by BHEL free of cost), T&Ps, consumables etc as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date for Complete work of handling including receipt of materials from BHEL/Client's stores/storage yard, arranging their issue, site transportation, temporary storage prior to erection, if required, cleaning, transportation to site,preservative painting, pre-assembly erection, alignment, welding, leveling, adjustment, chipping & leveling of foundation, all pre-commissioning tests, commissioning, start-up and trial operation and handing over of Flue Gas Desulphurisation System of 3 X 660 MW NPGCL Nabinagar FGD, Aurangabad, Bihar Detailed scope is as per followings:

4.1.1	Erection, testing, commissioning, trial run and handing over of the FGD system (Structural & Mechanical) as per the tender specifications. FGD system mainly consists of Absorber tower along with oxidation blowers, booster fans, Lime stone grinding and slurry preparation system consisting of wet ball mills, lime stone silos, slurry pumps, Gypsum dewatering system, associated piping, other auxiliaries and Fire protection system as per followings: 1. Absorber system 2. Common limestone grinding & slurry preparation system. 3. Common Gypsum dewatering system. 4. Miscellanous Tanks 5. Process water & cooling water storage & pumping system. 6. Sump & sump pumps 7. Elevator 8. Booster fans 9. Fabricated Structures
4.2	The scope of work under these specifications includes Erection, testing, commissioning, trial operation & handing over of FGD Mechanical system and fire protection system which broadly consists of but not limited to following:
4.2.1	Taking delivery of the materials from the project storage yard /stores /sheds to erection site.
4.2.2	Their preservation, safe keeping, watch and ward.
4.2.3	Checking, dressing, chipping and levelling of foundations.
4.2.4	Pre-assembly, erection, alignment of various equipment's, machining and grouting.All necessary modification required to fix Bypass Damper with common outlet duct of ID Fan is included in the scope of work.
4.2.5	Welding, heat treatment, radiography, UT and other non-destructive tests wherever required as per approved quality plan/drawings/ documents/EWS.
4.2.6	Hydraulic testing, air/gas leak test, air tightness test, other pre commissioning tests as per approved quality plan/drawings/ documents.
4.2.7	Insulation and touch up painting including supply of paints etc.
4.2.8	Supply and erection of HSFG bolts for shop fabricated civil structures.
4.2.9	Supply and application of wrapping coating material for underground piping.
4.2.8	Erection and dismantling of all temporary system etc. required for above operations and other commissioning activities including post commissioning operations and stabilisation of the unit,
4.2.9	FGD system trial run, resolving any deficiencies observed and handing over the FGD system to customer M/s NTPC.
4.3	BRIEF DESCRIPTION OF THE FGD SYSTEM
4.3.1	The FGD system shall be based on Wet Limestone Forced Oxidation process. Each unit shall be provided with an independent absorber.
4.3.2	Gas from terminal point on ID fan discharge duct shall be taken directly to the absorber through Booster Fans. In the absorber, SO2 in flue gas shall be removed by a spray of recirculating slurry, pumped by slurry recirculation pumps.
4.3.3	Compressed oxidation air shall be blown through the slurry in the oxidation tank, to oxidize the Calcium sulphite to gypsum.
4.3.4	Clean gas from the absorber shall be taken to the Wet Chimney through three stage mist eliminators.
4.3.5	Limestone to the absorbers of the units shall be supplied by a wet limestone grinding system, common for the units. Limestone shall be fed to the Limestone day silos which in turn will feed the Limestone to wet ball mill through a gravimetric feeder.
4.3.6	The gypsum from the absorber(s) shall be pumped by dedicated gypsum bleed pumps to a common Gypsum Dewatering system consisting of two streams (2x100%) of primary and secondary hydrocyclone and vaccum belt filters for gypsum dewatering. The water removed from the absorber shall be recycled to the absorbers. The waste water from the system shall be collected and neutralized using lime and neutralized effluent shall be pumped at required pressure to waste water terminal point.

4.4	The brief list of the major equipment to be erected under the FGD system but not limited to following:
4.4.1	Absorber System along with supporting structures
4.4.2	Booster Fans & isolation gates
4.4.3	Miscellanous Tanks
4.4.4	Lime stone grinding and slurry preparation system consist of lime stone silos, bunker, gravimetric feeder, wet ball mills, hydrocyclones
4.4.5	Slurry pumps (Absorber Slurry recirculation pumps, Gypsum Bleed pumps , limestone Slurry feed pumps)
4.4.6	Gypsum Dewatering system consists of Vacuum belt filter, hydrocylones
4.4.7	Process water and cooling water storage system
4.4.8	Thermal Insulation and cladding sheets
4.4.9	Sump Pumps
4.4.10	Piping system
4.4.11	Equipment Cooling water System (PHEs, DMCW pumps)
4.4.12	Misc platforms, galleries, handrails
4.4.13	Fire Protection System including hydrant,MVWS,HVWS
4.4.14	Equipment Handling System
4.4.15	All required structures for equipments & ducting
4.4.16	All shop fabricated structural steel including supply and erection of HSFG bolts for the same.
4.4.17	All mechanical work at terminal point except those specifically marked or mentioned in drawing/documents
4.4.18	Approach/Platform/Canopy for equipments as per customer requirement beyond drawing/documents .Material to be supplied by BHEL on free of cost basis.
4.5	Tentative weight to be erected for the FGD System shall be **26683** MT (19135 MT for equipment & piping erection and 7548 MT for structural erection) and detailed break up indicated in **Annexure-I.**
4.5.1	The contractor is required to erect actual tonnage (irrespective of any variation plus or minus) which may be necessary to complete their work and commission above system and complete the work in all respects as detailed in tender specifications, for which payments shall be released on finally accepted tonnage rates. The contractor undertakes to erect / commission actual quantities as per instruction of the BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments shall also be regulated for the same.
4.5.2	The customer M/s. NTPC and / or their Consultant may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works, without any cost implications to the BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as if pointed out by the BHEL Engineer, without any cost implication to BHEL.
5.0	**DEVIATIONS**
	The bidder is required to submit with his offer in the relevant schedule / format without any ambiguity. Any assumptions, presumptions, deviations etc. indicated or implied anywhere by the bidder except those indicated in the deviation schedule / format will not be recognized and will not form a part of consideration / offer. In the absence of such filled-up schedule / format it will be understood and agreed that the bidder's offer is based on strict conformance to the specification and no negotiation would be allowed in this regard. BHEL reserve the right not to recognize any / all deviations submitted after opening of the bid.
6.0	**DEWATERING**
	Contractor shall ensure at all times that his work area & approach / access roads are free from accumulation of water, so that the materials are safe and the erection / progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate payments for dewatering of subsoil, surface water or catchments water, if

	required, at any time during execution of the work including monsoon period shall be considered by BHEL.
7.0	**GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)**
7.1	Except where otherwise specified, the plant / equipment shall comply with appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in tender, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the bidder shall give all particulars and details as necessary; to enable BHEL to identify all of the plant/ equipment in the same detail as would be possible had there been a standard specification.
7.2	Where the bidder proposes alternative codes or standards he shall include in his tender one copy (in English) of each standard specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
7.3	In the event of any conflict between the codes & standards referred above and requirements of this specification, the requirements which are more stringent shall govern.
7.4	Tools used during erection and commissioning shall not be accepted except with the specific approval of the engineer.
7.5	Wherever specified or required the plant / equipment shall conform to various statutory regulations such as Indian Boiler Regulation, Indian Electricity Rules, Indian Explosive Act, Factories Act etc, wherever required, obtaining approval for plant / equipment supplied under the specification from statutory authorities shall be the responsibility of the contractor.
8.0	**GENERAL SERVICES TO BE RENDERED BY THE BIDDER**
8.1	Deployment of all tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the construction work to be handled under scope of this specification except otherwise specified.
8.2	Providing support services for the contractor's erection staff e.g. construction of site offices, temporary stores, residential accommodation and transport to work site for erection personnel, watch and ward for security and safety of the materials under the Contractor's custody etc. as required.
8.3	Maintaining proper documentation of all site activities undertaken by the contractor as per the proforma mutually agreed with BHEL, submitting monthly progress reports as also any such document as and when desired by BHEL / owner, taking approval of all statutory authorities e.g., Factory Inspector, Provident Fund authority etc. for respective portions of work under the jurisdiction of such statutes of laws.
8.4	As part of overall project management activity, the contractor shall be responsible for proper co-ordination of construction activities during various phases of execution of the contract. The contractor shall identify a person designated as construction manager, with whom BHEL shall interact on matters related to execution of the contract. The construction manager shall be the single point contact person on behalf of the contractor. BHEL shall interact with the construction manager only on all matters on co-ordination between BHEL and the contractor. For timely completion of work, the contractor may have to work in one or more shifts. He will not be eligible for any extra charge on this account.
8.5	The contractor shall confine all his field operations to those works which can be reformed without subjecting the equipment and materials to adverse effects, during inclement weather conditions, like monsoon, storms etc and during other unfavourable construction conditions. No field activities shall be performed by the contractor under conditions which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the contractor in proper and satisfactory manner in the performance of such works and with the concurrence of the engineer. Such unfavourable construction conditions in no way relieve the contractor of his responsibility to perform the works as per the schedule.
8.6	The contractor shall supply all skilled, semi-skilled and unskilled workmen required for all works of handling and transportation from site store to erection site, erection, testing and commissioning contemplated under this specification. Only fully trained and competent

	men with previous experience on the job shall be employed. They shall hold valid certificates wherever necessary. BHEL reserve the right to decide on the suitability of the workers and the other personnel who will be employed by the contractor. BHEL reserves the right to insist on removal of any employee of the contractor at any time, if they find him unsuitable and the contractor shall forthwith remove him.
8.7	The supervisory staff employed by the contractor shall be technically qualified and experienced in the area of work. They shall ensure proper out turn of work and discipline on the part of labour put on the job by the contractor and in general 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 and BHEL's client.
8.8	The contractor shall also furnish daily manpower report showing by classification the number of employees engaged in various categories of work a progress report of work as required by BHEL engineer.
8.9	The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The contractor and his personnel shall co-operate with other personnel, and other contractors, co-ordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
8.10	The contractor's supervisory staff shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. The contractor shall be responsible to ensure that assembly and workmanship conform to the dimensions and tolerance given in the drawing / instruction given by BHEL Engineer from time to time.
8.11	It is the responsibility of the contractor to engage his workman in shifts or on overtime basis for achieving the target set by BHEL during erection, commissioning and testing period. Contractor's quoted rate shall include all these contingencies.
8.12	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the specification.
9.0	**PROTECTION**
9.1	Equipment having anti-friction or sleeve bearings shall be protected by weather tight enclosures. Coated surfaces shall be protected against impact, abrasion, discoloration and other damages. Surfaces which are damaged shall be repainted.
9.2	Electrical equipments, controls and instrumentations shall be protected against moisture and water damages. All external gasket surfaces and flange faces, couplings, rotating equipment shafts, bearings and like items shall be thoroughly cleaned and coated with rust preventive compound and protected with suitable wood, metal or other substantial type covering to ensure their full protection. All exposed threaded parts shall be greased and protected with metallic or other substantial type protectors
9.3	All piping, tubing and conduit connections on equipment and equipment openings shall be closed with rough usage covers or plugs. Female threaded openings shall be closed with rough usage covers or plugs or forged steel plugs. The closures shall be taped to seal the interior of the equipment. Open ends of piping, tubing and conduit shall be sealed and taped.
9.4	All other consumables to be supplied by the contractor within the quoted rate.
10.0	**GENERAL GUIDELINES FOR FIELD ACTIVITIES**
10.1	The contractor shall execute the works in a professional manner so as to achieve the target schedule without any sacrifice on quality and maintaining highest standards of safety and cleanliness.
10.2	The contractor shall co-operate with owner / BHEL and other contractors working in site and arrange to perform his work in a manner so as to minimise interference with other contractor’s works. BHEL's engineer shall be notified promptly of any defect in other contractors’ works that could affect the contractor’s work. If rescheduling of contractor’s work is requested by the owner's / BHEL's engineer in the interest of overall site activities, the same shall be compiled with by the contractor. In all cases of controversy, the decision of BHEL shall be final and binding on the contractor without any commercial implication.

10.3	The BHEL engineer shall hold weekly meeting of all the contractors working at site at a time and a place to be designated by the engineer to discusses interface issues. The contractor shall attend such meetings and take notes of discussions during the meeting and the decisions of the engineer and shall strictly adhere to those decisions in performing this work. In addition to the above weekly meeting, engineer may call for other meetings either with individual contractors or with selected number of contractors and in such a case the contractor, if called will also attend such meetings.
10.4	Time is the essence of the contract and the contractor shall be responsible for performance of his work in accordance with the specified construction schedule. If at any time the contractor is falling behind the schedule, he shall take necessary action to make good of such delays by increasing his work to comply with the schedule and shall communicate such action in writing to the engineer, satisfying that his action will compensate for the delay. The contractor shall not be allowed any extra compensation for such action.
10.5	The engineer shall however not be responsible for provision of additional labour and or materials or supply of any other services to the contractor except for the co-ordination work between various contractors as set out earlier.
10.6	The works under execution shall be open to inspection & supervision by BHEL's / Owner's engineer at all times. The contractor shall give reasonable notice to BHEL before covering up or otherwise placing beyond the reach of inspection any work, in order that same may be verified, if so desired by owner/ BHEL.
10.7	Every effort shall be made to maintain the highest quality of workmanship by stringent supervision and inspection at every stage of execution. Manufacturer's instruction manual and guidelines on sequence of erection and precautions shall be strictly followed. Should any error or ambiguity be discovered in such documents the same shall be brought to the notice of BHEL's engineer. Manufacturer's interpretation in such cases shall be binding on the contractor.
10.8	The contractor shall comply with all the rules and regulations of the local authorities, all statutory laws including Minimum Wages, Workmen Compensation etc. All registration and statutory inspection fees, if any, in respect of the work executed by the contractor shall be to his account.
10.9	Equipment and material, in case wrongly installed, shall be removed and reinstalled to comply with the design requirement at the contractor expense, to the satisfaction of BHEL / owner.
11.0	**QUALITY CONTROL & QUALITY ASSURANCE**
11.1	**INSPECTION & FIELD QUALITY ASSURANCE**
11.1.1	Contractor shall carry out all activities conforming to the approved Field Quality Plan (FQP) & technical instructions as revised from time to time. 'Total Quality' shall be 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 the services of quality assurance engineer as per the relevant clauses.
11.1.2	Preparation of quality assurance log sheets and protocols with customer / consultants / statutory authority, welding logs, NDE records, testing & calibration records and other quality control and quality assurance documentation as per BHEL engineer's instructions, is within the scope of work / specification. These records shall be submitted to BHEL / customer for approval from time to time.
11.1.3	The protocols between contractor and customer / BHEL shall be made 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 and to avoid accumulation and multiplication of errors.
11.1.4	A daily log book (with proper indexing) should be maintained by every supervisor / engineer of contractor, for respective area of work, on the job for detailing and incorporating alignment/ clearance / centering / levelling readings and inspection details of various equipment, etc. This log book shall be always accessible to BHEL engineers.

	High pressure welding (as applicable under the scope of this contract) 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 (as applicable under the scope of this contract) 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 (as applicable under the scope of this contract) performed shall be maintained as prescribed by BHEL.
11.1.5	The performance of welders (as applicable under the scope of this contract) will be reviewed from time to time as per the BHEL standards. Welders' performance record shall be furnished periodically for scrutiny of BHEL's Engineer. Corrective action as informed by BHEL shall be taken in respect of those welders not conforming to these standards. This may include removal/ discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately.
11.1.6	Only welders duly authorized by BHEL / customer / consultant after welder qualification test as per ASME Sec-Ix / AWS D1.1 (as applicable) shall be engaged on the work. All the welders shall carry identity cards as per the proforma prescribed by BHEL / Customer / Consultant.
11.1.7	Any re-laying or re-termination of cables / re-erection of instruments / recalibration of instruments etc. required due to contractor's mistake and found at any stage inspection shall be carried out by the contractor at no extra cost. Repair / rectification procedure to be adopted to make any job acceptable shall be subject to the approval of BHEL.
11.1.8	Weekly Quality Review Meeting at site shall be organised by BHEL to discuss quality issues and next weeks inspection plans. Site in-charge of the contractor along with QAEs of the contractor must be present in the meeting with closure report of the issues raised by BHEL in the previous meetings.
11.2	**REQUIREMENT OF ISO 9001**
11.2.1	BHEL: PSER is accredited with ISO 9001 certification and as such this work is subject to various audits to meet ISO 9001 requirements.
11.2.2	The basic philosophy of the Quality Management System under ISO 9001 is to define the organizational 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, & maintain the relevant 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.
11.2.3	BHEL reserves the right to carry out quarterly quality audits and quality surveillance of the systems and procedures of contractor's quality management. Contractor shall provide all necessary assistance to enable BHEL to carry out such audit & surveillance.
11.2.4	Quality audits / approval of the results of test & inspection will not prejudice the right of BHEL to reject an equipment service not giving desired performance and shall not in no way limit the liabilities and responsibilities of the contractor in earning satisfactory performances of equipment / service as per specification.
11.3	**MMEs / MMRs**
11.3.1	Contractor shall ensure deployment of reliable and calibrated MMEs (Measuring and Monitoring Equipment). The MMEs shall have test / calibration certificates from authorised / Government approved / Accredited agencies traceable to National / International Standards. Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MMEs so that work does not suffer when the particular equipment / instrument is sent for calibration. Also if any MMEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to

	deploy proper item and recall i.e. repeat the readings taken by that instrument, failing which BHEL may deploy MME and retake the readings at Contractor's cost.			
11.3.2	Contractor shall provide all the Measuring Monitoring Equipment (MMEs) required for completion of the work satisfactorily. These MMEs shall be of brand, quality and accuracy specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirement of BHEL Engineer. Decision of BHEL Engineer regarding acceptance or otherwise of the measuring instruments / gauges / tools for the work under this specification, is final and binding on the contractor. BHEL shall give an indicative list of MMEs required for this work else where in this contract and to be made available by the contractor. The list will be reviewed by BHEL site as per the requirement of approved FQPs and the contractor shall meet any augmentation needed wherever required.			
11.3.3	It is the responsibility of the contractor to prove the accuracy of the testing / measuring / calibrating equipment brought by him based on the periodicity of calibration as called for in the BHEL's quality assurance standards/BHEL Engineer's instructions.			
11.3.4	Re-work necessitated on account of use of invalid MMEs 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 for the loss of time.			
11.3.5	In the courses of erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. BHEL may counter / finally check the measurements with their own MMEs. Contractor shall render all assistance in conduct of such counter / final measurements.			
11.4	**INSPECTION BY TS / FES / QA ENGINEERS OF BHEL UNITS / ENGINEERING CENTRES**			
11.4.1	Apart from day-to-day inspection by BHEL Engineers stationed at Site and Customer's Engineers, stage inspection of equipment under erection and commissioning at various stages may also be conducted by teams of Engineers from Field Engineering Services of BHEL's Manufacturing Units, Quality Assurance teams from Field Quality Assurance, Unit/Factory Quality Assurance and Commissioning Engineers from Technical Services etc. Contractor shall arrange all labour, tools and tackles etc along with proper access for such stage inspections free of cost.			
11.4.2	Any modifications suggested by BHEL FES and QA Engineers' team shall be carried out. Claims of contractor, if any, shall be dealt as per applicable clause of the contract, and provided such modifications have not arisen for reasons attributable to the contractor.			
11.5	**PENALTIES ON VENDORS / SUB-CONTRACTORS AGAINST NON-COMPLIANCE OF QUALITY NORMS**			
Sl. No.	**Nature of Non-compliance**	**Penalty for Domestic Project**	**Penalty for Export Project**	**Remarks**
GENERAL				
11.5.1	Unavailability of QAE deployment schedule (duly approved by BHEL Site) matching with manpower requirement of approved L2 schedule	0.10%	0.10%	Against each RA bill
11.5.2	Unavailability of required number of QAE with proper experience & NDT certification as per the requirement of the Contract	Rs. 1,000.00	$16.00	Per person per day
11.5.3	Not attending quality meeting of BHEL by nominated member of vendor / sub-contractor	Rs. 2,000.00	$32.00	Per meeting
CALIBRATION				

11.5.4	Use of MMEs without valid calibration certificate	Rs. 1,000.00	$16.00	Per equipment per instance
11.5.5	Use of NDT equipment, welding equipment without having valid calibration certificate / condition not as per requirement	Rs. 1,000.00	$16.00	Per equipment per instance
WELDING & NDT				
11.5.6	Unqualified welders carrying out welding / tack welding	Rs. 1,000.00	$16.00	Per welder per instance. (Gatepass of the person shall be withheld)
11.5.7	Not using portable oven for welding consumables	Rs. 500.00	$8.00	Per welder per instance. (The consumables in the oven shall be confiscated)
11.5.8	Not using electrodes pre-baked in baking oven	Rs. 500.00	$8.00	Per instance. (The subject consumables shall be confiscated)
11.5.9	Not using welding consumables of approved make & not using correct type of electrode as per approved EWS / Drawing / WPS	Rs. 1,000.00	$16.00	Per instance. (The subject consumables shall be confiscated)
11.5.10	Non-removal of welding slag and spatters after welding	Rs. 500.00	$8.00	Per joint
11.5.11	Not using NDT equipment as prescribed in the manual / FQP / guidelines / Contract	Rs. 1,000.00	$16.00	Per equipment per instance
11.5.12	Welder doing welding without valid job card	Rs. 500.00	$8.00	Per instance
11.5.13	Discrepancy observed in the weld joints identified by BHEL / Customer for RT vs RT film offered	Rs. 2,000.00	$32.00	per joint
MATERIAL MANAGEMENT				
11.5.14	Non-maintenance of grid pillar marking	Rs. 200.00	$3.00	Per location week
11.5.15	Mismatch of location of material in store area w.r.t. location mentioned in stock register	Rs. 500.00	$8.00	Per instance
11.5.16	Non-compliance of Preservation of material as per storage & preservation manuals	Rs. 1,000.00	$16.00	Per equipment
11.5.17	Not offering received material for verification within stipulated time as per contract	Rs. 500.00	$8.00	Per instance
PAINTING & ALLIED WORKS				
11.5.18	Not using primer / paints of approved make and as per Specifications	Rs. 1,000.00	$16.00	Per instance
11.5.19	Painting without proper surface preparation as per	Rs. 500.00	$8.00	Per instance

	approved schedule / drawing / FQP			
PROTOCOLS & LOG SHEETS				
11.5.20	Delay in preparation of Protocols / Logsheets as per approved FQP within 3 days of completion of checks	Rs. 200.00	$3.00	Per protocol per day delay
INSPECTION OF BOUGHT-OUT ITEMS / CONSUMABLES				
11.5.21	Delay in offering inspection of Bought-out Items / Consumables / Aggregates (for items which need site inspection as per approved QP) within 3 days of receipt of material at site	1% of the item value of the LOT	1% of the item value of the LOT	per item per day delay after receipt of material
11.5.22	Delay in submission of required documents (viz. Invoice, Inspection Release Note, COC, MDCC, MTC as the case may be) of Bought-out Items (shop inspection items / consumables) with in 3 days of receipt of material at site.	1% of the item value of the LOT	1% of the item value of the LOT	per item per day delay after receipt of material
NOTE: Any non-conformity requiring dismantling / rework, attributable to vendor / sub-contractor, shall be penalised at a rate mentioned above or cost to BHEL, which ever is higher.				
12.0	**HEALTH, SAFETY & ENVIRONMENT**			
12.1	Vendor has to follow HSE norms at project site during execution of work. Further details of applicable HSE norms shall be as per HSE Doc. No.: HSEP:14-ER, Rev-01 Dated 08/05/2020, OPERATIONAL CONTROL PROCEDURE, Doc. No.: HSEOCP: 61A , Rev. No.: 00 dated 27.04.2020 & OPERATIONAL CONTROL PROCEDURE , Doc. No.: HSEOCP: 61 , Rev. No.: 01 dated 01.06.2020 of Tender.			
13.0	**LAND**			
13.1	Availability of land within plant boundary is very limited and the contractor has to plan & use the existing land considering the use of land by other contractors and the storage of plant machineries and materials. The existing land shall be shared by all erections agencies. The same will be reviewed by BHEL and allotted to the extent available/ considered necessary free of cost. Contractor shall develop these areas for their site office, their own stores etc. Bidder must visit site to assess site condition, prior to quoting.			
13.2	Levelled area for storage of BHEL's material shall be provided as per availability free of cost.			
13.3	Land for labour colony shall be arranged by successful bidder at their own. The contractor shall construct labour colony / hutment as per his requirements after obtaining approval of formalities from statutory body. Further, contractor must ensure minimum HSE norms and hyeiginic sanitary conditions in his labour colony.			
13.4	The contractor will be responsible for handing back all lands, as handed over to him for his temporary use , after proper dismantling of establishment, levelling etc. as per instruction of BHEL /Customer engineer.			
14.0	**WATER**			
14.1	BHEL will provide single point supply for construction & drinking water inside the project premises for office free of cost.			
14.2	Further necessary network for construction & drinking water system shall be done by the bidder at his own cost.			
14.3	Contractor should arrange for water for labour colony of their own.			

14.4	BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of water supply and the contractor shall claim no compensation for delay in work for such interruption. Contractor may make standby arrangement for water at their own cost.
14.5	Contractor will have to arrange for storage of water to meet the day-to-day requirement.
14.6	The availability of water (construction as well as drinking) may be limited. Contractor shall ensure that no water is wasted. In this regard the contractor shall take all necessary measure towards preservation of water.
15.0	**ELECTRICITY**
15.1	BHEL shall provide construction power free of charge at 415V level at one point. Contractor has to make their own distribution arrangement to draw electricity. Overall area illumination will be provided by BHEL. However, for night working contractor should arrange illumination as and when required by them.
15.2	The bidder shall have to provide earth leakage circuit breaker at each point wherever human operated electrical drives/ T&Ps are deployed.
15.3	The power supply will be from the available grid. BHEL shall not be responsible for any inconvenience or delay caused due to any interruption of power supply/ variation in voltage level and no compensation for delay in work can be claimed by the contractor due to such non-supply on the grounds of idle labour, machinery or any other grounds.
15.4	Bidder will have to arrange sufficient illumination at their own work areas.
15.5	The contractor should ensure that the work in critical areas is not held up in the event of power breakdown. In the event of breakdown in the electric supply, if the progress of work is hampered, it will be the responsibility of the contractor to step up the progress of work after restoration of electric supply so that overall progress of work is not affected.
15.6	The contractor shall have to make arrangement at their own cost for illumination that will be required in the working area for execution of the work & safety of workmen.
15.7	Contractor shall make arrangement of electricity of their own for labour colony.
16.0	**CONSUMABLE**
16.1	All consumables, like gas, electrodes, chemicals, lubricants (other than those supplied by BHEL) etc. required for the scope of work, shall be arranged by the contractor at his cost unless otherwise specifically mentioned in the contract.
16.2	All consumables to be used for the job shall have to be approved by NTPC / BHEL prior to use.
16.3	In the event of failure of contractor to bring necessary and sufficient consumables, BHEL may arrange for the same at the risk and cost of the contractor. The entire cost towards this along-with overhead shall be deducted from the contractor's bills.
17.0	**TEST CERTIFICATES**
	Necessary test certificates of all materials supplied by contractor are to be produced to BHEL prior to use of those materials.
18.0	**PROJECT MANAGEMENT/ CONSTRUCTION MANAGEMENT**
	To meet the need of construction management at site, contractor shall provide the following services within quoted / accepted rates.
18.1	PLANNING & MONITORING
18.1.1	The bidder shall prepare detail construction schedule (L-3) as per completion dates given in this document. This schedule must include all milestone and key activities for each sub-system / components in the areas of engineering (wherever applicable), procurement, manufacture (wherever applicable), excavation/ construction/ erection. This network must conform to the overall project schedule. The bidder should also ensure monitoring of these activities at least weekly basis to start with and on daily basis whenever required by BHEL.
18.1.2	The bidder shall also prepare progress report indicating progress on key activities, management summary for critical activities, list of actions requiring attention of BHEL. This schedule is to be preferably made in PRIMAVERA/ MS PROJECTS, so that the same is compatible with BHEL's project management software.
18.1.3	The bidder will have to Supply & install of 1 No. PC (multimedia PC work station Pentium-Core-i5-650, 3.2 GHZ or above, 1 TB HDD, 8 GB RAM, 100 /1000 MBPS LAN card) of HP / HCL / COMPAQ / LENEVO or equivalent make with window 10 or higher, 64 bit (with

	roll back to 32 bit O/S and required software like MS Office 2016 or higher, AutoCAD 2014 or higher, ADOBE PDF CREATOR with 1 no. Multifunction Colour Printer with scan, copy and print option as per instruction of BHEL for exclusive use of BHEL. Perodic refilling of cartridge (as & when required) is also included in bidder's scope without additional cost implication to BHEL. These computer / Multifunction printer shall remain Vendor's property and they will be allowed to take out the same after completion of the work. The contractor shall provide data / information etc. in prescribed formats for periodical updating of the progress reports, material management reports, updating of network pertaining to the contractor's scope of work etc. The contractor shall also provide 1 (One) Number computer operator and 1 (One) number service staff for miscellaneous service for BHEL's use at site / Kolkata for reconciliation, progress review & day-to-day planning purpose, documentation etc. Above facilities are to be provided within 30 days from the date of intimation by CM/BHEL, till completion of scheduled contract period. If contractor fails to provide computer / printer / personnel as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to deduct the amount as per following rates on prorate basis, from contractor's RA bill or any other dues.
18.1.3.1	@ Rs 20,000 (Twenty thousand) / month for each computer operator or at actual (rate +30%) if BHEL arranges this facility, whichever is lower.
18.1.3.2	@ Rs 15,000/- (Fifteen thousand) / month for each service staff. Or at actuals (rate +30%) if BHEL arranges this facility, whichever is lower.
18.1.3.3	@ Rs 15,000/- (Fifteen thousand)/ month for each set of computer & printer. Or at actuals (rate +30%) if BHEL arranges this facility, whichever is lower.
18.1.3.4	In the event of the contract period getting extended beyond the stipulated time for reasons not attributable to the bidder and if the services of computer operator (Skilled) & Service staff (unskilled) are being used by BHEL then successful bidder shall be reimbursed by minimum wages with statutory benefits +15%.No reimbursement shall be given on account of Computer and Printer during extended period of the contract.
18.1.3.5	The contractor's site office must have adequate facilities of communications like E-mail, and telephone / mobile phones etc.

18.2	PROGRESS REPORTING
18.2.1	The bidder shall submit daily, weekly and monthly progress reports for work force, materials reports, consumables (gases/electrodes) report and other reports as per pro-forma considered necessary by the BHEL. In case of any failure on contractor's part to comply with this, BHEL may at its discretion, consider to withhold part payment against their RA bills.
18.2.2	The progress report shall indicate the progress achieved against planned with reasons indicating delays, if any, and shall give the remedial actions which the contractor intends to take to make good the slippage or lost time, so that further works again proceed as per the original program and the slippages do not accumulate and effect the overall program.
18.2.3	The daily work force reports shall clearly indicate the work force deployed, category-wise specifying also the activities in which they are engaged.
18.2.4	Weekly progress review meetings will be held at site during which actual progress during the week vis-à-vis scheduled program shall be discussed or actions to be taken for achieving targets. For discussions, the contractor shall present program of subsequent week. The contractor shall constantly update/revise his work program to meet the overall requirement.
18.2.5	Periodic progress reviews on the entire activities of execution in respect of supply and works in scope of bidder will be held once in a month at Kolkata / Site. These meetings will be attended by reasonably higher officials of the contractor and will be used as a forum for discussing all areas where progress needs to be speeded up. The contractor shall be further responsible for ensuring that suitable steps are taken to meet various targets decided upon such meetings.
18.2.6	During construction, contractor shall take an average twenty colour digital photograph / slides (indicating date) each month (not less than four per week) of the works during progress as per instruction of BHEL site. In case of failure in providing such photograph in each month, inspite of instruction of BHEL engineer, an amount of Rs. 10,000/- per month may be deducted from contractor's RA bill at the discretion of Construction Manager-BHEL site.
18.2.7	Successful bidder has to provide for electronic/ computerized storing and re-production/ printing/ plotting of various data, log sheets, protocols, measurements etc. These may be stored in CD (as per requirement) and handed over to BHEL as per requirement.
18.2.8	Unless otherwise directed by PMX-BHEL Kolkata or Construction Manager- BHEL site, each month success ful bidder will submit jointly signed monthly planning, delay analysis in BHEL format (Form 14 format will be given by BHEL Site)
18.3	SITE ORGANIZATION
18.3.1	The contractor shall provide adequate staffing in the following areas in addition to the staffing requirements of execution as instructed/informed by BHEL: 1. Overall planning, monitoring & control. 2. Quality control and quality assurance 3. Materials management. 4. Safety, fire & security. 5. Industrial relations and fulfilment of labour laws and other statutory obligations. Strength of various qualified person shall be decided jointly in consultation with Site in charge, BHEL.
18.3.2	The contractor shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all times for smooth execution of the contract. This organization shall be reinforced from time to time, as required to make up for slippage from the schedule without any commercial implication to BHEL. The site organization shall be headed by a competent construction manager having sufficient authority to take decisions at site.
18.3.3	On award of contract, the contractor shall submit to BHEL site organization chart indicating the various levels of experts to be deployed on the job. BHEL reserves the right to reject or approve the list of personnel proposed by the Contractor. The persons, whose bio-data

	have been approved by BHEL, will have to be posted at site and deviations in this regard will not generally be permitted.
18.3.4	The contractor should also submit to BHEL for approval a list of construction equipment, erection tools, tackle etc prior to commencement of site activities. These tools & tackles shall not be removed from site without written permission of BHEL.
18.3.5	The organization chart for site should indicate the various levels of experts to be posted for supervision in the various fields in erection, commissioning etc as applicable. For proper supervision of the work, the contractor shall ensure providing one qualified supervisor against deployment of 15 workmen.
18.4	CONSTRUCTION MANAGEMENT
18.4.1	Based on the approved program, the contractor shall submit a program of construction/ erection/ commissioning for the implementation. These programs would be amplified showing start of erection and subsequent activities and shall form the basis for site execution and detail monitoring. The three monthly rolling program with the first month's program being tentative based on the site condition would be prepared based on these programs. The contractor shall also be involved along with NTPC / BHEL to tie up detailed resources mobilization plan over the period of the contract matching with the performance targets.
18.4.2	The program would be jointly finalized by the site in-charge of the contractor with BHEL/ NTPC's project coordinator as well as the site-planning representative. The erection program will also identify sequential events matching financial turnover.
18.5	**ERECTION SCHEDULE**
18.5.1	Contractor shall submit within 10 days of LOI date, detailed program (L2 schedule) of construction / erection / commissioning along with matching resources T&P deployment and manpower deployment schedule for approval to Site In- Charge. L2 schedule shall be the working level document demonstrating contractor's ability and methods of completing the work within the key milestones identified in the tender specification These program would be amplified showing start of erection and subsequent activities and shall form the basis for site execution and detailed monitoring. The three monthly rolling program with the first month's program being tentative based on the site conditions would be prepared based on these program. The Contractor shall also be involved along with the Customer/BHEL to tie up detailed resource mobilisation plan over the period of time of the contract matching with the performance targets.
18.5.2	The program would be jointly finalised by the site in-charge of the contractor with BHEL /Customer's project coordinator as well as the site planning representative.The erection program will also identify the sequential erectable tonnages
18.5.3	Contractor shall submit daily work program based on above schedule. Deferment of above schedule is not acceptable. Contractor will adhere to schedule & augment resources to ensure completion as per schedule.
18.6	**Detailed description of major equipment (per unit & common) to be Installed, tested and commissioned under this specification is given below:**
	Below mentioned details are to give only general idea of FGD system/ equipment's to the bidder. Any equipment's/system's not mentioned in this specification but which are required for the completion and smooth running of the FGD system contractor shall do the erection and commissioning of that system within the finally accepted rates / prices.
18.6.1	**Absorber System:**
18.6.1.1	An independent Limestone Forced Oxidation (LSFO) type absorber system shall be provided for each unit. Each absorber system shall be complete with:
18.6.1.2	Absorber tower complete with re-circulating slurry spray header(s) and nozzles, three stage mist eliminators, wash water nozzles, oxidation tank integral to tower, oxidation headers and nozzles, and agitators and all internal systems integral to the working of the absorber.
18.6.1.3	3x100% re-circulating slurry pump for each level of spray.
18.6.1.4	Complete Ducting System from ID fan common outlet duct to absorber tower & from absorber outlet to wet stack chimney.
18.6.1.5	3x100% Centrifugal/ positive displacement type oxidation blowers / compressors

18.6.1.6	1 No. Emergency water tank for spraying water at inlet of Absorber for upset condition.
18.6.1.7	3x100% gypsum bleed pumps.
18.6.1.8	Auxiliary Absorbent tank
18.6.1.9	Passenger cum Goods elevator for each Absorber of minimum capacity of 1000 kgs.
18.6.2	**LIMESTONE GRINDING AND SLURRY PREPARATION SYSTEM(Common)**
18.6.2.1	Limestone grinding system for all the units and shall comprise of:
18.6.2.2	Three number Limestone storage silos shall be complete with supporting steel structure, platforms, staircase, air canons, power operated gates, gravimetric feeders etc.
18.6.2.3	Three numbers of wet horizontal ball mills
18.6.2.4	Three limestone slurry tanks, complete with all accessories and Agitator(s).
18.6.2.5	Limestone slurry pumps for each absorber connected to each of the limestone slurry tank. Each pump catering to slurry requirement of each unit's absorber.
18.6.2.6	Each mill shall be fed from an independent Limestone bunker. Each mill shall be complete with the following items, as a minimum requirement:
a	Bunker outlet gate
b	Gravimetric limestone feeder along with its drive and all other auxiliaries
c	Separator tank with agitator(s).
d	Mill circuit pumps.
e	One set of hydro-cyclone
f	Peripheral/central drive system with motor, speed reducer gearbox and other auxiliaries.
g	Auxiliary motor for inching operation with speed reducer.
h	Complete lubricating system
i	Lube oil pumps, coolers, duplex oil filters, connecting piping
18.6.3	**GYPSUM DEWATERING SYSTEM (COMMON)**
	Each set of dewatering equipment (01 working set + 01 standby set) shall comprise of the following items as a minimum requirement:
18.6.3.1	One set of primary hydro-cyclones
18.6.3.2	One vacuum belt filter
18.6.3.3	Vacuum receiver tank
18.6.3.4	Vacuum pump
18.6.3.5	One set of secondary hydro-cyclones
18.6.3.6	Filtrate tank along with filtrate water pump
18.6.3.7	Cake washing Pumps for Vacuum Belt Filter.
18.6.3.8	Cloth washing Pumps for Vacuum Belt Filter.
18.6.3.9	Waste water tank along with agitator and centrifugal pumps
18.6.3.10	Lime neutralization tanks
18.6.4	**PROCESS WATER STORAGE TANKS AND PUMPS**
18.6.4.1	Three Process water Storage tanks along with three numbers Booster water pumps, if required,
18.6.4.2	Process Water Pumps for each unit connected to each of the Process water Storage tanks along with all necessary piping, valves.
18.6.4.3	Mist Eliminator Wash Water Pump for each unit connected to each of the Process water Storage tanks along with all necessary piping, valves.
18.6.4.4	Three clarified water Storage tanks (each tank catering to the clarified water requirement for one vacuum Belt Filter) along with three numbers of clarified Booster water pumps, if required, from terminal point.
18.6.4.5	Emergency water storage tanks
18.7	**Booster Fan & Isolation Gates**
18.7.1	For each unit, two (2) nos. Booster Fans of axial type, Constant speed, variable pitch controlled each with drive motor, base plates, foundation bolts and nuts, inlet box, discharge case, coupling, coupling guard and suitable arrangement to prevent rain water entry to fan motor.
18.7.2	Each Booster Fan shall be provided with bearing lubrication and hydraulic blade pitch control unit(s) consisting of;

a	Oil pumps each with motor, coupling and coupling guard.
b	Oil coolers.
c	Filters, differential pressure switches, etc.
d	Oil storage tank
18.7.3	Motorized Guillotine type gates with seal air fans shall also be provided at suction & discharge of each Booster Fan.
18.7.4	Inter connected piping, valves and fittings .Electrical actuator with accessories
18.8	**PIPING**
18.8.1	**Slurry Piping**
18.8.1.1	Piping from gypsum bleed pumps to gypsum dewatering system, along with recirculation lines (if required) necessary isolation and control valves
18.8.1.2	Limestone slurry piping to each absorber, along with recirculation lines, all isolation and control valves.
18.8.1.3	All connecting pipes / chutes along with necessary valves between various systems of the mill and from hydro-cyclone to common slurry storage.
18.8.1.4	All slurry pipes having Material of construction carbon steel and rubber lined. End connections are bolted flanged connections.
18.8.2	Oxidation Air piping
18.8.3	Service Water
18.8.4	Service Air & Instrument Air
18.8.5	Process water piping
18.8.6	Equipment Cooling water system piping
18.8.7	Piping and equipment, as per requirement / drawings are to be thermally. Insulated with bonded / unbounded mineral wool /LRB mineral wool and to be covered with aluminum cladding
18.8.8	All the above systems of piping include the erection of pipes, bends, elbows, valves, fittings, impulse piping and including root valves, sampling lines, drains, hangers and supports & other accessories so as to make the systems complete in all respect.
18.9	**Fire Protection system (Common)**
18.9.1	**Hydrant System**
18.9.1.1	Hydrant system consists of (pipe, hydrant valves, landing valves, water monitors, hoses, branch pipes and nozzles etc)
18.9.2	**HVW & MVW Spray System(High Velocity and Medium Velocity)**
18.9.2.1	It shall consist of water mains network, deluge valves, isolation valves, Y type strainers, spray nozzles/ projectors, spray nozzles piping network.
18.9.3	**Fire Extinguishers**
18.9.3.1	The contractor shall install the following fire extinguishers at various locations of FGD system as per TAC requirement.
18.9.3.2	Pressurized water type (9lit. capacity as per IS 15683)
18.9.3.3	CO2 type (4.5 kg Cap IS:15683)
18.9.3.4	Dry chemical type (6 kg Cap IS:15683)
18.9.4	Necessary civil works for the fire protection system includes (trenches/ pedestals/ foundations /sheds/sandfilling) excluded from the scope of this contract and shall be done by the civil agency of the BHEL. Fire detection package and associated C&I/cabling work is excluded from scope of this contract and shall be done by another agency. However the wrapping and protective coating of the buried piping shall be in the scope of contractor.
18.9.5	The complete Fire Detection and Protection Systems shall be as per the guidelines/ codes/standards / rules of TAC/ NFPA / IS: 3034 / OISD etc. and all the systems, equipment's and installation shall be got approved from TAC accredited professional(s)-India. Customer M/s NTPC will make arrangement of TAC approved agency for accreditation of work. The contractor has to facilitate TAC for getting approval. As per TAC any modification or any rerouting of the lines, re erection of equipment should be done and same should be carried by contractor with in quoted rates. There is no extra payment will be paid.
18.10	**Equipment Cooling Water System (Common)**

18.10.1	Equipment Cooling water system for all three units with a closed circuit cooling system for cooling of the various auxiliaries of FGD system. The equipment cooling system shall include the following:				
18.10.2	Selfcleaning strainers on the secondary side.				
18.10.3	4 Nos (3 working + 1 standby) plate type heat exchangers.				
18.10.4	4 Nos (2 Working + 2 standby)FGD Auxiliary (Secondary) Cooling water pumps, along with drives.				
18.10.5	4 Nos (3 Working + 1 standby)y FGD DM (Primary) cooling water pumps along with drives.				
18.10.6	Overhead DM water tank (ECW O/H tank).				
18.10.7	Alkali (Sodium Hydroxide) preparation tank, agitator and motor, piping, valves etc				
18.11	Tentative Weight schedule /BOQ of the FGD system given under the **Annexure-II, III IV, V, VI, VII, VIII**				
18.12	The equipment /piping systems indicated above are only major items and does not cover all the equipment / piping system to be erected / commissioned. Contractors are however, required to erect / commission within the price quoted by them, all connected equipment / system shown in manufacturer"s drawings / other documents which may be necessary for erection completion and overall commissioning of FGD system.				
18.13	The contractor undertakes to erect/ commission actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments will also be regulated for the same.				
18.14	**Important information for the Erection Work of FGD system under this tender specifications:**				
18.14.1	Absorber tower have top elevation of approx. 41.3 mtr . Emergency QuenchTank (Dia 5.0 mtr and height 5.7 mtr) is placed on absorber top.				
18.14.2	Absorber System W/D (wet dry) interface having lining of C276 material. Site welding of liner is in the contractor scope. BHEL supplied the liner with plug welding and special electrode for the welding of liner shall be supplied by BHEL Ranipet. Welding to be done as per approved procedure of BHEL/NTPC.				
18.14.3	Tanks shall be supplied by the units in multiple egment (rolled sections) having height of each segment approx. 2500 mm. Contractor have to complete the assembly at site with necessary welding/NDT/testing as per the approved FQP. **Rubber lining of the tanks (along with surface preparation by blasting or any other approved method and necessary testing i.e spark test/ pin hole test of the rubber lining) excluded from the scope of work and shall be done by rubber lining vendor of BHEL Ranipe**t. However necessary assistance to be provided by the contractor. Sizes of the tank mentioned below to give general idea to the bidders regarding the extent of work				
18.14.4	Lime stone day silos shall be supplied by BHEL in multiple segments. Maximum dimension of segments shall be 2500 mmx9000mx1500mm . Maximum Weight of segments 10 MT. Contractor shall have to complete the assembly, final welding, /NDT/testing as per the approved drawings/ documents/ FQP. Sizes of the silos mentioned below to give general idea to the bidders regarding the extent of work.				
18.14.4.1	Description	Diameter(mtr)	Height of Cylindrical portion (mtr)	Height of Conical portion (mtr)	Qty (set)
	Lime Stone Day Storage Silo	7.7	6.7	6.6	2
18.14.5	Erection and commissioning of the below mentioned equipment's/system under FGD system excluded from the scope of work under this contract. Erection and commissioning shall done by the BHEL Ranipet vendor /system supplier/OEM of the system.				
a	Absorber Elevator				
b	Rubber lining of tanks and absorber				
c	Glass flake lining of ducts (absorber outlet to wet stack chimney portion)				
18.14.6	However, contractor scope limited to extend the necessary assistance along with T&Ps, scaffolding to the vendor during the erection and commissioning of the above system.				

18.15	Quantities and dimensions mentioned above for tanks, silos, absorber are indicative and to give general idea regarding the extent of work for estimation purpose. Quantity and dimension detail based on the engineering /drawings /documents available as on date of NIT and liable for variation.
19.0	**TOOLS & PLANTS (TO BE PROVIDED BY CONTRACTOR)**
19.1	Tentative list of T&P to be deployed by contractor for successful completion of work is mentioned in relevant **Annexure-A**.
19.2	The above list is only indicative and these T&Ps may not be required for entire contract period but contractor shall ensure the availability of the T&Ps as per work requirement and T&P Deployment schedule. T&P Deployment schedule shall be finalized at site in consultation with BHEL Engineer based on the work fronts/work requirement. BHEL decision shall be final and binding regarding the T&P deployment schedule. Contractor shall mobilize / maintain the T&P's as per the deployment schedule notified time to time by BHELEngineer.
19.3	As per requirement - Contractor has to deploy T&P, MMD, IMTE as per requirement of site and as decided by BHEL Engineer.
19.4	If any one of T&P mentioned above is not needed for proper execution of scope of work, provided contractor has not utilized BHEL free issued T&P for completing such work, no recovery from contractor shall be applicable.
19.5	Any additional item required in addition to above mentioned T&P for proper execution of scope of work, contractor has to arrange such T&P within quoted rate on the instruction of BHEL in writing in a reasonable period within two weeks from the written instruction from BHEL.
19.5.1	i.)In case deployment of T&P w.r.t requirement/schedule, is delayed or deployed for a shorter period or abnormal down time of T&P or ii) in case T&P w.r.t requirement was not deployed by the contractor as per instruction of BHEL and BHEL had to deploy either its own T&P or iii.)BHEL had to deploy the T&P from outside agency, then recovery shall be done from the contractor as under :
19.5.2	In case the contractor does not deploy or delays deployment of major T&Ps with reference to schedule specified or T&P deployed is out of service for continuous more than 15 days, BHEL will recover non-refundable penalty per day in the following manner-
i.	In respect of each 100 MT crane- @ Rs 10000/- per day
ii.	In respect of each 40MT crane- @ Rs 5000/- per day
iii.	In respect of each 10/12/14/18 MT Nextgen pick & carry type tyre mounted mobile crane - @ Rs 3000/- per day.
iv.	In respect of each trailer 20/40 MT- @ Rs 2000/- per day
19.5.3	For the daily recovery rate for other T&P/IMTEs BHEL Engineer decision shall be final and binding on the contractor.
19.5.4	In case BHEL had to deploy its own T&P, hire charges of T&P applicable for outside agencies as per extant guidelines for "Hire Charges on issue of Capital Tools & Plants" shall be recovered.
19.6	In case BHEL had to deploy the T&P from outside agency, actual hiring cost plus applicable overheads shall be recovered.
19.7	All the tools and tackles/measuring instruments shall be duly tested/calibrated and valid certificate to that effect should be submitted to BHEL site in-charge before the start of work.
19.9	If the work related to T&Ps mentioned above is completed then, BHEL can release that T & P during contract period / extended period if any. However, written permission shall be taken by contractor from BHEL construction Manager for releasing the T&P.
20.0	**TOOLS & PLANTS (TO BE PROVIDED BY BHEL ON SHARING BASIS)**
20.1	List of T&P to be provided by BHEL on sharing basis for successful completion of work is mentioned in relevant **Annexure-B.**
20.2	Day-to-day upkeep and running maintenance like filling topping up of lubricants, changing filters, etc. including repair of self-starter, batteries and dynamo of these cranes shall be excluded from the scope of the contractor. In case of breakdown of crane, contractor shall provide the necessary manpower assistance for maintenance of the crane to maintenance

	agency, failing to do so BHEL will get the job done at the risk and cost of contractor. BHEL may also provide cranes through crane hiring agencies in which case the day-to-day upkeep and running maintenance shall be excluded from scope of contractor.
20.3	Operator, helper & maintenance personal for BHEL's cranes of 150 MT or above capacity will be provided by BHEL free of cost. Fuel and lubricant for operation and maintenance of BHEL crane shall be provided by BHEL.
20.4	The Crane will be provided as per requirement and availability at the sole discretion of the BHEL Engineer
20.5	The contractor shall make necessary arrangement like laying of special sleeper beds, assembly & dismantling of heavy lift attachment, boom, jib etc. for movement and operation of crane.
20.6	For other T&P mentioned in the list, contractor shall transport from BHEL stores, install, operate, carry out maintenance, dismantle after use and return to BHEL stores.
21.0	**INSURANCE**
21.1	BHEL shall arrange comprehensive MCE (marine cum erection) Insurance Policy for total project supply & services including balance of plant package covering transit risks & loss, destruction or damage during handling at Site, Storage, civil works, erection, testing and commissioning up to trial operation completion of unit including theft, sabotage, fire, lightning and other natural calamities.
21.2	Contractor shall report to BHEL in writing any damages to equipment/components on receipt, storing, and during withdrawal of the materials from stores, in transit to site and unloading at place of work and during erection and commissioning till trial operation completion including handing over. The above report shall be as prescribed by BHEL site management. Any consequential loss arising out of non-compliance of this stipulation will be borne by contractor.
21.3	The contractor will take necessary precautions/ due care to protect the material at Project site, while in his custody from any damage/ loss till the same is handed over to BHEL/ customer at Project site. For lodging/ processing of insurance claim the contractor will submit necessary documents. BHEL will reserve the right to recover the loss from the contractor as detailed below in case the damage/loss is due to negligence/ carelessness on the part of the contractor. In case of theft of material under contractor's custody, the same shall be reported to police by the contractor immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL/ customer for taking up with insurance. However, this will not relieve the contractor of his contractual obligation for the materials in his custody.
21.4	In case the damage/loss/theft of materials are attributable to negligence/failure in discharging the duties and obligations of the contractor, the expenses incurred for repair/replacement of such components in excess of the amount realized from the underwriters, limited to Normal Excess (Deductible Franchise) shall be recovered from the contractor.
21.5	Other conditions of Insurance shall be as per relevant clause of GCC/SCC.
22.0	**MATERIAL HANDLING (BHEL ISSUED MATERIAL)**
22.1	Structural Steel/ Stainless Steel will be issued free of cost by BHEL for use in the work covered in this contract.
22.2	All free issue Steel will be issued to the contractor from BHEL store within the plant premises. Receipt from BHEL stores, handling / transportation to work site, unloading etc will be under the scope of work within his quoted rate. The contractor shall in no case be entitled for any compensation or damages on account of any delay in supply or non-supply thereof for all or any such material.
22.3	Open land (Limited area free from encumberance) shall be provided by BHEL at free of cost basis. Contractor shall maintain one centralized fenced store cum fabrication yard yard. Hard surfacing of this yard and all round drain shall be carried out by the contractor at his own cost within the quoted rate. Bidder shall make complete arrangement of necessary security personnel, to safeguard all such materials in his custody. Materials issued will be used only for construction of

	permanent work. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering.
22.4	Excessive rusting of steel must be avoided. In case, due to any cause attributable to the contractor, such rusting of steel occur rendering the same unusable, then such quantity of steel shall be recovered from the interim payment at the penal rate specified in the tender.
22.5	The contractor shall maintain proper store account for all the BHEL issued materials and shall give copy of once in a months computerised reconciliation statement along with RA Bill for maintaining account for the BHEL issued material.
22.6	The contractor shall solely be responsible for the safety & quality of material after it is handed over and issued to contractor by BHEL.
22.7	Under any circumstances, BHEL issued materials shall not be taken out of the project site unless otherwise permitted by BHEL.
23.0	**ISSUE OF STEEL**
23.1	The steel shall be issued to the contractor free of cost on the following basis.
23.2	Structural steel (MS plate, ISMB, angle, channel, chequred plate, stainless steel plate) – Weighment basis (unit – MT).
23.3	All the steel (MS plate, ISMB, angle, channel, chequred plate, stainless steel plate) issued by BHEL, shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved fabrication drawings. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following/ applicable latest IS specifications. IS: 808-1964 - Beams, channels and angles. IS:1730-1961 – Plates.
23.4	In case any such sectional weights are not available in the above documents or can not be derived from above documents, the manufacturer recommendation shall be binding.
23.5	The steel issued to to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project , no claims for extra payment because of issue of non-standard length will be entertained.
23.6	The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL/ owner. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by contractor from BHEL/ owner stores.
23.7	Bidders to ensure that no lamination materials are taken over from BHEL. Fabrication wastage, if any due to above, shall not be compensated by BHEL
23.8	Bidder shall submit to the engineer, a statement indicating estimated quantity of steel required at least two months in advance. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month. Failing which BHEL will not responsible to ensure supply of steel. Delay in completion if any for the same shall be in bidders account.
23.9	Bidder to note that steel required for his enabling job like store/ site office etc shall be arranged at his own cost.
24.0	**RETURN OF STEEL**
24.1	All surplus steel and all wastage materials will be taken back on weighment basis.
24.2	Surplus, unused and un-tampered steel shall be sorted section-wise and returned separately for a place directed by BHEL / engineer within the project area; Return of such materials will not be entitled to any handling and incidental charges.
24.3	All wastage / scrap (including wastage, unusable scrap) shall be returned to the stores on weighment basis and a receipt obtained for material accounting purposes. Return of such material will not be entitled to any additional cost due handling and transportation and incidental charge.
25.0	**STEEL CONSUMPTION AND WASTAGE**
25.1	STRUCTURAL STEEL CONSUMPTION

25.1.1	The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard as mentioned in relevant clause. No extra shall be payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.		
25.1.2	Actual consumption = Issue – Surplus.		
25.1.3	Surplus = Un-tampered and unused quantity of steel returned by the contractor to BHEL store along-with relevant documents.		
25.1.4	Wastage = Actual consumption – Theoretical consumption.		
25.2	STRUCTURAL STEEL WASTAGE		
25.2.1	Allowable wastage – 4 % (four percent) of the theoretical consumption shall be considered. Wastage is further classified as cut pieces and scrap measured as per actual weightment basis. Invisible wastage (loss of materials due to gas cutting, straightening of edges etc) shall be limited to 0.5 % (zero point five percent) of theoretical consumption and shall be considered for reconciliation purposes only. But this invisible wastage shall be considered to be included in allowable wastage (i.e. four percent).		
	Structural steel including SS plate		Basis of issue & penal recovery
	S-1	Theoretical consumption (without considering any wastage, scrap or loss) as per specification &drg.	Free
	S-2.a	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (S-1) towards allowable wastage(including invisible wastage limited to 0.5%) and return to BHEL Store.	Free
	S-2.b	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (S-1) towards allowable wastage(including invisible wastage limited to 0.5%) but not returned to BHEL Store.	Penal rate
	S-3	Wastage beyond plus four percent (+4%) of the aforesaid theoretical consumption (S-1).	Penal rate
25.2.2	All wastage structural steel / Stainless steel shall be returned to BHEL.		
26.0	**RECONCILIATION OF BHEL ISSUED MATERIALS**		
26.1	The contractor shall submit a reconciliation statement of steel issued to him, once in a month. The same may be submitted alongwith RA bill.		
26.2	At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance materials are available with contractor's custody at site.		
26.3	At the time of submission of bills by the contractor, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.		
26.4	The approved drawings are to be considered for the purpose of reconciliation of materials.		
26.5	Reconciliation of steel shall be done on total issue & consumption basis.		
27.0	**RECOVERY AGAINST MATERIAL WASTAGE**		
27.1	If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA bill at the penal rate stipulated below.		
27.2	PENAL RATE OF MATERIALS		
	Item	Penal rate (Rs)	
	Stainless steel plate.	2,00,000 per MT	
	Structural steel materials.	90,000 per MT	
28.0	**TIME SCHEDULE**		
28.1	The contractor is required to commence the work within 15 days from the date of intimation by BHEL . However, the actual date of start of work, to fix up the zero date of the contract, will be certified by BHEL Engineer after adequate mobilization of manpower and T&Ps by the contractor.		

28.2	Entire work shall be carried out in accordance with the broad schedule for FGD system as furnished below, within the stipulated completion period. This schedule will undergo review and based on progress vis-à-vis project requirement, contractor shall submit revised schedule for approval of BHEL/Customer M/s NTPC.	
28.3	Schedule for major construction activities covered under the scope of work is as below	
	Major activity/Milestone description	Completion time (Time period w.e.f. date of start of work)
28.3.1	Air tightness test of complete ducting for FGD U#1 (M1)	09 months
28.3.2	Completion of Erection work of FGD system U#1	10 months
28.3.3	Commissioning of FGD#1	12 months
28.3.4	Completion of Facilities FGD#1	13 months
28.3.5	Air tightness test of complete ducting for FGD U#2	12 months
28.3.6	Completion of Erection work of FGD system U#2	13 months
28.3.7	Commissioning of FGD#2	15 months
28.3.8	Completion of Facilities FGD#2	16 months
28.3.9	Air tightness test of complete ducting for FGD U#3	15 months
28.3.10	Completion of Erection work of FGD system U#3 (M2)	16 months
28.3.11	Commissioning of FGD#3	18 months
28.3.12	Completion of Facilities FGD#3	19 months
28.4	The contractor shall plan his work in such a manner so as to meet the overall project schedule, in consultation with BHEL/ customer engineer.	
28.5	Contractor shall submit daily work program based on above construction schedule.	
29.0	**COMPLETION PERIOD**	
29.1	The entire work under this scope shall be successfully completed in all respect within **19** (nineteen) months from the date of start of work as certified by Construction Manager, BHEL.	
29.2	Contractor shall mobilise resources to start the work within 15 days from date of intimation of BHEL.	
29.3	However, actual date of start of work shall be recknoned based on certification of Construction manager,	
30.0	**LIQUIDATED DAMAGE/ PENALTY**	
30.1	**Intermediate Milestones**	
30.1.1	In case delay in achieving the Milestone **(M1)** as mentioned in Clause 28.3.1 above, is solely attributable to the contractor, 0.5% per week of executable contact value, limited to maximum 2% of executable contact value, will be withheld.	
30.1.2	In case delay in achieving the Milestone **(M2)** as mentioned in Clause 28.3.10 above, is solely attributable to the contractor, 0.5% per week of executable contact value, limited to maximum 3% of executable contact value, will be withheld.	
30.1.3	Amount already withheld, if any , against slippage of **M1** Milestone (as mentioned in clause 28.3.1) shall be released only if there is no delay attributable to contractor in achievement of **M2** Milestone (as mentioned in Clause 28.3.10)	
30.1.4	Amount, to be withheld on account of slippage of identified intermediate milestone(s), shall be withheld out of respective milestone payment and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.	
30.1.5	Final deduction towards LD (if applicable), on account of delay attributable to contractor shall be based on final delay analysis on completion / closure of contract. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.	
30.1.6	In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.	
30.1.7	In case of LD recovery, the applicable GST shall also be recovered from the contractor.	
30.1.8	All other terms shall be as per the provision of GCC in this regard.	
Note:	*Executable Contract value- Value of work for which inputs/fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.	
30.2	**Overall Completion**	

30.2.1	If the completion of work is delayed beyond the completion period (as mentioned in clause no – 29.1) due to reasons attributable to the contractor, they will pay to BHEL as penalty a sum @ 0.5 % of contract price per week of delay or part thereof subject to a maximum of 10 % of the total contract value.
30.2.2	All other terms shall be as per the provision of GCC in this regard.
30.2.3	In case of LD recovery, the applicable GST shall also be recovered from the contractor.
31.0	**EXTENSION OF TIME FOR COMPLETION & CERTIFICATE TOWARDS COMPLETION**
31.1	**EXTENSION OF TIME FOR COMPLETION**
31.1.1	If the completion of work as detailed in the scope of work gets delayed beyond the contract / completion period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the contract.
31.1.2	Based on the reviews jointly signed, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.
31.1.3	However, if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/ LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.
31.1.4	A joint programme shall be drawn for the balance quantity of work to be completed during the period of 'Time Extension', along with matching resources to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done.
31.1.5	During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program.
31.1.6	At the end of total work completion as certified by BHEL engineer, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/ levied for the portion of time extensions attributable to contractor and recoverable from the dues payable to the contractor.
31.2	**CERTIFICATE TOWARDS COMPLETION**
31.2.1	The work under the scope of the contractor shall be deemed to have been completed in all respects only when so certified by CM, BHEL / NTPC. The decision of BHEL in this regard shall be final and binding on the contractor.
32.0	**GUARANTEE**
32.1	Even though the work will be carried out under supervision of BHEL, the contractor will be responsible for the quality of workmanship, quality of materials/ items and design for which the contractor is responsible.
32.2	The contractor shall guarantee the work executed under the scope of the contract for a period of 12 (twelve) months from the date of start of guarantee period as certified by the engineer (ie on completion of total work under scope and taking over by BHEL) and shall rectify free of cost all defects due to faulty supply or work done. In case the contractor fails to repair/ replace the defective works within the time specified by the engineer, BHEL may proceed to undertake the repairs/ replace such defective works at contractor's risk and cost without prejudice to any other rights and recover the same from security deposit/ other dues.
33.0	**MOBILISATION ADVANCE**
	Not applicable for this tender.
34.0	**OVER RUN CHARGES**
	Applicable as per GCC

35.0	**REVISION ON ACCEPTED CONTRACT RATE**
	Not applicable for this tender.
36.0	**PRICE VARIATION CLAUSE**
	Applicable as per GCC
37.0	**EXTRA/ ADDITIONAL ITEMS OF WORK**
	Shall be as per GCC.
38.0	**SECURITY DEPOSIT, PERFORMANCE BOND & FINAL BILL**
38.1	Security deposit shall be applicable as per relevant clause of GCC (Volume-IB).
38.2	Performance bond is not applicable for the tender.
38.3	RELEASE OF SD BANK GUARANTEE (BG) AND FINAL BILL
	In addition to other provisions of tender regarding release of SD and final bill, following provisions shall also be governing to this tender.
38.3.1	For SD BG- further extension beyond date of acceptance of final bill will not be enforced if the following is fulfilled.
38.3.1.1	Contractor discharges their responsibility in r/o of submission of final bill alongwith absolute 'No Demand Certificate' and other documents as detailed below to the satisfaction of BHEL
38.3.1.2	Joint protocol of set of documents as submitted as detailed in below is certified by site & contractor's representative.
38.3.1.3	There is no negative value of the final bill (after release of SD BG) - site to certify the same before release of SD BG.
38.3.1.4	Contractor has returned the property belonging to BHEL - site to certify the same before release of SD BG.
38.3.1.5	Contractor has submitted joint protocol against `Delay analysis', if applicable for delayed execution of job.
38.3.2	List of documents to be submitted & jointly protocoled indicating acceptance of final bill by BHEL.
38.3.2.1	Final bill.
38.3.2.2	Measurement for final bill signed, jointly signed by BHEL & contractor's representative.
38.3.2.3	Statement having cumulative joint measurement for the contract, jointly signed by BHEL & contractor's representative.
38.3.2.4	Claim by contractor for refund of security deposit.
38.3.2.5	Jointly signed material reconciliation statement.
38.3.2.6	Statement of payment received from BHEL – Bill wise (Including RA/ PVC/ ORC/ rate revision/ extra work).
38.3.2.7	No claim certificate by contractor.
38.3.2.8	Clearance certificates wherever applicable, viz clearance certificates from customer, various statutory authorities, like Labour Department, PF Authorities, Commercial Department, etc.
38.3.2.9	Notarized Indemnity Bond as per prescribed format.
39.0	**TAXES, DUTIES ETC**
39.1	All taxes excluding GST & BOCW Cess (as specified elsewhere in the tender) but including, Charges, Royalties, any State or Central Levy and other taxes for materials if any obtained for the work and for execution of the contract shall be borne by successful bidder and shall not be payable extra by BHEL. Any increase of above at any stage during execution of contract, including extension of the contract, shall have to be borne by successful bidder contractor. Bidder's quoted/ accepted rates/ price shall be inclusive of all such requirements.
39.2	GST along with Cess (as applicable) legally leviable & payable by successful bidder as per GST Law shall be paid by BHEL, extra. Hence, bidder shall not include GST along with Cess (as applicable) in their quoted rates/ price.
39.3	Successful bidder shall furnish proof of GST registration with GSTN Portal covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by successful bidder on BHEL for this project / work.

39.4	Since GST on output will be paid by BHEL separately as enumerated above, bidder's quoted rates / price should be after considering the Input Credit under GST law at bidder's end.
39.5	TDS under Income Tax Act shall be deducted as per prevailing IT rules from the bills.
39.6	TDS under GST shall be deducted as per prevailing GST rules from the bills.
39.7.1	You may collect TCS under section 206C (1H) of Income Tax Act, 1961 if applicable.
39.7.2	In case, you collect TCS under section 206C (1H) of Income Tax Act, 1961, following compliance is required.
39.7.2.1	TAN and PAN of vendor should appear in all invoices/claims. Copy of TAN /TCS registration is to be submitted.
39.7.2.2	Amount of TCS and Assessable value on which TCS has been calculated should be specified clearly in the invoice.
39.7.2.3	You shall be required to submit certificate of TCS in Form no. 27D within 15 days from the due date for furnishing the statement of tax collected at the source.
39.7.3	In case, you do not collect TCS under section 206C(1H) of Income Tax Act, 1961, following declaration is to be submitted alongwith each invoice: - "I/We hereby declare that I/We are not required to collect TCS under section 206C (1H) of Income Tax Act, 1961, on this bill.
39.7.4	In event of failure to comply with the provisions of the Act, or proper certificate not issued, or if tax collected but not remitted to the Government, or for any other reason and thereby causing loss to BHEL, the same shall be recoverable from the vendor with applicable interest.
39.7.5	You shall comply with all statutory amendment/notifications in this respect.
39.8	Bidder shall note that GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred thereunder) wherein the 'Bill To' details shall encompass following. BHEL GSTN – Refer attached GSTN code table of BHEL. Name - BHARAT HEAVY ELECTRICALS LIMITED Address - Shall be intimated later. Specific details of BHEL GSTN, Name and Address as stated above, have been specified elsewhere in the tender.
39.9	Successful bidder to intimate immediately on the day of removal of goods (in case of any supply of goods) to BHEL along with all relevant details and send a scanned copy of Tax Invoice to BHEL through following communication mode for enabling BHEL to meet its GST related compliances. Portal address. and Email address – Shall be intimated later. Specific details of above shall be intimated to successful bidder by BHEL at appropriate juncture.
39.10	In case of delay in submission of above mentioned documents on the date of despatch, BHEL may incur penalty / interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from successful bidder, in case such delay is not attributable to BHEL.
39.11	In case of raising any Supplementary Tax Invoice (Debit / Credit Note), successful bidder shall issue the same containing all the details as referred to in Section 34 read with Section 31 of GST Act & Rules referred there under.
39.12	Successful bidder shall comply with the Time Limit prescribed under the GST Law and rules thereof for raising of the Tax Invoice. If any supply of goods is applicable, successful bidder shall also ensure prompt delivery of goods after despatch.
39.13	Bidder shall note that in case GST credit is delayed / denied to BHEL due to delayed / non receipt of goods and / or Tax Invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons, not attributable to BHEL, GST amount shall be recoverable from successful bidder along with interest levied/ leviable on BHEL, as the case may be.
39.14	Successful bidder shall upload the invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act and the same shall be available to BHEL in FORM GSTR-2A/2B electronically through the common portal.Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law, GST amount paid by BHEL towards such ITC

	reversal as per GST law shall be recoverable from the successful bidder along with interest levied / leviable on BHEL
39.15	Way Bill: Successful bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract. Successful bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit / Way Bill, if required, shall be arranged by successful bidder and BHEL will not supply any Road Permit/ Way Bill for this purpose.
39.16	Any new taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period (including extension, if the same is not attributable to you), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.
39.17	Benefits and / or abolition of all existing taxes must be passed on to BHEL against new taxes, if any, proposed to be introduced at a later date.
40.0	**TERMS OF PAYMENT**
40.1	**RETENTION AMOUNT**
40.1.1	Retention Amount shall be 5% of executed contract value and shall be recovered at the rate of 5% from each Running Bill admitted, including PVC Bills. Refer GCC clause no 2.22.1.
40.1.2	Retention Amount shall be refunded as per clause no 2.22.2 of GCC on confirmation of receipts of TCS certificates from vendor, as applicable and Confirmation of full GST credit to BHEL.
40.2	**INTERIM PAYMENTS**
40.2.1	For all items of work as per Volume-III, Price Schedule, interim payment shall be limited to 95 % of the gross value of interim bill on item rate basis as per the Billing schedule (Annexure-IX). 5% of gross value of each RA bill shall be retained from each RA bill as 'retention Amount' as described in clause no 40.1 above.
40.2	All admissible recovery / adjustments etc. shall be made from the interim payable amount.
40.3	Out of this 95 %, 1.5 % of gross bill amount shall be paid in the following manner on certification by BHEL engineer after compliance of each of following activity in each month. In case of non-fulfilment of respective activity by vendor in each month, no payment shall be made by BHEL against corresponding activity and no claim of bidder at a later date, whatsoever, in this regard shall be entertained by BHEL.
40.3.1	0.7 % shall be paid on compliance of housekeeping of vendor's working area and store/ office areas.
40.3.2	0.3 % shall be paid on compliance of general illumination of vendor's working area and stores, office area.
40.3.3	0.2 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.
40.3.4	0.3 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.
40.4	BHEL site at its discretion may further split up the above percentages of break up and effect payment to suit the site condition, cash flow requirement, according to the progress of work.
40.5	The contractor shall submit his running bill, once in a month at the end of each month. The RA bill complete in all respect including required quality documents and HR statutory compliances, accompanied by BHEL engineers certified measurement sheets, jointly signed protocols, will be paid after 45 days of submission of bill, subject to completeness and correctness. Income Tax at the prevailing rates on gross value of work done & applicable surcharge shall be deducted from contractor's bill, unless exempted by Income Tax Authority.
40.6	Applicable GST, which can be claimed at any point, shall be released to you upon compliance of following:
40.7	You declaring such Invoice in your GSTR-1
40.8	Receipt of Goods / services and Tax Invoice by BHEL

40.9	Confirmation of payment of GST thereon by you on GSTN Portal
40.10	Above is subject to receipt of goods / service and tax invoice thereof along with you declaring invoice in your return and paying GST within timeline prescribed for availing ITC by BHEL.
41.0	**CONTRACT PRICE**
41.1	The bidder shall quote their price/rates strictly in accordance with prescribed price/rate schedule -Volume-III (SCH-1).
41.2	The quantities of the various items mentioned in the respective Price schedules, Volume-III are approximate, based on very preliminary information and may vary to any extent or to be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of the work executed under any part of this contract including extra items, if any, but excluding any price variation, remains within +/- 15 % of the awarded price (as per LOI / WO).
42.0	**IMPOSTION OF INTEREST ON DELAYED RECOVERY, IF ANY**
42.1	Reconciliation of measurement shall be carried out at site on quarterly basis.
42.2	Above quarterly reconciled figures shall have Tolerance in accuracy as '+1.0% of the total value of actual work executed in that quarter' 'Value of actual Work' for this purpose shall be inclusive of PVC and ORC.
42.2(a)	For prepayment beyond tolerance limit, if any, recovery/adjustment shall be made from next payable.
42.3	Final reconciliation is to be done on yearly basis. For prepayment, if any, Recovery/adjustment need to be made from the vendor from their next payable.
42.4	In case, contractor requests to postpone any recovery, Interest on such delayed Recovery will be applicable @ SBI Base Rate plus 6% till the period of recovery.Suitable intimation to vendor is to be made in this regard.
43.0	**OTHER TERMS**
43.1	While bidder's scope includes deplyment of all resources, like T&P, materials, consumables, manpower including supervision etc for proper completion of the subject job and no sub-contracting for execution of the job is allowed by BHEL, depending on project's requirement and on prior acceptance of BHEL, bidder may associate agencies for deployment of skilled/ unskileld manpower only for site execution. Bidder should arrange all resources, like T&P, materials, consumables, supervision etc directly for the subject job.
43.2	Drawing showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner as far as possible.
43.3	The records / log-books / registers like Site Order Book, Hindrance Register, Cement / Steel Supply and Consumption Register, etc. are to be maintained properly by the vendor duly signed by BHEL representative.
43.4	All other term & conditions of this specification shall be governed by the pertinent provisions of SCC & GCC as applicable.

Annexure-A

TENTATIVE LIST OF T&Ps and MMEs TO BE PROVIDED BY THE CONTRACTOR FOR EACH UNIT AT HIS COST

Contractors may please note that this list is not exhaustive & given for guidance purpose. The contractor may be required to deploy additional T&Ps not mentioned in this list at their own cost for proper execution of the job within the timeline .

01	Crawler crane - 100 T	2 no (within 30 days from date of Intimation by BHEL for mobilisation of respective T&P)
02	Tyre mounted Mobile crane with telescopic boom - 40T	2 no (1 no from start of Work, 2nd within 30 days from date of Intimation by BHEL for mobilisation of respective T&P)
03	10/12/14/18 MT Nextgen pick & carry type tyre mounted mobile crane.(like Escorts F15 Pick and Carry Eqpt.)	5 nos (2 no – From start of work, And remaining within 30 days from date of Intimation by BHEL for mobilisation of respective T&P)
04	Tractor-trailor 20 T (with long bed)	2 no (1 no From start of Work, 2nd within 30 days from date of Intimation by BHEL for mobilisation of respective T&P)
05	40 T trailor	1 no (As per requirement)
06	Wheel barrows	
07	Electrical winch 8T	
08	Electrical winch 5T	
09	Electrical winch 2T	
10	Electrical winch 1T	
11	Chain pulley block 10T	As per requirement
12	Chain pulley block 5T, 3T, 2T	As per requirement
13	Pull lift 6T, 5T, 3T, 1.5T	
14	Multipurpose pulling and lifting m/c 5T, 3T, 1.6T	
15	Hydraulic jack 100T, 50T, 20T, 10T, 5T	
16	Single sheave snatch pulley 10T, 5T	
17	Double sheave snatch pulley 10T, 5T	
18	D shackles 10T, 20T, 50T	
19	Turn buckles 3T, 5T, 8T, 10T, 15T, 20T	
20	Welding generator K320	
21	Oil cooled welding transformer 300 amp, 450 amp	
22	Air cooled welding transformer 300 amp	
23	TIG welding torch	
24	Stress relieving transformer 600 amp	
25	High frequency unit	
26	Oxygen regulator	
27	Acetylene regulator	As per requirement

28	Cutogen 5	
29	Oxygen hose 10 mm	
30	Acetylene hose 10 mm	
31	Electrode drying oven	
32	Portable electrode drying cabinet	
33	Copper welding cable of adequate capacity & adequate length	
34	Aluminium cable of adequate capacity & adequate length	
35	Temperature recorder	
36	Thermochalk 100 deg C to 800 deg C	
37	Air compressor 250 cfm, 80 cfm	
38	Stationery compressor 350 cfm	
39	Filling pump 80 M head, 15 ltr/sec (at least one month prior to Hydraulic test)	
40	Electrode baking oven	
41	Vernier theodolite – 1 to 2 sec accuracy	
42	Dumpy level	
43	Spirit level 12 inch, 0.1 mm accuracy	
44	Combination squares	
45	Micrometers of different sizes	
46	Vernier callipers of different size	
47	Dial Guage	
48	Flood light with bulb	
49	Step down transformer	
50	Drilling m/c of different sizes	
51	Megger	
52	Tong tester	
53	Grinding m/c of different sizes	
54	Chamfering m/c of different sizes	
55	Trip torque wrench	
56	Aluminium telescopic ladder	
57	Manila ropes of different sizes	
58	Steel wire ropes of different sizes	
59	Drawing board	
60	Radiography equipment	
61	Moving platform	
62	Magnetic particle test equipment	
63	Ultrasonic flaw detector	
64	Dye Penetrant test kit	
65	Sheet grooving m/c for outer sheet casing	
66	Sheet bending m/c for outer sheet casing	
67	Recordable ultrasonic test equipment (UFD Krauft Kammer make USN-50 or higher version to meet the requirements)	
68	3 Phase distribution board with complete set up for drawing of construction power upto 600Amp	1 Set.
69	Mechanized hydraulic pipe bending machine with die of various sizes	2 Set (as per requirement)
70	Gas burner arrangement	As per requirement
71	Hardness tester	2 Set (as per requirement)
72	Air compressor (electric) – 7 kg/cm2 /100 psi/ 80 cfm	As per requirement

73	Theodolite	As per requirement

NOTE:-

1. In case the bidder fails to mobilize the above T&P as per requirement and the work progress/safety is affected for non-mobilization of any required T&P, gadgets, equipment, system; BHEL shall inform the bidder writing that BHEL shall provide the required items and recover the actual cost of providing such item / system plus BHEL's overhead as per rule.
2. T&Ps has to be tested/calibrated/certified by statutory authorities from time to time, as the case may be.

Annexure-B

TENTATIVE LIST OF T&Ps TO BE PROVIDED BY BHEL ON SHARING BASIS

Sl no	Description	Qty	Tenative Deployment schedule from the date of start of work
1.0	CRAWLER CRANE - 150 T CAPACITY or above	01	Within 30 days from Start of Work
2.0	Hydraulic Test Pump - 600 KG	01	As per requirement
3.0	Industrial Air Blower - 20000 Cum/Hr	01	As per requirement
4.0	Chemical circulating pumps as per the required capacity	01	As per requirement
5.0	Huck Bolting Machine	As per requirement	As per requirement
NOTE:			
01	The above T&Ps will be made available for the project. Contractor may make use of the T&Ps as per the provision of tender document.		
02	All other T&Ps required for proper execution of the job shall be provided by the contractor.		
03	All the T&P listed above shall be issued and used as per relevant clause in the contract.		

Annexure-I

Weight Summary for the E/T/C of the FGD System					
Sl.no.	**Unit**	**Description of Supplies**	**UOM**	**QTY**	**Remarks**
A	**Equipment & piping erection work**				
1	Ranipet	FGD System (Mechanical)	MT	16397.918	Annexure-II
2	Hyderabad	FGD System (Mechanical)	MT	1937.92	Annexure-III
2	PEM	Mechanical BOIs	MT	60.278	Annexure-V
3	PC Chennai	Piping System	MT	251	Annexure-VII
4	Bhopal	Motors	MT	358.6	Annexure-IV
5	PESD	Fire Protection System	MT	122.307	Annexure-VI
		Wrapping/ Coating Material	Sq mtr	1141	
6	TRICHY VALVE	Various types of valve	MT	6.654	Annexure-VIII
B	**Structural Steel erection work**				
1	PSER / TRICHY	Shop Fabricated Steel Structure	MT	7498	
2	PSER	Site Fabricated Steel Structure	MT	50	
Notes:					
1.	Weight mentioned in the annexures I, II, III, IV ,V ,VI ,VII, VIII are tentative only and based on the engineering /drawings /documents/ inputs from MUs available as on date of NIT and liable for variation.				
2.	The contractor is required to erect actual tonnage (irrespective of any variation plus or minus) which may be necessary to complete their work and commissioning the FGD system in all respects as detailed in tender specifications and as per the drawings/documents for which payments shall be released on finally accepted tonnage rates.				
3.	The contractor undertakes to erect / commission actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments will also be regulated for the same.				

Annexure-II

A.	**Product Group (PG) Wise Weight Schedule For FGD system (BHEL Ranipet Supply for 03 units & common systems)**		
SL NO.	**Total Weight under the FGD system including common system :**	**16397.918 MT**	**Remarks**
I.	Structure, Duct/Dampers	14841.006 MT	STRUCTURE, DUCT/DAMPER (1.1)
II.	Tanks	79.655 MT	TANKS (1.2)
III.	Rotating Machines	476.257 MT	ROTATING MACHINE (1.3)
IV.	Insulation	466 MT	INSULATION (1.4)
V.	Piping & valves	525 MT	CS PIPING (1.5.2)
VI.	Misc. Equipment	10 MT	MISC EQUIPMENT/STRL STEEL (1.6)

Weight Schedule for Ranipet

Sl No.	**PGMA**	**Description**	**Est Wt (kg)**	**Category/ Sub Group**
1	55000	FAN TOOL & FIXTURE	54.44	STRUCTURE, DUCT/DAMPER (1.1)
2	55081	BUF FIX MATERIAL	1721.588	STRUCTURE, DUCT/DAMPER (1.1)
3	55082	BUF STAIR & HND RAIL	1600	STRUCTURE, DUCT/DAMPER (1.1)
4	55084	BUF C & S AIR FAN	3000	ROTATING MACHINE (1.3)
5	55085	BUF CPLNG GUARD	100	ROTATING MACHINE (1.3)
7	55089	BUF MOTOR CANOPY	1322.974	ROTATING MACHINE (1.3)
8	55091	FIRST FILL LUBRICANT	2520	ROTATING MACHINE (1.3)
9	55287	1 STG BUF ROTOR	20823.078	ROTATING MACHINE (1.3)
10	55480	BUF SET & INDN SHAFT	253.854	ROTATING MACHINE (1.3)
11	55580	BUF EXPN JOINTS	2100	ROTATING MACHINE (1.3)
12	55587	1 STG BUF HOUSING	44682.614	ROTATING MACHINE (1.3)
13	55787	BUF SUCTION BOX	18793.344	ROTATING MACHINE (1.3)
14	55880	BUF CPLNG	2600	ROTATING MACHINE (1.3)
15	55887	BUF DIFFUSER	17262.974	ROTATING MACHINE (1.3)
16	55980	BUF LUBE OIL SYS	3500	ROTATING MACHINE (1.3)
17	55983	BUF ACTUATOR	100	ROTATING MACHINE (1.3)
20	57141	SEAL AIR HAG AND ID FAN OUTGA	15800	STRUCTURE, DUCT/DAMPER (1.1)
21	57209	MTG BKT FOR CL DAMPER AIR CYL	2730	STRUCTURE, DUCT/DAMPER (1.1)
22	57466	PLATFORMS AND LADDERS	12000	STRUCTURE, DUCT/DAMPER (1.1)
23	57491	BLOWER WITH MOTOR	9900	ROTATING MACHINE (1.3)
24	57497	KNIFE GATE VALVE	6600	STRUCTURE, DUCT/DAMPER (1.1)
25	57540	GATE-FGD BOOSTER FAN INLET	46306.234	STRUCTURE, DUCT/DAMPER (1.1)
26	57550	GATE-FGD BOOSTER FAN OUTLET	51798.272	STRUCTURE, DUCT/DAMPER (1.1)
27	57566	PLATFORMS AND LADDERS-FGD GD	5900	STRUCTURE, DUCT/DAMPER (1.1)
28	57577	ELECT ACTUATOR FOR GATE,DAMPE	12000	STRUCTURE, DUCT/DAMPER (1.1)
29	57578	ELECTRICAL ITEMS FOR GATE,DAM	42	STRUCTURE, DUCT/DAMPER (1.1)
30	57583	DAMPER FGD BYPASS	41166.714	STRUCTURE, DUCT/DAMPER (1.1)
33	FW201	ABSORB. RC PUMP NOZZLE	5000	STRUCTURE, DUCT/DAMPER (1.1)
34	FW202	ABS NOZL NB 300 & ABOVE	5000	STRUCTURE, DUCT/DAMPER (1.1)
35	FW203	NOZZLE NB25 TO NB250	5000	STRUCTURE, DUCT/DAMPER (1.1)

36	FW209	MAN HOLE DOOR FOR ABSORBER	5000	STRUCTURE, DUCT/DAMPER (1.1)
37	FW213	ABSORBER SYSTEM INTERNALS	30000	STRUCTURE, DUCT/DAMPER (1.1)
38	FW214	ABS BAFFLE GRATING	5000	STRUCTURE, DUCT/DAMPER (1.1)
39	FW215	MIST ELIMINATOR & ACCESSORIES	54000	STRUCTURE, DUCT/DAMPER (1.1)
40	FW216	ABS BAFFLE GRATING SUPP	40000	STRUCTURE, DUCT/DAMPER (1.1)
41	FW217	ABS ME SUPPORT	40000	STRUCTURE, DUCT/DAMPER (1.1)
42	FW218	ABS SPRAY PIPE SUPP	20000	STRUCTURE, DUCT/DAMPER (1.1)
43	FW219	ABSORBER SYSTEM-BASE	20000	STRUCTURE, DUCT/DAMPER (1.1)
44	FW221	ABSORBER SYSTEM-CASING BOTTOM	203000	STRUCTURE, DUCT/DAMPER (1.1)
45	FW222	ABSORBER SYSTEM-CASING TOP	130000	STRUCTURE, DUCT/DAMPER (1.1)
46	FW223	ABSORBER SYSTEM ACCESSORIES	19000	STRUCTURE, DUCT/DAMPER (1.1)
47	FW224	ABSORBER SYSTEM-LINING-C276	10000	STRUCTURE, DUCT/DAMPER (1.1)
48	FW226	EMERGENCY QUENCH WATER TANK	14885.209	TANK(1.2)
49	FW227	EMERGENCY QUENCH SYSTEM	12000	STRUCTURE, DUCT/DAMPER (1.1)
50	FW228	ABSORBER-W/D INTERFACE	61000	STRUCTURE, DUCT/DAMPER (1.1)
51	FW229	W/D WASH SYSTEM	10000	STRUCTURE, DUCT/DAMPER (1.1)
52	FW231	ABSORBER SHEAR PLATE	10000	STRUCTURE, DUCT/DAMPER (1.1)
53	FW232	DUCT SUP BYP & BUF/GGH	203040.911	STRUCTURE, DUCT/DAMPER (1.1)
54	FW233	DUCT SUPPORT BUF/GGH & ABS	97668.628	STRUCTURE, DUCT/DAMPER (1.1)
55	FW234	DUCT SUP ABS & STACK/BYP	33000	STRUCTURE, DUCT/DAMPER (1.1)
56	FW235	SPECIAL FASTNERS	5000	STRUCTURE, DUCT/DAMPER (1.1)
57	FW236	STRUCTURES FOR RC PUMP HOUSE	105000	STRUCTURE, DUCT/DAMPER (1.1)
58	FW237	GALLERIES & RAILING FOR STAIR	10000	STRUCTURE, DUCT/DAMPER (1.1)
59	FW238	HOOK UP DUCT WITH STRUCTURE	35926.376	STRUCTURE, DUCT/DAMPER (1.1)
60	FW239	VIEWING PORTS	1000	STRUCTURE, DUCT/DAMPER (1.1)
61	FW243	SLURRY DIST RC PUMP & ABS	20000	STRUCTURE, DUCT/DAMPER (1.1)
62	FW244	OXIDATION AIR DISTRIBUTION SY	14000	STRUCTURE, DUCT/DAMPER (1.1)
63	FW249	HANDLING EQUIP- RC PUMP	15000	STRUCTURE, DUCT/DAMPER (1.1)
64	FW250	FLOOR GRILLS -UNIT SYS	35000	STRUCTURE, DUCT/DAMPER (1.1)
65	FW251	EXPNSN JNT METALLIC	74808.724	STRUCTURE, DUCT/DAMPER (1.1)
66	FW252	EXPNSN JNT NON METALLIC	7000	STRUCTURE, DUCT/DAMPER (1.1)
67	FW255	DUCT BYP & BUF/GGH/ABS	1039028.615	STRUCTURE, DUCT/DAMPER (1.1)
68	FW256	DUCT BUF/GGH & ABS	319350.102	STRUCTURE, DUCT/DAMPER (1.1)
69	FW257	DUCT ABS & BYP/STACK	224000	STRUCTURE, DUCT/DAMPER (1.1)
70	FW260	DUCT STR BYP & BUF/GGH/ABS	828645.273	STRUCTURE, DUCT/DAMPER (1.1)
71	FW261	DUCT STR BUF/GGH & ABS	237239.349	STRUCTURE, DUCT/DAMPER (1.1)
72	FW262	DUCT STR ABS & BYP/STACK	116153.361	STRUCTURE, DUCT/DAMPER (1.1)
73	FW267	INSULATION MATERIALS FOR DUCT	216000	INSULATION(1.4)
74	FW268	FIXING COMP FOR DUCT	108000	STRUCTURE, DUCT/DAMPER (1.1)
75	FW269	CLADDING SHEET FOR DUCT	108000	STRUCTURE, DUCT/DAMPER (1.1)
76	FW280	FOUNDATION MATL FOR DUCT STRU	33782.92	STRUCTURE, DUCT/DAMPER (1.1)
77	FW281	FOUNDATION MATL FOR ABS	5727.28	STRUCTURE, DUCT/DAMPER (1.1)
78	FW282	FOUNDATION MATL FOR ELEVATOR	3548.992	STRUCTURE, DUCT/DAMPER (1.1)
79	FW283	FOUNDATION MATL RC PUMP SHED	1527.696	STRUCTURE, DUCT/DAMPER (1.1)
80	FW285	SUPRTING STR FOR EMERGENCY QW	5613.502	STRUCTURE, DUCT/DAMPER (1.1)
81	FW292	STRUCTURES FOR ELEVATOR	104007.081	STRUCTURE, DUCT/DAMPER (1.1)
82	FW293	ELEVATOR AND ACCESSORIES	12000	STRUCTURE, DUCT/DAMPER (1.1)
83	FW300	ABSORBER COLUMNS	103333.957	STRUCTURE, DUCT/DAMPER (1.1)

84	FW301	ABSORBER BEAMS AND BRACINGS	196552.482	STRUCTURE, DUCT/DAMPER (1.1)
85	FW302	ABSORBER LOWER FLOORS	13495.183	STRUCTURE, DUCT/DAMPER (1.1)
86	FW303	ABSORBER UPPER FLOORS	10693.028	STRUCTURE, DUCT/DAMPER (1.1)
87	FW304	ABSORBER FLOOR GRILLS	47282.12	STRUCTURE, DUCT/DAMPER (1.1)
88	FW305	ABSORBER STAIRS & HANDRAILS	30000	STRUCTURE, DUCT/DAMPER (1.1)
89	FW306	ABSORBER HSFG FASTNERS	11246.5	STRUCTURE, DUCT/DAMPER (1.1)
90	FW307	ABSORBER MISCELLANEOUS	7000	STRUCTURE, DUCT/DAMPER (1.1)
91	FW310	STRU FOR BOOSTER FAN HANDLING	20000	STRUCTURE, DUCT/DAMPER (1.1)
92	FW322	ABSORBER SYSTEM-CASING INTERM	144000	STRUCTURE, DUCT/DAMPER (1.1)
93	FW612	GALLARIES AND RAILINGS FOR DA	10000	STRUCTURE, DUCT/DAMPER (1.1)
94	FW613	GALLARIES AND RAILINGS FOR DU	10000	STRUCTURE, DUCT/DAMPER (1.1)
95	FW701	SLURRY PUMPS & ACCESSORIES	80000	ROTATING MACHINE (1.3)
96	FW702	WATER PUMPS & ACCESSORIES	10000	ROTATING MACHINE (1.3)
97	FW710	MONORAIL FOR HOIST & CRANES	26670	STRUCTURE, DUCT/DAMPER (1.1)
98	FW712	FLOOR GRILLS-COMM SYS	90000	STRUCTURE, DUCT/DAMPER (1.1)
99	FW713	CHAIN PULLEYS	18000	STRUCTURE, DUCT/DAMPER (1.1)
100	FW714	HOISTS	35340	STRUCTURE, DUCT/DAMPER (1.1)
101	FW717	MAN HOLE DOOR	5000	STRUCTURE, DUCT/DAMPER (1.1)
102	FW720	AGITATORS	8000	ROTATING MACHINE (1.3)
103	FW725	NOZZLES & FLANGES	4000	CS PIPING(1.5.2)
104	FW751	PROCESS WATER PIPE ACCESSORIE	36000	CS PIPING(1.5.2)
105	FW752	COOLING WATER PIPE ACCESSORIE	10000	CS PIPING(1.5.2)
106	FW753	SLURRY PIPE ACCESSORIES	350000	CS PIPING(1.5.2)
107	FW754	SERVICE AIR PIPE ACCESSORIES	20000	CS PIPING(1.5.2)
108	FW755	INSTRUMENT AIR PIPE ACCESSORI	20000	CS PIPING(1.5.2)
109	FW760	FOUNDATION MATL FOR PIPE RACK	40000	STRUCTURE, DUCT/DAMPER (1.1)
110	FW761	STRUCTURE FOR PIPERACKS	200000	STRUCTURE, DUCT/DAMPER (1.1)
111	FW763	FNDN MATL SUB PIPE RACK	16000	STRUCTURE, DUCT/DAMPER (1.1)
112	FW766	PLATFORM FOR PIPE RACK	110000	STRUCTURE, DUCT/DAMPER (1.1)
113	FW767	PLATFORM SUB PIPE RACK	20000	STRUCTURE, DUCT/DAMPER (1.1)
114	FW768	TRESTLE FOR MAIN PIPE RACK	410000	STRUCTURE, DUCT/DAMPER (1.1)
115	FW769	TRESTLE-SUB PIPE RACK	50000	STRUCTURE, DUCT/DAMPER (1.1)
116	FW779	SUPPORTS FOR CABLE TRAYS/CONT	265400	STRUCTURE, DUCT/DAMPER (1.1)
118	FW784	HSFG BOLTS	100000	STRUCTURE, DUCT/DAMPER (1.1)
119	FW786	PRIMARY HYDROCYCLONE FEED TANK	25000	TANK(1.2)
120	FW798	AIR RECEIVERS	10000	TANK(1.2)
128	FW814	ROOFING SHEET	20000	STRUCTURE, DUCT/DAMPER (1.1)
129	FW815	RC PUMP INLT & OUTLT VALVE	45000	STRUCTURE, DUCT/DAMPER (1.1)
130	FW816	MANL BTRFLY VALV- UTLTY	3500	CS PIPING(1.5.2)
131	FW817	MOTOR BTRFL VALV-UTLTY	2000	CS PIPING(1.5.2)
132	FW818	PNEM BTRFLY VALV-UTLTY	1500	CS PIPING(1.5.2)
133	FW819	MAN BTRFLY VALV-LS SLRY	5000	CS PIPING(1.5.2)
134	FW820	MOTOR BTRFLY VALV-LS SLRY	10000	CS PIPING(1.5.2)
135	FW821	PNEUM BTRFLY VALV-LS SLRY	2000	CS PIPING(1.5.2)
136	FW822	MAN BTRFLY VALV-GYP SLRY	5500	CS PIPING(1.5.2)
137	FW823	MOTOR BTRFLY VALV -GYP SLRY	10000	CS PIPING(1.5.2)
138	FW824	PNEUM BTRFLY VALV-GYP SLRY	2000	CS PIPING(1.5.2)
139	FW825	MAN BTRFLY VALV-AIR	1500	CS PIPING(1.5.2)

140	FW826	MOTOR BTRFLY VALV-AIR	2000	CS PIPING(1.5.2)
141	FW827	PNEUM BTRFLY VALV-AIR	2500	CS PIPING(1.5.2)
142	FW828	MAN GATE VALV-UTLTY	15000	CS PIPING(1.5.2)
143	FW829	MOTOR GATE VALV-UTLTY	1500	CS PIPING(1.5.2)
144	FW830	PNEUM GATE VALVE-UTLTY	1500	CS PIPING(1.5.2)
145	FW834	MAIN GLOBE VALV-UTLTY	5000	CS PIPING(1.5.2)
146	FW840	CERAMIV VALVES	1000	CS PIPING(1.5.2)
147	FW841	CONTROL VALVES	1500	CS PIPING(1.5.2)
148	FW842	MAN PINCH VALV-GYP SLRY	1500	CS PIPING(1.5.2)
149	FW845	BALL VALVES- WATER	1500	CS PIPING(1.5.2)
150	FW848	CHECK VALVES- WATER	1500	CS PIPING(1.5.2)
151	FW851	DIAPHRAGM VALV-SLURRY	2000	CS PIPING(1.5.2)
152	FW854	ROOT VALV INSTRMNTN	5500	CS PIPING(1.5.2)
154	FW988	COMMISSIONING SPARES	10000	MISC EQUIPMENT/STRL STEEL(1.6)
157	55081	BUF FIX MATERIAL	1721.588	STRUCTURE, DUCT/DAMPER (1.1)
158	55082	BUF STAIR & HND RAIL	1600	STRUCTURE, DUCT/DAMPER (1.1)
159	55084	BUF C & S AIR FAN	3000	ROTATING MACHINE (1.3)
160	55085	BUF CPLNG GUARD	100	ROTATING MACHINE (1.3)
161	55087	BUF C&I ITEMS	40	ROTATING MACHINE (1.3)
162	55089	BUF MOTOR CANOPY	1322.974	ROTATING MACHINE (1.3)
163	55091	FIRST FILL LUBRICANT	2520	ROTATING MACHINE (1.3)
164	55287	1 STG BUF ROTOR	20823.078	ROTATING MACHINE (1.3)
165	55480	BUF SET & INDN SHAFT	253.854	ROTATING MACHINE (1.3)
166	55580	BUF EXPN JOINTS	2100	ROTATING MACHINE (1.3)
167	55587	1 STG BUF HOUSING	44682.614	ROTATING MACHINE (1.3)
168	55787	BUF SUCTION BOX	18793.344	ROTATING MACHINE (1.3)
169	55880	BUF CPLNG	2600	ROTATING MACHINE (1.3)
170	55887	BUF DIFFUSER	17262.974	ROTATING MACHINE (1.3)
171	55980	BUF LUBE OIL SYS	3500	ROTATING MACHINE (1.3)
172	55983	BUF ACTUATOR	100	ROTATING MACHINE (1.3)
173	57141	SEAL AIR HAG AND ID FAN OUTGA	14600	STRUCTURE, DUCT/DAMPER (1.1)
174	57466	PLATFORMS AND LADDERS	12000	STRUCTURE, DUCT/DAMPER (1.1)
175	57491	BLOWER WITH MOTOR	8550	ROTATING MACHINE (1.3)
176	57497	KNIFE GATE VALVE	5700	STRUCTURE, DUCT/DAMPER (1.1)
177	57540	GATE-FGD BOOSTER FAN INLET	46306.234	STRUCTURE, DUCT/DAMPER (1.1)
178	57550	GATE-FGD BOOSTER FAN OUTLET	51798.272	STRUCTURE, DUCT/DAMPER (1.1)
179	57566	PLATFORMS AND LADDERS-FGD GD	5550	STRUCTURE, DUCT/DAMPER (1.1)
180	57577	ELECT ACTUATOR FOR GATE,DAMPE	12000	STRUCTURE, DUCT/DAMPER (1.1)
181	57578	ELECTRICAL ITEMS FOR GATE,DAM	35	STRUCTURE, DUCT/DAMPER (1.1)
182	57583	DAMPER FGD BYPASS	20483.873	STRUCTURE, DUCT/DAMPER (1.1)
183	57992	SPL MATL ELECTRODES	8.048	STRUCTURE, DUCT/DAMPER (1.1)
184	FW201	ABSORB. RC PUMP NOZZLE	5000	STRUCTURE, DUCT/DAMPER (1.1)
185	FW202	ABS NOZL NB 300 & ABOVE	5000	STRUCTURE, DUCT/DAMPER (1.1)
186	FW203	NOZZLE NB25 TO NB250	5000	STRUCTURE, DUCT/DAMPER (1.1)
187	FW209	MAN HOLE DOOR FOR ABSORBER	5000	STRUCTURE, DUCT/DAMPER (1.1)
188	FW213	ABSORBER SYSTEM INTERNALS	30000	STRUCTURE, DUCT/DAMPER (1.1)
189	FW214	ABS BAFFLE GRATING	5000	STRUCTURE, DUCT/DAMPER (1.1)
190	FW215	MIST ELIMINATOR & ACCESSORIES	54000	STRUCTURE, DUCT/DAMPER (1.1)

191	FW216	ABS BAFFLE GRATING SUPP	40000	STRUCTURE, DUCT/DAMPER (1.1)
192	FW217	ABS ME SUPPORT	40000	STRUCTURE, DUCT/DAMPER (1.1)
193	FW218	ABS SPRAY PIPE SUPP	20000	STRUCTURE, DUCT/DAMPER (1.1)
194	FW219	ABSORBER SYSTEM-BASE	20000	STRUCTURE, DUCT/DAMPER (1.1)
195	FW221	ABSORBER SYSTEM-CASING BOTTOM	203000	STRUCTURE, DUCT/DAMPER (1.1)
196	FW222	ABSORBER SYSTEM-CASING TOP	130000	STRUCTURE, DUCT/DAMPER (1.1)
197	FW223	ABSORBER SYSTEM ACCESSORIES	19000	STRUCTURE, DUCT/DAMPER (1.1)
198	FW224	ABSORBER SYSTEM-LINING-C276	10000	STRUCTURE, DUCT/DAMPER (1.1)
199	FW226	EMERGENCY QUENCH WATER TANK	14885.209	TANK(1.2)
200	FW227	EMERGENCY QUENCH SYSTEM	12000	STRUCTURE, DUCT/DAMPER (1.1)
201	FW228	ABSORBER-W/D INTERFACE	61000	STRUCTURE, DUCT/DAMPER (1.1)
202	FW229	W/D WASH SYSTEM	10000	STRUCTURE, DUCT/DAMPER (1.1)
203	FW231	ABSORBER SHEAR PLATE	10000	STRUCTURE, DUCT/DAMPER (1.1)
204	FW232	DUCT SUP BYP & BUF/GGH	93511.523	STRUCTURE, DUCT/DAMPER (1.1)
205	FW233	DUCT SUPPORT BUF/GGH & ABS	133966.84	STRUCTURE, DUCT/DAMPER (1.1)
206	FW234	DUCT SUP ABS & STACK/BYP	33000	STRUCTURE, DUCT/DAMPER (1.1)
207	FW235	SPECIAL FASTNERS	5000	STRUCTURE, DUCT/DAMPER (1.1)
208	FW236	STRUCTURES FOR RC PUMP HOUSE	105000	STRUCTURE, DUCT/DAMPER (1.1)
209	FW237	GALLERIES & RAILING FOR STAIR	10000	STRUCTURE, DUCT/DAMPER (1.1)
210	FW238	HOOK UP DUCT WITH STRUCTURE	25016.789	STRUCTURE, DUCT/DAMPER (1.1)
211	FW239	VIEWING PORTS	1000	STRUCTURE, DUCT/DAMPER (1.1)
212	FW243	SLURRY DIST RC PUMP & ABS	20000	STRUCTURE, DUCT/DAMPER (1.1)
213	FW244	OXIDATION AIR DISTRIBUTION SY	14000	STRUCTURE, DUCT/DAMPER (1.1)
214	FW249	HANDLING EQUIP- RC PUMP	15000	STRUCTURE, DUCT/DAMPER (1.1)
215	FW250	FLOOR GRILLS -UNIT SYS	35000	STRUCTURE, DUCT/DAMPER (1.1)
216	FW251	EXPNSN JNT METALLIC	73583.46	STRUCTURE, DUCT/DAMPER (1.1)
217	FW252	EXPNSN JNT NON METALLIC	7000	STRUCTURE, DUCT/DAMPER (1.1)
218	FW255	DUCT BYP & BUF/GGH/ABS	474107.568	STRUCTURE, DUCT/DAMPER (1.1)
219	FW256	DUCT BUF/GGH & ABS	647576.407	STRUCTURE, DUCT/DAMPER (1.1)
220	FW257	DUCT ABS & BYP/STACK	224000	STRUCTURE, DUCT/DAMPER (1.1)
221	FW260	DUCT STR BYP & BUF/GGH/ABS	451624.321	STRUCTURE, DUCT/DAMPER (1.1)
222	FW261	DUCT STR BUF/GGH & ABS	417267.118	STRUCTURE, DUCT/DAMPER (1.1)
223	FW262	DUCT STR ABS & BYP/STACK	116153.361	STRUCTURE, DUCT/DAMPER (1.1)
224	FW267	INSULATION MATERIALS FOR DUCT	140000	INSULATION(1.4)
225	FW268	FIXING COMP FOR DUCT	70000	STRUCTURE, DUCT/DAMPER (1.1)
226	FW269	CLADDING SHEET FOR DUCT	70000	STRUCTURE, DUCT/DAMPER (1.1)
227	FW280	FOUNDATION MATL FOR DUCT STRU	31486.83	STRUCTURE, DUCT/DAMPER (1.1)
228	FW281	FOUNDATION MATL FOR ABS	5727.28	STRUCTURE, DUCT/DAMPER (1.1)
229	FW282	FOUNDATION MATL FOR ELEVATOR	3548.992	STRUCTURE, DUCT/DAMPER (1.1)
230	FW283	FOUNDATION MATL RC PUMP SHED	1527.696	STRUCTURE, DUCT/DAMPER (1.1)
231	FW285	SUPRTING STR FOR EMERGENCY QW	5613.502	STRUCTURE, DUCT/DAMPER (1.1)
232	FW292	STRUCTURES FOR ELEVATOR	104007.081	STRUCTURE, DUCT/DAMPER (1.1)
233	FW293	ELEVATOR AND ACCESSORIES	12000	STRUCTURE, DUCT/DAMPER (1.1)
234	FW300	ABSORBER COLUMNS	103333.957	STRUCTURE, DUCT/DAMPER (1.1)
235	FW301	ABSORBER BEAMS AND BRACINGS	196552.482	STRUCTURE, DUCT/DAMPER (1.1)
236	FW302	ABSORBER LOWER FLOORS	13495.183	STRUCTURE, DUCT/DAMPER (1.1)
237	FW303	ABSORBER UPPER FLOORS	10693.028	STRUCTURE, DUCT/DAMPER (1.1)
238	FW304	ABSORBER FLOOR GRILLS	47282.12	STRUCTURE, DUCT/DAMPER (1.1)

239	FW305	ABSORBER STAIRS & HANDRAILS	30000	STRUCTURE, DUCT/DAMPER (1.1)
240	FW306	ABSORBER HSFG FASTNERS	11246.5	STRUCTURE, DUCT/DAMPER (1.1)
241	FW307	ABSORBER MISCELLANEOUS	7000	STRUCTURE, DUCT/DAMPER (1.1)
242	FW310	STRU FOR BOOSTER FAN HANDLING	20000	STRUCTURE, DUCT/DAMPER (1.1)
243	FW322	ABSORBER SYSTEM-CASING INTERM	144000	STRUCTURE, DUCT/DAMPER (1.1)
244	FW612	GALLARIES AND RAILINGS FOR DA	10000	STRUCTURE, DUCT/DAMPER (1.1)
245	FW613	GALLARIES AND RAILINGS FOR DU	10000	STRUCTURE, DUCT/DAMPER (1.1)
246	55081	BUF FIX MATERIAL	1721.588	STRUCTURE, DUCT/DAMPER (1.1)
247	55082	BUF STAIR & HND RAIL	1600	STRUCTURE, DUCT/DAMPER (1.1)
248	55084	BUF C & S AIR FAN	3000	ROTATING MACHINE (1.3)
249	55085	BUF CPLNG GUARD	100	ROTATING MACHINE (1.3)
250	55087	BUF C&I ITEMS	40	ROTATING MACHINE (1.3)
251	55089	BUF MOTOR CANOPY	1322.974	ROTATING MACHINE (1.3)
252	55091	FIRST FILL LUBRICANT	2520	ROTATING MACHINE (1.3)
253	55287	1 STG BUF ROTOR	20823.078	ROTATING MACHINE (1.3)
254	55480	BUF SET & INDN SHAFT	253.854	ROTATING MACHINE (1.3)
255	55580	BUF EXPN JOINTS	2100	ROTATING MACHINE (1.3)
256	55587	1 STG BUF HOUSING	44682.614	ROTATING MACHINE (1.3)
257	55787	BUF SUCTION BOX	18793.344	ROTATING MACHINE (1.3)
258	55880	BUF CPLNG	2600	ROTATING MACHINE (1.3)
259	55887	BUF DIFFUSER	17262.974	ROTATING MACHINE (1.3)
260	55980	BUF LUBE OIL SYS	3500	ROTATING MACHINE (1.3)
261	55983	BUF ACTUATOR	100	ROTATING MACHINE (1.3)
262	57141	SEAL AIR HAG AND ID FAN OUTGA	14600	STRUCTURE, DUCT/DAMPER (1.1)
263	57466	PLATFORMS AND LADDERS	12000	STRUCTURE, DUCT/DAMPER (1.1)
264	57491	BLOWER WITH MOTOR	8550	ROTATING MACHINE (1.3)
265	57497	KNIFE GATE VALVE	5700	STRUCTURE, DUCT/DAMPER (1.1)
266	57540	GATE-FGD BOOSTER FAN INLET	46306.234	STRUCTURE, DUCT/DAMPER (1.1)
267	57550	GATE-FGD BOOSTER FAN OUTLET	51798.272	STRUCTURE, DUCT/DAMPER (1.1)
268	57566	PLATFORMS AND LADDERS-FGD GD	5550	STRUCTURE, DUCT/DAMPER (1.1)
269	57577	ELECT ACTUATOR FOR GATE,DAMPE	12000	STRUCTURE, DUCT/DAMPER (1.1)
270	57578	ELECTRICAL ITEMS FOR GATE,DAM	35	STRUCTURE, DUCT/DAMPER (1.1)
271	57583	DAMPER FGD BYPASS	20483.873	STRUCTURE, DUCT/DAMPER (1.1)
272	57992	SPL MATL ELECTRODES	8.048	STRUCTURE, DUCT/DAMPER (1.1)
273	FW201	ABSORB. RC PUMP NOZZLE	5000	STRUCTURE, DUCT/DAMPER (1.1)
274	FW202	ABS NOZL NB 300 & ABOVE	5000	STRUCTURE, DUCT/DAMPER (1.1)
275	FW203	NOZZLE NB25 TO NB250	5000	STRUCTURE, DUCT/DAMPER (1.1)
276	FW209	MAN HOLE DOOR FOR ABSORBER	5000	STRUCTURE, DUCT/DAMPER (1.1)
277	FW213	ABSORBER SYSTEM INTERNALS	30000	STRUCTURE, DUCT/DAMPER (1.1)
278	FW214	ABS BAFFLE GRATING	5000	STRUCTURE, DUCT/DAMPER (1.1)
279	FW215	MIST ELIMINATOR & ACCESSORIES	54000	STRUCTURE, DUCT/DAMPER (1.1)
280	FW216	ABS BAFFLE GRATING SUPP	40000	STRUCTURE, DUCT/DAMPER (1.1)
281	FW217	ABS ME SUPPORT	40000	STRUCTURE, DUCT/DAMPER (1.1)
282	FW218	ABS SPRAY PIPE SUPP	20000	STRUCTURE, DUCT/DAMPER (1.1)
283	FW219	ABSORBER SYSTEM-BASE	20000	STRUCTURE, DUCT/DAMPER (1.1)
284	FW221	ABSORBER SYSTEM-CASING BOTTOM	203000	STRUCTURE, DUCT/DAMPER (1.1)
285	FW222	ABSORBER SYSTEM-CASING TOP	130000	STRUCTURE, DUCT/DAMPER (1.1)
286	FW223	ABSORBER SYSTEM ACCESSORIES	19000	STRUCTURE, DUCT/DAMPER (1.1)

287	FW224	ABSORBER SYSTEM-LINING-C276	10000	STRUCTURE, DUCT/DAMPER (1.1)
288	FW226	EMERGENCY QUENCH WATER TANK	14885.209	TANK(1.2)
289	FW227	EMERGENCY QUENCH SYSTEM	12000	STRUCTURE, DUCT/DAMPER (1.1)
290	FW228	ABSORBER-W/D INTERFACE	61000	STRUCTURE, DUCT/DAMPER (1.1)
291	FW229	W/D WASH SYSTEM	10000	STRUCTURE, DUCT/DAMPER (1.1)
292	FW231	ABSORBER SHEAR PLATE	10000	STRUCTURE, DUCT/DAMPER (1.1)
293	FW232	DUCT SUP BYP & BUF/GGH	45234.992	STRUCTURE, DUCT/DAMPER (1.1)
294	FW233	DUCT SUPPORT BUF/GGH & ABS	69568.154	STRUCTURE, DUCT/DAMPER (1.1)
295	FW234	DUCT SUP ABS & STACK/BYP	33000	STRUCTURE, DUCT/DAMPER (1.1)
296	FW235	SPECIAL FASTNERS	5000	STRUCTURE, DUCT/DAMPER (1.1)
297	FW236	STRUCTURES FOR RC PUMP HOUSE	105000	STRUCTURE, DUCT/DAMPER (1.1)
298	FW237	GALLERIES & RAILING FOR STAIR	10000	STRUCTURE, DUCT/DAMPER (1.1)
299	FW238	HOOK UP DUCT WITH STRUCTURE	25016.789	STRUCTURE, DUCT/DAMPER (1.1)
300	FW239	VIEWING PORTS	1000	STRUCTURE, DUCT/DAMPER (1.1)
301	FW243	SLURRY DIST RC PUMP & ABS	20000	STRUCTURE, DUCT/DAMPER (1.1)
302	FW244	OXIDATION AIR DISTRIBUTION SY	14000	STRUCTURE, DUCT/DAMPER (1.1)
303	FW249	HANDLING EQUIP- RC PUMP	15000	STRUCTURE, DUCT/DAMPER (1.1)
304	FW250	FLOOR GRILLS -UNIT SYS	35000	STRUCTURE, DUCT/DAMPER (1.1)
305	FW251	EXPNSN JNT METALLIC	37900.948	STRUCTURE, DUCT/DAMPER (1.1)
306	FW252	EXPNSN JNT NON METALLIC	7000	STRUCTURE, DUCT/DAMPER (1.1)
307	FW255	DUCT BYP & BUF/GGH/ABS	237320.45	STRUCTURE, DUCT/DAMPER (1.1)
308	FW256	DUCT BUF/GGH & ABS	295003.045	STRUCTURE, DUCT/DAMPER (1.1)
309	FW257	DUCT ABS & BYP/STACK	224000	STRUCTURE, DUCT/DAMPER (1.1)
310	FW260	DUCT STR BYP & BUF/GGH/ABS	206580.621	STRUCTURE, DUCT/DAMPER (1.1)
311	FW261	DUCT STR BUF/GGH & ABS	218147.917	STRUCTURE, DUCT/DAMPER (1.1)
312	FW262	DUCT STR ABS & BYP/STACK	116153.361	STRUCTURE, DUCT/DAMPER (1.1)
313	FW267	INSULATION MATERIALS FOR DUCT	110000	INSULATION(1.4)
314	FW268	FIXING COMP FOR DUCT	55000	STRUCTURE, DUCT/DAMPER (1.1)
315	FW269	CLADDING SHEET FOR DUCT	55000	STRUCTURE, DUCT/DAMPER (1.1)
316	FW280	FOUNDATION MATL FOR DUCT STRU	14322.66	STRUCTURE, DUCT/DAMPER (1.1)
317	FW281	FOUNDATION MATL FOR ABS	5727.28	STRUCTURE, DUCT/DAMPER (1.1)
318	FW282	FOUNDATION MATL FOR ELEVATOR	3548.992	STRUCTURE, DUCT/DAMPER (1.1)
319	FW283	FOUNDATION MATL RC PUMP SHED	1527.696	STRUCTURE, DUCT/DAMPER (1.1)
320	FW285	SUPRTING STR FOR EMERGENCY QW	5613.502	STRUCTURE, DUCT/DAMPER (1.1)
321	FW292	STRUCTURES FOR ELEVATOR	104007.081	STRUCTURE, DUCT/DAMPER (1.1)
322	FW293	ELEVATOR AND ACCESSORIES	12000	STRUCTURE, DUCT/DAMPER (1.1)
323	FW300	ABSORBER COLUMNS	103333.957	STRUCTURE, DUCT/DAMPER (1.1)
324	FW301	ABSORBER BEAMS AND BRACINGS	196552.482	STRUCTURE, DUCT/DAMPER (1.1)
325	FW302	ABSORBER LOWER FLOORS	13495.183	STRUCTURE, DUCT/DAMPER (1.1)
326	FW303	ABSORBER UPPER FLOORS	10693.028	STRUCTURE, DUCT/DAMPER (1.1)
327	FW304	ABSORBER FLOOR GRILLS	47282.12	STRUCTURE, DUCT/DAMPER (1.1)
328	FW305	ABSORBER STAIRS & HANDRAILS	30000	STRUCTURE, DUCT/DAMPER (1.1)
329	FW306	ABSORBER HSFG FASTNERS	11246.5	STRUCTURE, DUCT/DAMPER (1.1)
330	FW307	ABSORBER MISCELLANEOUS	7000	STRUCTURE, DUCT/DAMPER (1.1)
331	FW310	STRU FOR BOOSTER FAN HANDLING	20000	STRUCTURE, DUCT/DAMPER (1.1)
332	FW322	ABSORBER SYSTEM-CASING INTERM	144000	STRUCTURE, DUCT/DAMPER (1.1)
333	FW612	GALLARIES AND RAILINGS FOR DA	10000	STRUCTURE, DUCT/DAMPER (1.1)
334	FW613	GALLARIES AND RAILINGS FOR DU	10000	STRUCTURE, DUCT/DAMPER (1.1)

Total Weight of Ranipet Supplies (kg)	**16397918.3**	
Total Weight of RANIPET Supplies(MT)	**16397.918**	

Annexure-III

C. Weight Schedule for HYDERABAD					
Sl. No.	**Item Description**	**UOM**	**Total Qty.**	**Total Weight in MT**	**Category/Sub group**
1	Rotary Helical Blower with accessories	Nos.	6	34.650	Rotating Machine(1.3)
2	Helical Blower enclosure	Set	1	1.3	Misc. Equpt./Str steel (1.6)
3	Limestone Day Silo	Set	2	276.44	Misc. Equpt./Str steel (1.6)
4	Limestone Day Storage Silo support Structure (Dim: 25.5x10.5x60 mtr)	Set	2	600.53	Misc. Equpt./Str steel (1.6)
5	RC Pump with accessories	Nos	15	225	Rotating Machine(1.3)
5	Wet Ball Mill with accessories	Set	2	800	Rotating Machine(1.3)
	Total Weight of HYDERABAD Supplies (MT)			**1937.92**	

Annexure-IV

C. Weight Schedule for PEM					
Sl. No.	**Item Description**	**UOM**	**Total Qty.**	**Total Weight in MT**	**Category/Sub group**
1	ACW Pumps (Hor)	Nos.	5	3.75	Rotating Machine(1.3)
2	ECW Pumps (Hor)	Nos.	4	3	Rotating Machine (1.3)
3	Self Cleaning Strainers	Nos.	2	3	Misc. Equpt./Str steel (1.6)
4	Conical Strainers (250NB)	Nos.	4	1	Misc. Equpt./Str steel (1.6)
5	Heat Exchangers (Plate type)	Nos.	4	6	Misc. Equpt./Str steel (1.6)
6	NaOH Dosing System	Nos	1	1	Misc. Equpt./Str steel (1.6)
7	Electric Hoist	Nos	5	5	Misc. Equpt./Str steel (1.6)
8	SG Crane	Nos	1	6	Misc. Equpt./Str steel (1.6)
9	Auxiliary absorbent Agitator	Nos	3	3.03	Rotating Machine(1.3)
10	Limestone slurry storage tank agitator	Nos	2	19.8	Rotating Machine(1.3)
11	Primary hydro-cyclone feed tank agitator	Nos	1	1.928	Rotating Machine(1.3)
12	Secondary hydrocyclone feed tank agitator	Nos	1	1.52	Rotating Machine(1.3)
13	Filtrate water Tank Agitator	Nos	1	1.18	Rotating Machine(1.3)
14	Waste Water Tank Agitator	Nos	1	1.93	Rotating Machine(1.3)
15	Absorber Area Drain Sump Agitator	Nos	3	1.284	Rotating Machine(1.3)
16	Gypsum Area Drain Sump Agitator	Nos	1	0.428	Rotating Machine(1.3)
17	Limestone area drain sump agitator	Nos	1	0.428	Rotating Machine(1.3)
	Total Weight of PEM Supplies (MT)			**60.278**	

Annexure-V

D. Weight Schedule for PC-Chennai			
Sl no	Item Description	Total Weight(MT)	Category / Sub Group
1	Stainless Steel Pipes	15	SS PIPING(1.5.1)
2	Stainless Steel Fittings	1.5	SS PIPING (1.5.1)
3	Carbon Steel Pipes	184	CS PIPING(1.5.2)
4	Carbon Steel Fittings	37	CS PIPING(1.5.2)
5	Hanger & Support	5	MISC EQUIPMENT/STRL STEEL(1.6)
6	Auxiliary Structure	5	MISC EQUIPMENT/STRL STEEL(1.6)
7	Plates, Flanges (CS & SS)	3.5	MISC EQUIPMENT/STRL STEEL(1.6)
Total Weight of PC-Chennai (MT)		**251**	

Annexure-VI

E. Weight Schedule of Bhopal							
Sl No	Item description	Qty	Unit	Approx. dimen. (L X W X H)	Approx unit wt.	Total weight	Category/ Sub Group
				(in m)	(MT)	(MT)	
1	Booster Fan Motor	6	No.	3.95 x 3.17 x 3.425	19	114	Rotating Machine(1.3)
2	RC Pump Motor	15	No.	1.9 x 1.5 x 1	13	195	Rotating Machine(1.3)
3	Oxidation Blower Motor	6	No.	1.9 x 1.5 x 1	4.3	25.8	Rotating Machine (1.3)
4	Wet Ball Mill Motor	2	No.	1.9 x 1.5 x 1	9.2	18.4	Rotating Machine(1.3)
5	Hammer Mill / Crusher Motor	2	No.	1.9 x 1.5 x 1	2.7	5.4	Rotating Machine (1.3)
Total Weight of Bhopal Supplies (MT)						**358.6**	

Annexure-VII

A.	**Weight Schedule For FGD system (BHEL PE& SD supply for Fire fighting system)**		
SL NO.	**Weight**	**122.307 MT**	**Remarks**
I.	CS Burried Piping	68.2 MT	CS BURRIED PIPING(1.5.3)
II.	CS Piping	16. 497 MT	CS PIPING (1.5.2)
III.	Misc. Equipment	37.61 MT	MISC EQUIPMENT /STR STEEL(1.6)

Water Based Fire Protection System						
Sl. No.	**Item Description**	**Quantity**	**Unit of Measurement**	**Unit Weight (in MT)**	**Total weight (in MT)**	**Category/ Sub Group**
A. HYDRANT SYSTEM						
1	MS Pipe-1239 ERW MS Black					
	200 mm dia	450	Mts	0.033	14.9	CS BURRIED PIPING(1.5.3)
	150 mm dia	2300	Mts	0.022	50.6	CS BURRIED PIPING(1.5.3)
	100 mm dia	110	Mts	0.015	1.7	CS BURRIED PIPING(1.5.3)
	80 mm dia	106	Mts	0.010	1.1	CS BURRIED PIPING(1.5.3)
2	SS Hydrant Valve	45	No.	0.020	0.9	MISC EQUIPMENT /STR STEEL(1.6)
3	Air Release Valve					
	25 mm dia	6	No.	0.001	0.0	MISC EQUIPMENT /STR STEEL(1.6)
4	Drain Valve	6	No.	0.001	0.0	MISC EQUIPMENT /STR STEEL(1.6)
5	Hose Pipe (15 M length)	90	No.	0.020	1.8	MISC EQUIPMENT /STR STEEL(1.6)
6	Hose Box					
	External + Internal	45	No.	0.015	0.7	MISC EQUIPMENT /STR STEEL(1.6)
7	Branch Pipe with Nozzle	45	No.	0.010	0.5	MISC EQUIPMENT /STR STEEL(1.6)
8	Gate Valve (CI - valve)					
	200 mm dia	2	No.	0.110	0.2	MISC EQUIPMENT /STR STEEL(1.6)
	150 mm dia	20	No.	0.076	1.5	MISC EQUIPMENT /STR STEEL(1.6)
	100 mm dia	6	No.	0.044	0.3	MISC EQUIPMENT /STR STEEL(1.6)
	80 mm dia	0	No.			MISC EQUIPMENT /STR STEEL(1.6)

9	Structural Steel	1	lot	2.000	2.00	MISC EQUIPMENT /STR STEEL(1.6)
10	M.S Fittings	1	lot		24.2	MISC EQUIPMENT /STR STEEL(1.6)
11	Water Monitor	3	No.	0.040	0.1	MISC EQUIPMENT /STR STEEL(1.6)
12	Wrapping and coating of UG pipe (150NB Pipe) (Supply and Application)	1141	sqmt			WRAPPING /COATING (1.5.4)
13	Paint Material (Supply and Application)	1	LOT			
B. HVWS SYSTEM						
1	Deluge Valve along with Trim, Gate valve, Strainer, nozzles, solenoid valve, Pressure Switch, QBDs, DVLCP etc. for Transformer					
	100 mm dia	3	No.	0.300	0.90	CS PIPING(1.5.2)
2	ERW G.I. Pipe as Per IS:1239					
i	100 NB	60	Mtrs	0.015	0.90	CS PIPING(1.5.2)
ii	50 NB	285	Mtrs	0.005	1.54	CS PIPING(1.5.2)
iii	25 NB	30	Mtrs	0.003	0.08	CS PIPING(1.5.2)
3	ERW, MS black pipe as Per IS:1239					
i	100 NB	45	Mtrs	0.015	0.68	CS PIPING(1.5.2)
ii	25 NB	390	Mtrs	0.0025	0.98	CS PIPING(1.5.2)
4	Structural Steel, Pipe Fittings, Flanges, nut blot & gasket, Pipe clamps	1	Lot		1.67	MISC EQUIPMENT/STR STEEL(1.6)
5	Paint & Primers (Supply and Application)	1	Lot			
C. MVWS SYSTEM						
1	Deluge Valve along with Trim, Gate					

	valve, Strainer, nozzles, solenoid valve, Pressure Switch, QBDs, DVLCP etc. for cable Galleries					
	100 mm dia	4	No.	0.300	1.2	CS PIPING (1.5.2)
2	ERW G.I. Pipe as Per IS:1239					
i	150 NB	20	Mtrs	0.022	0.4	CS PIPING (1.5.2)
ii	100 NB	350	Mtrs	0.015	5.3	CS PIPING (1.5.2)
iii	50 NB	525	Mtrs	0.005	2.8	CS PIPING (1.5.2)
iv	25 NB	20	Mtrs	0.003	0.1	CS PIPING (1.5.2)
3	ERW, MS black pipe as Per IS:1239					
i	100 NB	100	Mtrs	0.015	1.5	CS PIPING (1.5.2)
4	Structural Steel, Pipe Fittings, Flanges, nut blot & gasket, Pipe clamps	1	Lot		3.52625	MISC EQUIPMENT/STR STEEL(1.6)
5	Paint & Primers (Supply and Application)	1	Lot			
TOTAL					**122**	

D.PORTABLE FIRE EXTINGUISHERS

Sl. No.	**Item description**	**Quantity (In Nos/Set etc.)**	**Unit of Measurement (Nos./Sets etc.)**	**Unit Weight (In MT)**	**Total Weight (In MT)**	**Category/ Sub Group**
1	Pressurized Water Type (9 lit. capacity)	5	Nos.	0.0125	0.0625	MISC EQUIPMENT/STR STEEL(1.6)
2	CO2 Type (4.5 Kg capacity)	8	Nos.	0.0175	0.1400	MISC EQUIPMENT/STR STEEL(1.6)
3	Dry Chemical Type (6 Kg capacity)	10	Nos.	0.0105	0.1050	MISC EQUIPMENT/STR STEEL(1.6)
Total Weight					**0.3075**	

Annexure-VIII

G. Weight Schedule of Trichy valves					
Sl No	Valve Description	Qty(nos)	Unit Wt(kg)	Total Wt(kg)	Category / Sub Group
1	1/2-C800-SV-SW-HO-A105-SST 120 1.6 192	120	1.6	192	CS PIPING (1.5.2)
2	1-C800-SV-SW-HO-A105-SST 23 3.4 78.2	23	3.4	78.2	
3	1/2-C800-SV-SW-HO-F316-SST 4 1.6 6.4	4	1.6	6.4	
4	1-1/2-C800-SV-SW-HO-F316-SST 2 7.3 14.6	2	7.3	14.6	
5	2-C800-SV-SW-HO-F316-SST 2 11.1 22.2	2	11.1	22.2	
6	1-C800-SV-SW-MO-F316-SST 1 69 69	1	69	69	
7	2-C800-SV-SW-MO-F316-SST 2 72 144	2	72	144	
8	6-C300-FV-FL-WCB 7 134 938	7	134	938	
9	6-C300-SV-FL-HO-WCB 1 177 177	1	177	177	
10	6-C150-GV-FL-HO-WCB 19 76 1444	19	76	1444	
11	8-C150-GV-FL-HO-WCB 4 119 476	4	119	476	
12	10-C150-GV-FL-HO-WCB 1 202 202	1	202	202	
13	6-C150-GV-FL-MO-WCB 7 126 882	7	126	882	
14	8-C150-GV-FL-MO-WCB 7 180 1260	7	180	1260	
15	6-C300-SV-FL-HO-WCB 1 177 177	1	177	177	
16	4-C300-SV-FL-HO-WCB 1 116 116	1	116	116	
17	4-C150-GV-FL-HO-WCB 1 61 61	1	61	61	
18	3-C150-GV-FL-HO-CF8M 1 30.5 30.5	1	30.5	30.5	
19	4-C150-GV-FL-HO-CF8M 1 58.09 58.09	1	58.09	58.09	
20	4-C150-GV-FL-MO-WCB 2 115 230	2	115	230	
21	3-C300-SV-FL-HO-CF8M 1 76 76	1	76	76	
	Total	208		6653.99	
Total Wight of Trichy Valves Supplies				**6.654 MT**	

Annexure-IX

BILLING BREAK UP FOR SCHEDULE-3 OF VOL-III PRICE SCHEDULE							
85% of Unit Rate (Applicable for ITEM No: 1.1, 1.2, 1.3, 1.4, 1.5.1, 1.5.2, 1.5.3 & 1.6 of SCH-3 of Rate Schedule.							
Sl No	**Activity**	**For item No: 1.1 (Str. & Duct / Dampers)**	**For item No: 1.2 (Tanks)**	**For item No: 1.3 (Rotating Machines)**	**For item No: 1.4 (Insulation)**	**For item No: 1.5.1, 1.5.2 & 1.5.3 (Piping)**	**For item No: 1.6 (Misc Equipment / Strl Steel)**
1	Completion of Preassembly, (if not applicable this portion shall be clubbed with Placement in position)	20%	20%	20%		20%	20%
2	Placement in position	25%	20%	20%	50%	20%	25%
3	Alignment	20%	10%	20%		10%	20%
4	Welding/Bolting/Fixing as required.	15%	20%	20%	35%	15%	15%
5	Completion of Non Destructive Examination & Stress relieving /heat treatment , (if not applicable , then this portion to be paid along with welding)	5%	10%	5%		10%	5%
6	H&S wherever applicable as per drawing					5%	

7	Hydro Test of Piping/Water Fill Test/ Vacuum Box test of Tanks/Holiday test (as applicable)		5%			5%	
	TOTAL FOR PRORATA PAYMENTS	**85%**	**85%**	**85%**	**85%**	**85%**	**85%**

BILLING BREAK UP FOR SCHEDULE-3 OF VOL-III PRICE SCHEDULE		
85% of Unit Rate (Applicable for ITEM No: 1.5.4 of SCH-3 of Rate Schedule)		
Sl No	**Activity**	**For item No: 1.5.4 (Wrapping & Coating Material Supply & Application for Underground buried pipe)**
1	Supply of Wrapping & Coating Material	50%
2	Application	25%
3	Non destructive examination (Holiday Test)	5%
4	Hydro Test	5%

STAGE/ MILESTONE PAYMENTS (15%) of SCH-3 items except item no 1.7			
1	Completion of air & Gas tightness test for Ducts	3 X 0.50%	1.5%
2	Completion of Trial Run of Slurry Pumps	--	1.0%
3	Trial Run of Wet Ball Mills	3 X 0.50%	1.5%
4	Trial Run of Booster Fans	6 X 0.25%	1.5%
5	Trial Run of Oxidation Blower	6 X 0.25%	1.5%
6	Trial Run of FGD System	3 X 1.00%	3.0%
7	Completion of Painting	--	2.0%
8	Area Cleaning, Temporary Structures Cutting/Removal and return of Scrap	--	1.0%
9	Liquidation of Pending Points	--	1.0%
10	Completion of all Contractual Obligation and demobilization of site office.	--	1.0%
	TOTAL	--	**15%**

Payment of item Sl. No. 1.7 of SCH-3 of Price Schedule:

100% on Pro-rata basis on completion of the PG test of respective units which is to be certified by BHEL.

Progressive payment/final payment SCH-4 of Price Schedule:

The payments for works under the scope of this contract shall be as per clause no 2.6; clause 2.22; clause 2.23 of General Conditions of Contract and Price Schedule of Contract. Few points of consideration are as below:

- 100% of item rate on pro rata basis shall be made as per progress of work. BHEL decision in this regard shall be final and binding on the contractor.
- Final bill shall be submitted after completion of works and upon material reconciliation along with all prescribed formats.

Note:

1. BHEL-Site, at their discretion, may further split up above percentages and effect payment to suit the site condition, cash flow requirement and according to the progress of work.
2. The billing break-up is drawn for progressive payment and shall not be construed as the value/ price of corresponding item, unless otherwise decided by BHEL.

ANNEXURE-2

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Erection, Testing, Commissioning, Start Up ,Trial Operation and Handing Over of Mechanical Systems and Shop Fabricated Structures for Flue Gas Desulpherisation (FGD) System of 3 X 660 MW NPGCL Nabinagar FGD, Bihar.	
Ref	1.0	Tender no PSER:SCT:NBN-M2117:21.
	2.0	BHEL's NIT, vide reference no PSER:SCT:NBN-M2117:8720, Date: 27-09-2021.
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:NBN-M2117:TCN-01, Date: 01-10-2021.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:NBN-M2117:TCN-02, Date: 11-10-2021.
	5.0	BHEL's TCN-03, vide reference no PSER:SCT:NBN-M2117:TCN-03, Date: 19-10-2021.
	6.0	BHEL's TCN-04, vide reference no PSER:SCT:NBN-M2117:TCN-04, Date: 21-10-2021.
	7.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted/uploaded offer/documents in accordance with tender instructions with acceptance of the terms & conditions of the tender by us and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized representative of the bidder)