Annexure - C to Tender BAP/CAP/2013-14/OT-3

ITEM DESCRIPTION: SUPPLY, ERECTION , COMMISIONING AND TRIAL OPERATION OF 1X13 KL WITH 17 kg/Sq.Cm. LIQUID OXYGEN SYSTEM (STORAGE VESSEL with CRYOREGULATOR AND AN VAPORISER OF 500 normal cubic meter per hour CONTINOUS DUTY CYCLE CAPACITY WITH PRESSURE REGULATING SYSTEM 1NO WORKING AND 1 NO STAND BY) AT BHEL/ RANIPET 632406.

Sl.No	Description	BHEL Specification	SUPPLIER SPECIFICATION
1	**NAME OF WORK and BRIEF DESCRIPTION**	Supply , Erection , Commissioning and trial operation of 1 X 13 KL capacity and pressure of 17 Kg / Sq.Cm. Liquid Oxygen Storage Vessel with cryoregulator and an ambient Vaporiser unit with pressure regulator (1 No working and 1 No stand by) and necessary valves, fittings, gauges, vents, drains for supply of oxygen gas at a pipe line at LOX system outlet delivery (after Vaporiser) with the pressure of 5 to 14 kg/sq.cm and 500 normal cubic meter per hour, continuous duty cycle with all safety arrangements at BHEL Ranipet. . All Conforming to the Standards mentioned as per Statutorily Authorities (CCOE) against each Item.	
2	**BRIEF DESCRIPTION OF WORK**	**M/s. BAP/BHEL / Ranipet has proposed to set up 1 x 13 KL LOX storage facility with an Vaporiser in the premises of BHEL Ranipet to meet oxygen gas requirement at a line pressure of 5 to 14 Kg/sq.cm with required valves, fittings, gauges, vents, drains as per the requirement of statutory authority.**	
2	**SCOPE OF SUPPLY**		
2.1	LOX STORAGE VESSEL with FITTINGS (CRYOREGULATOR), VAPORISER AND PRESSURE REGULATING SYSTEM AND ALL NECESSARY ITEMS UP TO BATTERY LIMIT.		
3.1.0	**STORAGE VESSEL**		
3.1.1	TYPE	Vertical, Cylindrical, Double Wall, Vacuum + Perlite Insulation	
3.1.2	FLUID	Liquid Oxygen	
3.1.3	WORKING PRESSURE.	17 $Kg/Cm^2(g)$ OR More	
3.1.4	DESIGN CODE	DESIGN, FABRICATION AND OPERATION REQUIREMENTS AS PER EN13458 OR EQUIVALENT AS APPROVED BY CCOE NAGPUR.	
3.2.0	**INNER VESSEL**		
3.2.1	MATERIAL SPECIFICATION AND PLATE THICKNESS.	Vendor to specify	
3.2.2	GROSS VOLUME OF INNER VESSEL (13 KL)	Vendor to specify the actual gross volume with +/- variations permitted by applicable standard / Code.	
3.2.3	NET LIQUID STOARGE CAPACITY	Vendor to specify the actual net liquid storage capacity with +/- variations permitted by applicable standard.	
3.2.4	MAX. ALLOWABLE WORKING PRESSURE	Maximum allowable working pressure has to be spelt by supplier as per standard/code	
3.2.5	DESIGN PRESSURE (CORRECTED FOR VACUUM)	Vendor to specify	
3.2.6	HYDROSTATIC TEST PRESSURE	Vendor to specify	
3.2.7	DESIGN TEMPERATURE	Design temperature has to be specified by the supplier with respect to standard/code	

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3.2.8	MAX .WITHDRAWAL FLOW RATE	Maximum withdrawal rate from the system after Vaporiser to meet out our final requirements (500 normal cubic meter per hour continuous duty cycle with pressure of 5 kg/ sq.cm to 14 kg/sq.cm)	
3.2.9	RADIOGRAPHIC CONTROL	Supplier has to clearly spell out, percentage of radiographic test on welds like long seam welds / cir seam welds / T joints /dished ends with shell welds/ fittings welds and other welds involved in the manufacturing process as per EN13458-2 or as approved by CCOE.	
3.2.10	INSULATION	Supplier has to confirm Perlite insulation between inner vessel and outer vessel permitted by standard /code as per 3.1.1	
3.2.11	VACUUM VALUE	Supplier has to specify and confirm to the vacuum value permitted by the standard/code	
3.3	**OUTER VESSEL**		
3.3.1	MATERIAL SPECIFICATION AND PLATE THICKNESS.	Vendor to specify	
3.3.2	DESIGN CODE	Supplier can specify their own design code with respect to standard / code as approved by CCOE, Nagpur.	
3.3.3	OPERATING PRESSURE	Supplier has to specify & confirm the operating pressure permitted by the standard/code	
3.3.4	DESIGN PRESSURE	Supplier has to specify & confirm the design pressure permitted by the standard/code	
3.4	**VALVES AND FITTINGS**		
3.4.1	LOWER FILLING VALVE	Vendor to Specify	
3.4.2	UPPER FILLING VALVE	Vendor to Specify	
3.4.3	PRESSURIZING VALVE	Vendor to Specify	
3.4.4	LIQUID DELIVERY VALVE	Vendor to Specify	
3.4.5	STOP VALVE (PRESSURIZER)	Vendor to Specify	
3.4.6	FLOW DIVERTOR VALVE	Vendor to Specify	
3.4.7	GAS BLOW VALVE	Vendor to Specify	
3.4.8	LIQUID LEVEL DETECT VALVE	Vendor to Specify	
3.4.9	LIQUID CHARGING LINE BLOW VALVE	Vendor to Specify	
3.4.10	INLET CHECK VALVE	Vendor to Specify	
	Any other list of valves required for safe functioning of vessel as per flow diagram of supplier duly approved by CCOE and permitted by standards / codes shall be included in their offer.		
3.4.11	**CRYOREGULATOR (COMBINED FUNCTION) CONSISTS OF FOLLOWING COMPONENTS (A TO D)**		
	A) PRESSURE BUILD-UP REGULATOR	Vendor to specify & confirm	
	B) NON RETURN VALVE	Vendor to specify & confirm	
	C) ECONOMIZER	Vendor to specify & confirm	
	D) SAFETY RELIEF SYSTEM	Vendor to specify & confirm	
3.4.12	SAFETY VALVES FOR INNER VESSEL (2NOS.)	Vendor to specify & confirm	

Sl.No	Description	BHEL Specification	SUPPLIER SPECIFICATION
3.4.13	SAFETY VALVE FOR PIPE LINE	Vendor to specify & confirm	
3.4.14	LEVEL GAUGE VALVES (2NOS.)	Vendor to specify & confirm	
3.4.13	PRESSURE BALANCE VALVE	Vendor to specify & confirm	
3.4.14	LEVEL GAUGE	Vendor to specify & confirm	
3.4.15	PRESSURE GAUGE	Vendor to specify & confirm	
3.4.16	VACUUM PROBE VALVE	Vendor to specify & confirm	
3.4.17	EVACUATION PORT	Vendor to specify & confirm	
3.4.18	AUXILIARY LIQUID VALVE	Vendor to specify & confirm	
3.4.19	AUXILIARY GAS VALVE	Vendor to specify & confirm	
3.4.20	RUPTURE DISCS (2NOS.)	Vendor to specify & confirm	
3.4.21	SAFETY DEVICE FOR OUTER VESSEL (LIFT OFF PLATE)	Vendor to specify & confirm	
3.4.22	FILLING JOINT (FLANGE SORF, ANSI B16.5, 300#)	Vendor to specify & confirm	
3.4.23	PRESSURE BUILD-UP COIL	Vendor to specify the material and construction	
3.4.24	MANUFACTURING STANDARDS & MATERIAL OF CONSTRUCTION FOR ALL VALVES	All valves shall be as per CCOE approved code and vendor to specify the MAKE & Material Of Construction.	
4	**OVERALL DIMENSION OF VESSEL**		
4.1	OUT SIDE DIAMETER	Vendor to specify	
4.2	OVERALL HEIGHT	Vendor to specify	
5	**WEIGHT of LOX VESSEL & FITTINGS**		
5.1	EMPTY WEIGHT [APPROX]		
5.2	FULL WEIGHT(APPROX) WITH OXYGEN		
6	**WELDING PROCESS:**	Vendor to submit WPS and to get the same approved by BHEL / Inspn agency approved by BHEL	
7	**QUALITY PLAN &DRAWINGS;**		
7.1	FLOW SCHEME DRAWING.	To be furnished along with offer	
72	GA DRAWING	To be furnished along with offer	
7.3	FOUNDATION DRAWING.	To be furnished along with offer	
7.4	THE BIDDER SHOULD ARRANGE QUALITY PLAN FOR EACH WORK AND GET APPROVED BY BHEL / CCOE APPROVED INSPECTION AGENCY OR BHEL APPROVED INSPECTION AGENCY.	Vendor to Confirm	
7.5	THE BIDDER SHOULD GUARANTEE FULL CAPACITY OF LIQUID OXYGEN IN THE FILLED CONDITION.	Vendor to Confirm	
7.6	THE BIDDER SHOULD FURNISH THE MAXIMUM PERMISSIBLE EVAPORATION LOSSES , LIQUID TRANSFER LOSSES OF THE PROPOSED SYSTEM.	Vendor to specify & confirm	
8	**INSPECTION & TEST**		

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8.1	ALL TEST AND INSPECTION BY	All tests and inspection to be carried out only BY CCOE approved inspection agency along with BHEL inline with the EN13458/ equivalent standards as approved by CCOE.	
8.2	CHECKING & APPROVAL OF DESIGN AND CALCULATIONS	Vendor to Confirm	
8.3	MATERIAL INSPECTION AND STAMP TRANSFERRING SEPARATELY WITH PRESENCE OF INSPECTORS	Vendor to Confirm	
8.4	VISUAL & DIMENSIONAL INSPECTION	Vendor to Confirm	
8.5	PLATE ORIENTATION	Vendor to Confirm	
8.6	RADIOGRAPHIC CONTROL	Vendor to Confirm	
8.7	HYDROSTATIC TEST	Vendor to Confirm	
8.8	VACUUM TEST	Vendor to Confirm	
8.9	INSPECTION OF VALVES AND FITTINGS	Vendor to Confirm	
8.10	ANY OTHER INSPECTION AND TEST REQUIRED	To be mentioned in the offer.	
8.11	INSPECTION REPORTS AND TEST CERTIFICATES.	The reports of the all tests & inspections with the inspection reports of the tank to be submitted to BHEL after the completion of the tank & the inspections by third party inspecting agency .	
8.12	HYDRO TEST REPORT/CERTIFICATE OF INNER VESSEL	Vendor to confirm	
8.13	CALIBRATION CHART	Vendor to confirm	
8.14	SAFETY VALVE MANUFACTURER TEST CERTIFICATE	Vendor to confirm	
8.15	BURST DISC CERTIFICATE	Vendor to confirm	
8.16	TEST CERTIFICATE FOR PRESSURE BUILDING COIL	Vendor to confirm	
8.17	VALVES CERTIFICATES	Vendor to confirm	
8.18	REGULATOR CERTIFICATE	Vendor to confirm	
8.19	COMPONENT CERTIFICATES(TEST & CALIBRATION CERTIFICATES) (DP GAUGE & PR.GAUGE)	Vendor to confirm	
8.20	FITTING TEST CERTIFICATE(THERMAL RELIEF VALVE TRV, NEEDLE VALVE ,FLOW DIVERTOR)	Vendor to confirm	
8.21	VACUUM SEALING & RETENTION REPORT (FOR EVACUATED CONTAINER).	Vendor to confirm	
8.22	MATERIAL IDENTIFICATION REPORT-INNER VESSEL (INNER SHELL, DISH END, NOZZLES, INNER PIPES)	Vendor to confirm	
8.23	MATERIAL IDENTIFICATION REPORT-OUTER VESSEL	Vendor to confirm	
8.24	RADIOGRAPHY CHART FOR INNER VESSEL	Vendor to confirm	
8.25	PERFORMANCE TEST FOR NER/ COLD SPOT /PRESSURE TEST OF VESSEL REPORT(WHICHEVER APPLICABLE)	Vendor to confirm	
8.26	MSLD REPORT OF OUTER VESSEL	Vendor to confirm	

Sl.No	Description	BHEL Specification	SUPPLIER SPECIFICATION
8.27	MSLD REPORT OF INNER VESSEL (VALUE OF STD LEAK, ACCEPTABLE LEAK RATE, LEAK RATE OBSERVED, VACUUM LEVEL IN VESSEL ETC)	Vendor to confirm	
8.28	UV TEST REPORT FOR CLEANLINESS	Vendor to confirm &submit	
8.29	STAGE INSPECTION REPORT –INNER (NOZZLE& WELD SET UP)	Vendor to confirm &submit	
8.30	STAGE INSPECTION REPORT –OUTER (NOZZLE& WELD SET UP)	Vendor to confirm &submit	
8.31	INSPECTION REPORTS BY THIRD PARTY AGENCY	Vendor to confirm &submit	
9	**CLEANING& PAINTING:**		
9.1	OUTER VESSEL	Before painting outer tank, the tank should be sand blasted with SA 2.5 quality. Primer coat & polyurethane based white top coat to be applied providing a total thickness of minimum 120 microns.	
9.2	INNER VESSEL	Inner tank cleaning to be done according AMSE std & vendor to specify.	
10	**SCOPE OF SUPPLY OF AMBIENT VAPORISER UNIT**		
10.1	QUANTITY	1 No.	
10.2	TYPE	Ambient	
10.3	DUTY	Continuous duty 24x7 Hrs	
10.4	MATERIAL	Vendor to specify	
10.5	CAPACITY	To deliver continuously 500 normal cubic meter per hour at 5 to 14 kg per sq.cm after pressure regulating system.	
10.6	INLET TEMP	Vendor to specify	
10.7	OUTLET TEMP	Vendor to specify	
10.8	HEATING MEDIUM	Ambient	
10.9	SURFACE AREA	Vendor to specify	
10.10	WORKING PRESSURE	17 Kg/cm^2(g) or more	
10.11	DESIGN PRESSURE	Vendor to specify	
10.12	PNEUMATIC TEST PRESSURE	Vendor to specify	
10.13	DESIGN TEMPERATURE	—196 °C / 50 °C	
10.14	DESIGN & MANUFACTURING CODE(ASME STD TO BE USED)	Vendor to Specify & confirm the applicable Design and Manufacturing code.	
11	**PIPE LINES WITHIN STORAGE YARD**		
11.1	QUANTITY	1 Lot	
11.2	THE PIPELINE INCLUDES ALL THE PIPES AND FITTINGS SUCH AS ELBOW, TEES FLANGES, 'U' CLAMP, STUD NUTS, COPPER JUMPER, ETC.	Vendor to confirm	
11.3	MATERIAL OF CONSTRUCTION	SS 304 with A 312 Standard	

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11.4	WORKING PRESSURE	5 to 17 Kg/cm^2(g)	
11.5	DESIGN PRESSURE	Vendor to specify	
11.6	HYDROSTATIC TESTING PRESSURE	Vendor to specify	
12	**PRESSURE REGULATING SYSTEM**	SUITABLE PRESSURE REGULATING SYSTEM TO BE MENTIONED IN DETAIL TO GET THE OUT FLOW OF 500 NORMAL CUBIC METER PER HOUR WITH THE PRESSUR OF 5 TO 14 KG PER SQ.CM CONTINOUSLY AT OUR INLET. SUITABLE BYE PASS ARRANGEMENTS TO BE MADE TO GET UN-INTERUPTED SUPPLY OF OXYGEN.	
12.1	QUANTITY	1 Set consisting of 2 Nos. (1 No working and 1 No stand by)	
12.2	INLET PRESSURE	17 Kg/cm2(g) or more	
12.3	OUTLET PRESSURE	5 TO 14 Kg/cm^2(g)	
12.4	FLOW RATE	0 - 500 Normal cubic meter/hr with continuous duty cycle	
12.5	BALL VALVE	Vendor to confirm	
12.6	PRESSURE GAUGE	Vendor to specify , Make shall be Fiebig/wika/Bourden/Honey well	
12.7	POP OFF VALVE	Vendor to specify(Make maybe Sensus/ Invensys/ Kromschoeder/ Fisher/ Honeywell or any other reputed make acceptable to BHEL)	
13	**OVERALL DIMENSION OF PRESSURE REGULATOR**		
13.1	OVERALL DIMENSION(LXWXH)	Vendor to specify	
13.2	INLET FLANGE SIZE	Vendor to specify	
13.3	OUTLET FLANGE SIZE	Vendor to specify	
13.4	EMPTY WEIGHT(APPROX)	Vendor to specify	
14	**QUALITY PLAN &DRAWINGS**		
14.1	FLOW SCHEME DRAWING.	To be furnished along with offer	
14.2	GA DRAWING	To be furnished along with offer	
14.3	FOUNDATION DRAWING.	To be furnished along with offer	
14.4	THE BIDDER SHOULD ARRANGE QUALITY PLAN FOR EACH WORK AND GET APPROVED BY BHEL / BHEL APPROVED INSPECTION AGENCY.	Vendor to Confirm	
14.5	THE BIDDER SHALL FOLLOW RELEVANT ASME SECTION FOR LIQUID OXYGEN VAPORIZER SYSTEM	Vendor to Confirm	
14.6	THE BIDDER SHOULD FURNISH THE MAXIMUM PERMISSIBLE EVAPORATION LOSSES , LIQUID TRANSFER LOSSES OF THE PROPOSED SYSTEM.	Vendor to Confirm	
15	**GENERAL CONDITIONS**		
15.1	AS BUILT PROCESS & INSTRUMENTATION DIAGRAM.	Vendor has to be submit at the time supply	
15.2	MATERIAL SAFETY DATA SHEET	Vendor has to be submit at the time supply	

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15.3	STANDARD OPERATING PROCEDURE FOR WARM FILLING	Vendor has to be submit at the time supply	
15.4	STANDARD OPERATING PROCEDURE FOR CRYOGENIC STORAGE VESSEL.	Vendor has to be submit at the time supply	
15.5	LIQUID LEVEL GAUGE CALIBRATION CERTIFICATE & CHART	Vendor has to be submit at the time supply	
15.6	VOLUME EQUIVALENT CHART	Vendor has to be submit at the time supply	
15.7	TANK TEST CERTIFICATE	Vendor has to be submit at the time supply	
15.8	TANK DOCUMENT	Vendor has to be submit at the time supply	
15.9	BIDDER SHALL BE IN A POSITION TO DESIGN ALL MECHANICAL , ELECTRICAL & INSTRUMENTATION EQUIPMENT IN THE LOX STORAGE FACILITIES . THE BIDDER SHALL TAKE INTO CONSIDERATION OF ALL ANCHORS PARTS , PIPE LINES, EXCESS FLOW VALVES, SAFETY VALVES , ISOLATION VALVES , REGULATING VALVES , LINE BENDS, FITTINGS AND OTHER MISCELLANEOUS EQUIPMENT FOR THE SYSTEM IN ALL ASPECTS. THE BIDDER SHALL PRACTICE THE MOST MODERN DESIGN AND TECHNOLOGY FOR THE PROPOSED SYSTEM. THE BIDDER HAS TO FURNISH GENERAL ARRANGEMENT DRAWING WITH MAIN COMPONENTS	Vendor to Confirm	
15.10	THE BIDDER SHOULD ARRANGE G A DRAWING, QUALITY PLAN , P & I DIAGRAMS FOR EACH WORK AND GET APPROVED BY BHEL ENGINEER CONCERNED	Vendor to Confirm	
15.11	THE BIDDER SHOULD ARRANGE FOR OBTAINING TANK FOUNDATION CONSTRUCTION APPROVAL FROM CCOE / NAGPUR. SELECTION , INSPECTION & DESPATCH OF MATERIAL , INSPECTION / CERTIFICATION UNDER RULE 33, APPLICATION AND OBTAINING LICENCES FROM C C O E / NAGPUR , INSPECTION OF PLANT BY DEPARTMENT OF EXPLOSIVE, ENDORSEMENT , SUPPLY OF DOCUMENTATION FOR THE PLANT, OBTAINING SAFETY CERTIFICATE FROM THE COMPETENT AUTHORITIES ON COMPLETION OF INSTALLATION WITH IN THE LICENSED AREA , TRAINING OF OUR PERSONNEL IN OPERATION AND MAINTENANCE ARE SCOPE OF THE BIDDER.	Vendor to Confirm	
15.12	APPROVAL FOR MANUFACTURING OF LOX BULLET WITH FITTINGS	Copy of .Approval Certificate issued by CCOE for Manufacturing of LOX Bullet with fittings to be enclosed.	
15.13	DESIGN APPROVAL	Design /Drawing approval for manufacturing & complete installation of LOX Bullet with fittings from CCOE/Nagpur & Local CCOE to be obtained.	
15.14	CCOE FEES TOWARDS DRAWING APPROVAL AND TOWARDS FINAL LICENSE FEES FOR 3 YEARS AS APPLICABLE IN THE SUPPLIERS SCOPE	Vendor to Confirm	

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16	**SAFE CUSTODY & PRESERVATION OF COMPONENTS**		
16.1	IT IS THE RESPONSIBILITY OF THE SUPPLIER TO APPLY TOUCH UP PAINTING ON ALL EQUIPMENT BEFORE ERECTION AT THEIR COST .	Vendor to Confirm	
16.2	PRESERVATION OF ALL EQUIPMENT AT ALL STAGES OF HANDLING, TRANSPORTING TO SITE OF WORK OR PRE ASSY YARD , PRE - ASSEMBLY ERECTION, TESTING, COMMISSIONING , ETC ARE IN THE SCOPE OF SUPPLIER TILL THE UNIT IS HANDED OVER TO BHEL FOR REGULAR OPERATION.	Vendor to Confirm	
17	**VENDOR'S BRIEF SCOPE OF SUPPLY**		
17.1	PROVIDING ALL RELATED DRAWINGS LIKE P & I (PROCESS & INSTRUMENTATION) AND LAYOUT DRAWING, COMPLETE CIVIL DRAWINGS.	Vendor to Confirm	
17.2	COMPLETE DRAWINGS APPROVAL FROM CCOE (CHIEF CONTROLLER OF EXPLOSIVES – NAGPUR) TO SET AT BHEL/RANIPET.	Vendor to Confirm	
17.3	COMPLETE 3RD PARTY INSPECTION FOR ACQUIRING RULE FOR FABRICATION & INSTALLATION OF ENTIRE LOX BULLET& FITTINGS INCLUDING VAPORISER UNIT.	Vendor to Confirm	
17.4	OBTAINING STORAGE LICENCE (UNDER FORM III. SEE RULE 49&50) FROM CCOE – NAGPUR FOR THREE YEARS FROM THE DATE OF COMMISSIONING IS IN THE SCOPE OF SUPPLIER.	Vendor to Confirm	
17.5	ENDORSEMENT ON THE CCOE LICENSE FROM LOCAL CCOE OFFICE.	Vendor to Confirm	
17.6	SUPPLY OF FIRST FILLING OF LIQUID OXYGEN GAS TO FULL CAPACITY OF THE TANK SHALL BE IN THE SUPPLIERS SCOPE.	Vendor to note and confirm	
17.7	TRAINING OF OPERATION & MAINTENANCE STAFF OF LOX FACILITIES.	Vendor to Confirm	
17.8	PROVIDING LOX SYSTEM MANUALS, ALL APPROVED DRAWINGS BY CCOE ,PRODUCT MANUALS AND TANK HISTORY FILE FOR PROJECT IN 4 SETS. (1 ORIGINAL + 3 XEROX COPY)	Vendor to Confirm	
17.9	REQUIRED CONSUMABLES LIKE CUTTING GASES, WELDING ELECTRODES FOR INSTALLATION PURPOSES .	Vendors scope. Electrical Supply alone will be supplied by BHEL.	
17.10	CRANE FACILITY REQUIRED FOR UNLOADING & INSTALLATION OF LOX SYSTEM AT SITE	will be provided by BHEL	
17.11	SUPPLIER SHALL BRING REQUIRED WORK FORCE ALONG WITH COMPLETE SET OF TOOLS ETC FOR ERECTION, TESTING, AND COMMISSIONING OF LOX SYSTEM.	Vendor to Confirm	

Sl.No	Description	BHEL Specification	SUPPLIER SPECIFICATION
17.12	FIRE FIGHTING EQUIPMENTS	Vendors to inform in their technical bid, necessary fire fighting arrangements required around the LOX area(Cost for the fire fighting arrangement required shall be given separately as an option)	
18	**BHEL' SCOPE**		
18.1	ALL CIVIL WORK INVOLVED INSIDE LOX YARD WHICH INCLUDES CIVIL PEDESTALS FOR TANKS, VAPORIZER SYSTEMS ETC. WILL BE CARRIED OUT BY BHEL FOR THE ENTIRE PROJECT AND THE REQUIRED DRAWINGS DETAILS WILL HAVE TO BE FURNISHED BY THE SUPPLIER TO BHEL ALONG WITH THE OFFER OR WITHIN TWO WEEKS OF PURCHASE ORDER. THE CIVIL DRAWING SHOULD INDICATE THE DYNAMIC LOADING AND FOUNDATION DETAILS OF THE VESSEL FOUNDATION DRAWING. **4 SET OF** GA DRAWINGS WITH FOUNDATION DETAILS ARE NEEDED.	Vendor to Confirm	
19	**PRE-DISPATCH INSPECTION AT SUPPLIERS WORKS**	LOX BULLET with FITTINGS Shall be offered to BHEL Engineers / BHEL APPROVED INSPECTION AGENCY at supplier's works for Pre-dispatch inspection.	
20	**PROVE OUT AND ACCEPTANCE**	After LOX bullet & their facilities have been installed & energized , demonstrations to be carried out for good working condition & ensuring operating parameters as per technical specification mentioned above.	
21	**WARRANTY**	Warranty for products against defective materials and workmanship for a period of **24 months** from the date of commissioning. Any service / maintenance required, if any, during warranty period also is in the scope of supplier.	
22	**DETAILED SCOPE OF SUPPLY**	Detailed scope of supply like Item wise Description ,Qty, Make to be submitted along with offer.	
23	**DELIVERY SCHEDULE FOR SUPPLY OF LOX VESSEL SYSTEM.**	Four months from the date of issue of Purchase Order.	
24	**ERECTION, TESTING & COMMISSIONING OF LOX SYSTEM**	30 days from the date of receipt of materials at site and license readiness.	