



- 1.5 It is to be noted by the bidders that any shortfall in contract performance attributable to the sub-vendor listed will not absolve the contractor from his contractual obligations in any manner.
- 1.6 The approval was granted based on the evaluation of relevant capabilities and facilities possessed by the sub-vendor at the time of evaluation. Also, some of the sub-vendors may not be active. As such, the successful bidder is to carry out his own due diligence before considering the listed sub-vendor for subletting: the current status of the sub-vendor, the continued availability of productive resources including Human Resources.
- 1.7 The list of sub-vendors is periodically revised to include new sub-vendors. Such a revision may also see a deletion of certain sub-vendors who may have been disqualified on grounds of inadequate performance or banned in line with NTPC's banning policy. The then current list will be shared with the successful bidder immediately on award.


LARA STPP STAGE-II (2 X 800 MW) EPC PACKAGE	TECHNICAL SPECIFICATIONS SECTION VI, PART- B Bid Doc. No.:	SUB-SECTION- E-60 INDICATIVE VENDOR LIST	Page 2 of 2
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1	SEAMLESS TUBES	\$			VALLOUREC & MANNESMANN TUBES	FRANCE GERMANY	A		CS & AS T-11, T-22, T-23, T-91, T-92		
		\$			TENNARIS GLOBAL SERVICES SA, URUGUAY	DALMINE, ITALY	A		CS & AS T-11, T-22		
		\$			TENNARIS GLOBAL SERVICES SA, URUGUAY	SILCO, ROMANIA	A		CS & AS T-11, T-22, T-23, T-91		
		\$			TENNARIS GLOBAL SERVICES SA, URUGUAY	NKK TUBES, JAPAN	A		CS & AS T-11, T-22, T-91		
		\$			MAHARASHTRA SEAMLESS LTD	RAIGAD	A		CS HOT FINISHED OD:21.0 MM TO 168.3 MM WT: 2.0 MM TO 20.0 MM COLD FINISHED OD:19.0 MM TO 88.9 MM WT: 1.0 MM TO 12.0 MM		
		\$			IBF S.P.A	ITALY	A		CS & AS T-11, T-12, T-22, T-91		
		\$			JFE STEEL CORPORATION	JAPAN	A		CS & AS T-11, T-22, T-23, T-91, T-92		
		\$			TUBOS REUNIDOS INDUSTRIAL, S.L.U	SPAIN	A		CS & AS T-11, T-22, T-23, T-91, T-92		


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		\$			JINDAL SAW LIMITED	NASHIK	A		CS & AS T-11, T-12, T-22 HOT FINISHED OD: 33.4 MM TO 168.3 MM WT: 3.5 MM TO 21.95 MM COLD FINISHED OD: 6.0 MM TO 140.0 MM WT: 0.8 MM TO 15.0 MM		
		\$			REMI METALS GUJARAT LTD	BHARUCH	A		CS & AS T-11, T-12, T-22 HOT FINISHED OD: 28.6 MM TO 177.8 MM WT: 3.0 MM TO 28.0 MM COLD FINISHED OD: 9.0 MM TO 127.0 MM WT: 1.6 MM TO 20.0 MM		
		\$			WAYMAN GORDAN	USA	A		CS,T11,T12,T22,T91		
		\$			BENTELER STEEL/TUBE GMBH	GERMANY	A		CS,T-11, T23, T-22, T-91 & T- 92		
		\$			HEAVY METALS & TUBES LTD	AHMEDABAD	A		CS HOT FINISHED UP TO OD: 76.2 MM AND WT:12.0 MM		
		\$			PRODUCTOS TUBULARES,	SPAIN	A		CS & AS T-11, T-22. T-23. T-91		


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		\$			ISMT	AHMEDNAGAR BARAMATI	A		CS, T11, 12, 22 HOT FINISHED OD: 38.0 MM TO 273.0 MM WT: 3.5 MM TO 40.0 MM COLD FINISHED OD: 18.0 MM TO 140.0 MM WT: 1.5 MM TO 15.0 MM		
		\$			NIPPON STEEL & SUMITOMO METAL CORPORATION	JAPAN	A		CS, T-11, T-22, T23, T-91, & T- 92		
		\$			BENTELER STEEL/TUBE GMBH	GERMANY	A		CS, T-11, T23, T-22, T-91 & T- 92		
		\$			BHEL SSTP	TRICHY	A		CS, T-11, T-12, T-22		
		\$									
2	SEAMLESS TUBES(RIF	\$			SALZGITTER MANNESMANN PRECISION	FRANCE	A		CS		
		\$									
3	SEAMLESS TUBES(SS)	\$			KOBE SPECIALITY STEEL CO LTD	JAPAN	A		SS304, SS347H		
		\$			SMST	ITALY	A		SS304, 347H, SUPER 304		
		\$			TUBACEX	SPAIN	A		SS304, 347H, SUPER 304		
		\$			PASCO SPL STEEL CO.	SOUTH KOREA	A		SS304, 347H, SUPER 304		

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		\$			NIPPON STEEL & SUMITOMO METAL CORPORATION	JAPAN	A		SS 304, SS347H, SUPER 304 OD UP TO 114.3 MM		
4	SEAMLESS PIPES	\$			TENNARIS GLOBAL SERVICES SA, URUGUAY	DALMINE, ITALY	A		CS & AS P-11, P-22, P-91		
		\$			TENNARIS GLOBAL SERVICES SA, URUGUAY	SILCO, ROMANIA	A		CS & AS T-11, T-22, T-91 UPTO DIA 159 MM		
		\$			TENNARIS GLOBAL SERVICES SA,URUGUAY	NKK TUBES, JAPAN	A		CS & AS T-11, T-22, T-91		
		\$			VALLOUREC & MANNESMANN TUBES	FRANCE GERMANY	A		CS & AS P-11, P-22, P-91. P-92		
		\$			TUBOS REUNIDOS INDUSTRIAL, S.L.U	SPAIN	A		CS & AS P-11, P-22, P-91		
		\$			ISMT	AHMEDNAGAR BARAMATI	A		CS, T11, 12, 22 HOT FINISHED OD: 38.0 MM TO 273.0 MM WT: 3.5 MM TO 40.0 MM COLD FINISHED OD: 18.0 MM TO 140.0 MM WT: 1.5 MM TO 15.0 MM		

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		\$			REMI METALS GUJARAT LTD	BHARUCH	A		CS & AS T-11, T-12, T-22 HOT FINISHED OD: 28.6 MM TO 177.8 MM WT: 3.0 MM TO 28.0 MM COLD FINISHED OD: 9.0 MM TO 127.0 MM WT: 1.6 MM TO 20.0 MM		
		\$			VALCONVY TRUB CHOMUTOV,	CZECH REPUBLIC	A		CS & P-12 & P-22		
		\$			ARCELORMITTAL TUBULAR PRODUCTS ROMAN S.A	ROMANIA	A		CS		
		\$			WAYMAN GORDAN	USA	A		CS & AS P-11, P-22, P-91		
		\$			MAHARASHTRA SEAMLESS LTD	RAIGAD	A		CS HOT FINISHED OD:219.1 MM TO 355.6 MM WT: 6.35 MM TO 35.1 MM COLD FINISHED OD:19.0 MM TO 88.9 MM WT: 1.0 MM TO 12.0 MM		
		\$			PRODUCTOS TUBULARES,	SPAIN	A		CS & AS P-11, P-12, P-22, P-91		
		\$			NIPPON STEEL & SUMITOMO METAL CORPORATION	JAPAN	A		CS & AS P-11, P-22, P-91 & P-92		
		\$			TENNARIS GLOBAL SA, URUGUAY	NKK TUBES, ITALY	A		P-91, P-22, P-11, P12, CS		
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		\$			JINDAL SAW LIMITED	NASHIK	A		CS, T11, 12, 22 HOT FINISHED OD: 33.4 MM TO 168.3 MM WT: 3.5 MM TO 21.95 MM COLD FINISHED OD: 6.0 MM TO 140.0 MM WT: 0.8 MM TO 15.0 MM		
		\$			IBF S.P.A	ITALY	A		P-92, P-91, P-22, P-11, P12, CS		
		\$			JFE STEEL CORPORATION	JAPAN	A		P-92, P-91, P-22, P-11, P12, CS		
		\$			BHEL SSTP	TRICHY	A		CS		
		\$			BENTELER STEEL/TUBE GMBH	GERMANY	A		P-11, P-22, P-91, P-92 UP TO OD 160 MM		
		\$			RINGMILL SPA	ITALY	A		CS OD UP TO 914 MM & WT UP TO 102 MM & AS P-91		
		\$			FORGIATURA MORANDINI SRL	ITALY	A		CS & AS P-11, P-22, P-91 & P- 92		
		\$									
5	PLATES AND ROLLED SECTION (CS & AS EXCLUDING 2062 GRADES)	\$			INDUS STEEL	BELGIUM	A		CS-SA515 AS UP TO GR-91		
		\$			ILSENBURGER GROBBLECH	GERMANY	A		CS-SA 299, SA515, BS EN 10025, AS UP TO GRADE 91		


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		\$			DILLINGER-GTSVENTES	GERMANY	A		CS-SA 299, SA515, BS EN 10025, A36, AS UP TO GRADE 91		
		\$			SIJ ACRONI D.O.O., SLOVENIA	SLOVENIA	A		CS- SA515, BS EN 10025, A36, AS UP TO GRADE 91		
		\$			THYSSENKRUPP	GERMANY	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22		
		\$			INDUSSTEEL LOIRE	FRANCE	A		CS-SA 299, SA515; AS UP TO GRADE 22		
		\$			ARCELLOR MITAL NIPPON STEEL (Formerly ESSAR Steel)	HAZIRA	A		CS- SA515, BS EN 10025, A36, AS GRADE 12 &22		
		\$			VOESTALPINE GROBBLECH GMBH	AUSTRIA	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22		
		\$			SAIL	BHILAI/SALEM	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22		
		\$			NIPPON STEEL	JAPAN	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22		
		\$			POSCO	SOUTH KOREA	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22		
		\$			REINER BRACH GMBH & CO.	GERMANY	A		CS- SA 299 SA515 BS EN 10025 A36, AS UP TO GRADE 22		


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		\$			LLYODS STEEL INDUS LTD	INDIA	A		ALLOY STEEL PLATES AS PER A-204 & A-387 UPTO THICKNESS OF 40MM FOR STRUCTURAL STEEL APPLICATION , IN NON- PRESSURE PARTS.		
6	PLATES & ROLLED SE (CS-IS 2062 STRUCTU STEEL GRADES)	\$			REFER TO SUB-VENDORS MENTIONED IN THE TECHNICAL SPECIFICATIONS SEC-VI, PART-B		A				
		\$					A				
7	PLATES(SS)	\$			OUTOKUMPU	SWEDEN	A		SS PLATES UP TO 20 MM THK		
		\$			INDUSSTEEL	BELGIUM	A		GRADE-304,309,310,316		
		\$			JSL STAINLESS	JAIPUR	A		LINER SS 304		
		\$			INDUSSTEEL LOIRE	FRANCE	A		GRADE-304,309,310,316		
		\$			SAIL	BHILAI/SALEM	A		GRADE-304,309,310,317		
		\$			COLUMBUS STAINLESS STEEL	SOUTH AFRICA	A		GRADE-304,309,310,318		
8	SEPARATOR & STORA TANK	I			ALSTOM	USA	A				
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20	SOOT BLOWERS(LRS DESLAGGER, ROTARY BLOWER, TEMP PRO	I			BHEL	TRICHY	A				
		I			CLYDE BERGMANN	NOIDA	A		UNDER THE SUPERVISION OF M/S CLYDE BERGMANN, GERMANY		
		I			CLYDE BERGEMANN	GERMANY	A				
		I			DIAMOND POWER SPECIALITY LTD	SCOTLAND	A				
		I			DAIEYOUNG MACHINERY	KOREA	A				
21	ELECTRIC HOIST WITH TROLLEY, UNDERSLU CRANE	I					A		MAIN BOIS E.G. HOOK, MOTORS AND CRITICAL C&I ITEMS TO BE FROM NTPC APPROVED SOURCES		
		I			CONSOLIDATED HOISTS	SATARA	A		EOT CRANES UPTO 40 MT & HOISTS ABOVE 35 MT		
		I			REWA INDUSTRIES	FARIDABAD	A		EOT CRANES UPTO 25 MT		
		I			GRIP ENGINEERS	HYDERABAD	A		HOIST UPTO 40 MT		
		I			POWER BUILD PVT LTD,	V V NAGAR	A		HOIST UPTO 10 MT		
		I			UNIVERSAL HOIST	THANE	A		HOIST UPTO 20 MT		
		I			ARMESE MHE PVT LTD	BANGALORE	A		UP TO 20 MT		
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		I			ANUPAM INDUSTRIES	VITHAL, UDYOGNAGAR	A		EOT CRANES UPTO 50 MT		
		I			TRACTOR TRIFOR	FARIDABAD	A		HOIST UPTO 35 MT		
		I			CONSOLIDATED HOISTS	PUNE	A		HOISTS UPTO 20 MT		
		I			DYNAMECH CRANES	THANE , MUMBAI	A		UP TO 20 MT		
		I			HERCULES HOIST LTD.	MUMBAI	A		HOIST UPTO 30 MT		
		I			NAMSUNG MACHINERY	SOUTH KOREA	A		UP TO 25 MT		
		I			CENTURY CRANES	PALWAL	A		EOT CRANES UP TO 30 MT		
		I			MUKUND	PUNE	A				
		I			Mangla Hoist	India (Greater Noida)	A		UPTO 10 MT		
22	RECIRCULATION PUN	I			REFER SUB QR ITEM LIST						
23	LP CONDENSATE PUN	I			ITT GOULD	USA	A				
		I			FLOW SERVE	USA	A				
		I			SULZER	NAVI MUMBAI	A				
		I			CLYDE PUMPS	GHAZIABAD	A				


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35	CONVENTIONAL VAL (GATE, GLOBE & CHE	I			VELAN INC.	CANADA	A		SINGLE STAGE DRAIN VALVES (FORGED), SIZE UPTO 50MM NB, CLASS UPTO 2680 FOR POWER CYCLE PIPING APPLICATION.		
		I			LEADER VALVES LTD.	JALANDHAR	A		CC NRV UP NB 800, 150# FOR STG PKG.		
		I			BHEL	TRICHY	A				
		I			CRESCENT VALVES	MUMBAI	A		UPTO NB 300 CL 600		
		I			VELAND VALVE CORP.	USA			GATE V/V 2-34" CL 900-4500 CAST STEEL GATE V/V 18-48" CH50-800		
		I			VELAN	UK	A		1) GLOBE V/V 1/4"-2" C14500 (2) BONNETLESS GLOBE V/V 1/2-2.5" CI 150-500)		
		I			L&T VALVES	COIMBATORE	A		UP TO CLASS 4500 & GRADE 91		
		I			TRILLIUM FLOW	HUBLI	A		UPTO NB 300 & CL-600, FORGED UPTO NB 50 CL 800		


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		I			FOURESS ENGG. INDIA LTD.,	THANE	A		(1) 10"X600 # GATE/GLOBE/CHECK VALVES (2) 16"X300# GATE/GLOBE/CHECK VALVES (3) 24"X150# GATE/GLOBE/CHECK VALVE (4) 2"X800 # FS GATE/GLOBE/CHECK (LIST) AS PER BS5352 (B) GATE GLOBE/CHECK VALVES FOR 700# TO 1500#		
		I			NITTON VALVES INDIA PVT. LTD.,	AURANGABAD	A		(1) GATE VALVE: UPTO36" CLASS 600 WCB/WCC (2) GLUBE VALVE: UPTO 16" CLASS 300 WCB/WCC (3) CHECK VALVE : UPTO 12" CLASS 600 WCB/WCC & WC6		

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		I			SAMSHIN LTD.,	SOUTH KOREA	A		(1) GATE - 450 NB 3900 SPL CL SA 217 C12A (GR 91) (2) GLOBE (CAST) - 200 NB 3900 SPL, CL FOR SA 217C12 (G 91) (3) GLOBE (FORGED GR 92) - 50 NB 4500 CL GR SA182 F 92 (4) CHECK (CAST) - 200 NB 3500 SPL CL FOR SA 217C12A (GR91) (5) CHECK (FORGED GR 92) - 50 NB 4500 CL GR SA 182 F 92 (5) ANGLE (FORGED) 80 NB		
		I			TOA VALVE ENGGINERING INC.	JAPAN	A		CONVENTIONAL VALVES (1) GATE VALVES UPTO SIZE 16", CLASS 4500 UPTO C12A/F91 (2) GATE VALVES UPTO SIZE 26" CLASS 2500 UPTO C12A (3) CHECK VALVES UPTO SIZE 14" CLASS 2500 UPTO C12A (4) GLOBE VALVES UPTO SIZE 3" CLASS 4500 UPTO C12A (5) GLOBE VALVES UPTO SIZE 10" CLASS 1500 & 4" CLASS 2500 UPTO F91		

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		I			FOURESS ENGG. INDIA LTD.	THANE	A		(1) 10"X600 # GATE/GLOBE/CHECK VALVES (2) 16"X300# GATE/GLOBE/CHECK VALVES (3) 24"X150# GATE/GLOBE/CHECK VALVE (4) 2"X800 # FS GATE/GLOBE/CHECK (LIST) AS PER BS5352 (B) GATE GLOBE/CHECK VALVES FOR 700# TO 1500#		
		I			BABCOCK VALVES	SPAIN	A		(1)CAST GATE VALVE (CS) VALVE CLASS UPTO 2500SPL & SIZE UPTO 10" (2)CAST GLOBE VALVE (CS) CLASS UPTO 2500SPL & SIZE UPTO 3 INCH (3) FORGED GLOBE VALVE (CS) CLASS UPTO 1500 & SIZE UPTO 1" (4) FORGED GLOBE VALVE (CS) CLASS UPTO TO 800 & SIZE UPTO 1.5"		
		I			FORBES MARSHALL PVT LTD	PUNE	A		CONVENTIONAL VALVES :CAST GATE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 10 INCH CAST GLOBE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 3 INCH		
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		I			BABCOCK WILCOX ESPANOLA	SPAIN	A		CONVENTIONAL VALVES - CAST GATE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 10 INCH CAST GLOBE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 3 INCH		
		I			HP VALVES OLDENZAAL B V	NETHERLAND	A		CONVENTIONAL VALVES - CAST GATE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 10 INCH CAST GLOBE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 3 INCH		
		I			Aruna Industrial Products Pvt. Ltd.	MADURAI	A		REFER APPROVAL CONDITION		
36	SAFETY VALVES(SPRI TYPE)	I			DRESSER INDUSTRIES	USA	A				
		I			SAMPELL AG	GERMANY	A				
		I			TYCO (PENTAIR VALVES & CONTROLS	USA	A				
		I			FUKUI SEISAKUSHO CO LTD	JAPAN	A				
		I			RIENEKE GMBH	GERMANY			HYDRAULIC TYPE		
		I			BOPP & REUTHER	GERMANY	A		HYDRAULIC TYPE		


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		I			MIEWA CORPORATION	JAPAN	A		(1) SAFETY VALVE SIZE 1/2" TO 6" & 150 TO 4500 CLASS		
		I			BHEL	TRICHY	A				
		I			PENTAIR SANMAR LTD	PUDUKOTTAI	A		AUX STEAM SYSTEM: UP TO 6" SIZE AND CLASS UP TO 600		
		I			FAINGER LESER VALVES P LTD	AURANGABAD	A		SIZE(INELT/OULET): 200/300 MM APPLICABLE TO MAX DESIGN TEMPERATURE:474 DEG C & PRESSURE:47 KG		
37	ELECTROMATIC RELIEF VALVE (ERV)	I			VALVES TECHNOLOGIES	USA	A		(A) 1.5"X3" CLASS 3100- F91 MATERIAL (B) 2.5"X4", CLASS 1500-F91 MATERIAL		
		I			FUKUI SEISAKUSHO CO LTD	JAPAN	A				
		I			SAMPELL AG	GERMANY	A				
		I			DRESSER INDUSTRIES	USA	A				
		I			MIEWA CORPORATION	JAPAN	A		SIZE UPTO 65MM & UPTO 4500 CLASS		
38	PLUG VALVE	I			FLOW SERVE INDIA CONTROLS	KANCHIPURAM	A		SIZE: 25 TO 300 MM, CLASS 150 & 300		
		I			3Z CORP.	SOUTH KOREA	A				


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		I			HAWA VALVES	MUMBAI	A		UP TO 10" SIZE AND 300 CLASS		
39	BOILER STRUCTURE & FABRICATION ITEM & AUX COLUMNS, CEILING GIRDERS, BUILT-UP BEAMS, BRACINGS & BUCKSTAY COAL BUNKER	I			M/S. BHEL	TIRUCHIRAPALLI	A		MAIN & AUX COLUMNS, CEILING GIRDERS, BUILT-UP BEAMS		
		I			CAPACITE	WADA, PALGHAR	A		(WELDED & BOLTED TYPE)BOILER PRIMARY STRUCTURES (CEILING GIRDER, MAIN COLUMNS, AUX. COLUMN, BOXES, BUCKSTAY, BRACING, MILL BAY STRUCTURE APH SUPPORT STRUCTURE ETC.)		
		I			SALEM AUTOMECH (INDIA) PVT. LTD.,	SALEM	A		BOILER STRUCTURES, I.E. CEILING GIRDER		


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		II			BHOLA RAM STEEL PVT. LTD	PATNA					
		II			PINAX STEEL INDUSTRIES PVT LTD	PATNA	A				
		II			GREATWELD STEEL GRATING PVT. LTD	PUNE	A				
		II			VIN FAB ENGG. PVT LTD.,	MUMBAI	A				
		II			Ratan Project & Engineering	Howrah	A				
42	TANKS & VESSELS(IB FLASH TANK ETC)	I			KPHE	SOUTH KOREA	A				
		I			SV TANKS & VESSELS	MUMBAI	A				
		I			PROGEN SYS TECH LTD	CHENNAI	A		UP TO 4 KSC PR		
		I			FAB TECH	PUNE	A				
		I			UNITECH MACHINES LTD	SAHARANPUR	A		UP TO 10 KSC PR		
		I			SEAM IND P LTD	NAGPUR	A		UP TO 10 KSC PR		
		I			SHAKTI HI TECH CONST PVT LTD	CHENNAI	A		UP TO 10 KSC PR		
		I			SOUTHERN HEAVY ENGG & FAB PVT LTD	CHENNAI			UP TO 10 KSC PR		


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		I			ALTECH INFRASTRUCTURE(I) PVT LTD	ALWAR	A		UP TO 16 KSC PR		
		I			SEAM INDUSTRIES PVT LTD	NAGPUR	A		UP TO 16 KSC PR		
43	SOOT BLOWER PRESS REDUCING VALVES &	I			REFER QA C&I LIST		A				
44	FITTINGS(GRADE 91/	I			PETROL RACCORD SPA	ITALY	A		FORMED AND FORGED FITTINGS 91/92 GRADE		
		I			BOKOYOUNG METAL CO.	SOUTH KOREA	A		FORGED FITTINGS AS PER SA- 182 F92 GRADE (REDUCERS, NOZZLE, HALF COUPLING ETC.)		
		I			TF TECH CO. LTD	SOUTH KOREA	A		FORGED FITTINGS AS PER SA- 182 F92 GRADE (REDUCERS, NOZZLE, HALF COUPLING ETC.)		
		I			FLASH FORGE	VIZAG	A		P91 FORMED/FORGED UPTO DIA 273MM & THICK 30MM		
		I			BGH EDELSTAHL SIEGEN GMBH	GERMANY	A		MANUFACTURE AND SUPPLY OF FORGED FITTINGS OF CS, AS AND SS GRADES		
		I			ERNE FITTINGS GMBH	AUSTRIA	A		P-91 FORMED		
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		I			GAM RACCORDI SPA	ITALY			P-91 FORMED		
		I			TECHNO FORGE SPA	ITALY	A		P-91 FORMED		
		I			MEGA SPA	ITALY	A		92 GRADE FITTINGS (FORGED)		
		I			BASSI LUIGI SPA	ITALY	A		P-91 FORGED/WELDED		
		I			IBF SPA	ITALY	A		FORMED AND FORGED FITTINGS/P92 GRADE		
		I			ALLIED INT. (TACTUBI RACCORDI SPA, VIA ROMA 150, 29027 PODENZANO)	ITALY	A		P-91 FORMED		
		I			BRUCK STRASSE 16 ENSHEIM	GERMANY	A		P-91 FORGED/WELDED		
		I			SUNGKWANG BEND CO. LTD.,	SOUTH KOREA	A		FITTINGS OF P91 AND OF MTERIAL OTHER THAN P91 OF BOILER		
		I			TK CORPN. FORGITAL	S KOREA	A		FORMED FITTINGS (ELBOW, TEES, REDUCERS ETC.) OF 92 GRADE.		
		I			FORGITAL	ITALY	A		MANUFACTURING AND SUPPLY OF GRADE 91 FORTGINGS (HOLLOW FORGINGS/MATCHING PIECES WITH 508MM DIA X 75MM THICKNESS STUBS WITH OD 245MM.		
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		I			DEE DEVELOPMENT	PALWAL	A		GRADE 91 WITH SIZE/TYPE LIMITATIONS		
		I			CHW FORGE	GHAZIABAD			GRADE 92 WITH SIZE/TYPE LIMITATIONS		
		I			FORGIATURA MORANDINI SRL	ITALY	A		GRADE 92 FORGED FITTINGS(REDCERS, TEES & Y-PIECES)		
		I			BHARAT FORGE, PUNE	PUNE	A		GRADE 92 FORGED FITTINGS(REDCERS, TEES & Y-PIECES)		
		I			BOKYOUNG METAL CO.LTD	SOUTH KOREA	A		GRADE 92 FORGED FITTINGS(REDCERS, NOZZLE, HALF COUPLING)		
		I			VIAR SPA	ITALY	A		SEAMLESS FORGED Y-PIECE UP TO GRADE 91		
		I			DEE DEVELOPMENT	PALWAL	A		GRADE 92 WITH SIZE/TYPE LIMITATIONS		
		I			Goodluck Engineering Co.	Dadri			Forged Fittings (91/92 grade)		
45	AUX PRDS SYSTEM (INCLUDING CONTR VALVE)	I			REFER C&I LIST						

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46	CHEMICAL DOSING S (SKID ASSY) FOR SG S INCLUDING AUX BOIL	I			POWER PIPING	TRICHY	A				
		I			V K PUMPS	MUMBAI	A				
		I			MILTON ROY	CHENNAI	A				
		I			TECHNO CONSULTANTS	MUMBAI	A				
		I			POSITIVE METERING SYSTEM	NASIK	A				
		I			PSI ENGG SYSTEM	CHENNAI	A				
		I			Prorites Equipments Pvt. Ltd.	Pune	A		LP Chemical Dosing System (NaOH/Ammonia/Hydrazine) for		
47	SG CW BOOSTER PUM ECW PUMP	I			KBL	WADI	A				
		I			WPIL LTD	GHAZIABAD	A				
		I			SAM TURBO	COIMBATORE	A				
		I			KSB	PUNE	A				
		I			BEST & CROMPTON ENGG LTD	CHENNAI	A				
		I			JYOTI LTD	BARODA	A				
		I			FLOWMORE	GHAZIABAD	A				
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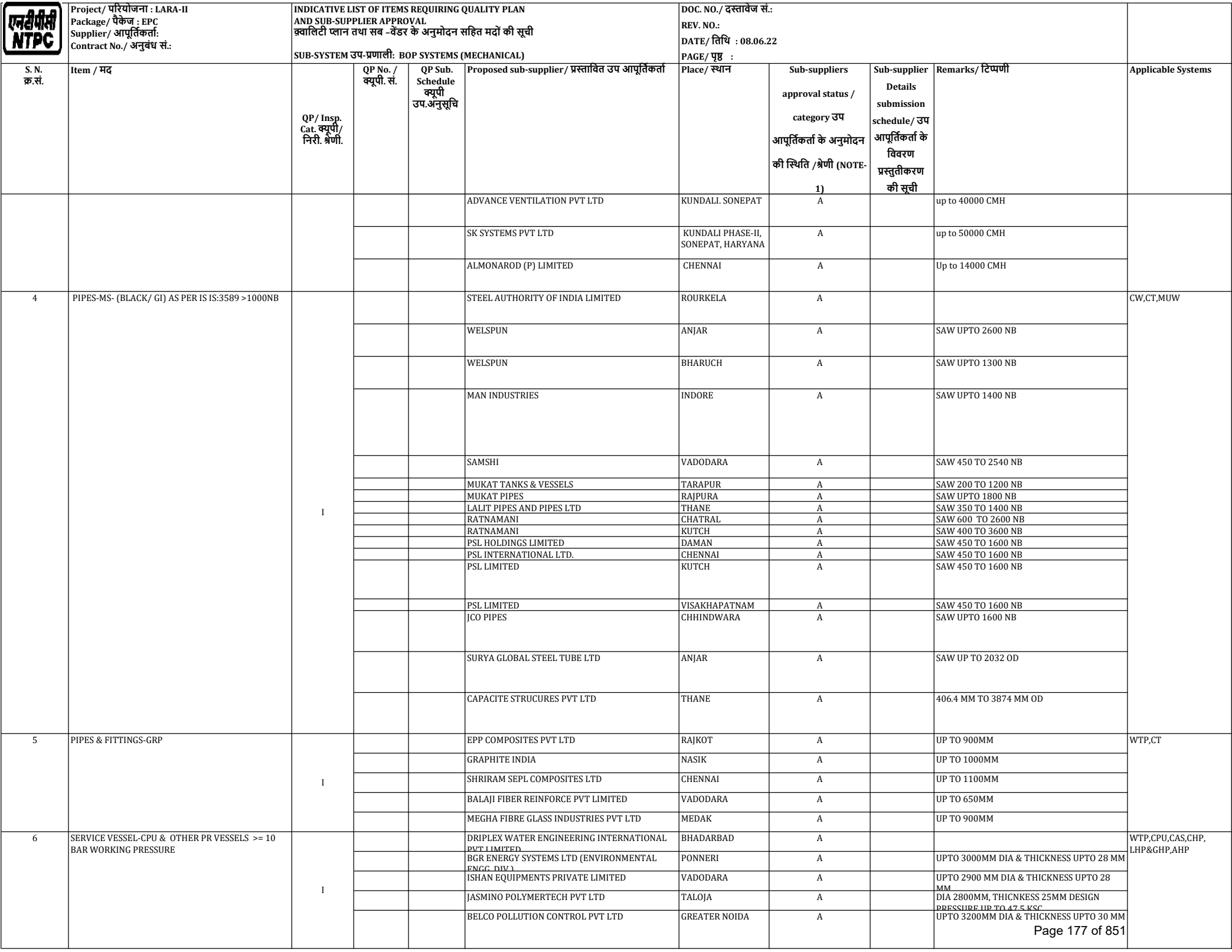
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<p>NOTE -1 : For final Sub-QR approval , document required to be submitted as per Sub-QR requirements given in the specification.</p> <p>NOTE-2: Vendors under 'A' are approved and accepted by NTPC with/without conditions in the past. Similar conditions as the case may be for the vendor shall be applicable for this project and tied up in the quality plan.</p> <p>NOTE-3: Predespatch inspection for Alloy/SS Grades needs to be tied up by Main contractor or Third-party inspection agency as required.</p> <p>NOTE-4 : (\$) Review of Mill TC for Raw Material to be done by NTPC and shall be included in the QP of corresponding equipment.</p> <p>NOTE-5: Raw Material for 91 and above Grade Material Fittings to be from NTPC approved sources as per Raw Material vendor List.</p> <p>NOTE-6:For Motorized/Pneumatic actuated valves the suppliers for actuators shall be from NTPC approved list, Refer NTPC C&I list.</p>											

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<p>LEGENDS/ संकेतिका</p> <p>SYSTEM SUPPLIER/SUB-SUPPLIER APPROVAL STATUS CATEGORY /प्रणाली आपूर्तिकर्ता / सब – वेंडर की स्वीकृति की स्थिति की श्रेणी (SHALL BE FILLED BY एनटीपीसी द्वारा भरा जाएगा)</p> <p>A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter “A” in the list along with the condition of approval, if any./ इन मदों के लिए वेंडर एनटीपीसी को स्वीकार्य है। अनुमोदन की शर्त, , यदि कोई हो, के साथ-साथ पत्र "क" में इंगित किया जाए।</p> <p>DR – For these items “Detailed required” for NTPC review. To be identified with letter “DR” in the list. एनटीपीसी द्वारा इन मदों की समीक्षा के लिए "विस्तृत ब्यौरे की आवश्यकता होगी। सूची में "DR" पत्र में इंगित किया जाना चाहिए।</p> <p>QP/INSPN CATEGORY: क्यूपी / निरीक्षण की श्रेणी:</p> <p>CAT-I / श्रेणी- I: For these items the Quality Plans are approved by NTPC and the final acceptance will be on physical inspection witness by NTPC. इन मदों के लिए गुणवत्ता योजनाएं एनटीपीसी द्वारा अनुमोदित किया जाता है और एनटीपीसी द्वारा अंतिम स्वीकृति भौतिक निरीक्षण के दौरान उपलब्ध गवाह के आधार पर दी जाएगी।</p> <p>CAT-II / श्रेणी- II: For these items the Quality Plans approved by NTPC. However no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on review of documents as per approved QP. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है। हालांकि एनटीपीसी द्वारा कोई भौतिक निरीक्षण नहीं किया एनटीपीसी द्वारा अंतिम स्वीकृति अनुमोदित क्यूपी के अनुसार दस्तावेजों की समीक्षा के आधार पर दी जाएगी।</p> <p>CAT-III/ श्रेणी-III : For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of C of Conformance (COC) by Main Contractor.</p> <p>UNITS/WORKS इकाइयां / कार्य: Place of manufacturing/ निर्माण का स्थान Place of Main Supplier of multi units/works/बहु- इकाइयों / कार्यों के मुख्य सप्लायर का स्थान.</p>											

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1	AIR BLOWERS -LOBE TYPE >= 5 KW	I			SWAM PNEUMATIC	NOIDA	A			WTP,CPU,AHP
					EVEREST BLOWERS PVT LTD	BAHADURGARH	A		UP TO 40 HP (APPROX 1600 CUM/HR)	
					KAY INTERNATIONAL	SONEPAT	A		UP TO 4800 CUM/HR	
					KULKARNI POWER TOOLS	SHIROL	A		UP TO 2500CUM/HR	
					USHA COMPRESSORS	AHMEDABAD	A		UP TO 60 HP (APPROX 2000CUM/HR)	
2.A	EOT CRANE & ELECTRIC HOIST >5 MT	I (> 10T) / III (>5T UP TO 10T)			REVA INDUSTRIES	FARIDABAD	A		UP TO 60 MT	WTP,CT.AC&VENTILATI ON,CHP,LHP&GHP,AHP, CW , FDPS
					EDDY CRANE	PUNE	A		UPTO 10 MT	
					CONSOLIDATED HOIST	SATARA /PUNE *	A		SATARA UP TO 20 MT,*PUNE FOR ELECTRIC HOIST UPTO 15 MT	
					ELECTROTHERAPHY	RISHRA	A		UPTO 15 MT FOR ELECTRIC HOIST ONLY	
					HERCULES HOIST	RAIGAD	A		UPTO 15 MT FOR ELECTRIC HOIST ONLY	
					TUBRO FERGUSSON	KOLKATA	A		UP TO 20MT FOR EOT, UP TO 5 MT FOR FOR ELECTRIC HOIST	
					PRAYAS ENGG (PBL)	V V NAGAR	A		UPTO 10 MT FOR ELECTRIC HOIST ONLY	
					ALPHA SERVICES	ALWAR	A		SINGLE GIRDER EOT CRANE & ELECTRIC HOIST UPTO 15 MT ONLY. GEARBOX FROM	
					CENTURY CRANE ENGINEERS PVT. LTD	BALLABHGARH	A		UP TO 25 MT	
					ARMSEL	BANGALORE	A		UPTO 10 MT EOT & UPTO 15 MT ELECTRIC HOIST	
					TRACTEL TIRFOR	PALWAL	A		UPTO 15 MT FOR ELECTRIC HOIST AND UPTO 10 MT FOR EOT	
					MILLARS INDIA	KARAMSAD	A		UP TO 25 MT	
					AVON CRANES	GURGAON	A		UP TO 25 MT	
					GRIP ENGINEERS	HYDERABAD	A		50 MT (GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE).	
					GRIP ENGINEERS	FARIDABAD	A		UPTO 20 MT ELECTRIC HOIST ONLY	
					CRANEX	GHAZIABAD	A		UP TO 140 MT FOR EOT ONLY	
2.B	GANTRY CRANE >5T	I (> 10T) / III (>5T UP TO 10T)			REVA INDUSTRIES	FARIDABAD	A		UP TO 60 MT	CW
					UNIQUE INDUSTRIAL HANDLERS PVT LTD	NASHIK	A		UP TO 165 MT	
					ANUPAM INDUSTRIES LTD.	ANAND	A		UP TO 60MT	
					SMACO ENGINEERING PVT. LTD	THANE	A		UP TO 60MT	
					MANGLA HOIST	GREATER NOIDA	A		UP TO 10MT	
3	FAN- AXIAL TYPE >= 5KW	I			CB DOCTOR VENTILLATOR PVT LTD	AHMEDABAD	A		up to 50000 CMH	WTP,CT.AC&VENTILATI ON,CHP,LHP&GHP,AHP
					HOWDEN SOLYVENT FLAKT INDIA PVT LTD,	CHENNAI	A		up to 125000 CMH	
					C DOCTOR &CO PVT LTD	KOLKATA	A		up to 50000 CMH	
					KRUGER VENTILATION INDUSTRIES (I) PVT LTD	SHAHPUR, THANE	A		Up to 6000 CMH	
					NADI AIRTECHNICS PVT LTD	CHENNAI	A		Up to 15000 CMH	





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7	PUMPS- HORIZONTAL & VERTICAL CENTRIFUGAL -UP TO 300KW	(UP TO 60 KW CAT-II , ABOVE 60 KW CAT-I)			KIRLOSKAR BROTHERS LTD	KIRLOSKARWADI	A			WTP,CW, CPU,FDPS,CHP, LHP &GHP,AC & VENTILATION,MUW, AHP
					WILO MATHER & PLATT	PUNE	A			
					WILO MATHER & PLATT	KOLHAPUR	A			
					SAM TURBO	COIMBATORE	A		FLOW UP TO 1500 CUM/HR AND POWER RATING UP TO 425 KW	
					FLOWMORE LTD	GHAZIABAD	A			
					BEST AND CROMPTON	CHENNAI	A			
					JYOTI LTD	VADODARA	A			
					WPIL	GHAZIABAD	A			
					KISHORE PUMPS	PUNE	A		UPTO 500M3/HR ONLY RUBBERLINED PUMPS ALSO	
					GRUNDFOS PUMPS INDIA PVT LTD	CHENNAI	A		HORIZONTAL UP TO 30 KW ONLY AND VERTICAL UP TO 45 KW ONLY (FOR	
					SINTECH PRECISION	GHAZIABAD	A		HORIZONTAL UP TO 400 KW MOTOR RATING AND VERTICAL UP TO 30 KW MOTOR RATING	
					KSB	PUNE	A			
					KSB	NASHIK	A			
					FLOWERVE INDIA CONTROLS PVT LTD	COIMBATORE	A		HOIZONTAL CENTRIFUGAL PUMP UP TO 75 KW ONLY	
					SU MOTOR	MUMBAI	A		HORIZONATL UPTO 500M3/HR ONLY RUBBERLINED PUMPS AND VERTICAL CENTRIFUGAL PUMPS UP TO 100CMH ONLY	
					BHARAT PUMPS AND COMPRESSORS	NAINI	A		FLOW UP TO 2200 M3/HR AND HEAD UP TO 60 MWC	
8	PUMPS -VT -UP TO 300KW	I			FLOWMORE LTD	GHAZIABAD	A			WTP, CW
					KIRLOSKAR BROTHERS LIMITED	KIRLOSKARWADI	A			
					WPIL LTD	KOLKATA	A			
					WPIL LTD	GHAZIABAD	A			
					JYOTI LTD	VADODARA	A			
					XYLEM WATER SOLUTIONS INDIA PVT LTD	VADODARA	A			
					FLOWERVE INDIA CONTROLS PVT LTD	COIMBATORE	A		UP TO 1025 KW	
					SINTECH PRECISION	GHAZIABAD	A			
					WILO MATHER & PLATT	PUNE	A			
9.A	VALVE-DUAL PLATE CHECK > 600MM OR CLASS > 300 (VALVE- DUAL PLATE CHECK UP TO 600MM & CLASS 300: CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			ADVANCE VALVE PVT LTD	GR. NOIDA	A		DUAL PLATE CHECK VALVES CI UPTO 1000 NB CLASS 125, DUPLEX SS UP TO 600NB CLASS 600.	WTP,CW, CPU,FDPS,CAS,LP PIPING
					LEADER VALVES	JALANDHAR	A		UP TO 900MM CLASS 150, SS 200NB CLASS#300	



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					R & D MULTIPLE	VALSAD	A		CI/ CS UP TO 800NB PN 10	
9.B	VALVE-BALL > 100 MM OR CLASS > 800; (VALVE- BALL UP TO 100 MM & CLASS 800:CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			TRILLIUM FLOW	HUBLI	A		SS BALL VALVES UP TO 500MM AND CLASS #600, CS BALL VALVES UP TO 250 MM AND CLASS# 900, CS/ SS BALL VALVES UP TO 100 MM AND CLASS # 1500.	WTP, CPU,FDPs,CAS,FOH,CHP, LHP&GHP,AHP
					MICRO FINISH VALVES PVT. LTD.	HUBLI	A		400NB CLASS#600 AND UP TO 600NB CLASS#300	
					FLOW CHEM INDUSTRIES	KALOL	A		100NB CLASS#600,200NB CLASS#300, 50 NB CLASS#800	
					L&T VALVES LIMITED	COIMBATORE	A		UPTO 150NB, CLASS #150/300, AND UPTO 50NB, CLASS #800	
					PRECISSION ENGG CO VALVES PVT LTD	NASIK	A		FCS UP TO 50NB CLASS 800, CCS UP TO 400NB CLASS 150.	
					BELGAUM AQUA VALVE PVT LTD	BELGAON	A		FCS UP TO 50NB CLASS 800, CCS UP TO 200NB CLASS 150.	
					G M ENGINEERING PRIVATE LTD	RAJKOT	A		UP TO 400 NB AND CLASS #600	
9.C	VALVE-BUTTERFLY > 600MM OR CLASS>150 (VALVE-BUTTERFLY UP TO 600MM & CLASS 150::CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			INTERVALVE POONAWALA LTD	PUNE	A		SGI / CI / D2 1400MM PN10, SGI / CI 1000MM PN16,CS/SS 500MM PN16, SS 400MM CLASS#300 ,MS FABRICATED UPTO 2000NB	WTP, CW,CT,CPU,FDPs,CAS, AC& VENTILATION, MUW,CHP, LHP&GHP,LP PIPING,AHP
					TRILLIUM FLOW	HUBLI	A		CI/ DI BUTTERFLY VALVE UP TO 1000MM AND PN16 AND UP TO 1800MM AND PN10,CCS UP TO 1050MM CLASS 150 AND UP TO 1800MM AND PN16 SS - UP TO 400NB PN-16 ,FABRICATED 800MM CLASS#150.	
					PENTAIR VALVES	HALOL	A		FOR SS UP TO 500 NB PN-10, CI- UP TO 900NB PN-10, UP TO 500NB PN-16, 450MM CLASS#300., MS FABRICATED UPTO 2800NB, PN6.	
					FOURES ENGINEERING	BANGALORE	A		CAST SGI/CI/ MS FABRICATED- UP TO 1200 PN-10, UP TO 350 PN-16 ,2400 MM	
					KIRLOSKAR BROTHERS LTD	KONDHAPURI	A		CAST SGI/CI/CS 1400 MM PN16 , SS 300 MM PN16 , 1800MM CLASS 150, MS FABRICATED 900 NB PN40,MS FABRICATED 2800NB, PN6.	
					R & D MULTIPLE	VALSAD	A		CAST SGI/CI/MS FABRICATED- UP TO 1800 MM PN-10/CLASS # 75 ,1100MM PN25,1400MM CLASS#150 ,MS FABRICATED	
					ADVANCE VALVES PVT LTD	GREATER NOIDA	A		METAL SEATED, TRIPLE ECCENTRIC, SS BfV OF SIZE UPTO 100NB, AND PRESSURE RATING UPTO CLASS #300.	
					BRAY CONTROLS INDIA PVT. LTD	KANCHIPURAM	A		UPTO 450 MM AND CLASS#600	
					INSTRUMENTATION LTD.	PALAKKAD	A		UPTO 2200NB CLASS # 75	
					HAWA ENGINEERS	AHMEDABAD	A		CI/ CS & FABRICATED UPTO 1200MM, CLASS #150, SS UPTO 250MM, CLASS#150	
					CRANE PROCESS FLOW	SATARA	A		UP TO 900MM PN10	
					L & T VALVES LIMITED	COIMBATORE	A		UP TO 900MM CLASS 150	
					DEMBLA VALVES	THANE	A		UP TO 2200MM CLASS#75	



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9.D	VALVE-CONVENTIONAL GATE / GLOBE / CHECK > 600NB OR CLASS > 300	II			LEADER VALVES	JALANDHAR	A		CS GATE 600MM CLASS#600, SS GLOBE 600MM CLASS#600, CS CHECK 600MM AND CLASS#600	WTP, CW,CT,CPU,FDPS,CAS, AC& VENTILATION, MUW,CHP, LHP&GHP,LP PIPING,AHP				
					HAWA ENGINEERS	AHMEDABAD	A		FCS / FSS 50 NB CLASS 800.					
					FOURES ENGINEERINGS	THANE	A		400NB CLASS 600 AND 50NB CLASS 800.					
					BHEL IVP	GOINDWAL	A		GATE UP TO 300 NB CLASS 600. GLOBE 250 NB CLASS 400, CHECK 150NB CLASS 600.					
					HITECH ENGG PVT LTD	AHEMDABAD	A		50 NB CLASS 800.					
					KSB PUMPS LTD	COIMBATORE	A		300NB CLASS 2500.					
					NITON VALVES INDIA PVT LTD	NAVI MUMBAI / AURANGABAD	A		CS GATE 900 NB CLASS 600, CHECK 300 NB CLASS 600.					
					L&T VALVES LIMITED	COIMBATORE	A		650 MM CLASS 600, 50 NB CLASS 800.					
9.E	VALVE- DIAPHRAGM TYPE	I			CRANE PROCESS FLOW	SATARA	A		UP TO 300NB PN10	WTP,CPU				
					WEIR BDK	HUBLI	A		UPTO 250 NB - PN 10, 350MM PN6					
					PROCON ENGINEERS	MUMBAI	A		UPTO 200 NB AND PN 10/CLASS #150					
9.F	VALVE-PLUG > 100 MM OR CLASS > 800(VALVE-PLUG UP TO 100 MM & CLASS 800:CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			TRILLIUM FLOW	HUBLI	A		SOFT SEATED 400MM AND CLASS #150,	WTP,CPU,CHP, LHP&GHP, FOH,AHP				
									300NB CLASS#300					
					XOMOX SANMAR	TRICHY	A		UP TO 600MM AND CLASS#300					
10	PUMP -SUBMERSIBLE>= 30KW	I			FLOWERVE INDIA CONTROLS	CHENNAI	A		METALLIC SEATED 400NB CLASS#150, 300NB CLASS #300, 50NB CLASS #800	WTP,CT, CPU,CHP, LHP&GHP, FOH,AHP.LP PIPING,FDPS				
					KSB	NASHIK	A		130 KW					
					KIRLOSKAR BROTHERS LTD	KIRLOSKARWADI	A							
					AQUA MACHINERY	AHMEDABAD	A		UP TO 235 KW					
11	RUBBER EXPANSION JOINT>=1600NB (RUBBER EXPANSION JOINT < 1600NB: CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			WPIL	GHAZIABAD	A			ACW, ECW, CW,CT				
					CORI ENGINEERS PVT LTD	CHENNAI	A		UPTO 2800 MM					
12	FAN ASSEMBLY-COOLING TOWER	I			SRM EXOFLEX PVT LTD	KOLKATA	A		UPTO 2800 MM	CT				
					PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A		WITH SOLID FAN BLADES 288" AND 336 " DIA, WITH FOAM CORED FAN BLADES WITH 10METERS AND 10.97 METERS					
					PAHARPUR COOLING TOWERS LTD	BHASA	A		60" TO 288" FAN DIA					
					PAHARPUR COOLING TOWERS LTD	KOLKATA	A		60" TO 288" FAN DIA					
					M/s MAYA FANS AIR ENGG PVT LTD,	DEWAS	A		UP TO 11 METER FAN DIA					
					AMALGAMATED INDUSTRIAL COMPOSITES PVT LTD	NASHIK	A		UP TO 11 METER FAN DIA					

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Package/ पैकेज : EPC
Supplier/ आपूर्तिकर्ता:
Contract No./ अनुबंध सं.:

INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN
AND SUB-SUPPLIER APPROVAL
क्वालिटी प्लान तथा सब -वेंडर के अनुमोदन सहित मदों की सूची
SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)

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13	GEAR BOX -COOLING TOWER	I			PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A			CT
					PAHARPUR COOLING TOWERS LTD	KOLKATA	A			
					NEW ALLENBERRY WORKS	KOLKATA	A			
					ELECON ENGINEERING	VALLABH VIDYANAGAR	A			
					PREMIUM ENERGY TRANSMISSION LTD.	FALTA	A			
14	DRIVE SHAFT-CARBON FIBRE -COOLING TOWER	II			M/S EUROFLEX TRANSMISSION (INDIA) PVT LTD	HYDERABAD	A			CT
					PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A			
					M/s AMALGAMATED INDUSTRIAL COMPOSITES PVT LTD	NASHIK	A			
					NORTH STREET COOLING TOWERS	GHAZIABAD	A			
15	DRIVE SHAFT SS-COOLING TOWER	II			PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A			CT
					PAHARPUR COOLING TOWERS LTD	KOLKATA	A			
					NORTH STREET COOLING TOWER	GHAZIABAD	A			
16	PUMP-CW PUMP	I			KIRLOSKAR BROTHER'S LIMITED	KIRLOSKARWADI	A		BOTH CV & VT TYPE	CW
					WPIL LTD	KOLKATA	A		BOTH CV & VT TYPE	
					FLOWERVE INDIA CONTROLS PVT LTD	COIMBATORE	A		CV TYPE ONLY	
					FLOWMORE LTD	GHAZIABAD	A		VT TYPE ONLY	
					XYLEM WATER SOLUTIONS INDIA PVT LTD	VADODARA	A		VT TYPE ONLY	
					JYOTI LTD	VADODARA	A		VT TYPE ONLY.	
17	ELECTRO HYDRAULIC ACTUATOR FOR CW PUMP DISCHARGE BUTTERFLY VALVE	I			BOSCH REXROTH (INDIA) PVT LTD	SANAND	A		HYDRAULIC POWER PACK AND HYDRAULIC CYLINDER (320 MMM BORE DIA) ,	CW
					HYDAC (INDIA) PVT. LTD	COIMBATORE	A		HYDRAULIC POWER PACK-HYDAC COIMBATORE, HYDRAULIC CYLINDER -HYDAC	
18	IMPELLER CASTING - CW PUMP	II			ISGEC	MUZAFER NAGAR	A		FINISHED CASTING UP TO 4.0 MT APPROX	CW
					THE KOLHAPUR STEEL LTD,	KOLHAPUR	A		FINISHED CASTING UP TO 4.0 MT APPROX	
					WESTERN PRECAST PVT LTD	SANGLI	A		FINISHED CASTING UP TO 3.5 MT APPROX	
					HINDUSTAN UDYOG LIMITED	NAGPUR	A		FINISHED CASTING UP TO 3.0 MT APPROX	
					HI-MET CORPORATION	S.KOREA	A		FINISHED CASTING UP TO 3.0 MT APPROX	
					MATHER FOUNDRY LTD	UK	A		FINISHED CASTING UP TO 3.6 MT APPROX	
19	SHAFT-FORGING -CW PUMP	II			GORADIA SPECIAL STEELS LTD	KHAPOLI	A			CW
					BHARAT FORGE	PUNE	A			
					CFFP,BHEL	HARIDWAR	A		UP TO DIAMETER 290MM AND LENGTH APPROX. 3000MM, GRADE SS410	
20	THRUST BEARING FOR CW PUMP	I			MICHEL	BANGLORE	A			CW



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					KMP	GREATER NOIDA	A			
21	DELUGE VALVE WITH TRIMS	I			HD FIRE	THANE/JALGAON	A			FDPS
					CARRIER	GURGAON	A		FOR PISTON TYPE DELUGE VALVE ONLY	
22	INERT GAS EXTINGUISHING SYSTEM	II			ANSUL	USA	A			FDPS
					KIDDE (GINGEKERR)	UK	A			
					NAFFCO	UAE	A			
					MINIMAX Gmbh & Co. KG	GERMANY	A			
					TOTAL WALTHER	GERMANY	A			
					NOHMI BOSAI	JAPAN	A			
23	ALARM VALVE WITH TRIMS	II			HD FIRE	THANE	A			FDPS
					HD FIRE	JALGAON	A			
24	FOAM SYSTEM(BLADDER TYPE)	I			HD FIRE	JALGAON	A			FDPS
					FIRETECH	RATNAGIRI	A			
25	FIRE TENDER	I			WADIA BODY BUILDERS	AHEMDABAD	A			FDPS
					AAREL INDUSTRIES	INDORE	A			
					AMBALA COACH	AMBALA	A			
					VIJAY FIRE	UMBERGAON	A			
26	CENTRIFUGAL FAN (≥ 5KW) MOTOR FROM NTPC ACCEPTED SOURCE	I			MARATHON ELECTRIC MOTOR(I) LTD	KOLKATA	A		UP TO 50000 CMH	AC& VENTILATION, CHP, LHP&GHP,,AHP
					HOWDEN SOLYVENT FLAKT INDIA PVT LTD,	CHENNAI	A		UP TO 200000 CMH	
					ALMONAROD (P) LIMITED	CHENNAI	A		UP TO 60000 CMH	
					PATEL AIRFLOW	VATWA, AHMEDABAD	A		UP TO 250000 CMH	
					CB DOCTOR VENTILATOR PVT LTD	AHMEDABAD	A		UP TO 150000 CMH	
					WOLTER VENTILATORS INDIA (P) LTD	BHIWADI,	A		UP TO 200000 CMH	
					C DOCTOR &CO PVT LTD	KOLKATA	A		UP TO 250000 CMH	
					SUVIDHA AIR ENGINEERS	AHMEDABAD	A		UP TO 190000 CMH	
					SUBURBAN INDUSTRIAL WORKS PVT. LTD	KOLKATA	A		UP TO 100000 CMH	
					KRUGER VENTILATION INDUSTRIES (I) PVT LTD	THANE	A		UP TO 90000 CMH	
					SOLYVENT FLAKT	KOLKATA	A		UP TO 200000 CMH	
					ADVANCE VENTILATION PVT LTD	SONEPAT	A		UP TO 250000 CMH	
					SK SYSTEMS PVT LTD	SONEPAT	A		UP TO 250000 CMH	
27					CUMMINS	PUNE	A		Up to 2000 KVA	DG SET,FDPS
					PERKINS	AURANGABAD	A		UP to 313 HP	



Project/ परियोजना : LARA-II Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:		INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL स्वालिटी प्लान तथा सब -वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)				DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 08.06.22 PAGE/ पृष्ठ :			Remarks/ टिप्पणी	Applicable Systems
S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी (NOTE- 1)	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची		
	DIESEL ENGINE	I			GREAVESS COTTON	AURANGABAD	A		Up to 1750 KVA	
28	3 LPE COATED PIPE	I			SAIL	ROURKELA	A			MUW
					RATNAMANI	KUTCH	A		UP TO 1100 NB	
					PSL LTD	KUTCH/ VIZAC	A		UP TO 1100 NB	
29	PLATE HEAT EXCHANGER	I			TRANTER INDIA	PUNE	A		HT PLATES & GASKETS FROM TRANTER SWIDEN/USA.HT PLATES FROM HISKA JAPAN	ECW
					ALPHA LAVAL	SATARA	A		HT PLATES & GASKETS FROM ALPHA LAVAL SWIDEN	
					IDMC	ANAND	A		HT PLATES & GASKETS FROM SONDEX DENMARK	
					SONDEX INDIA	VADODARA	A		HT PLATES FROM SONDEX DENMARK/INDIA (MODEL S188)	
30	DI(Ductile Iron) PIPE & FITTINGS	I			JINDAL SAW(J161)	KUTCH	A		UP TO DN 900 CLASS K7 & K9	MUW
					JAI BALAJI(J156)	BARDWAN	A		UP TO DN 900 CLASS K7 & K9	
					ELETRO STEEL	KOLKATA	A			
31	AIR COPMPRESSOR: OIL FREE CENTRIFUGAL COMPRESSOR	I			NGERSOLL RAND INDIA	AHEMDABAD	A		Capacity Upto 60 NM3/Minute @ Pr 8 bar	CAS
					KIRLOSKAR PNEUMATIC COMPANY LTD	PUNE	A		Capacity up to 45.3 Nm3/min and pressure rating up to 9.3 kg/cm2	
32	SCREW TYPE AIR COMPRESSORS	I			ATLAS COPCO	Pune (Dapodi)	A			CAS, CHP, LHP, GHP, MRHS, AHP
		I			INGERSOL RAND INDIA	AHMEDABAD	A			
		I			ELGI	COIMBATORE	A			
		I			KIRLOSKER PNEUMATIC COMP LTD	PUNE	A			
33	AIR DRYER	I			SUMMITTS HYGRONICS	COIMBATORE	A		UPTO MODEL SH 300 (36 NM3/MIN) . AIR ENDS FROM GHH RAND - GERMANY & OTHER UPTO 2830 CFM, AIR ENDS FROM HITACHI-JAPAN. ASSEMBLY AND TESTING AT ELGI FLOW CAPACITY 45.3 NM3/MIN , AND PRESSURE RATING 9.3 KG/CM2	CAS
					MELLCON ENGRS PVT LTD	GR NOIDA	A		FOR REFRIGERANT DRYER, 11893 M3/HR., REGENERATIVE DRYERS BLOWER	
					DELAIR INDIA LTD	GURGAON	A		Refrigerant type 60 m3/hr & REGENERATIVE DRYERS HOC TYPE 2548 M3/HR	
					SUMESH PETROLEUM	VADODARA	A		Refrigerant type 7500 m3/hr & REGENERATIVE DRYERS HOC TYPE 3000 100 CFM(169 M3/HR) & 7 KG/CM2	
					TRIDENT PNEUMATIC PVT LTD	COIMBATORE	A		Refrigerant type 10000 m3/hr & REGENERATIVE DRYERS BHR TYPE 1000	
34	SCREW CHILLER	II			KIRLOSKAR CHILLER	PUNE	A		UP TO 350TR	AC& VENTILATION
					DAIKIN	NEEMRANA	A		UP TO 185 TR	
					BLUE STAR (COMPRESSOR FROM HANBEL-TAIWAN)	WADA	A		SCREW CHILLER UP TO 282TR	
35	Mettalic Expansion Bellows	II			MB METTALIC BELLOWES	CHENNAI	A			MRHS
					SUR Industries	KOLKATA	A			
					LONE STAR	CHENNAI	A			
36	Conveying Compressor (Reciprocating)	I			KIRLOSKAR PNEUMATICS	PUNE	A			MRHS
					INGERSOLL RAND	AHEMDABAD	A			
					ATLAS COPCO(CHICAGO PNEUMATIC BRAND)	PUNE	A			



Project/ परियोजना : LARA-II
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Supplier/ आपूर्तिकर्ता:
Contract No./ अनुबंध सं.:

INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN
AND SUB-SUPPLIER APPROVAL
क्वालिटी प्लान तथा सब -वेंडर के अनुमोदन सहित मदों की सूची
SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)

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37	ALLOY CAST IRON PIPE, FITTINGS AND LINER	I			CRAWLEY & RAY	KOLKATA	A			MRHS, AHP
					ALLIED FOUNDRIES	BELGAUM	A			
					PARAMOUNT CASTINGS	NAGPUR	A			
					NORTHERN ALLOY	BHAVNAGAR	A			
					MENON METALLIK	KOLHAPUR	A			
					KOLHAPUR STEEL	KOLHAPUR	A			
					AQUA ALLOY	KOLHAPUR	A			
					MARTO PEARL	HYDERABAD	A			
					R.R.L	HOWRAH	A			
					CONCAST ENGINEERING	BURDWAN, WB	A			
					NATRAJ IRON & CASTINGS	DHANBAD	A			
					ABHIPRIYA BUSINESS	PANT NAGAR	A			
38	DRY ASH UNLOADING CHUTE	I			MELCO	FARIDABAD	A			AHP
					MACAWBER BEEKAY	KESHWANA	A			
					MINING AND MATERIAL HANDLING EQUIPMENT	KOLKATA	A			
					DCL	HYDERABAD	A			
39	BAG FILTER / SILO VENT FILTER	II			FLAKT	KOLKATA	A			AHP,MRHS
					ORIENT FANS (ACCO)	KOLKATA	A			
					THERMAX	PUNE	A			
					RIECO	PUNE	A			
					MELCO	FARIDABAD	A			
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
					TAP ENGINEERING	KANCHEEPURAM	A			
40	REFRIGERANT TYPE DRYER	I			SUMMITS HYGRONICS	COIMBATORE	A		Upto 11893 m3/hr	AHP
					TRIDENT	COIMBATORE	A		Upto 10000 m3/hr	
					MELLCON	GREATER NOIDA	A		Upto 7250 m3/hr	



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					DELAIR	GURGAON	A		Upto 7500 m3/hr		
					ATLAS COPCO	BELGIUM	A		Upto model FD 1200. ASSEMBLY AND TESTING AT PUNE		
41	VACUUM PUMP / MECHANICAL EXHAUSTER [WATER SEAL RING TYPE]	I			KAKATI KARSHAK	HYDERABAD	A			AHP	
					VACUNAIR	AHEMDABAD	A				
42	BASALT LINE PIPE & FITTING	I			DECCAN MECHANICAL & CHEMICAL	BARAMATI	A				
					ENVIRO ABRASION	PUNE	A		CAST BASALT LINERS FROM SCHOLTEN GmbH-GERMANY	AHP	
					TURBO ENGINEERS	COIMBATORE	A		CAST BASALT LINERS FROM KALENBORN - GERMANY/POLAND OR EUTIT - Czech Republic		
					GOENKA CAST ENGINEERING(I) PVT LTD	DURG	A		UP TO 350 NB		
					BMW STEEL	ROORKEE	A		UP TO 550 NB		
43	SLURRY DUTY KNIFE GATE VALVE	I			BRAY CONTROLS INDIA PVT LTD, VAAS KNIFE GATE VALVE DIVISION	CHENNAI	A		UPTO PN 10 RATING		
					FOURESS ENGINEERING	BANGALORE	A		UPTO PN 10 RATING	AHP	
					ORBINOX	COIMBATORE	A		UPTO PN 16 RATING		
					WEIR MINERALS	BANGALORE	A		UPTO 12" PN 10 RATING		
44	FLY ASH DUTY KNIFE GATE VALVE	I			BRAY CONTROLS INDIA PVT LTD, VAAS KNIFE GATE VALVE DIVISION	CHENNAI	A				
					FOURESS ENGINEERING	BANGALORE	A			AHP	
					ORBINOX	COIMBATORE	A				
					JASH SCHUTTE	INDORE	A				
45	CAST IRON PIPE	II			ELECTROSTEEL	CHENNAI	A		UPTO 450 NB		
					KESORAM	KOLKATA	A		UPTO 350 NB	AHP	
					IISCO	KULTI	A				
					KAPILANSH DHATU UDYOG	NAGPUR	A		APPROVED UPTO 300 NB.		
					KUSHA LAVA	VIJAYWADA	A		FOR NON STD. SIZE		
46	ASH SLURRY PUMP	I			SAM INDUSTRIAL PUMPS	COIMBATORE	A				
					WEIR MINERALS	AUSTRALIA	A		MANUFACTURING AT WEIR MINERALS BANGALORE	AHP	
47	AIR LOCK FEEDER VESSEL / BOTTOM ASH OVERFLOW TANK/MIXING TANK/COARSE ASH TANK/ AIR OIL CONVERTOR TANK, AIR INTAKE VALVE	II			MELCO	FARIDABAD	A				
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A		AIR OIL TANK- ASANSOLE , AIR INTAKE VALVE - KUMARDUBHI	AHP	
					MACAWBER BEEKAY	KESHWANA	A				
48	BOTTOM ASH HOPPER / BUFFER HOPPER/DUST COLLECTOR	I			MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A				
					MELCO	FARIDABAD	A		ONLY FOR BUFFER HOPPER AND DUST COLLECTOR	AHP	
					MACAWBER BEEKAY	KESHWANA	A				
49	CLINKER GRINDER	I			MELCO	FARIDABAD	A				
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			AHP	
					L&T	KANSBAHAL	A				

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AND SUB-SUPPLIER APPROVAL
स्वालिटी प्लान तथा सब -वेंडर के अनुमोदन सहित मदों की सूची
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					MACAWBER BEEKAY	KESHWANA	A			
50	FLY ASH HOPPERVALVE/ASH INTAKE VALVE/FLY ASH DIFFUSER / DRIVE ARRANGEMENT FOR CLINKER GRINDER	II			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			
51	FLUIDIZING PAD / FLUSHING APPARATUS	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			
52	FLY ASH STORAGE SILO/HCSO SILO	I			MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			AHP
					MACAWBER BEEKAY	KESHWANA	A			
53	FEED SUMP / VACUUM BREAKER	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
54	FLY ASH HEADER VALVE/BRANCH HEADER VALVE / AIR INTAKE VALVE /EQUALISING VALVE /PLUG GATE FOR SUMP ISOLATION	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	KUMARDHUBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			
55	HYDROMIX DUST CONDITIONER/ROTARY FEEDER	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
					L&T	KANSBAHAL	A			
					EXPONENTIAL ENGINEERING	PUNE	A			
56	JET PUMP / JETTING NOZZLE	I			MELCO	FARIDABAD	A		JET PUMP / JETTING NOZZLE	AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A		JET PUMP / JETTING NOZZLE	
					L&T	KANSBAHAL	A		JET PUMP	
					MACAWBER BEEKAY	KESHWANA	A		JET PUMP / JETTING NOZZLE	
57	COLLECTOR TANK / AIR WASHER / WETTING HEAD / SURGE / SETTLING TANK	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
58	PLATE VALVE AT DYKE END	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDH UBI	A			
					MACAWBER BEEKAY	KESHWANA	A			



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59	DESSICANT TYPE AIR DRYER	I			DELAIR	GURGAON	A			AHP
					INDCON	DELHI	A			
					MELLCON	GREATER NOIDA	A			
					SUMMITS HYGRONICS	COIMBATORE	A			
					TRIDENT	COIMBATORE	A			
60	STACKER RECLAIMER & RECLAIMER	I			MCNALLY	KUMARDHUBI / ASAN	A			CHP
					L&T	KANCHEEPURAM	A			
					THYSSENKRUPP	PUNE	A			
					ELECON	V V NAGAR	A			
					TRF	JAMSHEDPUR	A			
					SANDVIK	PUNE	A			
					PROMAC	BANGALORE	A			
					THYSSENKRUPP	HYDERABAD	A		* Hyderabad works approved for some of assemblies for Stacker Reclaimer - Counter	
61	WAGON TIPPLER & SIDE ARM CHARGER	I			ELECON	V V NAGAR	A			CHP
					FAMAK S.A. (IN ASSOCIATIONWITH MBE-ASANSOL)	POLAND	A			
					L & T	KANSBAHAL	A			
					THYSSENKRUPP	PUNE	A			
					TRF	JAMSHEDPUR	A			
					PROMAC	BANGALORE	A			
62	APRON FEEDER WITH DRIBBLE CONVEYOR (1600 TPH)	I			THYSSENKRUPP	HYDERABAD	A		UPTO 2400 TPH	CHP
					L&T	KANSBAHL	A		UPTO 2200 TPH	
					ELECON	VV NAGAR	A		UPTO 2200 TPH	
					TRF	JAMSHEDPUR	A		UPTO 2400 TPH Extended Warranty of 3 years over & above of contractual warranty on parts other than the parts treated as consumables	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 2200 TPH	
63	RING GRANULATOR	I			PENNSYLVANIA CRUSHERCORPORATION	USA	A		UP TO 1760 TPH	CHP
					AMERICAN PULVERISER	USA	A		UPTO 1875 TPH	
					THYSSENKRUPP	PUNE	A		UP TO 2035 TPH	
					TRF	JAMSHEDPUR	A		UP TO 1800 TPH TRF shall give extended warranty of 5 years over & above Contractual Warranty	
					L&T	KANSBAHAL	A		UP TO 1600 TPH	
					ELECON	V V NAGAR	A		UP TO 1320 TPH	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 1000 TPH	
					TECHNO VIBRAZIONI	ITALY	A		UPTO 1875 TPH	
64.A	VIBRATING SCREEN FEEDER	I			ELECON	V V NAGAR	A		UP TO 1320 TPH	CHP
					GENERAL KINEMATICS	USA	A		UP TO 2000TPH	
					THYSSENKRUPP	PUNE	A		UP TO 2035 TPH	
					TRF	JAMSHEDPUR	A		UP TO 1800 TPH TRF shall give extended warranty of 5 years over & above Contractual Warranty	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 1210 TPH	
					TECHNO VIBRAZIONI	ITALY	A		UPTO 1875 TPH	
					ELECON	V V NAGAR	A		UP TO 1320 TPH	
64.B										

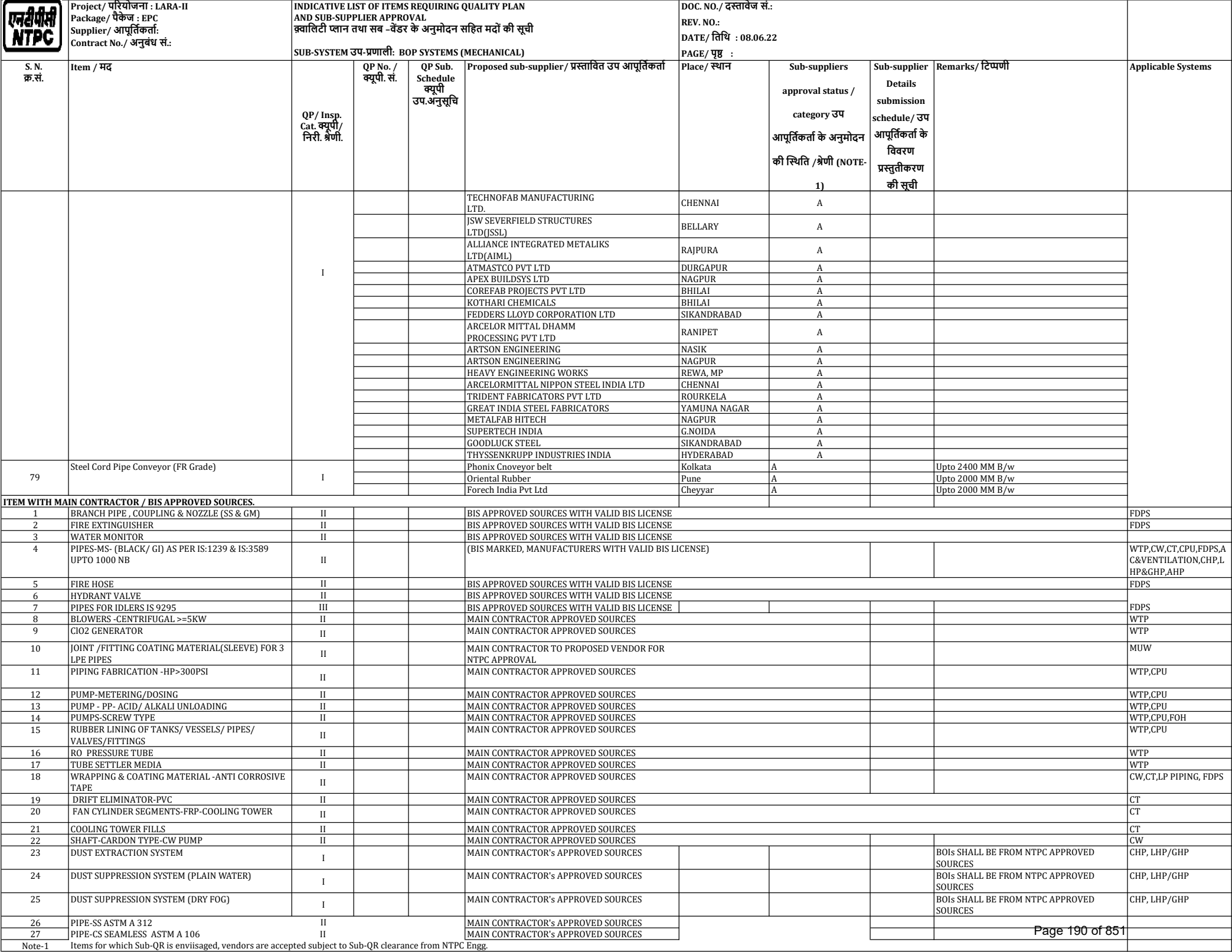



Project/ परियोजना : LARA-II Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:		INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL झालिटी प्लान तथा सब - वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)				DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 08.06.22 PAGE/ पृष्ठ :				
S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी (NOTE- 1)	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Applicable Systems
	VIBRATING FEEDER	I			GENERAL KINEMATICS	USA	A		UP TO 2000TPH	CHP
					THYSSENKRUPP	PUNE	A			
					TRF	JAMSHEDPUR	A		UP TO 1800 TPH TRF shall give extended warranty of 5 years over & above Contractual Warranty	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 1210 TPH	
					INTERNATIONAL COMBUSTION	NAGPUR	A			
					Electro Zavod	Kolkata	A		UPTO 400TPH	
					Elektromag Joest	Vapi	A		UP TO 750 TPH	
65	TRAVELLING TRIPPER	I			BENGAL TOOLS	KOLKATA	A			CHP
					THYSSENKRUPP	PUNE / HYDERABAD	A			
					ELECON	V V NAGAR	A			
					MBE	KUMARDHUBI	A			
					TRF	JAMSHEDPUR	A			
					HMTc	KOLKATA	A			
					L & T - MACNIL	CHENNAI	A			
					L & T	KANSBAHAL	A			
					L & T - EWL	KANCHEEPURAM	A			
					PHOENIX CONVEYOR BELT	KOLKATA	A		FABRIC BELT UPTO 2200 MM WIDTH	
66	FABRIC BELTING(FR GRADE)	I			MRF	CHENNAI	A		FABRIC BELT UPTO 1600 MM WIDTH	CHP, LHP/GHP
					SEMPELTRAN NIRLON	MUMBAI	A		FABRIC BELT UPTO 1600 MM WIDTH	
					HINDUSTAN RUBBER	SILVASA	A		FABRIC BELT UPTO 1600 MM WIDTH	
					NORTHLAND RUBBER	SONEPAT	A		FABRIC BELT UPTO 2200 MM WIDTH.	
					SOMI CONVEYOR	JODHPUR	A		FABRIC BELT UPTO 2000 MM WIDTH	
					RAVASCO TRANSMISSION LTD.	VAPI	A		FABRIC BELT UPTO 2200 MM WIDTH	
					ORIENTAL RUBBER	PUNE	A		FABRIC BELT UPTO 2200 MM WIDTH	
					FORECH	CHENNAI	A		FABRIC BELT UPTO 2000 MM WIDTH	
					ELECON	V V NAGAR	A			
					MBE	KUMARDHUBI	A			
67	IDLERS	I			KALI	KUMBAKONAM	A			CHP , LHP/GHP
					AMPS	JAMSHEDPUR	A			
					A.ADAK	HOWRAH	A			
					BTL EPC	KOLKATA	A			
					V V N MFG	V V NAGAR	A		Upto 150 NB Dia	
					THYSSENKRUPP	HYDERABAD / PUNE	A			
					PROMAC	BANGALORE	A			
					L & T - EWL	KANCHEEPURAM	A			
					ROLLWELL	HINDUPUR	A			
					TRF	JAMSHEDPUR	A			
					ELECON	V V NAGAR	A			
					PROMAC	BANGALORE	A			
					MBE	KUMARDHUBI	A			
68	PULLEYS	I			BTL EPC	KOLKATA	A			CHP, LHP/GHP
					TNS HEAVY	CHENNAI	A			
					KALI	THIRUBUVANAM	A			
					THYSSENKRUPP	HYDERABAD / PUNE	A			
					L & T - EWL	KANCHEEPURAM	A			
					V V N MFG	V V NAGAR	A		Upto 800 NB Dia	
					ROLLWELL	HINDUPUR	A			
					TRF	JAMSHEDPUR	A			
					SHANTI GEARS	COIMBATORE	A		Upto size 560	
					ELECON	V V NAGAR	A			
					SIEMENS (FLENDER)	KHARAGPUR	A			
					PREMIUM TRANSMISSION LTD	PUNE/FALTA	A		Up to size 710 / 450	
69	HELICAL GEARBOX	I			SIEMENS (FLENDER)	GERMANY	A			CHP, LHP/GHP
					NEW ALLENBURY WORKS	KOLKATA	A			
					ELECON	V V NAGAR	A			
					SIEMENS (FLENDER)	GERMANY	A			
					MOVENTAS	GERMANY	A			
70	PLANETARY GEARBOX	I			DANA MOTION SYSTEMS ITALIA S.r.l	ITALY	A		(Earlier name - BREVINI)	CHP,LHP/GHP
					SEW EURODRIVE GMBH & CO.	GERMANY	A			
					FLUIDOMAT	DEWAS	A		Scoop type upto SC-1330	
					PTL	AURANGABAD	A		SCOOP TYPE UPTO PST 1140	
71										



Project/ परियोजना : LARA-II Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:		INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब -वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)				DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 08.06.22 PAGE/ पृष्ठ :				
S. N. क्र.सं.	Item / मद	QP / Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी (NOTE- 1)	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Applicable Systems
	FLUID COUPLING (SCOOP AND TRACTION TYPE)	I			ELECON	V V NAGAR	A		Scoop type upto model ESC 760. 1. As part of Type test M/s Elecon will demonstrate Scoop tube in & Scoop tube out 1000 times on first coupling of each model. 2. M/s Elecon will conduct full load test for each type and model of coupling as per approved quality plan.	CHP,LHP/GHP
					VOITH	HYDERABAD	A		SCOOP TYPE UPTO SVNL 1330	
72	SLEW RING	III			TITANUS	SOUTH AFRICA	A			CHP, LHP/GHP
					IMO	GERMANY	A			
					SKF	FRANCE	A			
					ROTHE ERDE	GERMANY	A			
					LIEBHERR	GERMANY	A			
73.A	COAL SAMPLER SYSTEM	I			EAST MAN CRUSHER	KOLKATA	A		WITH JEFFREY CRUSHER AND EASTMAN MAKE CRUSHER	CHP
					ERIEZ MAG EUROPE LTD	UK	A			
					SIEVE TECHNIK	GERMANY	A		MANUFACTURING OF PRIMARY & SECONDARY SAMPLER AN BOTTLE COLLECTOR AT MULTOTEC SA	
					THERMO RAMSAY INC	USA	A			
					ADVANCE SYSTEMS SAMPLING	KOLKATA	A		WITH JEFFREY CRUSHER AND ADVANCE MAKE CRUSHER	
73.B	LIMESTONE SAMPLING SYSTEM	I			EAST MAN CRUSHER	KOLKATA	A		WITH JEFFREY CRUSHER AND EASTMAN MAKE CRUSHER	LHP/GHP
					ERIEZ MAG EUROPE LTD	UK	A			
					SIEVE TECHNIK	GERMANY	A		MANUFACTURING OF PRIMARY & SECONDARY SAMPLER AN BOTTLE COLLECTOR AT MULTOTEC SA	
					THERMO RAMSAY INC	USA	A			
					ADVANCE SYSTEMS SAMPLING	KOLKATA	A		WITH JEFFREY CRUSHER AND ADVANCE MAKE CRUSHER	
74	HYDRAULIC POWER PACK	I			EATON POWER	PUNE	A			CHP, LHP/GHP
					BOSCH-REXROTH	AHMEDABAD	A			
					MAHA HYDRAULICS	CHENNAI	A			
					L & T HYDRAULICS	BANGALORE	A		EXCEPT FOR STACKER RECLAIMER	
					Hydac	COIMBATORE	A			
75	HYDRAULIC CYLINDER	I			VELJAN	HYDERABAD	A			CHP, LHP/GHP
					WIPRO	BANGALORE	A			
					EATON POWER	PUNE	A			
					L & T HYDRAULICS	BANGALORE	A			
					BOSCH-REXROTH	AHMEDABAD	A			
					Hydac	COIMBATORE	A			
76	HYDRAULIC MOTOR	I			POCLAIN HYDRAULICS	FRANCE	A			CHP , LHP/GHP
					BOSCH-REXROTH AB (FORMERLY HAGGLUNDS)	SWEDEN	A			
					PARKER CALZONI	ITALY	A			
					MAHA HYDRAULICS	CHENNAI	A		UP TO 100 LITRE CAPACITY	
					KAWASAKI	UK	A			
77	HAMMER MILL CRUSHER FOR LIME STONE HANDLING SYSTEM	I			INTERNATIONAL COMBUSTION	NAGPUR	A			LHP/GHP
					MCNALLY SAYAJI	BARODA	A			
					MCNALLY SAYAJI	KUMARDHUBI	A			
					ELECON	V V NAGAR	A			
					THYSSENKRUPP INDUSTRIES INDIA	PUNE	A			
					ECOMAN	BARODA	A		UPTO 150TPH	
78	SHOP FABRICATED STRUCTURE				INDIANA GRATINGS PVT. LTD.	PUNE	A			CHP/LHP/GHP
					JINDAL STEEL & POWER LTD.	RAIGARH	A			
					BABY ENGG. PVT. LTD.	TRICHY	A			
					REGIONAL ENGG. WORKS	TRICHY	A			
					AJANTHA FABS	MATHURA	A			
					CAPACITE STRUCTURES LTD.	THANE	A			
					MIURA INFRASTRUCTURE PVT. LTD.	BHILAI	A			
					SHIVAM HITECH STEELS PVT. LTD	BHILAI	A			

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Project/ परियोजना : LARA-II
 Package/ पैकेज : EPC
 Supplier/ आपूर्तिकर्ता:
 Contract No./ अनुबंध सं.:


INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN
 AND SUB-SUPPLIER APPROVAL
 क्वालिटी प्लान तथा सब -वेंडर के अनुमोदन सहित मदों की सूची
 SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)


DOC. NO./ दस्तावेज सं.:
 REV. NO.:
 DATE/ तिथि : 08.06.22
 PAGE/ पृष्ठ :


S. N. क्र.सं.	Item / मद	QP / Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी (NOTE- 1)	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Applicable Systems
A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter "A" in the list along with the condition of approval, if any./ इन मदों के लिए प्रस्तावित वेंडर एनटीपीसी को स्वीकार्य है। अनुमोदन की शर्त, यदि कोई हो, के साथ-साथ पत्र "क" में इंगित किया जाए।										
DR – For these items "Detailed required" for NTPC review. To be identified with letter "DR" in the list. एनटीपीसी द्वारा इन मदों की समीक्षा के लिए "विस्तृत ब्योरे की आवश्यकता" होगी। सूची में "DR" पत्र में इंगित किया जाना चाहिए।										
QP / INSPECTION CATEGORY: CAT-I / श्रेणी- I: For these items the Quality Plans are approved by NTPC and the final acceptance will be on physical inspection witness by NTPC. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है और एनटीपीसी द्वारा अंतिम स्वीकृति भीतिक निरीक्षण के दौरान उपलब्ध गवाह										
CAT-II / श्रेणी- II: For these items the Quality Plans approved by NTPC. However no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on the basis review of documents as per approved QP. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया										
CAT-III/ श्रेणी-III : For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.										
UNITS/WORKS इकाइयाँ / कार्य: Place of manufacturing/ निर्माण का स्थान Place of Main Supplier of multi units/works/बहु- इकाइयाँ / कार्यों के मुख्य सप्लायर का स्थान.										
FORMAT NO./ प्रारूप सं: QS-01-QAI-P-1B/F1-R0										
Engg. Div. / QA&I										

 एनटीपीसी एक महारत्न कम्पनी		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00	
		PACKAGE : EPC PACKAGES									DATE :07.06.2022	
		CONTRACTOR:									SUB SECTION: C&I	
		CONTRACT NO :										
Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark	
1	AAQMS System											
		I				ACOEM Ecotech Industries Pvt Ltd	Pithampur	A			1. So2 ,Nox,CO,CO2 ,Ozone ,PM-10,PM-2.5 & multipoint calibrator will be from Ecotech Australia 2.Metrological sensor from Dynalab 3. Mercury analyser from LOA agreed sources 4.PI refer Note-07	
		I				Horiba India Pvt Ltd	Pune	A			1. So2 ,Nox,CO,CO2 ,Ozone & multipoint calibrator will be from Horiba Japan 2.PM-10,PM-2.5 ,TSP will be from Met One USA & metrological sensor from Spectrum USA 3. Mercury analyser from LOA agreed sources	
		I				Enviroment SA India Pvt. Ltd.	Mumbai	A			1.Analysers SO2,Nox,CO2 & SPM from Environment SA France, 2-Multipoint Calibrator From envoiroment SA France 3-Metrological Sensor with interface unit from M/s LSI Lastem SRL, Italy	
		I				Thermo Fisher Scientific India Pvt. Ltd	Mumbai	A			1) Analysers (Sox,Nox,CO,SPM,RSPM ,Ozone) ,multi gas calibrator shall be sourced from their principle Thermo Environmental ,USA (Division of M/S Thermo fisher Scientific ,USA) 2)Metrological sensors shall be sourced from M/S Metone Instruments USA	
		I				Chemtrol Engineering Ltd	Goa	A			1. Analysers from M/S Teledyne USA except Mercury analyser . 2.Metrological sensors & SPM analysers from Met one Instruments Inc USA 3.PI refer note-07	
2	Acoustic pyrometer System											
		I				Lucent Marcons Pvt Ltd (As a system Integrator of M/S Scientific Environmental Instruments, Inc. (SEI) USA)	Noida	A			1.Boiler watch processor control unit, acoustic sensor (Pizeo/Microphone with prefab cable) , Preamplifier , mapping software & analog output cards shall be from M/S SEI USA . 2. Enclousure ,OWS ,Waveguide ,Transition cone with flange , venturi , Tube box etc shall be from M/S SEI USA approved sources to be tiedup in MQP. 3. PI refer Note-07	


 एनटीपीसी एक महान्वेक कम्पनी		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00
		PACKAGE : EPC PACKAGES									DATE :07.06.2022
		CONTRACTOR:									SUB SECTION: C&I
		CONTRACT NO :									
Sr No	Item Description	QP Inspection Category	QP No	QP submis sion SCH	QP approv al SCH	Proposed Sub Supplier	Country	SS Approval_Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark
		I				Hi-Tech Systems & Services Ltd (As a system Integrator of M/S Bonnenberg + Drescher GmbH, Germany)	Kolkata	A			1.All critical components are to be procured from M/S Bonnenberg + Drescher GmbH, Germany 2.Standard indiginious components like Solenoid valve (Asco make) ,matching flange ,printer & monitor table shall be supplied by M/S Hi- Tech
		II				Scientific Environment Instrument Inc (SEI)	USA	A			1.PCU ,Acoustic sensor ,Preamplifier mapping software shall be from SEI USA , 2. Enclosure ,OWS ,Waveguide ,Tube box etc shall be from SEI approved sources to be tiedup in MQP. 3.PI refer Note-07
		II				Bonnenberg + Drescher GmbH,	Germany	A			
		II				STOCK Equipment Co	USA	A			
3	Addressable Detector (Multisensor , Photo & Heat Detectors Type), Interface units & Manual call points										
		II				Honeywell Life Safety-HIIPL	Gurugram	A			Notifier Brand (Detector, Interface Module only)
		II				Schrack	Austria	A			
		II				Autronica	Norway	A			
		II				Edwards	Mexico	A			
		II				Notifier	USA	A			
		II				Sheld Fire safety	UK	A			
		II				Jhonson Controls	USA	A			Simplex Brand
4	Battery for 24VDC charger & UPS										
		Note-4				Hoppecke Batterien GmbH & Co Kg	Germany	A			For Lead Acid- Plante
		Note-4				Exide	Kolkata	A			For Lead Acid- Plante
		Note-4				SAFT India Ltd	Bengaluru	A			For Ni-Cd
		Note-4				HBL Power	Hyderabad	A			For Ni-Cd ,Upto 990AH (H type)
		Note-4				SAFT	France/Sweeden	A			For Ni-Cd
		Note-4				Hoppecke Batterien GmbH & Co Kg	Germany	A			For Ni-Cd
5	Blank Panels / Cabinets										
		III				Pyrotech Electronics Pvt. Ltd	Udaipur	A			
		III				Rittal India Private Ltd	Bengaluru	A			
		III				Hoffman	Bengaluru	A			
		III				BHEL	Bengaluru	A			
6	Boiler tube leak detection system (ASLD)										
		III				HI Tech System & services Ltd (System Integrator of Acoustic Monitoring International Inc. USA)	Kolkata	A			1.M/S Acoustic Monitoring International Inc. USA Make system Conditional as per approval letter 01/CQA/9573-102/Hi-tech-AMI dated 11.04.2013 2.PI refer Note-07
		III				Raman Instruments (System Integrator of M/S Procon UK)	Delhi	A			1.M/S Procon UK Make system 2.PI refer Note-07
		III				BHEL Ltd	Trichurapalli	A			
		III				Instrotech (PTY) Ltd	South Africa	A			


 एनटीपीसी एक महान् कम्पनी		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00
		PACKAGE : EPC PACKAGES									DATE :07.06.2022
		CONTRACTOR:									SUB SECTION: C&I
		CONTRACT NO :									
Sr No	Item Description	QP Inspection Category	QP No	QP submis sion SCH	QP approv al SCH	Proposed Sub Supplier	Country	SS Approval Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark
		III				Rectuson Co. Ltd	S.Korea	A			
		III				Procon Engineering	UK	A			
		III				Acoustic Monitoring International Inc. (AMI)	USA	A			
7	CCTV System (IP Based)										
		III				Axis	Sweden	A			1-CCTV components will be of Axis communication AB,Sweden make & Video Management Software will be of Milestone Brand. 2.Other BOI items shall be from LOA approved sources & will be tied up during the finalization MQP.
		III				Bosch	Bengaluru	A			1.CCTV components will be of M/S Bosch make, and supplied through M/s Bosch, Bengaluru. 2.Other BOI items shall be from LOA approved sources & will be tied up during the finalization MQP.
		III				Pelco	USA	A			1.CCTV components will be of M/S Pelco, USA make 2.Other BOI items shall be from LOA approved sources & will be tied up during the finalization MQP.
7A	CCTV System (IP Based) /System Integrators										
		I				Jonson Control India Pvt Ltd	Mumbai	A			M/S Pelco Make CCTV system
		I				Toshniwal Industrial Pvt Ltd	Ajmer	A			M/S Axis Make CCTV system
		I				L&T TECHNOLOGY SERVICES	Bengaluru	A			M/S Bosch Make CCTV system
		I				Score Information Technologies Limited	Kolkata	A			M/S Bosch Make CCTV system
8	Control Desk										
		I				Pyrotech Workspace Solutions Pvt Ltd	Udaipur	A			BOI items like Mosaic tiles /Console items shall be as per LOA approved sources
		I				Cosmos Media Products Pvt Ltd	Greater Noida	A			1.BOI items like Mosaic tiles /Console items shall be as per LOA approved sources 2. H block should be from knurr Germany .Solid acrylic surface should be procured from Du Pont/NTPC approved sources 3.Extruded Al profile structure should be procured from Hindalco (With Knurr design)
		I				Adarsha Control system Pvt Ltd	Bengaluru	A			1.BOI items like Mosaic tiles /Console items shall be as per LOA approved sources 2. Acrylic solid surface (ASS) should be procured from Du Pont /NTPC approved sources 3.wood works are to be done by M/S C K Furn Bengaluru
9	Control Valves										


 एन टी सी एक महारत्न कम्पनी		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00	
		PACKAGE : EPC PACKAGES									DATE :07.06.2022	
		CONTRACTOR:									SUB SECTION: C&I	
		CONTRACT NO :										
Sr No	Item Description	QP Inspection Category	QP No	QP submis sion SCH	QP approv al SCH	Proposed Sub Supplier	Country	SS Approval_Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark	
9-A	Control Valves for Aux PRDS system including desuperheater											
		I				Instrumentation Limited	Palakkad (Kerala)	A			Up to A182F92 material with conditions as per approval letter Up to A182F92 material with conditions as per approval letter Up to A182F92 material with conditions as per approval letter As per approval Ref: 02/CQA/SG/Tanda/MIL Dated 30.09.2015 1.MQP shall be vetted by M/S CCI -USA 2.Sources of major components like casting /forging and actuators shall be tied up during finalization of MQP	
		I				Koso India Pvt limited	Nasik	A				
		I				Bomafa Special Valve solutions Pvt ltd	Ahmedabad	A				
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A				
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A				
		II				Parcol SPA	Italy	A				
		II				Daume	Germany	A				
		II				HOLTER	Germany	A				
9-B	Control Valve for Start Up System											
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing. Up To size 20 Inches & 2500 ANSI Class	
		I				KOSO India Pvt Ltd	Nasik	A				
		I				Emerson Process Management Ltd	Chennai	A				
		II				Dresser Produits industriels Industriels S.A.S	France	A				
		II				SEMPELL AG	Germany	A				
		II				Nihon Koso Co Ltd	Japan	A				
		II				HORA	Germany	A				
		II				CCI	S.Korea	A				
		II				Emerson (Fisher)	USA/France/Japan	A				
9-C	Control Valve for BFP Recirculation.											
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing. Up to 10 Inches & 3400 ANSI class	
		I				KOSO India Pvt Ltd	Nasik	A				
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A				

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		II				Dresser Produits industriels Industriels S.A.S	France	A				
		II				Nihon Koso Co Ltd	Japan	A				
		II				CCI	USA	A				
		II				Emerson (Fisher)	USA/France/Japa n	A				
9-D	Control valve for feedwater flow Control											
		I				Instrumentation Limited	Palkkad	A			12" inch 3200 class	
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing.	
		I				KOSO India Pvt Ltd	Nasik	A				
		I				Emerson Process Management Ltd	Chennai	A			Control valve body assembly will be from Nippon Fisher ,Japan with IBR form III C certificates .	
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			1.Provision of straight type of brackets for linkage mechanism .2.Factory fitted strainer /diffuser type seat ring . 3.AFR with T connector for pneumatic connection to volume booster	
		II				Dresser Produits industriels Industriels S.A.S	France	A				
		II				Nihon Koso Co Ltd	Japan	A			CONDITIONAL	
		II				CCI	USA / Austria / S.Korea / Switzerland	A				
		II				Emerson (Fisher)	USA/France/Japa n	A				
9-E	Control valves for Soot blower pressure reducing ,SH/ RH Attemperation.											
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing.	
		I				KOSO India Pvt Ltd	Nasik	A				
		I				Emerson Process Management Ltd	Chennai	A				
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A				
		I				GE Oil & Gas India Pvt Limited	Coimbatore	A			up to 2500 ANSI Class	
		I				Flow Serve India Controls Pvt Ltd	Bengaluru	A				


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		I				Instrumentation Limited	Palakkad (Kerala)	A			only for SH / RH
		II				Nihon Koso Co Ltd	Japan	A			
		II				Dressor Masoneilan	USA	A			only for SH / RH/ up to 2500 class
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				SPX Flow Technology	USA	A			only for SH / RH
		II				Leslie Controls Inc	USA	A			only for SH / RH
		II				Sempell AG (Tyco group)	Germany	A			only for SH / RH
		II				CCI	USA/Sweden /S.Korea	A			
		II				Emerson (Fisher)	USA/France /Japan	A			
9-F	Control valve(Other application)										
		I				Mascot Valves Pvt Ltd	Ahmedabad	A			Up to size 12 inches & 900 ANSI class
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			Up to 2500 ANSI class
		I				KOSO India Pvt Ltd	Nasik	A			
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			Up to 2500 ANSI class
		I				Emerson Process Management Ltd	Chennai	A			Up to 2500 ANSI class
		I				GE Oil & Gas India Pvt Ltd	Coimbatore	A			Up to size 10 inches & 900 ANSI class /Up to size 24 inches & 600 ANSI class
		I				Flow Serve India Controls Pvt Ltd	Bengaluru	A			Up to size 14 inches & 600 ANSI class
		I				Forbes Marshal Arca Pvt. Ltd.	Pune	A			Up to size 16 inches & 900 ANSI class
		I				Instrumentation Limited	Palakkad (Kerala)	A			Up to 2500 ANSI class
		I				Severn Glocon India Pvt Ltd	Chennai	A			Up to size 14 inches & 300 ANSI class
		I				Circor Flow	Coimbatore	A			
		II				CCI	USA/Sweden /S.Korea	A			
		II				Nihon Koso Co Ltd	Japan	A			
		II				Emerson (Fisher)	USA/France /Japan	A			
		II				Leslie Controls Inc	USA	A			
		II				PARCOL S.P.A	Italy	A			
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				HORA	Germany	A			
		II				Wellend & Tuxhorn	Germany	A			
		II				SPX Flow Technology	USA	A			
		II				Sempell AG (Tyco group)	Germany	A			
9-G	Control Valve (Ceramic lined)										
		I				Samson Controls Pvt Ltd	Pune	A			1. For M/S Samson Cera Germany make valve Up to 10 inches size & 150 ANSI class 2. BOI shall be tied up at the time of finalisation of MQP
10	DDCMIS										
		I				ABB	Germany	A			
		I				SIEMENS AG	Germany	A			
		I				Emerson Process Management Asia Pacific Pvt Ltd	Singapore	A			


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		I				Hitachi nest control system Pvt Ltd	Bengaluru	A			
		I				Honeywell Automation India Ltd	Pune	A			
		I				GE	France	A			
		I				SIEMENS	Gurugram	A			
		I				BHEL	Bengaluru	A			For MAX DNA System
		I				Yokogawa	Bengaluru	A			
		I				GE Power India Ltd	Noida	A			
		I				Toshiba	Japan	A			
		I				ABB	Bengaluru	A			
		I				Emerson Process Management Ltd	Pawane	A			
11	Dust Emission Monitor										
		III				Durag India Instrumentation Pvt Ltd	Bengaluru	A			1. For Durag Germany Make Extractive Type Dust density analyser 2. Other components shall be as per approval letter CQA/NTPC BARH STTP-I / D-263 / Durag India Instrumentation Pvt Ltd Bengaluru Dated 28.08.2019
		III				Sick India Pvt Ltd	Mumbai	A			1.For SICK AG Make Extractive Type Dust density analyser 2. Other components shall be as per approval letter CQA/NTPC BARH-I /S-907/M/S SICK India Pvt Ltd dated 28.08.2019
		III				Environment SA India Pvt Ltd	Navi Mumbai	A			1.For ENEVA UK Make Extractive Type Dust density analyser 2. Other components shall be as per approval letter No.: CQA/NTPC BARH-I / E-335 / M/S Environment SA India Pvt Ltd Dated 16.09.2019
		III				Land Instruments International	UK	A			For In Situ type /Optical Transceiver type
		III				Codel	UK	A			For In Situ type /Optical Transceiver type
		III				Durag Industrie Elektronik GmbH & Co KG	Germany	A			For In Situ type /Optical Transceiver type & Extractive Type
		III				Emerson Process Management	Ireland	A			For In Situ type /Optical Transceiver type
		III				SICK AG	Germany	A			For In Situ type /Optical Transceiver type & Extractive Type
		III				ENEVA	UK	A			For Extractive Type Dust density analyser
12	Electrical Actuators										
12-A	Electrical Actuator (With gear box if applicable)										
		II				Antrieb Technik Pvt Ltd	Chennai	A			For low torque applications only
		II				Auma	Bengaluru	A			
		II				Limitorque	Faridabad	A			Model no L120,SMB,LY series, Gear Box T, HBC Series
		II				Rotork	Bengaluru	A			For low torque app (Up to 1000 Nm)


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		II				Rotork Controls (India) Private Ltd	Chennai	A			For low torque app (Up to 1000 Nm) & High torque 4000 to 7000 Nm With integral starter for non critical applications
		III				Auma	Germany	A			
		III				Limitorque	USA	A			
		III				Rotork	UK	A			For low torque app (Up to 1000 Nm)
		III				Nippon gear	Japan	A			
		III				Drehmo GMBH	Germany	A			C Matic Series (DMC/DMCR)
12-B	Electrical Actuator- Non-Intrusive (With gear box if applicable)										
		I				Auma India Pvt Ltd	Bengaluru	A			Also acceptable for Field Bus based applicable
		I				Rotork Control	Chennai	A			upto 630 Nm
		III				Flowserve	USA	A			Also acceptable for Field Bus based applicable
		III				Bernard Controls	France	A			
12-C	Electrical actuator for ID/FD/PA Blade pitch ,IGV &SCOOP										
		III				Harold Beck & Sons Inc	USA	A			
		III				SIPOS Aktorik GmbH	Germany	A			
13	Electronics Transmitter (Pressure , DP and DP based Flow/Level)										
13-A	Electronics Transmitter (Pressure , DP and DP based Flow/Level)										
		III				ABB Ltd	Bengaluru	A			2600T & critical item from ABB Italy/ Their approved source;
		III				Emerson Process Management Ltd	Pawane	A			
		III				Siemens Ltd	Thane	A			Model:-SITRANS P
		III				Honeywell Automation India Ltd	Pune	A			
		III				Baldota Control and Equipment Pvt Ltd	Navi Mumbai	A			PT & DPT of LD 301 Series (SMAR)
		III				Yokogawa India Limited	Bengaluru	A			EJA-E 110,430,530 SERIES & all raw material and BOI under knocked down condotion (sensor assembly as a single unit) shall be sourced from M/S Yokogawa Japan
		III				M/s Endress + Hauser India Automation Instrument Pvt Ltd	Aurangabad	A			
		III				Emerson (Rosemount)	USA	A			
		III				Yokogawa	Japan	A			
		III				ABB	Germany / Italy	A			2600T & critical item from ABB Italy/ Their approved source;
		III				Siemens	France	A			Sitrans P DSIII Series
		III				Fuji Electric	France	A			FCX -AIII SERIES
		III				Fuji	Japan	A			
13-B	Electronics Transmitter -Field Bus Based (Pressure , DP and DP based Flow/Level)										
		I				ABB India Ltd	Bengaluru	A			One no of Transmitter will be sent at DDCMIS supplier for function testing of field bus communication with DDCMIS during FAT
14	EOMS										


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		I				SWAN	Hyderabad	A			1. Conductivity analyser, pH analyser and Temperature Transmitter will be of M/s ABB, UK make . 2. TSS analyser will be of M/s Daeyoon, South Korea make . 3. Oil in water analyser will be of M/s TriOs, Germany make. 4. Online BOD/COD analyser will be of M/s Shimadzu, Japan make . 5. Flow meter will be of M/s Khrono Marshall, Maharashtra make. 6. Data Aquisition System will be procured from Knowledge Lens, Karnataka.	
15	Fiber optic cable											
		Note-3				U M Cables Ltd	Silvassa (Daman)	A				
		Note-3				KEC International Ltd	Mysore	A				
		Note-3				Apar Industries Limited	Valsad (Gujrat)	A				
		Note-3				HFCL	Goa	A				
		Note-3				Aksh Fibre	Bhiwadi (Raj)	A				
		Note-3				Finolex Cable Ltd	Goa	A				
		Note-3				Birla Cable Limited	Rewa	A				
		Note-3				R&M	Switzerland	A				
		Note-3				Molex	UK	A				
		Note-3				Corning	USA	A				
16	Fire alarm Panel											
		II				Toshniwal Industrial Pvt Ltd	Ajmer	A			1.M/S Notifier Make Fire alarm Panel 2.PI Refer Note-07	
		II				Bosch Security system	Bengaluru	A			1.Detector , Hooter, MCP, Modules, Panel shall be M/s Bosch Make	
		II				Notifier	USA	A				
		II				Autronica	Norway	A				
		II				Schrack	Austria	A				
		II				Edwards	Mexico	A				
		II				Shield Fire safety and security Ltd	UK	A				
		II				Jhonson Controls	USA	A			Simplex Brand	
17	Flame Monitoring System (Scanner)											
		I				Lucent Marcons Pvt Ltd (System Integrator of M/S Forney Corporation USA)	Noida	A			1.Flame detector, amplifier ,light guide fiber optic , smart display programming unit , test kit & simulator will be supplied from M/S Forney Corporation USA 2.Other components like outer carrier ,IDD cable with connector , expander , Y connector with adapter gasket , fastners & signal isolators will be supplied from M/S Forney Corporation USA approved sources . 3.PI Refer Note-7	


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		I				HI Tech System & services Ltd (System Integrator of BFI Germany)	Kolkata	A			1.For BFI Germany make system 2. PI Refer Note-7	
		II				Durag India Instrumentation Pvt Ltd	Bengaluru	A			For Durag Germany make system	
		II				Forney Corporation	USA	A				
		II				BFI	Germany	A				
		II				Durag GmbH	Germany	A				
		II				Emerson (COEN)	USA	A				
		II				BHEL	Trichurapalli	A				
		III				Maxon Corporation (A Honeywell Company)	USA	A			Approved for Aux Boiler	
18	Flow nozzle assembly											
		I				Microprecision Product Pvt Ltd	Palwal	A			Up to Alloy steel material grade P-92 & other conditions as per approval letter	
		I				Minco India Flow Elements Pvt. Ltd.	Goa	A			Up to size 26 Inches for Alloy steel/ Stainless steel pipe SA335 P-11, P -22 and SA 335 P-91 & other conditions as per approval letter	
		I				Instrumentation Limited	Palakkad (Kerala)	A			Up to alloy steel grade P-92 subject to qualified WPS & other conditions as per approval letter	
		I				Starmech controls (India) Pvt Ltd	Pune	A			Up to alloy steel grade P-92 subject to qualified WPS & other conditions as per approval letter	
		II				SEIKO	Czech Republic	A				
		II				WISE Control	S.Korea	A				
		II				Technomatic	Italy	A				
19	Flue Gas Analyser (CO)											
		III				Forbes Marshall Pvt Ltd	Pune	A			For In situ type CO analyser	
		III				ICE (Asia) Pvt Ltd	Mumbai	A			For In situ type CO analyser 1. CO analyser from Protea UK 2. Other components like, Mounting Flanges, tubing, fittings ,junction boxes, air purging system , calibration cylinders & cables will be supplied by ICE (Asia) Pvt Ltd 3.PI refer Note-7	
		III				Sick India Pvt Ltd	Mumbai	A			For In Situ Type / CO analyser from SICK AG & Other components like ,Protection tube ,Flanges ,tubing ,fittings ,junction boxes, solenoid valves & calibration cylinders will be supplied by M/S Sick India Pvt Ltd .	
		III				Emerson Process Management Ltd	Pawane	A			For M/S Emerson Germany/ USA make Analyser	
		III				Codel	UK	A				
		III				Land Instruments International	UK	A				
		III				Sick AG	Germany	A			For In Situ Type	
		III				Envoirement SA	France	A			For Hot Extractive	
		III				Fuji Electric	Japan	A				
		III				Servo max Group	UK	A				
		III				Siemens	Germany	A				

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20	Flue Gas Analyser (CO ₂ ,SO ₂ and Nox)											
		III				Sick India Pvt Ltd	Mumbai	A			For In Situ Type SO ₂ analyser 1. Analyser will be from Sick AG Germany 2. Other components like ,Whether proof covers ,flanges ,purge air unit ,junction boxes ,cables ,PC ,remote display ,gas cylinders shall be supplied by M/s Sick India Pvt Ltd	
		III				Emerson Process Management Ltd	Pawane	A			For M/s Emerson Germany/ USA make Hot Extractive SO ₂ , NO _x Analyser	
		III				Envoirement SA	France	A			For Hot Extractive	
		III				Fuji Electric	Japan	A			Hot Extractive Type For SO ₂ & Nox	
		III				Siemens	Germany	A			Hot Extractive Type For SO ₂ & Nox	
		III				Yokogawa Electric Corporation	Japan	A			IR-400 Series (Hot Extractive Type For CO ₂ , SO ₂ & NO _x)	
		III				Servo max Group	UK	A			Hot Extractive Type For SO ₂ & Nox	
		III				Sick AG	Germany	A			Hot Extractive Type For CO ₂ , SO ₂ & NO _x and In situ type for SO ₂ analyser	
21	Flue Gas Analyser O ₂ Analyser (HT)											
		III				SECO	Chennai	A				
		III				Marathon Monitor	USA	A				
		III				Servo max Group	UK	A				
22	Flue Gas Analyser {O ₂ Analyser (LT)}											
		III				Sick India Pvt Ltd	Mumbai	A			For In Situ Type 1. Analyser will be from Sick AG Germany 2. Other components like ,Whether proof covers ,flanges ,purge air unit ,junction boxes ,cables ,PC ,remote display ,gas cylinders shall be supplied by M/s Sick India Pvt Ltd	
		III				Analysar Instruments Co Pvt Ltd	Kota	A			For In Situ Type 1.Main parts like Sample probe & Analyser will be supplied by M/s Enotec Germany. 2. Other components like auto calibration unit ,probe protector ,enclosure panel & calibration kit will be supplied & integrated M/s AIC kota. 3.Pl refer Note-07	
		III				Emerson Process Management Ltd	Pawane	A			For In Situ Type For M/s Emerson USA make Analyser	
		III				ABB	Bengaluru	A			For In Situ Type For M/s ABB UK make Analyser	
		III				Yokogawa India	Bengaluru	A			For In Situ Type For M/s Yokogawa Japan make Analyser	
		III				Enotech GmbH	Germany	A			For In Situ Type	
		III				Ametek	USA	A			For In Situ Type	
		III				Yokogawa Electric Corporation	Japan	A			For In Situ Type	
		III				Servo max Group	UK	A			For In Situ Type	
		III				Sick AG	Germany	A			For In Situ Type	
23	Continous Emission Monitoring svstem											

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		I				Horiba India Pvt Ltd	Pune	A			Approval conditions as per approval letter no - CQA/NTPC Mauda-II / H-321 / M/S Horiba India Pvt Ltd Dated 03.10.2019
		I				Yokogawa India Ltd	Bengaluru	A			1. SO2,NOx & CO2 Analyser will be from M/S Yokogawa Electric Corporation Japan . 2.Other Conditional as per approval letter no Ref. No.:CQA/BARH-I / Y-023/ M/s Yokogawa India Ltd dated 21.05.2020
		I				Adage Automation Pvt Ltd.	Goa	A			For M/s Siemens Germany make SO2,NOx & CO2 Analysers
		I				Thermo Fisher Scientific India Pvt. Ltd	Pune	A			Approved only for Dilution Extractive Technique 1)Analyser (SO2,NOx,CO,CO2,Mercury) , sampling probe ,sample handling system ,umbical cord etc to be supplied from M/S Thermo Fisher USA . 2) Other BOI shall be as per LOA approved sources
		I				Emerson Process Management India Pvt Ltd	Pawane	A			For M/s Emerson Germany make SO2,NOx & CO2 Analysers other conditions as per approval letter.
		I				Analyser Instruments Co Pvt Ltd	Kota	A			Analysers from Fuji Japan & other BOI shall be as per LOA approved sources .
		I				Envoirement SA India Pvt Ltd	Navi Mumbai	A			Hot Extractive Type / 1.Multipoint gas Analyzers MIR-9000 for SO2, NOx,CO2 & CO ,Probe ,Nafyon drier & heater for drier will be of M/S Environment SA France make. 2. Other components shall be as per the approval letter ref no CQA/NTPC Telangana/E-335/M/SEnvoirement SA India dated 12.02.2019
24	Furnace Flame viewing system (High Temperature CCTV Components)										
		III				Sertel Electronics Pvt. Ltd.	Chennai	A			Approved for Visible type only
		III				Hi Tech System and Service (System Integrator of M/S Lenox USA)	Kolkata	A			1.M/S Lenox USA Make System 2.Pl refer Note-07
		III				Durag India Instrumentation Pvt Ltd	Bengaluru	A			1.Complete Camera Assembly, IRIS Control etc. from Durag Germany 2.Other Component like chiller, vedio monitor, OFC ,Panel from M/S Durag Approved sources
		III				TLT Engg Pvt. Ltd. (System Integrator of M/S Diamond Power USA/ Sweden make system)	Kolkata	A			1.M/S Diamond Power USA/ Sweden make system 2.Pl refre Note-07
		III				Toshniwal Industries (System Integrator of M/S Mirion UK make system)	Ajmer	A			1. M/S Mirion UK make system 2.Pl refer Note-07
		III				Diamond Power	USA / Sweden	A			

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		III				Durag GmbH	Germany	A			D-VTA-201	
		III				Lenox	USA	A				
		III				Mirion	UK	A				
		III				Piper GmbH	Germany	A				
		III				Sabota GmbH	Germany	A				
25	H2 Gas Analyser											
		I				ABB India Ltd	Bengaluru	A			M/s ABB Germany /UK Make analyser	
		I				Adage Automation Pvt. Ltd	Goa	A			1.M/s Siemens, Garmany (Calomat 6) Make analyser 2. Pl refer Note-07	
		I				Yokogawa India Ltd	Bengaluru	A			M/s Yokogawa Japan (Gas Densitybased) Make analyser	
		I				SIEMENS	Gurugram	A			M/s Siemens, Garmany (Calomat 6) Make analyser	
		III				GE Sensing EMEA	Ireland	A			Conductivity based	
		III				ABB	UK	A				
		III				Emerson (Rosemount)	USA	A				
		III				Environment One Corporation	USA	A			Conductivity based	
26	HEA ignitor											
		I				Durag India Instrumentation Pvt Ltd	Bengaluru	A			M/S Durag Germany make HEA Ignitor	
		I				Hindustan Thermometers	Ambala	A			Conditional as per approval ref no 01/CQA/0270-102 dated 17.09.2012.Spark tip of their own make is also acceptable	
		I				Fives combustion System Pvt Ltd	Vadodara	A				
		I				Boiler control Pvt Ltd	Puddukottai (Tamilnadu)	A			Approved for Aux Boiler package only	
		III				Unison Industries	USA	A				
		III				Durag GmbH	Germany	A				
		III				Ignition system INC	USA	A				
		III				Tesi SPA	Italy	A				
27	High Temp. cable (PTFE/FEP)											
		II				Thermocables	Hyderabad	A				
		II				Tempsens	Udaipur	A				
		II				Habia cables	Sweden	A				
		II				Thermo Electrica BV	Netherland	A				
		II				Lapp cables	Germany	A				
		II				Kerpen cables	Germany	A				
		II				TEW & C	USA	A				
28	Impulse Pipes/Tubes											
		II				Mahrashtta Seamless	Raigarh	A			For CS Pipes only	
		II				Ratnamani Metals and Tubes	Gandhinagar	A			For SS only.	
		II				Heavy Metals and Tubes	Gandhinagar	A			For SS & CS only.	
		II				ISMT	Ahamadnagar	A			For CS/ AS upto Gr 22 Pipes only	
		II				Nippon Steel & Sumitomo Metals corporation	Japan	A				
		II				TPS Tecnitube	Germany	A				
		II				Veluric & Manessmann	Germany	A				
		II				Trouvay and Cauvin	France	A				
		II				Sandvik	Sweden	A			For SS only	


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		II				Remi Edelstahl	Palghar	A				
29	Instrument Cables (F,G & T/C Cables)											
		Note-2				Goyolene Fibers (India) Pvt Ltd	Silvassa	A			F&G Type Cable	
		Note-2				Temsens Instruments Ind Pvt Ltd	Udaipur	A				
		Note-2				Havells India	Alwar	A			F Type Cable	
		Note-2				Paramount Communication Ltd	Khushkhera	A				
		Note-2				Polycab	Daman	A				
		Note-2				Delton	Faridabad	A				
		Note-2				KEI	Bhiwadi (Raj)	A				
		Note-2				Elkey Telelinks	Faridabad	A				
		Note-2				CORDS	Kaharani	A				
		Note-2				CORDS	Bhiwadi	A				
		Note-2				Nicco	Kolkata	A				
		Note-2				Universal Cable	Satna	A				
		Note-2				Thermocables	Hyderabad /Mahboobnagar	A				
		Note-2				Gupta Power Infrastructure Ltd.	Khurdha	A				
		Note-2				CMI	Faridabad	A				
		Note-2				Advance Cables Pvt Ltd	Bengaluru	A			F&G Type Cable	
		Note-2				Gemscab Industries Ltd	Bhiwadi (Raj)	A			F&G Type Cable	
		Note-2				Apar Industries Limited	Valsad	A			F&G Type Cable	
		Note-2				Suyog Electricals Ltd	Halol (Gujrat)	A				
		Note-2				Special Cables Pvt Ltd	Rudrapur	A				
		Note-2				T C Communication	Ghaziabad	A				
		Note-2				TEW & C	USA	A				
		Note-2				Habia cables	Sweden	A				
		Note-2				Kerpen cables	Germany	A				
		Note-2				Lapp cables	Germany	A				
		Note-2				Thermo electra Bv	Netherland	A				
30	Intelligent Battery charger 24V DC / DCDB/BHMS											
		II				Chabbi Electricals	Jalgaon	A			Rectifier module, Controller module and Battery Health monitoring system shall be of M/s Vertiv make	
		II				Eltek SGS Pvt Ltd	Gurugram	A				
31	Large Video Screen (LED Based)											
		I				Pyrotech Electronics Pvt Ltd	Udaipur	A				
		I				Delta India Electronics Pvt Ltd	Gurugram	A				
		I				Barco Electronics system (P) Ltd	Noida	A				
		I				Planner System Inc	USA	A				
32	Level switch- Conductivity type											
		II				Raman Instruments (System integrator of Delta Morbey/ Emerson Mobrey /Solartron -Mobrey)	Delhi	A			1.M/S Emerson (Morbey) UK system 2.PI refer Note-07	
		II				HI Tech System & services Ltd (System Integrator of Levelstate systems Ltd ,UK)	Kolkata	A			1. M/S Levekstate UK System .Vessel from M/s Hi Tech 2.PI refer Note-07	
		II				BHEL	Trichurapalli	A				


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		III				Emerson -Mobrey (Solartron mobrey)	UK	A				
		III				Levelstate Systems Ltd	UK	A				
		III				Yarway	USA	A				
33	Local Instrument Enclosure/Rack											
		I				Pyrotech Electronics Pvt. Ltd	Udaipur	A			BOI from LOA approved sources	
		I				Sajas electrical	Trichurapalli (Tamilnadu)	A			BOI from LOA approved sources	
		I				Prammen	Puddukottai (Tamilnadu)	A			BOI from LOA approved sources	
		I				Chemin C&I Pvt Limited	Puducherry	A			1- BOI from LOA approved sources 2.Fabrication at M/s LUFT tech India 3- Painting at M/s Suprame Coater & Fabricator	
34	Master Slave Clock System											
		I				Signals and Systems Pvt. Ltd. (SANDS)	Chennai	A				
		I				Masibus	Gandhinagar	A				
		I				Sertel Electronics Pvt. Ltd.	Chennai	A				
		II				Hopf Elektronik GmbH	Germany	A				
		II				Hathway	USA	A				
		II				Mein Berg	Germany	A				
		II				Moser Baer AG	Switzerland	A				
35	Mercury Analyser											
		I				Analysar Instrument Co. Pvt Ltd (AIC)	Kota	A			1. Mercury Analyzer from PS Analytical UK 2.System integration & supply of components like, Enclosure with AC, calibration cylinders, PC will be done by M/s Analysar Instrument Co. Pvt Ltd (AIC) Kota . 3.Pl refer Note-07	
		III				Environment SA India Pvt Ltd	Navi Mumbai	A			1-Mercury analyzer with accessories will be from Mercury instruments GmbH Germany . 2- Other components like, sample line between probe to mercury analyzer will be supplied by M/s Environment SA India Pvt Ltd .	
		III				Thermo Fisher Scientific India Pvt Ltd	Pune	A			1. Mercury Analyser shall be from Thermofisher USA 2. Other approval conditions are as per approved letter ref no 01/CQA/9578-001/Thermofisher dated 09/12/2016	
		III				Durag India Instrumentation Pvt Ltd	Bengaluru	A			Analyser from M/s Verewa Umwelt Germany	
		III				Mercury Instruments GmbH	Germany	A				
		III				SICK AG	Germany	A				
		III				Themofisher	USA	A				
		III				Lumax	Russia	A			For AAQMS System	
36	PA System (IP Based)											
		III				BNA Technology Consulting Ltd.	Bengaluru	A			BOI shall be from LOA approved sources.	
		III				Armtel	Russia	A				

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		III				Zenitel	Norway	A			1.PA system active component , Proprietary item will be Zenitel Norway make 2.Other components & BOI shall be from LOA approved sources
		III				Commend International GMBH	Austria	A			
36A	PA System (IP Based)/System Integrators										note-7
		III				Willstrong Solutions Pvt. Ltd	Greater Noida	A			For M/s Armtel Russia system Approval conditions as per approval letter no Patratu-QA/9585-001-102/VA- Willstrong Dated: 21.12.20
		III				Toshniwal Industries Pvt ltd	Ajmer	A			For M/s Commend Austria make system
		III				Aishan Technologies Pvt Ltd	Bengaluru	A			For M/s Zenitel Norway make system
		III				Haritasa Checkmate Electronics Pvt Ltd	Bengaluru	A			For M/s Commend Austria make system
		III				Netware Computer Pvt Ltd	New Delhi	A			For M/s Commend Austria make system
37	PLC System										
		I				Emerson Automation solution Intellegent plateforms Pvt Ltd	Bengaluru	A			PLC modules from M/s Emerson USA & BOI shall be from LOA approved sources
		I				ABB India Ltd	Bengaluru	A			
		I				Schneider Electric system india Pvt Ltd	Chennai	A			PLC modules from M/s Schneider France & BOI shall be from LOA approved sources
		I				Rockwell	Sahibabad	A			
		I				Siemens	Nasik	A			
		I				Honeywell	Pune	A			PLC modules from M/s Honeywell ,S.Korea & BOI shall be from LOA approved sources
		I				Schneider Electric India Pvt Ltd	Bengaluru	A			PLC modules from M/s Schneider France & BOI shall be from LOA approved sources
37-A	PLC System Integrators										Note-11 and note-7
		I				Ladder Automation Solution Pvt Ltd	Gurugram	A			For M/s Honeywell make system
		I				Virtual Automation	Ranga Reddy (Telangana)	A			For M/s Schneider make system
		I				Cotmac Electronics Pvt Ltd	Pune	A			For M/s SIEMENS make system
		I				Tech-Masters	Hyderabad	A			For M/s Emerson make system
		I				Powertech Switchgear (I) Pvt Ltd	Sonepat	A			For M/s Schneider make system
		I				Unity Industrial Automation Pvt Ltd	Delhi	A			For M/s Rockwell make system
		I				EMCONS	Ranchi	A			For M/s Rockwell make system
		I				Divya Engineers	Chennai	A			For M/s SIEMENS make system


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		I				M D Industries	Vadodara	A			For M/s Emerson make system	
		I				Velox automation	Surat	A			For M/s SIEMENS make system	
		I				Vision Comptel	Kolkata	A			For M/s Emerson make system	
		I				Adaptive Engineering Private Limited	Ahmedabad	A			For M/s Schneider make system	
		I				Greenwave Solutions Private Limited	Kolkata	A			For M/s Rockwell make system	
		I				Dreamz Automation	Ghaziabad	A			For M/s SIEMENS make system	
		I				Creative Robotics	Ghaziabad	A			For M/s Honeywell make system	
		I				Kruti Techno Engineer Pvt Ltd	Chhapraula (GB Nagar	A			For M/s SIEMENS make system	
		I				EDS Instruments & Systems Pvt Ltd	Chennai	A			For M/s Honeywell make system	
		I				Delsys Automation Technologies Pvt Ltd	Chennai	A			For M/s Emerson make system	
		I				Hindustan Controols and Equipment Ltd	Kolkata	A			For M/s Emerson make system	
		I				Vollkraft Engineering And Consultant (P) Ltd	Kolkata	A			For M/s Emerson make system	
		I				SSM Infotech Solutions Pvt Ltd	Surat	A			For M/s Schneider make system	
		I				Sun Industrial Automation & Solutions	CHENNAI	A			For M/s Schneider make system	
38	Pneumatic Actuator Regulating (Power Cylinder HAD,CAD SADC & Burner Tilt)											
		I				Instrumentation Limited	Palakkad (Kerala)	A				
		I				Kelton	Cochin (Alleppy)	A				
		I				SMC Corporation India Private Ltd	Noida	A			Up to Bore size 12 inches	
		I				IMI Norgren Herion Pvt ltd	Noida	A				
		II				Dong Woo Valve Control Co. Ltd	S.Korea	A				
		II				Shin Hwa Engineering Co. Ltd	S.Korea	A				
39	Radar type level transmitter											
		III				Limaco	Russia	A			High Frequency Type	
		III				Emerson Process Management Ltd	Pawane	A			For M/s Emerson Singapore make	
		III				Endress & Houser	Aurangabad	A				
		III				SIEMENS	Canada	A				
		III				B M Technology	Italy	A			For Non Contact type	
		III				Magnetrol	Belgium	A				
		III				ABB	USA	A			K-Tech Brand	
		III				Endress & Houser	Germany	A				
		III				Saab Rosemount	Sweden	A				
		III				Emerson Process Management	Singapore	A			Rosemount 3300 series for GW Radar & 5600 Series for Non-Contact type	
		III				Endress & Houser	Germany	A				


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		III				Vega Grieshaber KG	Germany	A				
40	Short Term Fire Proof cable	III				nVent Solutions limited	UK	A				
		III				Wrexham Mineral	UK	A				
		III				KME	Italy	A				
41	SWAS (Sampling Handling System and Dry Panel)											
		I				Emerson Process Management Ltd	Navi Mumbai	A			Analysers and Other BOI Componets from LOA agreed source	
		I				Forbes Marshall	Pune	A			Analysers and Other BOI Componets from LOA agreed source	
		I				SEPL	Pune	A			Analysers and Other BOI Componets from LOA agreed source	
42	Water Analyser (Chloride, Conductivity, Dissolved Oxygen,pH, Hydrazine, Concentration , Phosphate, Silica, Soldium,Turbidity, Total Iron, Degassed Cation Conductivity)											
		III				Emerson Process Management Pvt Ltd	Pawane	A			For Conductivity,pH, Disslolved Oxygen, Turbidity	
		III				Mettlet Toledo India Pvt Ltd	Vasai	A			For pH Analyser (1. PH analyser from M/S Mettler Toledo GmbH Switzerland 2. Other components like, Housing, Panel mounting kit, Tubing's & easy clean mechanism will be supplied by M/s Mettler Toledo India Pvt Ltd)	
		III				Endress Hauser India Pvt. Limited	Mumbai	A			For pH Analyser (1. pH sensor with cable , analyser ,retract & cleaning assembly , electrolyte reservoir (As applicable) will be supplied from Principals of M/S Endress Hauser India Pvt. Limited. 2. Other components like, Flow through assembly shall be supplied from M/S Endress Hauser India Pvt. Limited approved sources.)	
		III				Thermo Fisher Scientific	USA	A			For Chloride,Disslolved Oxygen,Hydrazine	
		III				ABB	UK	A			For Chloride,Disslolved Oxygen,Hydrazine, Phosphate, Silica,Sodium,Turbidity	
		III				Hach	USA	A			For Conductivity, pH,Concentration, Phosphate, Silica,Turbidity	
		III				ABB	USA	A			For Conductivity, pH	
		III				Yokogawa	Japan	A			For Conductivity	
		III				Hach	Switzerland	A			For Disslolved oxygen, Hydrazine, Silica,Sodium	
		III				Yokogawa	Japan	A			For pH	
		III				Eutech Instrument PTE Ltd	Singapore	A			For Silica	
		III				Orion	USA	A			For Sodium	
43	Temp Transmitter											
43-A	Temp Transmitter											
		III				Endress & Houser	Aurangabad	A				


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		III				Emerson Process Management Ltd	Pawane	A			For M/s Emerson Singapore make
		III				Yokogawa	Bengaluru	A			Make Yokogawa japan and calibration at Yokogawa Banglore
		III				ABB	Bengaluru	A			For M/s ABB Germany make
		III				WIKA Instruments India Pvt Ltd	Pune	A			For M/s WIKA Germany make Model no T-32
		III				Honeywell Automation India Ltd	Pune	A			
		III				Yokogawa	Japan	A			
		III				Moore	USA	A			
		III				M System co Ltd	Japan	A			Model No-B3HU-0
		III				Emerson	U.S.A./Singapore/Germany	A			
		III				ABB	Germany	A			
		III				Emerson Process Management	Germany	A			
43-B	Temp Transmitter -Field Bus based Single/Dual Input										
		I				ABB India Ltd	Bengaluru	A			One no of TT will be available at DCS supplier for function testing of field bus communication with DCS during FAT
44	Turbine supervisory Instruments along with vibration analysis system.										
		I				GE	Pune	A			For GE Bently ,USA make system
		I				Meggitt India Pvt Ltd	Bengaluru	A			For Meggitt (Vibrometer) Switzerland make system
		I				Forbes Marshall	Pune	A			For Shinkawa ,Japan make system
		II				GE BENTLY	USA	A			
		II				SHINKAWA	JAPAN	A			
		II				MEGGITT	Switzerland	A			
45	Ultrasonic Type Flow Meter (for Stack)										
		III				Sick India Pvt Ltd	Mumbai	A			For Sick AG Germany make
		III				Sick AG	Germany	A			
		III				Durag	Germany	A			
		III				Teledyne	USA	A			
46	Ultrasonic type level Transmitter										
		III				EIP Enviro	Noida	A			1-Ultrasonic level Tx shall be BM Technology Italy make 2-Required mounting arrangement , Testing, Calibration shall be carried out at M/s EIP Works.
		III				E & H	Aurangabad	A			
		III				Emerson Process Management Ltd	Pawane	A			Complete Intrument Transmitter & Probe to be procured from Mobrey UK , only intergration & configuration at Pawane works
		III				BM Technology	Italy	A			
		III				Siemens Miltronics	Canada	A			
		III				Nivelco Process Control	Hungary	A			
		III				E & H	Germany	A			
		III				HAWK Measurement PTY Ltd	Australia	A			
47	UPS With ACDB										


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		Note-5				Vertive Energy Pvt Ltd	Pune	A			Upto 125 KVA for 1 phase and 300 KVA for 3 Phase	
		Note-5				Vertive Energy Pvt Ltd	Mumbai	A			Upto 160 KVA	
		Note-5				Hitachi Hirel Power Electronics Pvt Ltd	Gandhinagar	A			Upto 160 KVA,	
		Note-5				Fuji Electric Consul Neowatt Private Limited	Pune	A			Up to 100 KVA single phase	
		Note-5				KELTRON	Trivendrum	A				
		Note-5				Merlin & Gerin	France	A				
		Note-5				Gutor	Switzerland	A				
		Note-5				AEG	Germany	A				
		Note-5				Fuji Electric	Japan	A				
48	Vibration Monitoring System											
		II				Sensonics Technology India	Kundli	A			For Sensonic UK system	
		II				BHEL	Bengaluru	A			1. Imported items like Vibration Monitors, Cross Connection Cables, Buffered Output Modules, and Piezoelectric Vibration Sensors, Eddy Current type Proximity Probe, Extension Cable and Signal Conditioner will be procured from Valmet Automation, Finland. 2.Indigenous items like Communication cables, networking components, blank panels, TB, OWS will be procured from NTPC approved sources.	
		II				IRD Mechanlysis Ltd	Thane	A			Vibration sensors will be sourced from M/s Hansford UK ,however brand name of IRD and its logo is acceptable with suitable tracebility of M/s Hansford ,UK.	
		II				Forbes Marshall Pvt Limited	Pune	A			VMS hardware , Sensors ,extention cables shall be shinkawa Japan make .2. All other BOI shall be from LOA agreed sources	
		II				GE	Pune	A			For GE Bentley , USA Make	
		II				Rockwell Automation	Sahibabad	A			For Rockwell USA make	
		II				SKF	Pune	A			For SKF USA make	
		II				Imageneous Engineering Pvt Ltd	Vadodara	A			1-For Meggitt Switzerland make 2- Refer note 7	
		II				Shinkawa	Japan	A				
		II				GE	USA	A			Bentley Niveda brand	
		II				Meggitt	Switzerland	A				
		II				Sensonic Limited	UK	A				
49	Wireless Solution (Microwave Tower Communication)											
		I				L&T Technology Services (LTTS)	Bengaluru	A			1- Wireless Product (Access Point, Antenna) shall be M/s Cambium UK Make 2- Other Item like Switch, Cat-6 Cable can be supplied from M/s LTTS approved sources meeting technical requirements.	

		PROJECT : Lara-II (2X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00 DATE :07.06.2022 SUB SECTION: C&I
Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark
		I				Lotus wireless technologies India Pvt Ltd	Visakhapatnam	A			
		I				Sheetal Wireless Technologies Pvt Ltd	Pune	A			
		III				Proxim Wireless Corporation	USA	A			BOI shall be as per approval letter
50	Field Bus Cable/ Profibus Cable- PA & DP type										
		I				LAPP India Pvt Ltd	Bangalore	A			
51	Field bus components (Field bus modules ,segment protector ,surge protector & SS JB)										
		III				Phoenix Contact Inc	USA	A			Materiall will be allowed to dispatch from the vendor works as CAT-III item ,however all material except SS junction box will be available at DDCMIS supplier works for functional testing .
		III				Pepperl + Fuchs Pte Ltd	Singapore	A			Materiall will be allowed to dispatch from the vendor works as CAT-III item ,however all material will be available at DDCMIS supplier works for functional testing .
52	Stockyard Management System(Including 3D profiling scanner ,Thermal Imaging Camera, RTK GPS)										
		III				TSA	Brazil	A			For 3D profiling / Tripple-IN Germany make
		I				EIP Enviro	Noida	A			For 3D profiling / 1-Tripple-IN Germany make Laser Scanner and RPU along with software from TSA Brazil inline with the M/s TSA Letter. 2- Other item like ethernet cable, Ethernet Switch, Junction Box required for execution of 3D stockpile managemment system can be supplied by EIP Enviro
53	Perimeter Intrusion Detection System										
		III				Senstar	Canada	A			
54	Radar based Perimeter Surveillance System										
		III				Magos System Ltd	Israel	A			Third Party "Cyber Penetration report " shall be provided along with material TC/COC
55	Thermal Camera (PTZ)										
		III				FLIR Commercial Systems INC	USA	A			
Main Contractor approved sources (Note-12)											
MC-1	Amonia Analyser	III				Main Contractor Approved Sources					
MC-2	Amonia leak detector	III				Main Contractor Approved Sources					
MC-3	Air Filter Regulator	III				Main Contractor Approved Sources					
MC-4	Anemometer	III				Main Contractor Approved Sources					
MC-5	Annunciator	III				Main Contractor Approved Sources					
MC-6	Battery Health Monitoring System	III				Main Contractor Approved Sources					

 एन टी पी सी एक महानदी कम्पनी		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00	
		PACKAGE : EPC PACKAGES									DATE :07.06.2022	
		CONTRACTOR:							SUB SECTION: C&I			
		CONTRACT NO :										
Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark	
MC-7	Biofouling/ Deposit Monitor	III				Main Contractor Approved Sources						
MC-8	Coal bunker Level monitor	III				Main Contractor Approved Sources						
MC-9	Compression Fittings(SS)	III				Main Contractor Approved Sources						
MC-10	Condensing Pots	III				Main Contractor Approved Sources						
MC-11	Conduits /Pipe (GI)	III				Main Contractor Approved Sources						
MC-12	Conduits lead coated (Flexible)	III				Main Contractor Approved Sources						
MC-13	Copper tubing/Brass connectors	III				Main Contractor Approved Sources						
MC-14	Coriolios Type Mass Flow meter	III				Main Contractor Approved Sources						
MC-15	Coupling /Interposing Relays	III				Main Contractor Approved Sources						
MC-16	Density Indicator	III				Main Contractor Approved Sources						
MC-17	Desk for OWS/EWS/Printer/Server	III				Main Contractor Approved Sources						
MC-18	Digital Indicators	III				Main Contractor Approved Sources						
MC-19	Dust Sensor	III				Main Contractor Approved Sources						
MC-20	Dew point sensor/meter (H2)	III				Main Contractor Approved Sources						
MC-21	Flow Gauge	III				Main Contractor Approved Sources						
MC-22	Flow Indicator cum Totaliser	III				Main Contractor Approved Sources						
MC-23	Flow Switch	III				Main Contractor Approved Sources						
MC-24	FRP Junction Box	III				Main Contractor Approved Sources						
MC-25	Furniture for control Room(Chair, Almira, Lock)	III				Main Contractor Approved Sources						
MC-26	Furnace exit gas temp probe	III				Main Contractor Approved Sources						
MC-27	Graphic Interface Unit	III				Main Contractor Approved Sources						
MC-28	Hand Held Calibrator	III				Main Contractor Approved Sources						
MC-29	Hart Management System	III				Main Contractor Approved Sources						
MC-30	Humidistat / Thermostat / Gyserstat / Airstat	III				Main Contractor Approved Sources						
MC-31	Instant Corrosion Rate Monitor & Portable Corrosion Meter	III				Main Contractor Approved Sources						
MC-32	Impact head type flow element	III				Main Contractor Approved Sources						
MC-33	Instrument Tube Fittings (Air)	III				Main Contractor Approved Sources						
MC-34	Instrument Valve	III				Main Contractor Approved Sources						
MC-35	IR Detector	III				Main Contractor Approved Sources						
MC-36	KVM Switch/Matrix KVM Switch	III				Main Contractor Approved Sources						
MC-37	Level gauge (Transperent & Reflex, Tubular type)	III				Main Contractor Approved Sources						
MC-38	Level Indicator (Float & Board type)	III				Main Contractor Approved Sources						
MC-39	Level switch - Float/Displacer Type	III				Main Contractor Approved Sources						
MC-40	Level Switch (RF Type)	III				Main Contractor Approved Sources						
MC-41	Level switch capacitance type	III				Main Contractor Approved Sources						
MC-42	Limit Switch	III				Main Contractor Approved Sources						
MC-43	Maintenance and Calibration Equipment	III				Main Contractor Approved Sources						
MC-44	Mini UPS-Type C configuration	III				Main Contractor Approved Sources						
MC-45	Orifice plate assembly	III				Main Contractor Approved Sources						
MC-46	On line carbon in Ash analyser	III				Main Contractor Approved Sources						
MC-47	Pitot Tube	III				Main Contractor Approved Sources						
MC-48	Pr./Vaccum./DP Gauges	III				Main Contractor Approved Sources						
MC-49	Press, DP, Vaccum Switch	III				Main Contractor Approved Sources						
MC-50	Printer (Dot Matrix/Inkjet / Laser)	III				Main Contractor Approved Sources						
MC-51	Psychrometer	III				Main Contractor Approved Sources						
MC-52	Pulse jet Controller	III				Main Contractor Approved Sources						
MC-53	Pulse Valve	III				Main Contractor Approved Sources						
MC-54	Residual Chlorine Analyser	III				Main Contractor Approved Sources						
MC-55	Rotameter	III				Main Contractor Approved Sources						
MC-56	Reverse Rotation Indicator	III				Main Contractor Approved Sources						
MC-57	Synchronising Relay	III				Main Contractor Approved Sources						

<div><p>एन टी पी सी एक महारत्न कम्पनी</p></div>		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00	
		PACKAGE : EPC PACKAGES									DATE :07.06.2022	
		CONTRACTOR:									SUB SECTION: C&I	
		CONTRACT NO :										
Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark	
MC-58	Synchroscope	III				Main Contractor Approved Sources						
MC-59	Semaphore Indicators	III				Main Contractor Approved Sources						
MC-60	Sight Flow Indicator	III				Main Contractor Approved Sources						
MC-61	Smart Positioner	III				Main Contractor Approved Sources						
MC-62	Socket Weld Fittings	III				Main Contractor Approved Sources						
MC-63	Solenoid Valve	III				Main Contractor Approved Sources						
MC-64	Solid Mass Flow Meter	III				Main Contractor Approved Sources						
MC-65	Terminal Block (Cage and Clamp type)	III				Main Contractor Approved Sources						
MC-66	Temperature cum Humidity Indicator	III				Main Contractor Approved Sources						
MC-67	Temperature Element(Thermocouple , RTD & Thermowell)	III				Main Contractor Approved Sources						
MC-68	Temperature Gauge(With Thermowell)	III				Main Contractor Approved Sources						
MC-69	Temperature Switch	III				Main Contractor Approved Sources						
MC-70	Transducer	III				Main Contractor Approved Sources						
MC-71	Tube thicknes Meter	III				Main Contractor Approved Sources						
MC-72	Voltmeter/ Watterhour Meter	III				Main Contractor Approved Sources						
MC-73	Valve manifolds	III				Main Contractor Approved Sources						
MC-74	Electric to Pneumatic Converter	III				Main Contractor Approved Sources						
MC-75	Network components	III				Main Contractor Approved Sources						
MC-76	Isolator	III				Main Contractor Approved Sources						
MC-77	ORP Monitor /Analyser	III				Main Contractor Approved Sources						
MC-78	Ultrasonic Type Flow Transmitter	III				Main Contractor Approved Sources						
MC-79	Chlorine Leak detector	III				Main Contractor Approved Sources						
MC-80	Density Meter	III				Main Contractor Approved Sources						
MC-81	Electro Magenetic Flow meter	III				Main Contractor Approved Sources						
MC-82	Postive dispalcement Type Flow Meter	III				Main Contractor Approved Sources						
MC-83	Level Scanner (3 D)for Solid Application	III				Main Contractor Approved Sources						
MC-84	Mosaic tiles /Console items	III				Main Contractor Approved Sources						
MC-85	Electrical Control Panel (UCP/Backup)	III				Main Contractor Approved Sources						
MC-86	Electrical Indicating Instruments (Mosaic Compatible)	III				Main Contractor Approved Sources						
MC-87	OWS/EWS/Server	III				Main Contractor Approved Sources						
MC-88	Bio Matrix Reader	III				Main Contractor Approved Sources						
MC-89	ANPR	III				Main Contractor Approved Sources						
MC-90	UVSS	III				Main Contractor Approved Sources						
MC-91	Comd & Control System	III				Main Contractor Approved Sources						
MC-92	Access & Controller Software	III				Main Contractor Approved Sources						
MC-93	IR LED based Illuminator	III				Main Contractor Approved Sources						
MC-94	ATB Bollard	III				Main Contractor Approved Sources						
MC-95	Boom Barrier	III				Main Contractor Approved Sources						
MC-96	Touchless biometric recorder	III				Main Contractor Approved Sources						
MC-97	GPS Sensor based Vehicle Monitoring system	III				Main Contractor Approved Sources						
MC-98	10mp digital camera with tripod for photo capture	III				Main Contractor Approved Sources						
MC-99	2D GIS map application	III				Main Contractor Approved Sources						
MC-100	Audible alarm device	III				Main Contractor Approved Sources						
MC-101	CameraPoles	III				Main Contractor Approved Sources						
MC-102	Card Reader	III				Main Contractor Approved Sources						
MC-103	Door Frame Metal Detector -DFMD	III				Main Contractor Approved Sources						
MC-104	Door sensor	III				Main Contractor Approved Sources						
MC-105	Egress Switch	III				Main Contractor Approved Sources						
MC-106	EM LOCK	III				Main Contractor Approved Sources						
MC-107	Emergency exit / door override switch	III				Main Contractor Approved Sources						
MC-108	Emergency Siren /Hooter	III				Main Contractor Approved Sources						

 एन टी पी सी एक महारत्न कम्पनी		PROJECT : Lara-II (2X800MW)				LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00	
		PACKAGE : EPC PACKAGES								DATE :07.06.2022	
		CONTRACTOR:								SUB SECTION: C&I	
		CONTRACT NO :									
Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark
MC-109	Flap barrier	III				Main Contractor Approved Sources					
MC-110	Flash Lights for covering perimeter area for clear view from PTZ in night time	III				Main Contractor Approved Sources					
MC-111	Geo fencing	III				Main Contractor Approved Sources					
MC-112	Glass Break switch at Emergency Exit	III				Main Contractor Approved Sources					
MC-113	Guard tour	III				Main Contractor Approved Sources					
MC-114	Half Height Turnstile	III				Main Contractor Approved Sources					
MC-115	Handheld Walkie - Talkie	III				Main Contractor Approved Sources					
MC-116	HHMD	III				Main Contractor Approved Sources					
MC-117	Long Range RFID Reader	III				Main Contractor Approved Sources					
MC-118	Monitors 24 Inch Full HD	III				Main Contractor Approved Sources					
MC-119	Network Panel	III				Main Contractor Approved Sources					
MC-120	Optical Time Domain Reflector-meter (OTDR) with all accessories	III				Main Contractor Approved Sources					
MC-121	Panic Button with Audible Alarm	III				Main Contractor Approved Sources					
MC-122	Panic button/SOS button supportin SIP protocol	III				Main Contractor Approved Sources					
MC-123	RFID based Stickers	III				Main Contractor Approved Sources					
MC-124	Sliding Gate	III				Main Contractor Approved Sources					
MC-125	SMS gateway	III				Main Contractor Approved Sources					
MC-126	Storage Device (SAN/NAS/DAS) of 100 TB each	III				Main Contractor Approved Sources					
MC-127	Traffic Light	III				Main Contractor Approved Sources					
MC-128	Turnstile - half height	III				Main Contractor Approved Sources					
MC-129	SPIKE BARRIER	III				Main Contractor Approved Sources					
MC-130	CHAIN LINK FENCE	III				Main Contractor Approved Sources					
MC-131	X-ray Baggage Scanner	III				Main Contractor Approved Sources					
MC-132	Static Radio Set	III				Main Contractor Approved Sources					
LEGENDS :											
1.0 SYSTEM SUPPLIER / SUB SUPPLIER APPROVAL STATUS CATEGORY											
A - For those items proposed vendor is acceptable to Customer. To be indicated with letter "A" in the list along with the condition of approval, if any.											
2.0 QP INSPECTION CATEGORY :											
CAT - I : For those items the Quality Plans are approved by Customer and final acceptance will be on physical inspection witness by Customer											
CAT - II : For those items the Quality Plans are approved by Customer. However no physical inspection shall be done by Customer. The final acceptance by Customer shall be on the basis of review of documents.											
CAT - III : For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.											
UNITS/WORKS : Place of manufacturing- Place of main supplier of multi units/works.											
NOTE - 1 : A: Vendors to submit project specific documents as per Sub-QR requirements in case the Vendor is approved under collaboration agreement.											
B: In case approved sub vendor is offering product with latest model/series apart from earlier approved, vendors to submit project specific documents as per Sub-QR requirements.											
NOTE - 2 : For Instrument cable <= 1 KM inspection category CAT - III, For > 1 KM to <= 10 KM Inspection category CAT - II COC & FOR> 10 KM Inspection category CAT-I											
NOTE - 3 : For Fiber Optic cable <=10KM inspection category CAT - III & for > 10KM Inspection category CAT-II											
NOTE-4 : Batteries for UPS <= 10 KVA and batteries for intelligent battery charger 24 V DC <= 40 Amp inspection category CAT-III & for Batteries for UPS> 10KVA and batteries for intelligent battery charger 24 V DC > 40 Amp rating											
NOTE-5 UPS <= 10 KVA rating inspection category CAT-III & for > 10KVA rating inspection category CAT-I											
NOTE - 7 - EMPTY CABINETS, COMPUTERS, SIGNAL ISOLATOR/ MULTIPLIER and TB SHALL ALSO BE ACCEPTABLE FROM OWNER ACCEPTED IN QP. IF THE TOTAL INTEGRATED PANEL AND FAT IS CONDUCTED INDEGENEOUSLY											
NOTE-8 : For the C & I instruments mounted on the skid of the main item or supplied as a integral part of the main item, instrument to be supplied as per proven practice of the manufacturer meeting the Customer technical specification											
NOTE-9- This item is a bought out component of main equipments like DDCMIS, PLC, TSI, CCTV, PA system etc											
NOTE-10- For these controlled items, vendor shall be proposed for owner acceptance within the agreed contract schedule of the package											
NOTE-11 - Major Bought-Out-Items are to be procured from LOA approved sources & the same shall be finalized during the finalization of Manufacturing Quality Plan . MQP shall be duly vetted by OEM with their project specific authorisation letter .											

		PROJECT : Lara-II (2X800MW)					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00	
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		CONTRACTOR:									SUB SECTION: C&I	
		CONTRACT NO :										
Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark	
NOTE-12 : Main contractor approved sub vendors are acceptable those are evaluated / assessed as per Main contractor Quality Management System for vendor approval. Main contractor to inform the finally selected vendor to NTPC as soon as PO is placed for these items. In case of sub-QR Note-1 is also applicable.												

Indicative Vendor List

PROJECT: PATRATU 3 X 800MW			LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB CONTRACTOR APPROVAL				DOC. NO.							
PACKAGE : WATER TREATMENT PLANT (DM PLANT,PT PLANT, ET PLANT, ST PLANT, CW TREATMENT & CHLORINE DI OXIDE PLANT)							Revision No.		0					
							Date		11/07/19					
							PAGE		1 of 10					
MAIN CONTRACTOR : BHEL						Place		SUB SUPPLIER APPL. Status						
CONTRACT NO : 9585-001														
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER					Remark			
1	2	3	4	5	6	7	8	9	10	11	12			
[A]	MECHANICAL:													
1	PRESSURE VESSELS > = 10 BAR	I				BELCO	GR. NOIDA	A						
						MURTHAL TANKS & VESSELS	SONEPAT	A						
						S V FABRICATORS	NAVI MUMBAI	A						
						SYSCON ENGINEERS	AMBERNATH	A						
						JASMINO POLYMERTECH	TALOJA	A						
						ISHAN EQUIPMENTS	VADODARA	A						
						RISHI INDUSTRIES	SONEPAT	A						
						TITAN ENGG	DURGAPUR	A						
						UNIVERSAL HEAT EXCHANGER	COIMBTORE	A						
						CHEM PROCESS	SANAND	A						
						GLOBAL STRUCTURE AND COMPOSITE	THANE	A						
2	PRESSURE VESSELS / ATMOSPHERIC TANKS< 10 BAR	III				BHEL APPROVED SOURCES ACCEPTABLE								
3	VERTICAL & HORIZONTAL CENTRIFUGAL PUMPS	II				KIRLOSKAR BROS LTD.	KIRLOSKARWADI	A						
						WILO MATHER & PLATT PUMPS PVT LIMITED	PUNE	A						
						WILO MATHER & PLATT PUMPS PVT LIMITED	KOLHAPUR	A						
						SAM TURBO	COIMBATORE	A			UP TO 1500 CUM/HR ONLY			
						FLOWMORE	GHAZIABAD	A						
						FLOWMORE	GHAZIABAD	A						
						BEST AND CROMPTON	CHENNAI	A						
						JYOTI LTD	VADODARA	A						
						WPIL LTD	GHAZIABAD	A						
						KISHORE PUMPS	PUNE	A	UPTO 500M3/HR ONLY . RUBBERLINED PUMPS ALSO					
						GRUNDFOS PUMPS INDIA PVT LTD	CHENNAI	A	HORIZONTAL UP TO 30 KW ONLY AND VERTICAL UP TO 45 KW ONLY (FOR APPLICATIONS WHERE NPSH IS NOT REQUIRED)					
						SINTECH PRECISION	GHAZIABAD	A	HORIZONTAL UP TO 400 KW MOTOR RATING AND VERTICAL UP TO 30 KW MOTOR RATING					
						KSB	PUNE	A						
						KSB	NASHIK	A						
						FLOWERVE INDIA CONTROLS PVT LTD	COIMBATORE	A	HOIZONTAL CENTRIFUGAL PUMP UP TO 75 KW ONLY					

PROJECT: PATRATU 3 X 800MW			LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB CONTRACTOR APPROVAL				DOC. NO.					
PACKAGE : WATER TREATMENT PLANT (DM PLANT,PT PLANT, ET PLANT, ST PLANT, CW TREATMENT & CHLORINE DI OXIDE PLANT)							Revision No.		0			
MAIN CONTRACTOR : BHEL							Date		11/07/19			
CONTRACT NO : 9585-001												
							PAGE		2 of 10			
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER	Place	SUB SUPPLIER APPL. Status			Remark	
1	2	3	4	5	6	7	8	9	10	11	12	
						SU MOTOR	MUMBAI	A	HORIZONATL UPTO 500M3/HR & VERTICAL CENTRIFUGAL PUMPS UP TO 100CMH ONLY. RUBBERLINED PUMPS ALSO.			
4	VERTICAL TURBINE PUMPS -UP TO 300KW	II				M/S FLOWMORE LTD	SAHIBABAD	A				
						M/S FLOWMORE LTD	GHAZIABAD	A				
						KIRLOSKAR BROS LTD.	KIRLOSKARWADI	A				
						WPIL LTD	KOLKATA	A				
						WPIL LTD	GHAZIABAD	A				
						JYOTI LTD	VADODARA	A				
						XYLEM WATER SOLUTIONS INDIA PVT LTD	VADODARA	A				
						FLOWSERVE INDIA CONTROLS PVT LTD	COIMBATORE	A				
						SINTECH PRECISION	GHAZIABAD	A	UP TO 30 KW			
					WILO MATHER & PLATT PUMPS PVT LIMITED	PUNE	A					
5	SUBMERSIBLE PUMPS < 30 KW	II				BHEL APPROVED SOURCES ACCEPTABLE						
6	SUBMERSIBLE PUMPS = >30 KW	I				KSB	NASHIK	A	130 KW			
						KIRLOSKAR BROS LTD.	KIRLOSKARWADI	A				
						AQUA MACHINERY	AHMEDABAD	A	UP TO 235 KW			
						WPIL LTD	GHAZIABAD	A				
						WPIL LTD	THANE	A	UP TO 40 HP			
					MBH	AHMEDABAD	DR					
7	DUAL PLATE CHECK VALVE UPTO 600 MM & UPTO CLASS 300 #	II				BHEL APPROVED SOURCES ACCEPTABLE						
8	VALVE-DUAL PLATE CHECK > 600MM OR CLASS > 300	I				ADVANCE VALVE PVT LTD	GR. NOIDA	A	DUAL PLATE CHECK VALVES CI UPTO 1000 NB CLASS 125, DUPLEX SS UP TO 600NB CLASS 600.			
						LEADER	JALANDHAR	A	UP TO 900MM CLASS 150 , SS 200NB CLASS#300			
						R & D MULTIPLE	VALSAD	A	CI/ CS UP TO 800NB PN 10			
9	BALL VALVE UPTO 100 MM & UPTO CLASS 800#	II				BHEL APPROVED SOURCES ACCEPTABLE						
10	VALVE-BALL > 100 MM OR CLASS > 800	I				WEIR BDK	HUBLI	A	SS Ball valves up to 500MM and class #600, CS Ball Valves up to 250 MM and class# 900, CS/ SS Ball valves up to 100 MM and class # 1500.			
						MICRO FINISH VALVES PVT. LTD.	HUBLI	A	400NB CLASS#600 AND UP TO 600NB CLASS#300			
						FLOW CHEM INDUSTRIES	KALOL	A	100NB CLASS#600,200NB CLASS#300, 50 NB CLASS#800			
						L&T VALVES LIMITED	COIMBATORE	A	UPTO 150NB, CLASS #150/300, AND UPTO 50NB, CLASS #800			

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PROJECT: PATRATU 3 X 800MW			LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB CONTRACTOR APPROVAL				DOC. NO.					
PACKAGE : WATER TREATMENT PLANT (DM PLANT,PT PLANT, ET PLANT, ST PLANT, CW TREATMENT & CHLORINE DI OXIDE PLANT)							Revision No.		0			
MAIN CONTRACTOR : BHEL							Date		11/07/19			
CONTRACT NO : 9585-001												
							PAGE		3 of 10			
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER	Place	SUB SUPPLIER APPL. Status			Remark	
1	2	3	4	5	6	7	8	9	10	11	12	
						PRECISSION ENGG CO VALVES PVT LTD	NASIK	A	FCS UP TO 50NB CLASS 800, CCS UP TO 400NB CLASS 150.			
						BELGAUM AQUA VALVE PVT LTD	BELGAON	A	FCS UP TO 50NB CLASS 800, CCS UP TO 200NB CLASS 150.			
						G M ENGINEERING PRIVATE LTD	RAJKOT	A	UP TO 400 NB AND CLASS #600			
						INTERVALVE POONAWALA LTD	PUNE	A	SGI / CI / D2 1400MM PN10, SGI / CI 1000MM PN16,CS/SS 500MM PN16, SS 400MM CLASS#300, MS FABRICATED UPTO 2800NB, PN6			
						WEIR BDK	HUBLI	A	CI/ DI butterfly valve up to 1000MM and PN16 AND up to 1800MM and PN10,CCS UP TO 1050MM CLASS 150 AND up to 1800MM and PN16 SS - UP TO 400NB PN-16 ,FABRICATED 800MM CLASS#150.			
						PENTAIR VALVES	HALOL	A	FOR SS UP TO 500 NB PN-10, CI- UP TO 900NB PN-10, UP TO 500NB PN-16, 450MM CLASS#300, MS FABRICATED UPTO 2800NB, PN6.			
						FOURES S ENGINEERING (INDIA) LIMITED	BANGALORE	A	CAST SGI/CI/ MS FABRICATED- UP TO 1200 PN-10, UP TO 350 PN-16 ,2400 MM PN6/CLASS150 SS - UP TO 300NB PN-10,MS FABRICATED UPTO 2700NB CLASS # 75			
11	BUTTERFLY VALVE >600MM OR CLASS >150#	I				KIRLOSKAR BROS LTD.	KONDHAPURI	A	CAST SGI/CI/CS 1400 MM PN16 , SS 300 MM PN16, 1800MM CLASS 150, MS FABRICATED 900 NB PN40,MS FABRICATED 2800NB, PN6.			
						R & D MULTIPLE	VALSAD	A	CAST SGI/CI/MS FABRICATED- UP TO 1800 MM PN-10/CLASS # 75, ,1100MM PN25,1400MM CLASS#150 ,MS FABRICATED UPTO 2800NB CLASS # 75			
						ADVANCE	GREATER NOIDA	A	METAL SEATED, TRIPLE ECCENTRIC, SS BFV OF SIZE UPTO 100NB, AND PRESSURE RATING UPTO CLASS #300.			
						BRAY CONTROLS (ZHEJIANG) CO. LTD	CHINA	A	UP TO 400 NB CLASS#600			
						INSTRUMENTATION LTD.	PALAKKAD	A	UPTO 2200NB CLASS # 75			
						HAWA ENGINEERS	AHMEDABAD	A	CI/ CS & FABRICATED UPTO 1200MM, CLASS #150, SS UPTO 250MM, CLASS#150			
						STAFFORD	CHENNAI	DR				
						DELVALVE	SATARA	A	UPTO1000MM, PN10			
						GM ENGINEERING	AHMADABAD	DR				
						L&T	COIMBATORE	A	UPTO 900MM, CLASS 150			
						BRAY INDIA	KANCHIPURAM	A	UP TO 450MM AND CLASS #600			
12	VALVE-BUTTERFLY UP TO 600MM & CLASS 150 #	II (FOR INDIGENOUS SUPPLIER) /III (FOREIGN SUPPLIER)				BHEL APPROVED SOURCES ACCEPTABLE						
13	VALVE- CONVENTIONAL GATE, GLOBE & CHECK VALVES UPTO 600NB & UPTO CLASS 300#	III				BHEL APPROVED SOURCES ACCEPTABLE						

THIS IS PART OF TECHNICAL SPECIFICATION PE-TS-508-404-W001

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PROJECT: PATRATU 3 X 800MW			LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB CONTRACTOR APPROVAL				DOC. NO.					
PACKAGE : WATER TREATMENT PLANT (DM PLANT,PT PLANT, ET PLANT, ST PLANT, CW TREATMENT & CHLORINE DI OXIDE PLANT)							Revision No.		0			
MAIN CONTRACTOR : BHEL							Date		11/07/19			
CONTRACT NO : 9585-001												
							PAGE		4 of 10			
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER	Place	SUB SUPPLIER APPL. Status			Remark	
1	2	3	4	5	6	7	8	9	10	11	12	
14	VALVE-CONVENTIONAL GATE / GLOBE / CHECK > 600NB OR CLASS > 300	II				LEADER	JALANDHAR	A	CS GATE 600MM CLASS#600, SS GLOBE 600MM CLASS#600, CS CHECK 600MM AND CLASS#600			
						HAWA ENGINEERS	AHMEDABAD	A	FCS / FSS 50 NB CLASS 800.			
						FOURESS	THANE	A	400NB CLASS 600 AND 50NB CLASS 800.			
						BHEL IVP	GOINDWAL	A	GATE UP TO 300 NB CLASS 600. GLOBE 250 NB CLASS 400, CHECK 150NB CLASS 600.			
						HITECH ENGG PVT LTD	AHEMDABAD	A	50 NB CLASS 800.			
						KSB PUMPS LTD	COIMBATORE	A	300NB CLASS 2500.			
						NITON VALVES INDIA PVT LTD	NAVI MUMBAI / AURANGABAD	A	CS GATE 900 NB CLASS 600, CHECK 300 NB CLASS 600.			
						L&T VALVES LIMITED	COIMBATORE	A	650 MM CLASS 600, 50 NB CLASS 800.			
						WEIR BDK	HUBLI	A	Conventional CCS Gate / Globe / Check Valves up to 600MM and Class # 1500, CSS Gate/ Globe/ Check Valves up to 200MM and Class # 600, FCS Gate / Globe / Check Valves up to 50MM and Class # 2500.			
15	SLUICE GATE/ ISOLATION GATE	II				BHEL APPROVED SOURCES ACCEPTABLE						
16	DIAPHRAGM VALVES	I				CRANE PROCESS FLOW	SATARA	A	UP TO 300NB PN10			
						WEIR BDK	HUBLI	A	UPTO 250 NB - PN 10, 350MM PN6			
						PROCON ENGINEERS	MUMBAI	A	UPTO 200 NB - PN 10 ,CCS Diaphragm Valves up to 200NB & Rating-PN10/ CLASS#150			
						SIGMA INDUSTRIES	NAVI MUMBAI	DR				
						A V VALVES	AGRA	DR				
						MAJESTIC VALVES(LABLINE)	MP	DR				
17	RUBBER LINING OF TANKS/ VESSELS/ PIPES/ VALVES & FITTINGS	II				BHEL APPROVED SOURCES ACCEPTABLE						
18	PP & PTFE/ TEFLON LINING	III				BHEL APPROVED SOURCES ACCEPTABLE					PIPES FROM ALREADY IDENTIFIED SUB-VENDORS	
19	MS PIPES (BLACK/ GI) IS:1239 & IS:3589 UPTO 1000 NB	II				BHEL APPROVED SOURCES ACCEPTABLE					BIS MARKED MANUFACTURERS WITH VALID BIS LICENCES	
						SAIL	ROURKELA	A	CO-RELATED MTC SHALL BE REVIEWED.			
						WEIR BDK		A	SAW UPTO 2600 NB			

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11/07/19

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MAIN CONTRACTOR : BHEL							Date	11/07/19			
CONTRACT NO : 9585-001											
							PAGE	5 of 10			
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER	Place	SUB SUPPLIER APPL. Status			Remark
1	2	3	4	5	6	7	8	9	10	11	12
20	MS PIPES (BLACK/ GI) IS:1239 & IS:3589 > 1000 NB	I				WELSPUN	BHARUCH	A	SAW UPTO 1300 NB		BIS MARKED MANUFACTURERS WITH VALID BIS LICENCES
						MAN INDUSTRIES	INDORE	A	SAW UPTO 1400 NB		
						SAMSHI PIPE INDUSTRIES LTD	VADODARA	A	SAW 450 TO 2540 NB		
						MUKAT TANKS & VESSELS	TARAPUR	A	SAW 200 TO 1200 NB		
						MUKAT PIPES	RAJPURA	A	SAW UPTO 1800 NB		
						LALIT PIPES AND PIPES LTD	THANE	A	SAW 350 TO 1400 NB		
						RATNAMANI	CHATRAL	A	SAW 600 TO 2600 NB		
						RATNAMANI	KUTCH	A	SAW 400 TO 3600 NB		
						PSL HOLDINGS LIMITED	DAMAN	A	SAW 450 TO 1600 NB		
						PSL INTERNATIONAL LTD.	CHENNAI	A	SAW 450 TO 3000 NB		
						PSL LIMITED	KUTCH	A	SAW 700 TO 2200 NB		
						PSL LIMITED	VISAKHAPATNAM	A	SAW UP TO 3200 NB		
						JCO PIPES	CHHINDWARA	A	SAW UPTO 1600 NB		
						M/s Surya Roshni Limited	ANJAR	A	SAW UP TO 2300 NB		
						CAPACITE STRUCURES PVT LTD (EARLIER PRATIBHA PIPES & STRUCTURES PVT. LTD.)	THANE	A	ROLLERD & WELDED 406.4 MM TO 3874 MM		
21	VALVE-PR/ VACCUUM RELIEF /SAFETY RELIEF /ARV/ FLOAT VALVE	III				BHEL APPROVED SOURCES ACCEPTABLE					
						REMI	TARAPUR	A	ERW UPTO 400 NB		II (FOR INDIGENOUS SUPPLIER) /III (FOREIGN SUPPLIER)
						RATNAMANI	MEHSANA	A	ERW UPTO 500 NB, SEAMLESS UPTO 50 NB ONLY		
						RATNAMANI	KUTCH	A	ERW UPTO 400 NB, SEAMLESS UPTO 50 NB ONLY, ARC WELDED UP TO 450NB		

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CONTRACT NO : 9585-001										
							PAGE	6 of 10		
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1	2	3	4	5	6	7	8	9	10	11 12
22	SS PIPE ASTM A 312	II (III FOR FOREIGN VENDORS)				SUMITOMO	JAPAN	A		
						SOSTA	GERMANY	A		
						OUTO KOMPU	SWEDEN	A		
						PRAKASH STEELAGE	VALSAD	A	ONLY FOR SEAMLESS UPTO 50NB AND ERW UP TO 400NB	
						BHANDARI FOILS & TUBES LIMITED	DEWAS	A	ERW UP TO 300NB	
						APEX	BEHRORE	A	ERW UPTO 400 NB, SEAMLESS UPTO 50 NB.	
23	AIR BLOWERS (LOBE TYPE) => 5 KW	I				SWAM PNEUMATIC	NOIDA	A		
						EVEREST BLOWERS PVT LTD	BAHADURGARH	A	UP TO 40 HP (APPROX 1600 CUM/HR)	
						KAY INTERNATIONAL	SONEPAT	A	UP TO 500 CUM/HR	
						KULKARNI POWER TOOLS	SHIROL	A	UP TO 2500CUM/HR	
						USHA COMPRESSORS	AHMEDABAD	A	UP TO 60 HP (APPROX 2000CUM/HR)	
24	AIR BLOWERS (LOBE TYPE) < 5 KW	II				BHEL APPROVED SOURCES ACCEPTABLE				
25	PUMP - METERING / DOSING	II				BHEL APPROVED SOURCES ACCEPTABLE				
26	ELECTRIC HOIST/EOT CRANE / CHAIN PULLEY BLOCK UPTO 5 TONS	III				BHEL APPROVED SOURCES ACCEPTABLE				
27	ELECTRIC HOIST/EOT CRANE / CHAIN PULLEY BLOCK > 5 UPTO 10 TONS	III				TRACTEL TIRFOR	PALWAL	A	UPTO 20 TON	
						LIFTING EQUIPMENT	DELHI	A	UPTO 12 TON	
						ARMSEL	BANGALORE	A	UPTO 5 TON	
						HERCULES HOIST	RAIGAD	A	UPTO 15 TON	
						REVA INDUSTRIES	FARIDABAD	A	UP TO 25T	
						EDDY CRANE	PUNE	A	UPTO 10 TON	
						CONSOLIDATED HOIST	SATARA /PUNE *	A	*PUNE FOR ELECTRIC HOIST UPTO 15 TONS	
						ELECTROTHERAPHY	RISHRA	A	UPTO 15 TON FOR ELECTRIC HOIST ONLY	
						TUBRO FERGUSSON	KOLKATA	A	UPTO 5 TON FOR ELECTRIC HOIST	
						PRAYAS ENGG (PBL)	V V NAGAR	A	UPTO 10 TON FOR ELECTRIC HOIST ONLY	

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MAIN CONTRACTOR : BHEL							Date	11/07/19		
CONTRACT NO : 3585-001										
							PAGE	7 of 10		
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER	Place	SUB SUPPLIER APPL. Status		Remark
1	2	3	4	5	6	7	8	9	10	11 12
						CRANEX	GHAZIABAD	A	UP TO 35 T CAPACITY EOT CRANE ONLY. GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE.	
						ALPHA SERVICES	ALWAR	A	SINGLE GIRDER EOT CRANE & ELECTRIC HOIST UPTO 15 TON ONLY. GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE.	
						CENTURY CRANE ENGINEERS PVT. LTD	BALLABHGARH	A	UP TO 25T,GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE.	
						MILLARS INDIA	KARAMSAD	A	UP TO 25T	
						AVON CRANES	GURGAON	A	UP TO 25T	
						GRIP ENGINEERS	HYDERABAD	A	GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE.	
						GRIP ENGINEERS	FARIDABAD	A	UPTO 20 TON ELECTRIC HOIST ONLY	
28	FILTER/ STRAINER Y TYPE/ BASKET TYPE	III				BHEL APPROVED SOURCES ACCEPTABLE				
29	PLUG VALVE UPTO 100 MM & UPTO CLASS 800#	II				BHEL APPROVED SOURCES ACCEPTABLE				
30	VALVE-PLUG > 100 MM OR CLASS > 800	I				WEIR BDK	HUBLI	A	SOFT SEATED 400MM AND CLASS #150, 300NB CLASS#300	
						FLOWERVE INDIA CONTROLS PVT LTD	CHENNAI	A	METALLIC SEATED 400NB CLASS#150, 300NB CLASS #300, 50NB CLASS #800	
31	AGITATORS	III				BHEL APPROVED SOURCES ACCEPTABLE				
32	FITTINGS/ FLANGES (MS-SS-CS)	III				BHEL APPROVED SOURCES ACCEPTABLE				
33	PVC/CPVC/HDPE /PVDF PIPES, VALVES, FITTINGS & TANKS	III				BHEL APPROVED SOURCES ACCEPTABLE				
34	MICRON CARTRIDGE FILTER AND ITS HOUSING	III				BHEL APPROVED SOURCES ACCEPTABLE				
35	AIR BLOWERS (CENTRIFUGAL) = >5KW	I				PATEL AIR FLOW LIMITED	AHMEDABAD	A	UP TO 4000CUM/HR	
						C B DOCTOR	AHMEDABAD	A	UP TO 4000CUM/HR	
						UNIVERSAL	MUMBAI	DR		
						KULKARNI POWER TOOLS	SANGALI	DR		
36	AIR BLOWERS (CENTRIFUGAL) < 5KW	II				BHEL APPROVED SOURCES ACCEPTABLE				
37	ION EXCHANGE RESIN (DM PLANT)	III				BHEL APPROVED SOURCES ACCEPTABLE				

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1	2	3	4	5	6	7	8	9	10	11	12	
38	PRESSURE REDUCING VALVE, VESSEL INTERNALS, , RASCHING RINGS, VALVES FOR INSTRUMENT ISOLATION , HANDRAILS & PLATFORMS, STRUCTURAL STEEL (ANGLES, CHENNELS, FLATES, ROUNDS, GRATINGS FOR SUPPORT AND PLATFORMS), LADDERS, PUDDLE PIPES (MS), INSERT / EMBEDMENT PLATES, MEDIA FOR MBBR TANK, SLUDGE TROLLEY, FASTENER, GASKET, OIL & GREASE, PAINTS, PP FILTER NOZZLE, EYE FOUTAIN,GI FITTINGS, DAMPNER, CALIBERATION POT, SELF CLEANING STRAINER, OIL DRUM, DEGASSED TOWER, U CLAMP,NEEDLE VALVE,NAME PLATE,FASTENERS,SIGHT GLASS,RUPTURE DISC,FOUNDATION BOLTS,CATION COLUMN,SAMPLE COOLER,SITE FLOW INDICATOR.	III				BHEL APPROVED SOURCES ACCEPTABLE						
39	MISCELLENIOUS ITEMS - OVERFLOW SEAL POT, HOSES, FILTER MEDIA (SAND/GRAVEL), FMR MEDIA, FUME ABSORBER, MOISTURE ABSORBER, CO2 ABSORBER, BREATHER, FRV TANKS , RESIN TRAP, OPEN TRAP, DIFFUSERS, STATIC MIXER, PALL RINGS, DISSOLVING BASKET, MEDIA TRAPS, MIXING TEE, PP STARINER, PP BALLS, BAR SCREEN, EJECTORS, VENTURI MIXERS, RO SKID/ UF SKID & OTHER SKIDS FABRICATION, SAFETY SHOWER, SAFETY EQUIPMENTS, CENTRIFUGE, FOOT/FLOAT VALVE, OIL WATER SEPARATOR & OIL SKIMMER, WEIGHING SCALE, ACTIVATED CARBON, ANTHRACITE, RO SAMPLING PANEL & SNAP ACTION VALVE,	III				BHEL APPROVED SOURCES ACCEPTABLE						
40	PIPING FABRICATION - HIGH PRESSURE >300 PSI	II				BHEL APPROVED SOURCES ACCEPTABLE						
41	PIPING FABRICATION - LOW PRESSURE UPTO 300 PSI	III				BHEL APPROVED SOURCES ACCEPTABLE						
42	PIPE-CS SEAMLESS ASTM A 106	II				ISMT	AHMADNAGAR	A	UPTO 150NB &			
						ISMT	BARAMATI	A	UPTO 200 NB			
						REMI	BHARUCH	A	UPTO 177.8 MM OD, HOT FINISHED			
						MAHARASHTRA SEAMLESS	RAIGAD	A	CS SEAMLESS PIPESUPTO 500 NB			
						DALMINE-	ITALY	A				
						KAWASAKAI STEEL COMPANY	JAPAN	A				

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CONTRACT NO : 9585-001												
							PAGE		9 of 10			
Sr. No	Item	QP/ INSP CAT	QP NO			PROPOSED SUB SUPLIER	Place	SUB SUPPLIER APPL. Status			Remark	
1	2	3	4	5	6	7	8	9	10	11	12	
		III				MANNESMAN & VALLOURAC	GERMANY	A				
						SUMITOMO METAL	JAPAN	A				
						S.C.PETROTUBE SA	ROMANIA	A				
						NKK	JAPAN	A				
						ARCELAR MITTAL	ROMANIA	A				
43	PUMP- PP ACID/ ALKALI UNLOADING PUMP (NON METTALIC PUMPS)	II				BHEL APPROVED SOURCES ACCEPTABLE						
44	SCREW PUMPS	II				BHEL APPROVED SOURCES ACCEPTABLE						
45	REACTOR CLARIFIER/ CLARIFLOCCULATOR / SLUDGE THICKNER ASSEMBLY- FABRICATION	III				BHEL APPROVED SOURCES ACCEPTABLE						
46	LAMELLA CLARIFIER - FABRICATION	III				BHEL APPROVED SOURCES ACCEPTABLE						
47	PLATES-FRP FOR LAMELLA CLARIFIER	III				BHEL APPROVED SOURCES ACCEPTABLE						
48	TUBE SETTLER/PLATE SETTLER	III				BHEL APPROVED SOURCES ACCEPTABLE						
49	FRP VESSELS AND TANKS	III				BHEL APPROVED SOURCES ACCEPTABLE						
50	PIPES AND FITTINGS - GRP	I				EPP COMPOSITES PVT LTD	RAJKOT	A	UP TO 900 mm DN PR RATING PN-15, STIFFNES 248 KPA			
						GRAPHITE INDIA	NASIK	A	UP TO 1100 mm DN PR RATING PN-15,STIFFNES 5000 N/m2			
						SHRIRAM SEPL COMPOSITES LTD	CHENNAI	A	UP TO 1100 mm DN PR RATING PN-15, STIFFNES 5000 N/m2			
						BALAJI FIBER REINFORCE PVT LIMITED	VADODARA	A	up to 650 NB PR RATING PN-6, STIFFNES 248 KPA			
						MEGHA FIBRE GLASS INDUSTRIES PVT LTD	MEDAK	A	UP TO 900 mm DN PR RATING PN-15, STIFFNES 248 KPA			
51	PIPES AND FITTINGS - CI	II				BHEL APPROVED SOURCES ACCEPTABLE						
52	RO MEMBRANE	III				BHEL APPROVED SOURCES ACCEPTABLE						
53	RO PRESSURE TUBE	II				BHEL APPROVED SOURCES ACCEPTABLE						
54	TUBE SETTLER MEDIA	II				BHEL APPROVED SOURCES ACCEPTABLE						
55	VALVE - GUN METAL	III				BHEL APPROVED SOURCES ACCEPTABLE						
56	NRV FLAP TYPE	III				BHEL APPROVED SOURCES ACCEPTABLE						
57	UF MEMBRANE	III				BHEL APPROVED SOURCES ACCEPTABLE						
58	MS/ SS PLATES	III				MAIN STEEL PRODUCERS (SAIL/TISCO/ESSAR/ISPAT STEEL/JINDAL)		A			BHEL SHALL SUBMIT CO-RELATED MANUFACTURER TC FOR NTPC/PVUN REVIEW.	

THIS IS PART OF TECHNICAL SPECIFICATION PE-TS-508-404-W001

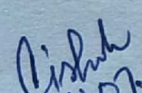
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1	2	3	4	5	6	7	8	9	10	11 12		
59	LABORATORY GLASSWARES AND EQUIPMENTS	III				BHEL APPROVED SOURCES ACCEPTABLE						
60	ATMOSPHERIC TANKS - SITE FABRICATED	SHALL BE COVERED IN FQP				BHEL APPROVED SOURCES ACCEPTABLE						
61	CHLORINE DI OXIDE GENERATOR	I				CHEMBOND WATER TECHNOLOGIES LIMITED	VADODARA/ MUMBAI	DR				
NOTE:- For Mandatory Spares, the Tests/ Checks shall be same, as applicable in the approved QP of the Main Equipment for the respective spare Item. Spares, not covered in the QP of the Main Equipment, shall be treated as Inspection Category-III. For all Spares, BHEL shall submit the Interchangeability Certificate & COC for the purpose of Dispatch Clearance by NTPC/PVUN.												
A - FOR THESE ITEMS PROPOSED VENDOR IS ACCEPTABLE TONTPC/PVUN. DR : FOR THESE ITEMS DETAILS ARE REQUIRED FORNTPC/PVUN REVIEW.												
2. QP / INSPECTION CATEGORY:												
CAT I: For these items the quality plans are approved by NTPC/PVUN. and the final acceptance will be on physical inspection witness by NTPC/PVUN.												
CAT II: For these items the quality plans are approved byNTPC/PVUN.. However no physical inspection shall be done by NTPC/PVUN. The final acceptance by NTPC/PVUN shall be on the basis of review of document as per approved QP.												
CAT III: For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor												
UNITS / WORKS: Place of Manufacturing. Place of Main Supplier of Multy units/works.												

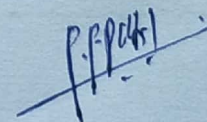
Aishw
 11.07.19
 VISHWESH KUMAR
 BHEL

11/07/19
 (Kamlesh Singh)
 PVUNL

पीवीयुएन PVUN	Project : Patratu STPP 3X800 MW		Sub-Vendor List		Doc No	QA-C&I and Elect -WTP-00
	Package : Water Treatment Plant				Rev No	1
	Package (DM, PT, ETP, STP, CWT, Clo2 Plant)					1 of 9
	Main Contractor : BHEL				Date	10.07.2019
	Sub Contractor :					
Contract No. : 9585-001-136			Control & Instrumentation and Electrical Items			
Sl No.	Item	QP/ Insp. Cat.	Acceptable Supplier As Per Database	Place of Manufacturing	Approval Status	Remarks
Control and Instrumentation Item list - Controlled items						
1	Electrical Actuator (With Gear Box, If Applicable)	II	Antrieb Technik Pvt Ltd Auma Limitorque Rotork	Chennai Bangalore Faridabad Chennai/Banglore	A A A A	for low torque application
2	Instrument Cables (F, G & T/C Cables)	I (Refer - Note - 1)	Paramount Communication Ltd Polycab Delton Kei Elkey Telelinks Cords Cords Nicco Universal Cable Thermocables Gupta Power Infrastructure Ltd. Cmi Advance Cables Pvt Ltd Gemscab Industries Ltd Apar Industries Limited	Khuskhera Daman Faridabad Bhiwadi Faridabad Kaharani Bhiwadi Kolkata Satna Hyderabad Khurdha Faridabad Banglore Bhiwadi Valsad	A A A A A A A A A A A A A A A A	PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type PVC, FRLS type
3	Terminal Block (Cage And Clamp Type)	III	Weidmuller Phoenix Wago Elmex	Germany Germany / India Germany / India Vadodara	A A A A	Model should have CE Marking
4	Electronic Transmitter (Pr./DP/Flow and Level)	III	EMERSON (Rosemount)	USA/ Pawane	A	
		III	FUJI ELECTRIC	France	A	
		III	YOKOGAWA	JAPAN	A	Testing and Calibration at M/s YIL, Bangalore is also acceptable.
		III	YOKOGAWA	Bangalore	A	EJA- E series 110,430,530
		III	ABB	Bangalore	A	Model - 2600 T
		III	ABB	GERMANY / Italy	A	Model - 2600 T


 11.07.19
 P. P. P. K. K.
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FORMAT No: QS-QA-P-1/F3-R0


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ENGG DIV. / QA I


<div>प्रीतियुक्त PVUN</div>	Project : Patratu STPP 3X800 MW		Sub-Vendor List			Doc No	QA-C&I and Elect.-WTP-00
	Package : Water Treatment Plant					Rev No	1
	Package (DM, PT, ETP, STP, CWT, Clo2 Plant)					Date	10.07.2019
	Main Contractor : BHEL						
	Sub Contractor :						
	Contract No. : 9585-001-136						
Sl No.	Item	QP/ Insp. Cat.	Acceptable Supplier As Per Database	Place of Manufacturing	Approval Status	Remarks	
		III	Eutech Instrument PTE Ltd (part of Thermofisher Scientific Inc)	Singapore	A	Brand Orion	
11	ORP Analyser	III	ABB India	Bengaluru	A		
		III	Emerson process	USA/Pawane	A		
		III	YIL	Japan	A		
		III	ABB	UK/USA	A		
		III	HACH	Switzerland	A		
12	Concentraton Analyser	III	HACH	USA	A		
13	Sodium Analyser	III	Hach	Switzerland	A		
		III	ABB	UK	A		
		III	Orion	USA	A		
14	Ultrasonic type Flow transmitter (full bore Type)	III	GE Sensing EMES	Ireland	A		
		II	Daniel Measurement solutions pvt ltd	Vadodara	A		
15	Turbidity Analyser	III	HACH	USA	A		
		III	ABB	UK	A		
16	Chlorine Leak Detector	III	W&T	Germany	A		
		III	Perfect Chloro system	Chennai	A		
17	Chlorine dioxide Analyser	III	HACH	USA	DR		
		III	E & H	Germany	DR		
		III	Emerson Process Management Ltd	Pawane	DR		
18	Chlorine dioxido leak detector	III	HACH	USA	DR		
		III	E & H	Germany	DR		
		III	Emerson Process Management Ltd	Pawane	DR		
		III	W & T	Germany	DR		
		III	Honeywell	Pune	DR		
		III	Perfect Chloro system	Chennai	DR		
19	Radar Type level Transmitter	III	B M Technology	Italy	A		
		III	Magnetrol	Belgium	A		

<div>पीतियुन PVUN</div>	Project : Patratu STPP 3X800 MW		Sub-Vendor List		Doc No	QA-C&I and Elect -WTP-00
	Package : Water Treatment Plant				Rev No	1
	Package (DM, PT, ETP, STP, CWT, Clo2 Plant)				Date	10.07.2019
	Main Contractor : BHEL					
	Sub Contractor :					
Contract No. : 9585-001-136			Control & Instrumentation and Electrical Items			
Sl No.	Item	QP/ Insp. Cat.	Acceptable Supplier As Per Database	Place of Manufacturing	Approval Status	Remarks
4	Galvanized Cable Tray	Refer Note 5 II	Steelite Engg.	Mumbai	A	
			Amtech	Pune	A	Galvanizing at B.G. Shirke - Pune
			Inar Profile	Enkapalli	A	GALVANISATION AT VISHAKHA STEELS ALLIED-ANKAPALLI
			Indiana Gratings	Pune	A	
			TRG	Chennai	A	Galvanization at TM Radhakrishna Chetty & Co-Chennai
			Industrial Peforation	Kolkata	A	
			Kannade Anand Udg	Mumbai	A	Fabrication at their units: Plot No. 42, Morivali, MIDC, District Thane & Plot No.: D-35, Anand Nagar MIDC, Addl. Ambernath, Dist..Thane Galvanization and offer the galvanized cable trays for inspection at D-34 Anand Nagar MIDC, Addl. Ambernath, Dist.Thane.
			Unitech Fabricators	Howrah/Hoogly	A	
			Patny Systems	Hyderabad	A	Galvanisation at Gurpreet Galvaniser, Hydrabad
			India Electric Syndicate	Kolkata	A	Galvanization at BMW Industries/B.P Projects- Howrah
			Premier Power Products	Howrah	A	Galvanizing at Neha Galvanizer - Howrah
			VATCO	Mumbai	A	Galvanising at Sigma Mumbai
			Rukmani	Raipur	A	Ladder type cable trays only
			Rukmani	Hoogly	DR	
			Ratan Projects AND ENGG. PVT LTD .	Howrah	A	
5	Cable Tray Flexible Support Structure (GI)	II	Steelite Engg.	Mumbai	A	
			Vatco	Mumbai	A	Galvanizing at M/s. Sigma- Mumbai
			Premier Power Products	Howrah	A	Galvanizing at Neha Galvanizer - Howrah
			Ratan Projects	Howrah	A	Galvanisation at NTPC approved sources.
			Amtech Engg. Services	Pune	A	Galvanizing at M/s. B.G. Shirke-Pune
			Inar Profiles	Enkapalli	A	
			Indiana Gratings	Pune	A	Galvanising from Poona Galvaniser
			Industrial Peforation	Kolkata	A	
6	Cable Lugs/ Ferrules	III	Dowell	Mumbai	A	Refer Note 6
			3D	Umbergaon	A	
			Chetna	Nasik	A	

<div><div><div></div><div>वीजीएसएन</div><div>PVUN</div></div></div>	Project : Patratu STPP 3X800 MW		Sub-Vendor List		Doc No	QA-C&I and Elect -WTP-00
	Package : Water Treatment Plant				Rev No	1
	Package (DM, PT, ETP, STP, CWT, Clo2 Plant)					8 of 9
	Main Contractor : BHEL				Date	10.07.2019
	Sub Contractor :					
Contract No. : 9585-001-136		Control & Instrumentation and Electrical Items				
SI No.	Item	QP/ Insp. Cat.	Acceptable Supplier As Per Database	Place of Manufacturing	Approval Status	Remarks
7	DCDB, ACDB, MLDB, WRDB,WDB AFCB, UPSDB, DCFB, LIGHTING PANEL, LOCAL PANEL, CONTROL PANEL (NON PLC), SOLENOID BOARD, PUSH BUTTON, NON MOSAIC TYPE, LOCAL MOTOR STARTER, POWER JB, LOCAL CONTROL STATIONS, REMOTE PANEL, OIL FILTRATION PANEL, HT JUNCTION BOX ETC	I(All wall mounted fixed type indoor/outdoor or LT switchgear shall be treated as inspection CAT-III)	Switching Circuits	Kolkata	A	
			Jakson	Greater Noida	A	
			Pyrotech	Udaipur	A	
			Positronics	Vadodara	A	
			Control Devices	Kolkata	A	
			Jolly Engineering	Kolkata	DR	
Following Electrical items to be supplied as per main contractor approved sources meeting the NTPC Specification requirement						
1	Cable Glands	III	Main contractor approved sources		A	Refer Note 6
2	PVC conduit/Hume pipe/Lighting wire/GI pipes/HDPE pipe/GI steel rigid conduit/ Epoxy conduit	III	Main Contractor Approved Sources/ BIS Approved Sources		A	1-Refer Note 6 2 Galvanising wherever applicable to be done at NTPC approved sources or from Note 7
3	Galvanized JB, Switch Box, Link Boxes, Adopter Boxes, Industrial Receptacles, M.S. Rod, G.S. Flat G.I. Wire, Earth Wire & Lightning Protection, Trifoil, Cable Clamps, Ferrules	III	Main Contractor Approved Sources		A	Galvanising wherever applicable to be done at NTPC approved sources or from Note 7
4	Electrical Heaters	III	Main Contractor Approved Sources		A	

LEGENDS :

1.0 SYSTEM SUPPLIER / SUB SUPPLIER APPROVAL STATUS CATEGORY	
A - For those items proposed vendor is acceptable to Customer. To be indicated with letter "A" in the list along with the condition of approval, if any.	
DR - For those items "Detailed Required" for Customer review. To be identified with letter "DR" in the list. For these items, vendor shall be proposed for owner acceptance within the agreed contract schedule of the package	
SQP-Standard Quality Plan	RQP-Reference Quality Plan
2.0 QP INSPECTION CATEGORY :	
CAT - I : For those items the Quality Plans are approved by Customer and final acceptance will be on physical inspection witness by Customer	
CAT - II : For those items the Quality Plans are approved by Customer. However no physical inspection shall be done by Customer. The final acceptance by Customer shall be on the basis of review of documents.	

	Project : Patratu STPP 3X800 MW		Sub-Vendor List		Doc No	QA-C&I and Elect -WTP-00
	Package : Water Treatment Plant				Rev No	1
	Package (DM, PT, ETP, STP, CWT, Clo2 Plant)				Date	10.07.2019
	Main Contractor : BHEL					
	Sub Contractor :					
Contract No. : 9585-001-136		Control & Instrumentation and Electrical Items				
Sl No.	Item	QP/ Insp. Cat.	Acceptable Supplier As Per Database	Place of Manufacturing	Approval Status	Remarks
CAT - III : For those items Main supplier approves Quality Plans. The final acceptance by Customer shall be on the basis of Certificate of Conformance by main supplier.						
UNITS/WORKS : Place of manufacturing- Place of main supplier of multi units/works.						
* - Inspection category will be decided during vendor evaluation.						
NOTES: As applicable (if required)						
Note 1 :	For Instrument cable up to 1 KM inspection category CAT - III, For 1 KM to 2.5 KM Inspection category CAT - II.					
Note 2 :	For the C & I instruments mounted on the skid of the main item or supplied as a integral part of the main item, instrument to be supplied as per proven practice of the manufacturer meeting the Customer technical specification requirement.					
Note 3 :	For C and I items, mandatory Spares to be treated as NTPC inspection category CAT - III.					
Note 4 :	For LT Motors:					
	a) Up to 50 KW(CAT-III): Acceptance is based on COC of the manufacturer & the contractor confirming as follows:					
	It is hereby confirmed that the above mentioned motor /motors was/ were manufactured taking care of NTPC specific requirements regarding ambient temp., voltage & frequency variation, hot starts, pull out					
	b) for 50 KW to 75KW(CAT-III) for manufacturers who have already supplied this range of motors to NTPC which have been commissioned and no adverse feedback has been reported from RIO/Project-site					
	It is hereby confirmed that the above mentioned motor /motors was/ were manufactured taking care of NTPC specific requirements regarding ambient temp., voltage & frequency variation, hot starts, pull out					
	c) Above 75 KW(CAT-I): as per NTPC approved Quality Plan					
Note 5 :	Category of inspection for LT Cables and Cable Trays:					
	For Total Contract Quantity per Size					
	Less \leq 2.5 KM					
	For cable total quantity above 2.5 km & up to 10 km per size					
	For cable total quantity above 10 km per size/type					
Note 6 :	VDE / CE / UL / CSA Marking Certification preferably from Third Party Agency or BIS Approval Letter shall be submitted for NTPC's Verification /Information.					
Note 7 :	List of Galvanisers					
	1. M/s M J Engg, Delhi					
	2. M/s Rukmani Fab & Gal- Howrah					
	3. M/s A.V. Engg, Kolkata					
	4. M/s Inar Profiles, Vishakapatnam					
	5. M/s Anand Udyog, Mumbai					
	6. M/s Techno Engg, Chandigarh					
	7. M/S Steelite Engg, Mumbai					
Note 8 :	List of sub-vendors is to be submitted along with QP for all the items identified as inspection category- I & II by the equipment Sub-Supplier.					
Note 9 :	For the items not appearing in the preaward list and falls in the scope of supply of the bidder, bidder and Customer will mutually discussed in future.					

PROJECT: PATRATU 3 X 800MW			LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB CONTRACTOR APPROVAL				DOC. NO.								
PACKAGE : CPU							Revision No.		0						
MAIN CONTRACTOR : BHEL							Date								
CONTRACT NO : 9585-001															
Item No.	Item	QP/INSP. CAT	QP No.	QP SUB. SCHEDULE	QP APPROVAL SCHEDULE	PRAPOSED SUB SUPPLIED	PLACE	SUB-SUPPLIER APPROVAL STATUS/CAT	SUB-SUPPLIER DETAILS SUBM. SCHEDULE	Remarks					
1	CPU SERVICE VESSELS, PRESSUR VESSELS (if working pressure ≥ 10 bar)	I				JASMINO POLYMERTECH	TALOJA	A							
						SYSCON ENGINEERS	Ambarnath	DR							
						Global Composite	Wada	DR							
						ISHAN EQUIPMENTS PRIVATE LIMITED	VADODARA	A							
						BELCO POLLUTION CONTROL PVT LTD	GREATER NOIDA	A							
2	Pressure Vessels and Atmospheris Storage Tanks (if working pressure <10 bar)	III	BHEL approved sources acceptable												
3	Rubberlining of Tanks/Vessels/Piping spools	II	BHEL approved sources acceptable					A							
4.1	AIR BLOWERS-Lobe type (if rating ≥ 5 KW)	I				SWAM PNEUMATIC	NOIDA	A							
						EVEREST BLOWERS PVT LTD	BAHADURGARH	A							
						KAY INTERNATIONAL	SONEPAT	A							
						KULKARNI POWER TOOLS	SHIROL	A							
						USHA COMPRESSORS	AHMEDABAD	A							
4.2	AIR BLOWERS-Lobe type (if rating < 5 KW)	II	BHEL approved sources acceptable												
5	AGITATORS / MIXERS	III	BHEL approved sources acceptable												
6	METERING/DOSING PUMPS	II	BHEL approved sources acceptable												
7	VERTICAL AND HORIZONTAL CENTRIFUGAL PUMPS	I				Kirloskar Bros Ltd.	Kirloskarwadi	A							
						WILO MATHER & PLATT	PUNE	A							
						WILO MATHER & PLATT	KOLHAPUR	A							
						SAM TURBO	COIMBATORE	A		UP TO 1500 CUM/HR ONLY					
						FLOWMORE	GHAZIABAD	A							
						FLOWMORE	GHAZIABAD	A							
						BEST AND CROMPTON	CHENNAI	A							
						JYOTI	VADODARA	A							
						WPIL	GHAZIABAD	A							
						KISHORE PUMPS	PUNE	A		UPTO 500M3/HR ONLY RUBBERLINED PUMPS ALSO					
						GRUNDFOS PUMPS INDIA PVT LTD	CHENNAI	A		HORIZONTAL UP TO 30 KW ONLY AND VERTICAL UP TO 45 KW ONLY (FOR APPLICATIONS WHERE NPSH IS NOT REQUIRED)					
						SINTECH PRECISION	GHAZIABAD	A		HORIZONTAL UP TO 400 KW MOTOR RATING AND VERTICAL UP TO 30 KW MOTOR RATING					
						KSB	PUNE	A							
						KSB	NASHIK	A							
8	PP (non-metalic) Acid/Alkali Unloading Pump	II						A		SGI / CI / D2 1400MM PN10, SGI / CI 1000MM PN16,CS/SS 500MM PN16, SS 400MM CLASS#300, MS FABRICATED UPTO 2800NB, PN 6					
9	Butterfly valves size > 600 NB or class >150#	I						A		CI/ DI butterfly valve up to 1000MM and PN16 AND up to 1800MM and PN10,CCS UP TO 1050MM CLASS 150 AND up to 1800MM and PN16 SS - UP TO 400NB PN-16 FABRICATED 800MM CLASS#150 FOR SS UP TO 500 NB PN-10, CI- UP TO 900NB PN-10, UP TO 500NB PN-16, 450MM CLASS#300, MS FABRICATED UPTO 2800NB, PN6					
											FOURES S ENGINEERING (INDIA) LIMITED	BANGALORE	A		CAST SGI/CI/ MS FABRICATED- UP TO 1200 PN-10, UP TO 350 PN-16 ,2400 MM PN6/CLASS150 SS - UP TO 300NB PN-10,MS FABRICATED UPTO 2700NB CLASS # 75
											KBL	KONDHAPURI	A		CAST SGI/CI/CS 1400 MM PN16 , SS 300 MM PN16 , 1800MM CLASS 150, MS FABRICATED 900 NB PN40,MS FABRICATED 2800NB, PN6
											R & D MULTIPLE	VALSAD	A		CAST SGI/CI/MS FABRICATED- UP TO 1800 MM PN-10/CLASS # 75, ,1100MM PN25,1400MM CLASS#150, MS FABRICATED UPTO 2800NB CLASS # 75
ADVANCE	GREATER NOIDA	A		METAL SEATED, TRIPLE ECCENTRIC, SS BFV OF SIZE UPTO 100NB, AND PRESSURE RATING UPTO CLASS #300.											
BRAY CONTROLS (ZHEJIANG) CO. LTD	CHINA	A		UP TO 400 NB CLASS#600											
INSTRUMENTATION LTD.	PALAKKAD	A		UPTO 2200NB CLASS # 75											
HAWA ENGINEERS	AHMEDABAD	A		CI/ CS & FABRICATED UPTO 1200MM, CLASS #150, SS UPTO 250MM, CLASS#150											
Crane Flow Process	Satara	A		UP TO 900MM PN 10											
10	Ball valves upto 100 NB and class 800#	II						A		UP TO 450MM AND CLASS #600					
11	DIAPHRAGM VALVES	I						A		UP TO 300NB PN10					
12	DUAL PLATE CHECK VALVE UPTO 600 NB & CLASS 300#	II						A		UPTO 250 NB - PN 10, 350MM PN6					
								A		UPTO 200 NB - PN 10, CCS Diaphragm Valves up to 200NB & Rating-PN10/ CLASS#150					
								DR							
						BHEL approved sources acceptable									

PROJECT: PATRATU 3 X 800MW			LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB CONTRACTOR APPROVAL				DOC. NO.			
PACKAGE : CPU							Revision No.		0	
MAIN CONTRACTOR : BHEL							Date			
CONTRACT NO : 9585-001										
Sr No.	Item	QP/INSP. CAT	QP No.	QP SUB. SCHEDULE	QP APPROVAL SCHEDULE	PRAPOSED SUB SUPPLIED	PLACE	SUB-SUPPLIER APPROVAL STATUS/CAT	SUB-SUPPLIER DETAILS SUBM. SCHEDULE	Remarks
13	BALL VALVES (Size>100 Nb or Class 800)	I				WEIR BDK	HUBLI	A		SS Ball valves up to 500MM and class #600, CS Ball Valves up to 250 MM and class# 900, CS/ SS Ball valves up to 100 MM and class # 1500.
						MICRO FINISH VALVES PVT. LTD.	HUBLI	A		400NB CLASS#600 AND UP TO 600NB CLASS#300
						FLOW CHEM INDUSTRIES	KALOL	A		100NB CLASS#600,200NB CLASS#300, 50 NB CLASS#800
						L&T VALVES LIMITED	COIMBATORE	A		UPTO 150NB, CLASS #150/300, AND UPTO 50NB, CLASS #800
						PRECISION ENGG CO VALVES PVT LTD	NASIK	A		FCS UP TO 50NB CLASS 800, CCS UP TO 400NB CLASS 150.
						BELGAUM AQUA VALVE PVT LTD	BELGAON	A		FCS UP TO 50NB CLASS 800, CCS UP TO 200NB CLASS 150.
						G M ENGINEERING PRIVATE LTD	RAJKOT	A		UP TO 400 NB AND CLASS #600
						Delval Flow Control	Pune	DR		
14	Butterfly valves size upto 600 NB & class 150#	II	BHEL approved sources acceptable			Bray	China	A		
15	CONVENTIONAL (GATE, GLOBE & CHECK VALVES) SIZE UPTO 600 NB & CLASS 300#	III	BHEL approved sources acceptable							
16	PLUG VALVE UPTO 100 NB,UP TO CLASS 800#	II	BHEL approved sources acceptable					A		
17	PRESSURE RELIEF VALVES & VACUUM RELIEF VALVES	III	BHEL approved sources acceptable					A		
18	MS / SS PLATES	III				MAIN STEEL PRODUCERS (SAIL/TISCO/ESSAR/ISPAT STEEL/JINDAL STEEL/LLOYDS/JSW/RINL)		A		BHEL SHALL SUBMIT CO-RELATED MANUFACTURER TC FOR NTPC/PVUN REVIEW.
19	CS PIPE (ASTM A 106 GR. B)	II				INDIAN SEAMLESS METAL TUBES	Ahmednagar/Baramati	A		Ahemadnagar up to 150NB and Baramati UPTO 200 NB
						MAHARASHTRA SEAMLESS	RAIGAD	A		CS SEAMLESS PIPES UPTO 500 NB
						REMI	BHARUCH			UPTO 177.8 MM OD, HOT FINISHED
						TATA		DR		
20	PIPES MS (BLACK/GI) IS 1239/3589 SIZE UP TO 1000 NB	II	BHEL approved sources acceptable							BIS MARKED MANUFACTURERS WITH VALID BIS LICENCES
21	SS PIPES ASTM A 312	II (III for foreign vendors)				REMI	TARAPUR	A		ERW UPTO 400 NB
						RATNAMANI	MEHSANA	A		ERW UPTO 500 NB, SEAMLESS UPTO 50 NB ONLY
						RATNAMANI	KUTCH	A		ERW UPTO 400 NB, SEAMLESS UPTO 50 NB ONLY, ARC WELDED UP TO 450NB
						SUMITOMO	JAPAN	A		
						SOSTA	GERMANY	A		
						OUTO KOMPU	SWEDEN	A		
						PRAKASH STEELAGE	VALSAD	A		ONLY FOR SEAMLESS UPTO 50NB AND ERW UP TO 400NB
						BHANDARI FOILS & TUBES LIMITED	DEWAS	A		ERW UP TO 300NB
22	PIPE,FITTING & Spools (HDPE,PVC & CPVC)	III				APEX	BEHRORE	A		ERW UPTO 400 NB, SEAMLESS UPTO 50 NB.
23		III	BHEL approved sources acceptable					A		Pipes from already identified sub-vendors
24	PP & PTFE LINING	II	BHEL approved sources acceptable					A		
25	SLUICE GATE	III	BHEL approved sources acceptable					A		
26	PAINT	III	BHEL approved sources acceptable					A		
27	Cartridge for Prefilters	III	BHEL approved sources acceptable					A		
28	Resin for Condensate Polishing Unit	III	BHEL approved sources acceptable							
28	All pressure vessel internals, Resin Trap (Screen with housing), Fume Absorber, Moisture Absorber, CO2 Absorber, Mixing Tee, Breather, Dissolving Basket, Orifice Board, Overflow Seal Pot, Hose Pipes, Sand Media, Support Media, Fastners, Foundation Bolts, Gaskets, Carbon Trap, Media Trap, Open Trap, Name Plates, Static Mixer, HDPE Diffusers, Pressure reducing valves, all type of strainers, ejectors, Ventury mixer, raching rings, fabricated structural supports, puddle pipes, u clamps, needle valves for instrument isolation, Sight glass for pressure vessels, tanks and piping, Rupture Disc, Cation Column, Sample Cooler, Chequered Plates, FRP TANKS & FITTINGS, FITTINGS (CS/SS), FLANGES (SS/CS), Structural Steel (angles, channels, flats, rounds, gratings for supports, platforms), SIGHT FLOW INDICATORS, VICTRAULIC COUPLINGS, insert plate, INSTRUMENTS ISOLATION VALVES,ACTIVATED CARBON,HANDRAILING,AIR GRID PIPING.	III	BHEL approved sources acceptable							
29	PIPING FABRICATION - HIGH PRESSURE >300 PSI	II	BHEL approved sources acceptable							
30	PIPING FABRICATION - LOW PRESSURE UPTO 300 PSI	III	BHEL approved sources acceptable							

Note 1

Inspection Category

CAT I For these Items the quality plans are approved by NTPC/PVUN & the final acceptance will be on physical inspection witness by NTPC/PVUN

CAT II For these Items the quality plans are approved by NTPC/PVUN. However no physical inspection shall done by NTPC/PVUN. The final acceptance by NTPC/PVUN shall be on the basis of review of documents as per approved QAP

CAT III For these Items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC/PVUN shall be on the basis of Certificate of

Conformance (COC) by Main Contractor.

A: Sub-vendor is acceptable to NTPC/PVUN, alongwith condition of approval, if any.
DR: Details required for NTPC/PVUN review.

THIS IS PART OF TECHNICAL SPECIFICATION PE-TS-508-404-W001

11/07/19



TITLE:
**TECHNICAL SPECIFICATION FOR
WATER TREATMENT PACKAGES
LARA SUPER THERMAL POWER PROJECT
STAGE-II (2X800 MW)**

BHEL DOCUMENTS NO.: PE-TS-508-158-W001

SECTION – I

SUB SECTION – IA

REV. NO. 00

DATE:

SUB VENDORS LIST (CONTINUED)



TITLE:
TECHNICAL SPECIFICATION FOR
WATER TREATMENT PACKAGES
LARA SUPER THERMAL POWER PROJECT
STAGE-II (2X800 MW)

BHEL DOCUMENTS NO.: PE-TS-508-158-W001

SECTION - I

SUB SECTION - IA

REV. NO. 00

DATE:

SR. NO.	ITEM	SUPPLIERS	PLACE	REMARKS
1.	PRESSURE VESSELS	GLOBAL STRUCTURES & COMPOSITE LTD	-	
		JASMINO POLYMERTECH	TALOJA	
		SYSCON ENGINEERS	AMBERNATH	
		S.V. FABRICATORS	NAVI MUMBAI	
		SPARK FABRICATORS / STEELCON	-	
		ANUP ENGINEERING	AHMEDABAD	
		MURTHAL TANKS & VESSELS	SONEPAT	
		TITAN ENGG.	DURGAPUR	
		RISHI INDUSTRIES	BAHALGARH	
		UNIVERSAL HEAT EXCHANGERS	-	
		ATS CHEM	SALEM/HOSUR	
		CHEM PROCESS SYSTEM	SANAND	
		PROGEN	CHENNAI	
		CRYSTAL ENGINEERING	HOSUR	
		ISHAN EQUIPMENTS	VADODARA	
2.	ATMOSPHERIC/ STORAGE TANKS	GLOBAL STRUCTURES & COMPOSITE LTD	-	
		JASMINO POLYMERTECH	TALOJA	
		SYSCON ENGINEERS	AMBERNATH	
		S.V. FABRICATORS	NAVI MUMBAI	
		SPARK FABRICATORS / STEELCON	-	
		ANUP ENGINEERING	AHMEDABAD	
		MURTHAL TANKS & VESSELS	SONEPAT	
		TITAN ENGG.	DURGAPUR	
		RISHI INDUSTRIES	BAHALGARH	
		UNIVERSAL HEAT EXCHANGERS	-	
		ATS CHEM	SALEM/HOSUR	
		CHEM PROCESS SYSTEM	SANAND	
		PROGEN	CHENNAI	
		CRYSTAL ENGINEERING	HOSUR	
		ISHAN EQUIPMENTS	VADODARA	
3.	RUBBER LINING (AT SHOP)	TEMSEC	KOLKATA	
		RISHI INDUSTRIES	SONEPAT	
		CORI ENGINEERS	CHENNAI	
		POLY RUBBER	MUMBAI	
		INDUSTRIAL LINING	VADODARA	
		ARUL RUBBERS	CHENNAI	
		JASMINO POLYMERTECH	TALOJA	
		WESTERN RUBBER	NAVI MUMBAI	
		ELASTOMER LINING	AMBERNATH	
		EMKAY RUBBER	MUMBAI	
4.	AIR BLOWERS (TWIN	SWAN PNEUMATIC	NOIDA	



TITLE:
TECHNICAL SPECIFICATION FOR
WATER TREATMENT PACKAGES
LARA SUPER THERMAL POWER PROJECT
STAGE-II (2X800 MW)

BHEL DOCUMENTS NO.: PE-TS-508-158-W001

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	LOBE TYPE)	EVEREST TRANSMISSION	NEW DELHI	
		KAY INTERNATIONAL	NEW DELHI / SONEPAT	
		EVEREST BLOWER	BAHADURGARH	
		KULKARNI POWER TOOLS	KOLHAPUR/ PUNE	
5.	METERING PUMPS	VK PUMPS	NASIK	
		MILTON ROY INDIA	CHENNAI	
		SWELLORE	AHMEDABAD	
		POSITIVE METERING PUMPS	NASIK	
		METACHEM	MUMBAI	
6.	AGITATOR	REMI PEOCESS PLANT & M/C	MUMBAI	
		FIBRE & FIBRE	MUMBAI / SILVASA	
		CEECONS	CHENNAI	
		STANDARD ENGINEERS	MUMBAI	
7.	HORIZONTAL CENTRIFUGAL PUMPS	BEST AND CROMPTON ENGG LTD.	CHENNAI	
		BHARAT PUMPS & COMPRESSORS LTD	ALLAHABAD	
		FLOWMORE LTD.	GURGAON	
		FLOWERVE INDIA CONTROLS PVT. LTD.	COIMBATORE	
		JYOTI LTD.	VADODARA	
		KIRLOSKAR BROTHERS LTD	PUNE	
		WILO MATHER & PLATT PUMPS PVT. LTD.	PUNE	
		V-FLO PUMPS & SYSTEMS CO. LTD.,	BEIJING-CHINA	
		WPIL LIMITED	KOLKATA	
8.	VERTICAL CENTRIFUGAL PUMPS	BHARAT PUMPS & COMPRESSORS LTD	ALLAHABAD	
		FLOWMORE LTD.	GURGAON	
		FLOWERVE INDIA CONTROLS PVT. LTD.	COIMBATORE	
		JYOTI LTD.	VADODARA	
		WILO MATHER & PLATT PUMPS PVT. LTD.	PUNE	
		SULZER PUMPS INDIA LTD.	THANE	
		WPIL LIMITED	KOLKATA	
9.	SCREW PUMP	UT PUMP		
		ROTO PUMPS		
		TUSHACO		
10.	HORIZONTAL CENTRIFUGAL PUMPS (RUBBER LINED)	KISHORE PUMPS	PUNE	
		SU MOTORS	MUMBAI	
11.	NON METALLIC (PP/FRP) HORIZONTAL CENTRIFUGAL PUMPS	ENGINEERS COMBINE	THANE	
		ANTICORROSIVE	VALSAD	
		LEAK PROOF PUMPS PVT. LTD. (RAJEDIA)	-	



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12.	MISC. PUMP VERTICAL TURBINE TYPE	KBL	PUNE	
		M&P	PUNE	
		WPIL	GHAZIABAD	
		KISHORE PUMPS	PUNE	
		FLOWMORE	SAHIBABAD	
13.	UNDER BED NOZZLE	JONSONS SCREEN	AUSTRALIA/ IRELAND	
14.	COATING & WRAPPING MATERIAL TAPE	IWL LTD.	CHENNAI	
		MP TAR PRODUCT	BHILAI	
		PORWAL INDUSTRIES	RAIPUR	
		RUSTECH	KOLKATA	
		STP	JAMSHEDPUR	
15.	HEATER	ESCORTS	FARIDABAD	
		RACOLDS	FARIDABAD	
16.	CLARIFIER/ THICKENER MECHANISM	CLEAR WATER	DELHI	
		TRIVENI	NOIDA	
		PBJ ASSOCIATE	PUNE	
17.	CENTRIFUGE	HUMBOLT	-	
		HILLER	-	
18.	CAST IRON GATE/GLV/NRV/SRV	A.V. VALVES LTD	AGRA	
		ATAM VALVES PVT. LTD.	JALANDHAR	
		FLUIDLINE VALVES COMPANY PVT.LTD.	GHAZIABAD	
		G.M. DALUI AND SONS PVT.LTD.	HOWRAH	
		H.SARKER AND COMPANY	HOWRAH	
		LEADER VALVES LTD.	JALANDHAR	
		VENUS PUMPS AND ENGG. WORKS	KOLKATA	
19.	BALL VALVE (MANUAL /PNEUMATIC/ ELECTRIC) CLASS 150	A.V. VALVES LTD	AGRA	
		AKAY INDUSTRIES PVT.LTD.	DHARWAD	
		BELGAUM AQUA VALVES PVT. LTD.	BELGAUN	
		ASIAN INDUSTRIAL VALVES & INSTRUMENTS.	CHENNAI	
		ATAM VALVES PVT. LTD.	JALANDHAR	
		DEMBLA VALVES LTD.	THANE	
		M/S GM ENGINEERING	RAJKOT	
		HAWA VALVES (INDIA) PVT. LTD.	NAVI MUMBAI	
		INTERVALVE (INDIA) LTD.	PUNE	
		LEADER VALVES LTD.	JALANDHAR	
		MICROFINISH VALVES PVT LTD.	HUBLI	
		NILON VALVES PRIVATE LIMITED	AHMEDABAD	
		SURYA VALVES AND INSTRUMENTS MFG CO.	CHENNAI	



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		UNIFLOW	CHENNAI	
		VALTECH INDUSTRIES	MUMBAI	
		VAAS AUTOMATION PVT. LTD.	NEW DELHI	
		WEIR BDK VALVES- A UNIT OF WEIR INDIA PVT. LTD.	NEW DELHI	
20.	ELECTRIC MOTOR	CROMPTON GREAVES	AHMEDNAGAR	
		LAXMI HYDRAULICS PVT. LTD	BANGALORE / HUBLI*	
		RAJINDRA ELECT INDUSTRIES	FARIDABAD* / BANGALORE	
		GE-POWER		
		BHARAT BIJLEE	MUMBAI	
		SIEMENS	MUMBAI	
		NGEF	BANGALORE	
		KIRLOSKAR ELECTRIC CO LTD.		
		ASEA BROWN BOVERI		
		MARATHON	KOLKATA	
21.	BUTTER-FLY VALVE	ADVANCE VALVES PVT. LTD.	NOIDA	
		FLUIDLINE VALVES COMPANY PVT.LTD.	GHAZIABAD	
		INSTRUMENTATION LTD.	PALAKKAD	
		INTERVALVE (INDIA) LTD.	PUNE	
		R AND D MULTIPLES (METAL CAST) PVT LTD	MUMBAI	
		SURYA VALVES AND INSTRUMENTS MFG CO.	CHENNAI	
		PENTAIR VALVES AND CONTROLS INDIA PRIVATE LIMITED	NAVI MUMBAI	
		UPADHAYA VALVES MANUFACTURERS PRIVATE LIMITED,	KOLKATA	
		VENUS PUMPS AND ENGG. WORKS	KOLKATA	
		WEIR BDK VALVES- A UNIT OF WEIR INDIA PVT. LTD.	NEW DELHI	
22.	DIAPHRAGM VALVE (MANUAL / PNEUMATIC) CLASS 150	WEIR BDK	HUBLI	
		CRANE FLOW PROCESS	SATARA	
		PROCON	MUMBAI	
		MAJESTIC VALVES (LABLINE)	-	
		HAWA ENGINEERS	AHMEDABAD	
23.	DUAL PLATE CHECK VALVES	ADVANCE VALVES PVT. LTD.	NOIDA	
		FLUIDLINE VALVES COMPANY PVT.LTD.	GHAZIABAD	1. DUAL PLATE CHECK VALVE CI - CLASS 150 & UP TO 600NB, 2. DUAL PLATE CHECK VALVE CCS - CLASS 150



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				& UP TO 500NB
		R AND D MULTIPLES (METAL CAST) PVT LTD	MUMBAI	
		VENUS PUMPS AND ENGG. WORKS	KOLKATA	CI, CCS & STAINLESS STEEL SPRING ASSISTED DUAL PLATE CHECK VALVES UPTO 700 NB AND 150 CLASS RATING.
24.	Y-TYPE STRAINER	OTOKLIN GLOBAL BUSINESS LIMITED	MUMBAI	
		GRAND PRIX	NEW DELHI	
		JAYPEE	NEW DELHI	
		GREAVES COTTON	MUMBAI	
		MULTITEX FILTRATION ENGINEERS LIMITED,	NEW DELHI / NOIDA	
		FILTRATION ENGINEERS (I) PVT. LTD	MUMBAI	
		FLUIDNYE	-	
		SUNGOV ENGINEERING PVT. LTD.	DELHI	
		GRAND PRIX	FARIDABAD	
		JAYPEE INDUSTRIES PVT. LTD.	DELHI	
		BHATIA ENGINEERING CO.	DELHI	
25.	RUBBER FLAP TYPE CHECK VALVES	ASHVIK VALVES	-	
		FLOW WAY VALVES	-	
		BDK	-	
		MAJESTIC VALVES (LABLINE INST)	-	
		ADVANCE VALVES	-	
26.	SOLENOID VALVES	ROTEX	-	
		AVCON	-	
27.	PRESSURE GAUGE/ DIFFERENTIAL PRESSURE GAUGE	A.N. INSTRUMENTS PVT. LTD.	KOLKATA	
		ASHCROFT INDIA PVT LTD.	GUJARAT	
		BOSE PANDA INSTRUMENTS PVT.LTD.	KOLKATA	
		FORBES MARSHALL (HYD) LTD.	HYDERABAD	
		GAUGE BOURDON INDIA PVT. LTD.	MUMBAI	
		H.GURU INDUSTRIES	KOLKATA	
		H.GURU INSTRUMENTS (SOUTH INDIA) P. LTD	BANGALORE	
		BAUMER TECHNOLOGIES INDIA PVT. LTD.	MUMBAI	
28.	CHAIN PULLEY BLOCK	ARMSEL MHE PVT. LTD	BANGALORE	
		CENTURY CRANE ENGINEERS PVT. LTD.	FARIDABAD	



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		HERCULES HOISTS LTD.	RAIGAD	
		LIFTING EQUIPMENTS AND ACCESSORIES	DELHI	
		TUOBRO FURGUSON (INDIA) PVT LTD	KOLKATA	UPTO 10 TONNE.
		TRACTEL TIRFOR INDIA PVT. LTD.	FARIDABAD	
		TECHNO INDUSTRIES	AHMEDABAD	
		ARMSEL MHE PVT. LTD	BANGALORE	
		ALPHA SERVICES	BHIWADI	
		CONSOLIDATED HOISTS PVT LTD	PUNE	UPTO 20 TONNES
		CENTURY CRANE ENGINEERS PVT. LTD.	FARIDABAD	
		EDDY CRANES PVT. LTD.	MUMBAI	CAPACITY UPTO 10 TONS. BOIS BHEL APP.SUB-VENDORS.
		GRIP ENGINEERS PVT. LTD.,	FARIDABAD,	
		GLOBAL TECHNOLOGIES	HYDERABAD	
		HERCULES HOISTS LTD.	RAIGAD	
		LIFTING EQUIPMENTS AND ACCESSORIES	DELHI	
		MANGLA HOISTS PVT LTD	NEW DELHI	
		MEEKA MACHINERY PVT. LTD.	AHMEDABAD	
		REVA INDUSTRIES LTD.	FARIDABAD	UPTO 25.0 T CAPACITY.
		ROCKWELL HOISTO CRANES PVT. LTD.	BAHADURGARH	
		SAFEX ENERGY PVT. LTD.	AHMEDABAD	
		TUOBRO FURGUSON (INDIA) PVT LTD	KOLKATA	UPTO 15 TONNES.
		TECHNO INDUSTRIES	AHMEDABAD	
29.	ELECTRIC HOIST	ARMSEL MHE PVT. LTD	BANGALORE	
		ALPHA SERVICES	BHIWADI	
		CONSOLIDATED HOISTS PVT LTD	PUNE	UPTO 20 TONNES
		CENTURY CRANE ENGINEERS PVT. LTD.	FARIDABAD	
		EDDY CRANES PVT. LTD.	MUMBAI	CAPACITY UPTO 10 TONS. BOIS BHEL APP.SUB-VENDORS.
		GRIP ENGINEERS PVT. LTD.,	FARIDABAD,	
		GLOBAL TECHNOLOGIES	HYDERABAD	
		HERCULES HOISTS LTD.	RAIGAD	
		LIFTING EQUIPMENTS AND ACCESSORIES	DELHI	
		MANGLA HOISTS PVT LTD	NEW DELHI	



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		MEEKA MACHINERY PVT. LTD.	AHMEDABAD	
		REVA INDUSTRIES LTD.	FARIDABAD	UPTO 25.0 T CAPACITY.
		ROCKWELL HOISTO CRANES PVT. LTD.	BAHADURGARH	
		SAFEX ENERGY PVT. LTD.	AHMEDABAD	
		TUOBRO FURGUSON (INDIA) PVT LTD	KOLKATA	UPTO 15 TONNES.
		TECHNO INDUSTRIES	AHMEDABAD	
30.	CONTROL VALVE	SPX CORPORATION, USA	AHMEDABAD	
		CONTROL COMPONENT INC.	CALIFORNIA	
		DRESSER VALVE INDIA PVT. LTD	COIMBATORE	
		DAUME REGELARMATUREN GMBH,	GERMANY	
		EMERSON PROCESS MANAGEMENT CHENNAI LIMITED	CHENNAI	
		WEIR VALVES & CONTROLS UK LTD.	U.K	
		HOLTER REGELARMATUREN GMBH & CO.KG	GERMANY	
		INSTRUMENTATION LTD.	KERALA	
		KOSO INDIA PRIVATE LIMITED,	NASHIK	
		LESLIE CONTROLS, INC	USA	
		MIL CONTROLS LTD.	KERALA	
		METSO SINGAPORE PTE. LTD.,	SINGAPORE	
		PARCOL S.P.A	ITALY	
		R.K.CONTROL INSTRUMENTS PVT. LTD.	THANE	
		RINGO VALVULAS S.L.,	SPAIN	
		SHENJIANG VALVE CO. LTD.	CHINA	
		VALVITALIA S.P.A. ,	ITALY	
		WALDEMAR PRUSS ARMATURENFABRIK GMBH	GERMANY	
31.	PRESSURE/DP/VACUUM SWITCH	INDFOSS	GHAZIABAD	
		SOR	USA	
		DRESSOR	USA	
		DELTA CONTROL	UK	
		TRAFAG	RANIPET	
		GIC(GAUGES BOURDON)	PANVEL	
		ASHCROFT INDIA PVT LTD.	USA/GERMANY	
		SWITZER	CHENNAI	
32.	TEMPERATURE GAUGE	A.N. INSTRUMENTS PVT. LTD.	KOLKATA	
		ASHCROFT INDIA PVT LTD.	GUJARAT	
		BUDENBERG GUAGE CO.LTD.	UK	
		FORBES MARSHALL (HYD) LTD.	HYDERABAD	



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		GOA INSTRUMENTS INDUSTRIES PVT.LTD.	GOA	
		GOA THERMOSTATIC INSTRUMENTS PVT.LTD.		
		GAUGE BOURDON INDIA PVT. LTD.	MUMBAI	
		H.GURU INDUSTRIES	KOLKATA	
		H.GURU INSTRUMENTS (SOUTH INDIA) P. LTD	BANGALORE	
		BAUMER TECHNOLOGIES INDIA PVT. LTD.	MUMBAI	
33.	LEVEL GAUGE (F&B, TUBULAR, REFLEX)	SBEM		
		CHEMTROL		
		PUNE TECHTROL		
		SIGMA		
		V AUTOMAT		
		GENERAL INSTRUMENTS		
34.	ROTAMETER	EUREKA INDUSTRIAL EQUIPMENTS PVT.LTD.	PUNE	
		FLOW STAR ENGINEERING PVT. LTD.,	FARIDABAD	
		FLOWTECH INSTRUMENTS SERVICRS	VADODARA	
		INSTRUMENTATION ENGINEERS PVT LTD	TELANGANA	
		SCIENTIFIC DEVICES (BOMBAY) PVT LTD,	NAVI MUMBAI	
35.	LEVEL SWITCH- CONDUCTIVITY TYPE	BLISS ANAND PVT. LTD.	GURGAON	
		FLOWTECH INSTRUMENTS SERVICRS	VADODARA	
		HI-TECH SYSTEMS & SERVICES LTD.	KOLKATA-	VENDOR SHALL SOURCE IMPORT CONTENTS OF LEVEL SWITCH (CONDUCTIVITY TYPE) FROM LEVELSTATE SYSTEMS LTD., UNITED KINGDOM.
		LEVCON INSTRUMENTS PVT. LTD.	KOLKATA	
		RAMAN INSTRUMENTS PVT.LTD.	MUMBAI	VENDOR SHALL SOURCE IMPORT CONTENTS OF LEVEL SWITCH (CONDUCTIVITY TYPE) FROM MOBREY MEASUREMENT, AN OPERATING UNIT OF MORBEY



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				LTD., SLOUGH, BERKSHIRE, UNITED KINGDOM.
		SIGMA INSTRUMENTS CO.	MUMBAI	
		SOR INC.	USA	
		SAPCON INSTRUMENT PVT LTD.	INDORE	
		V. AUTOMAT & INSTRUMENTS (P) LTD.	NEW DELHI	
36.	LEVEL SWITCH (ALL TYPES)	LEVCON		
		CHEMTROLS SAMIL (INDIA) PVT LTD.		
		SWITZER		
		WAAREE (BAUMER INSTRUMENTS)		
		V AUTOMAT		
		PUNE TECHTROL		
37.	MAGNETIC FLOW METER	ABB	-	
		WAAREE (BAUMER INSTRUMENTS)	-	
		EUREKA	-	
		EMERSON	-	
		YOKOGAWA	-	
		HACH (POTENSE)	-	
		KROHNE MARSHALL	-	
38.	FLOW ELEMENT - NOZZLE	HYDROPNEUMATICS PVT. LTD.	GOA	
		INSTRUMENTATION LTD.	PALAKKAD	
		MICRO PRECISION PRODUCTS PVT. LTD.	FARIDABAD	
		MINCO (INDIA) FLOW ELEMENTS PVT. LTD.	GOA	
		STAR-MECH CONTROLS (I) PVT.LTD.	PUNE	
		SEIKO FLOW CONTROL GMBH	AUSTRIA	
39.	FLOW ELEMENT - ORIFICE	FLOW STAR ENGINEERING PVT. LTD.,	FARIDABAD	
		HYDROPNEUMATICS PVT. LTD.	GOA	
		INSTRUMENTATION LTD.	PALAKKAD	
		INSTRUMENTATION ENGINEERS PVT LTD	HYDERABAD	
		MICRO PRECISION PRODUCTS PVT. LTD.	FARIDABAD	
		MINCO (INDIA) PRIVATE LIMITED	GOA	
		STAR-MECH CONTROLS (I) PVT.LTD.	PUNE	
40.	FLOW TRANSMITTERS (ALL TYPES)	E & H	-	
		KHRONE MARSHALL	-	
		EMERSON	-	



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		ABB	-	
		HONEYWELL	-	
		YOKOGAWA	-	
41.	LEVEL TRANSMITTERS (ALL TYPES)	EMERSON	-	
		E & H	-	
		ABB	-	
		HONEYWELL	-	
		V AUTOMAT	-	
		YOKOGAWA	-	
		SIEMENS	-	
		KROHNE MARSHALL	-	
42.	PRESSURE TRANSMITTERS (ALL TYPES)	EMERSON	USA/PAWANE	
		LAXONS AUTOMATION	DAMAN	
		YIL	BANGALORE	
		SIEMENS	THANE	
		FUJI	CHINA	
		YOKOGAWA	JAPAN	
		HONEYWELL	USA/PUNE	
43.	TEMPERATURE TRANSMITTERS	EMERSON	-	
		E & H	-	
		ABB	-	
		HONEYWELL	-	
		V AUTOMAT	-	
		YOKOGAWA	-	
		SIEMENS	-	
		FORBES MARSHALL	-	
44.	PH TRANSMITTERS	EMERSON	-	
		YOKOGAWA	-	
		HONEYWELL	-	
		ABB	-	
		HACH	-	
		FORBES MARSHALL	-	
45.	ANALYSERS (ALL TYPES)	ABB	-	
		EMERSON	-	
		YOKOGAWA	-	
		HONEYWELL	-	
		HACH POLYMETRON	-	
		SIEMENS	-	
		FORBES MARSHALL	-	
46.	PROGRAMMABLE LOGIC CONTROLLER	GE INTELLIGENT PLATFORMS PRIVATE LIMITED	BANGALORE	
		HONEYWELL AUTOMATION INDIA LIMITED ,	PUNE	
		ROCKWELL AUTOMATION INDIA LTD	SAHIBABAD	
		SIEMENS LIMITED	MUMBAI	
		SCHNEIDER ELECTRIC INDIA	NEW DELHI	



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		PVT.LTD.		
47.	UPS	HITACHI-HIREL	GANDHINAGAR	
		APC	BANGALORE	
		DELTA	GURGAON	
		EMERSON	MUMBAI	
		DB POWER	PUNE	
		APLAB	MUMBAI	
48.	INSTRUMENT FITTINGS	AURA INCORPORATED	NEW DELHI	
		ASTEC VALVES & FITTINGS PVT. LTD.,	MUMBAI	
		ARYA CRAFTS & ENGINEERING PVT. LTD.	MUMBAI	
		COMFIT & VALVE PVT. LTD.	GUJARAT	
		FLUIDFIT ENGINEERS PVT. LTD.	MUMBAI	
		FLUID CONTROLS PVT. LTD.	MUMBAI	
		HP VALVES & FITTINGS INDIA PVT. LTD.	CHENNAI	
		PRECISION ENGINEERING INDUSTRIES	MUMBAI	
		PANAM ENGINEERS,	MUMBAI	
		PERFECT INSTRUMENTATION CONTROL (INDIA) PVT. LTD.	MUMBAI	
		VIKAS INDUSTRIAL PRODUCTS	NOIDA	
49.	JUNCTION BOX	AJMERA INDUSTRIAL & ENGINEERING WORKS	MUMBAI	
		FLEXPRO ELECTRICALS PVT. LTD.	GUJARAT	METAL TYPE JUNCTION BOX ONLY
		K.S.INSTRUMENTS PVT.LTD.	BANGALORE	
		SUCHITRA INDUSTRIES	BANGALORE	
		SHRENIK & COMPANY,	AHMEDABAD	
50.	CABLE GLAND	COMET	-	
		DOWELL	-	
		CHETNA	-	
51.	CABLE LUGS	ELECTRO BILLETS	-	
		COMET	-	
		DOWELL	-	
		CHETNA	-	
52.	MS PLATES	SAIL		
		ESSAR STEEL		
		TISCO		
		RINL		
		JINDAL		
		LLOYD		
		ISPAT		



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		INDIAN IRON & STEEL CO. LTD		
53.	CS PIPE (ASTM A 106 GR. B)	INDIAN SEAMLESS METAL TUBES	AHMEDABAD	UPTO 150 NB
		MAHARASHTRA SEAMLESS	RAIGAD	UPTO 350 NB
54.	MS PIPES	SAIL	ROURKELA	
		JINDAL	GHAZIBAD/HISSAR	
		SURYA ROSHNI	BAHADUR GARH	
		TATA TUBE	JAMSHEDPUR	
		PSL	CHENNAI/VIZAG/KUTCH/DAMAN	
		LALIT PROFILE	THANE	
		SAMSHI PIPES INDUSTRIES	VADODARA	
		MUKUT PIPES	RAJPURA	
		INDUS TUBES	G B NAGAR	
		MANN IND	INDORE	
		SURENDRA ENGG	RAJPURA	
		PRATIBHA PIPES & STRUCTURE PVT LTD	THANE	
		JCO GAS PIPE	CHINDWARA	
		NUKAT TANKS AND VESSELS	TARAPUR	
		DADU PIPES	SIKRANDRABAD	
		GOOD LUCK TUBES	SIKANDRABAD	
		ADVANCE STEEL TUBES	SAHIBABAD	
		BIHAR TUBES	SIKANDRABAD	
		HI TECH PIPES	SIKANDRABAD	
		RATNAMANI	KUTCH/AHMEDABAD/CHHATRAL	
		MAHARASHTRA SEAMLESS	RAIGAD	
		WELSPUN	ANJAR/BHARUCH	
55.	SS PIPES/ TUBES	APEX TUBES	BEHROR (ALWAR)	
		RATNAMANI	CHATTRAL	
		REMI	TARAPUR	
		PRAKASH STEELAGE	-	
56.	POWER/CONTROL/INSTRUMENT CABLE	CORDS CABLE	BHIWADI	
		RADIANT CABLES	HYDERABAD	
		POLYCAB	DAMAN	
		KEI	BHIWADI	
		NICCO	KOLKATA	
		RAVIN CABLES	PUNE	
		INCAB	PUNE	
		HVPL	FARIDABAD	
		TORRENT CABLE	NADIAD	
		HAVELLS	ALWAR	



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		PARAMOUNT	KHUSHKHERA	
		SRI RAM CABLES	BHIWADI	
		THERMOCABLES	HYDERABAD	
		TORRENT CABLE	NADIAD	
		UNIVERSAL CABLES	SATNA	
		GEMSCAB	BHIWADI	
		DELTON	FARIDABAD	
57.	SAFETY SHOWER	UNICARE	-	
		MOHAN INDUSTRIES	-	
		SUPER SAFETY SERVICES	-	
58.	FRP TANKS & FITTINGS	GLOBAL COMPOSITE	-	
		EPP	-	
		DEEPA COMPOSITE	-	
		COROSEAL INDUSTRIES	-	
		CHEMICAL PROCESS & EQUIPMENT PVT LTD	-	
		J.R FIBRE INDUSTRIES PVT LTD	-	
		POLYPLAST	-	
59.	EJECTOR	ESSEM TECHNOLOGIES	-	
		RATNA PRASAD	-	
60.	LOCAL CONTROL PANEL	INDUSTRIAL SWITCHGEAR & CONTROL	-	
		POSITRONICS	-	
		DELTA CONTROL	-	
		L & T	-	
		GE POWER	-	
		PYROTECH	-	
		C & S	-	
61.	TANK (FRP)	INDUSTRIAL SERVICE	KOLKATA	
		SUNRISE	BARODA	
		GANDHI & ASSOCIATES	AHMEDABAD	
		MODERN EQUIPMENTS	CHENNAI	
		EAGLE PLAST	PUNE	
		OMEGA PLAST	MUMBAI	
62.	STROKE CONTROLLER	V K PUMPS	NASIK	
		METACHEM	MUMBAI	
		SWELORE	AHMEDABAD	
		MILTON ROY INDIA	CHENNAI	
63.	SAFETY VALVES/RELIEF VALVES	METACHEM	MUMBAI	
		KEYSTONE	BARODA	
		V K PUMPS	NASIK	
		MILTON ROY	CHENNAI	
64.	DUPLEX STRAINER	JAYPEE INDUSTRIES PVT. LTD.	NEW DELHI	
		MULTITEX FILTRATION		



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		ENGINEERS LIMITED,	NEW DELHI	
		OTOKLIN GLOBAL BUSINESS LIMITED	MUMBAI	
		SUNGOV ENGINEERING PVT. LTD.	CHENNAI	
65.	ORIFICE PLATE	MICRO PRECISION	FARIDABAD	
		INSTRUMENTAION LTD	PALGHAT	
		CARLO DYNAMICS	HYDERABAD	
		A.V. VALVES LTD	AGRA	
		ATAM VALVES PVT. LTD.	JALANDHAR	(1) CARBON STEEL GATE VALVES & NON RETURN VALVES: 15 NB TO 50 NB (#800) & 65 NB TO 300 NB (#150) (2) CARBON STEEL GLOBE VALVES: 15 NB TO 50 NB (#800) & 65 NB TO 200 NB (#150)
		FLUIDLINE VALVES COMPANY PVT.LTD.	KAUSHAMBI	
		M/S GM ENGINEERING	RAJKOT	
		INTERVALVE (INDIA) LTD.	PUNE	A) STEEL GATE VALVES: UPTO 50NB, #800 AND 65NB TO 150NB, #150 B) STEEL GLOBE VALVES: UPTO 50NB, #800 AND 65NB TO 100NB, #150 C)SUPPLIER NOT REGISTERED FOR NR VALVES
66.	STEEL GATE/GLOBE/NR VALVES	LEADER VALVES LTD.	JALANDHAR	
		NITON VALVE INDUSTRIES PVT LTD	MUMBAI	
		NSSL LIMITED.	NAGPUR	
		STEEL STRONG VALVES (I) PVT.LTD.	NAVI MUMBAI	LIMITED TO RANGES & CLASSES AS AVAILABE IN VD FILE.
		VENUS PUMPS AND ENGG. WORKS	KOLKATA	CC/CSS-GATE-BBT-UPTO600NB CL UPTO300,GATE-PSBT UPTO250NB CL 1500,GLV-BBT-UPTO300NB CL



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				UPTO600,SCNRV-BBT-UPTO600NB CL UPTO150,SCNRV-BBT-UPTO300NB CL 300,SCNRV-PSBT-UPTO150NB CL UPTO900
		VALTECH INDUSTRIES	MUMBAI	CAST CARBON & ALLOY STEEL - VALVE/RATING/SI ZE- GV/150/900,GV/300/400, GV/600/300 , GV/GLV/NRV/900/250 , GLV/300/300,GLV/150/350/ , SCNRV/150/700, SCNRV/300/350, SCNRV/600/250.
		V.K. VALVES PVT. LTD.,	JALANDHAR	
		WEIR BDK VALVES- A UNIT OF WEIR INDIA PVT. LTD.	NEW DELHI	
67.	SLUICE GATE	H SARKAR	KOLKATA	
		JASH ENGINEERING	-	
		YASHWANT INDUSTRIES	-	
68.	3 WAY VALVE	HI TECH	AHMEDABAD	
		ADVANCE VALVES PVT.LTD	NOIDA	
		BDK	HUBLI	
		FOURESS ENGG.INDIA LTD.	MUMBAI	
		FLUIDLINEVALVES COMPANY PRIVATE LTD.,	MUMBAI	
		INSTRUMENTATION LTD.	PALAKAD	
		KIRLOSKAR BROTHERS LTD.	PUNE	
		VENUS PUMP & ENGG. WORKS	KOLKATA	
		SURYA VALVES AND INSTRUMENTS MANUFACTURING COMPANY	CHENNAI	
		STAFFORD CONTROLS LIMITED	PUNE	
		MICON VALVES (INDIA) PVT.LTD	MUMBAI	
69.	PLUG VALVE(MANUAL)	BDK	HUBLI	
		HAWA ENGINEERS / MARCK & CARE	-	
		MICON VALVES	-	
		MICON VALVES (INDIA)	MUMBAI	



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		PVT.LTD		
70.	FITTINGS (CS/SS)	M.S. FITTINGS	KOLKATA	
		METAL LLOYDS	MUMBAI	
		TRUE FORGE	FARIDABAD	
		TUBE PRODUCTS	BARODA	
		NL HAZRA	KOLKATA	
		GUJRAT INFRA PIPES	BARODA	
		EDWARDS	USA	
		PIPEFIT ENGINEERS	BARODA	
		SIDDARTH & GAUTAM	FARIDABAD	
		EBY	MUMBAI	
71.	FLANGES (SS/CS)	PRADEEP METALS LTD	MUMBAI	
		TUBE PRODUCT INCORPORATION	BARODA	
		MS FITTINGS	KOLKATA	
		HAWA ENGINEERING	-	
		ALIANCE PIPE & PLANGES	KOLKATA	
		JAI AMBE	MUMBAI	
72.	PIPE & FILLTING (PP, HDPE, PVC & CPVC)	GEROGE FISHCHER	DELHI	
		ASTROL PLYTECHINC LTD	AHMEDABAD	
		JAIN IRRIGATION	-	
		ORIPLAST	-	
73.	VALVES (GATE/GLOBE/NRV/BALL)- (PP, HDPE, PVC & CPVC)	GEROGE FISHCHER IPING SYSTEMS PVT LTD	DELHI	
		ASTROL PLYTECHINC LTD	AHMEDABAD	
		JAIN IRRIGATION	-	
		ORIPLAST	-	
74.	AIR FILTER REGULATOR	SHAVO NORGEN	-	
		PLACKA INSTRUMENTS	-	
75.	FILTER MEDIA	GLOBAL ABSORBENT	KOLKATA	
		BHARAT MINERALS		
76.	DC LEAD ACID / NI-CD BATTERIES	AMCO SAFT INDIA LTD	BANGALORE	NI-CD BATTERIES ONLY
		EXIDE INDUSTRIES LTD	NEW DELHI	LEAD ACID BATTERIES ONLY.
		HBL POWER SYSTEMS LTD	HYDERABAD	NI/CD AND TUBULAR TYPE FOR LEAD ACID
		HOPPECKE BATTERIEN GMBH & CO.KG,	GERMANY	
77.	DC LEAD ACID BATTERIES	EXIDE INDUSTRIES LTD	NEW DELHI	
		HBL POWER SYSTEMS LTD	HYDERABAD	TUBULAR TYPE
		HOPPECKE BATTERIEN GMBH & CO.KG,	GERMANY	



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78.	DC NI CD BATTERIES	AMCO SAFT INDIA LTD	BANGALORE	
		HBL POWER SYSTEMS LTD	HYDERABAD	
		HOPPECKE BATTERIEN GMBH & CO.KG,	GERMANY	
79.	SIGHT FLOW INDICATORS	B.K. EQUIPMENTS PVT.LTD.	CHENNAI	
		BLISS ANAND PVT. LTD.	GURGAON	
		FLOWTECH INSTRUMENTS SERVICRS	VADODARA	
		INSTRUMENTATION ENGINEERS PVT LTD	TELANGANA	
		SIGMA INSTRUMENTS CO.	MUMBAI	
		SCIENTIFIC DEVICES (BOMBAY) PVT LTD,	NAVI MUMBAI	
		TELACE EQUIPMENT PVT.LTD.	CHENNAI	
80.	PAINT	ASIAN PAINTS (I) LTD.		
		BERGER PAINTS INDIA LTD		
		GOODLASS NEROLAC		
		JENSON & NICHOLSON (I) LTD		
		CDC CARBOLINE (I) LTD.		
		SHALIMAR PAINTS LTD.		
		ADDISON PAINTS LTD		
		GRAND POLYCOAT		
		BOMBAY PAINTS		
		HEMPLE PAINTS (SINGAPORE)		
		JOTUN PAINTS		
81.	PNEUMATIC ACTUATOR	PROCON ENGINEERS	-	
		TYCO	-	
		CRANE PROCESS	-	
		BDK	-	
		INTERVALVE	-	
		BRAY CONTROL	-	
82.	MOTORISED ACTUATOR	ROTARK	-	
		AUMA	-	
		LIMITORK	-	
83.	UF MEMBRANE	DOW	-	
		HYFLUX	-	
		GE	-	
		MEMBRANE HITECH	-	
84.	RO MEMBRANE	DOW CHEMICALS – FILMYECH	USA	
		HYDRANAUTICS	USA	
		KOCH MEMBRANE- FLUID SYSTEM	USA	
		TOREY	JAPAN	
85.	RO PRESSURE TUBES (FRP)	PENTAIR WATER	GOA	



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86.	MBR MEMBRANE	KOCH		
		GE		
		TOREY		
87.	CHEMICAL DOSING SYSTEM	V K PUMPS	MUMBAI	
		MILTON ROY	CHENNAI	
		TECHNO CONSULTANTS	MUMBAI	
		POSITIVE METERING PUMPS (I) PVT. LTD.	NASIK	
		PSI ENGINEERING SYSTEMS (P) LTD.	CHENNAI	
		PRORITES EQUIPMENTS PVT. LTD.	PUNE	
		DENCIL PUMPS & SYSTEMS PVT. LTD.	MUMBAI	
		POWER PIPING COMPANY	TRICHY	
		ROCKWIN FLOWMETER INDIA PVT. LTD.	GHAZIABAD	
		SR METERING PUMPS AND SYSTEMS	NASHIK	
		SWELORE ENGG. PVT. LTD	AHMEDABAD	
		UDKAM PROCESS EQUIPMENT INDIA PVT. LTD.	GREATER NOIDA	
		VASU CHEMICALS LLP	MUMBAI	
88.	OXYGEN DOSING SYSTEM	FORBES MARSHALL PVT. LTD	PUNE	
		POSITIVE METERING PUMPS (I) PVT. LTD.	NASIK	
		PSI ENGINEERING SYSTEMS (P) LTD.	CHENNAI	
		V.K PUMP INDUSTRIES PVT LTD	MUMBAI	
		POWER PIPING COMPANY	TRICHY	
		M R SYSTEMS	HOWRAH	
		ENPRO INDUSTRIES	PUNE	
		UNITED ENGINEERING AND TECHNOLOGIES PVT. LTD.	PUNE	
		NEOMETRIX ENGINEERING PVT. LTD.	NOIDA	
89.	LIME DOSING SYSTEM	INDIANA CONVEYORS PVT LTD	MUMBAI	
		HYQUIP SYSTEMS LTD	HYDERABAD	
		EQUIPMENT ENGINEERS PRIVATE LIMITED	KOLKATA	
		MAHINDRA TSUBAKI CONVEYOR SYSTEMS PRIVATE LIMITED	PUNE	
		INDUS ENGINEERING PROJECTS INDIA/ INDUS ENGINEERING PROJECTS INDIA PVT. LTD.	NEW DELHI	
		MACAWBER BEEDKAY PVT LTD.	NOIDA	



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		M/S HV EQUIPMENTS PVT LTD.	NOIDA	
		M/S POLLUCON ENGINEERING SERVICES	FARIDABAD	
		KHD HUMBOLDT WEDAG	NEW DELHI	
		PSI ENGINEERING SYSTEMS (P) LTD.	CHENNAI	
		RIECO INDUSTRIES LTD.	PUNE	

NOTE:

1. The sub vendor list above is indicative only and is subject to BHEL and Customer approval during detailed engineering stage without any commercial & delivery implication to BHEL.

Bidder to propose sub vendor list with following back up documents within 8 weeks of placement of LOI. Thereafter no request for additional sub-vendor shall be entertained. The sub vendor list shall subject to BHEL and Customer approval during detailed engineering stage without any commercial & delivery implication to BHEL.

- a) Documentation to show that the equipment /system has been supplied for a plant of similar or higher capacity.
- b) End user performance certificate that the equipment/system has been operating satisfactorily for minimum two years as on the scheduled date of bid opening.

Bidder to assess the capability of their proposed sub-vendors in terms of preparation of drawings, calculations, documents, quality assurance, supply of material etc. as per project schedule before placing the order on them.

2. The inspection category will be intimated after award of contract by BHEL/customer. However, the same will be adhered by the bidder without any commercial and delivery implication to BHEL/customer.



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ANNEXURE – III

FUNCTIONAL GUARANTEES AND LIQUIDATED DAMAGES

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**TECHNICAL SPECIFICATION FOR
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PERFORMANCE GUARANTEES

A. General Requirements

1. The Bidder shall guarantee that the equipment offered shall meet the ratings and performance requirements stipulated for various equipment covered in this specification.
2. The guaranteed performance parameters indicated/furnished by the bidder in his offer, shall be without any tolerance values whatsoever and all margins required for instrument inaccuracies and other uncertainties shall be deemed to have been included in the guaranteed figures.
3. The Bidder shall conduct performance test and demonstrate all the guarantees covered herein, during performance guarantee/ acceptance test. The various tests which are to be carried out during performance guarantee/acceptance test are listed in this Sub-section. The guarantee tests shall be conducted by the Bidder at site in presence of NTPC on each unit individually.
4. All costs associated with the tests including cost associated with the supply, calibration shall be included in the bid price.
5. It is the responsibility of the Bidder to perform the Performance Guarantee/ Acceptance test as specified in this subsection. At all times during the Performance Tests effluents from the Plant shall not exceed the Guaranteed Effluent Limits.
6. The Bidder shall make the plant ready for the performance guarantee tests before start of Initial Operation.
7. Instruments for PG test and instruments for process control of similar applications are envisaged to be of same make and model having same accuracy level. However, instruments for PG test are also acceptable as per standard and proven practice of the Bidder/ OEM and in such case, instruments for process control shall be as per requirements. Instruments to be used for PG test shall be additionally supplied over and above the instruments shown in tender P&IDs. PG test equipment being supplied, installed and commissioned for each unit, shall be retained by NTPC after completion of PG test.

Control system loop tuning required to limit the variation of parameters during performance guarantee testing shall be completed prior to PG Test / initial operation.

8. All PG test process parameters shall be made available in DDCMIS.
9. Tools and tackles, instruments/devices including flow devices, matching flanges, impulse piping & valves etc. and any special equipment, required for the successful completion of the tests, shall be provided by the Bidder free of cost.
10. The Performance / Acceptance test shall be carried out as per the standard procedure included in the specification. For some of the PG tests, standard PG test procedures have not been included in the specification. PG test procedure for such PG tests shall be submitted by bidder, as per latest International codes / standard meeting the specification requirements along with sample calculations & detailed activity plan of preparation (including test instrumentation), conductance and evaluation of Guarantees after Award:

1. For Cat-I Performance / Acceptance tests to be conducted along with the initial operation: After the conductance of Performance test, the test results shall be calculated in Bidder's PG test program. The correction curves shall be fed/ inbuilt in the PG test program. Provision of manual entry of offline data which cannot be captured online and necessary for calculation of PG Test result shall also be provided. The Bidder shall submit the detailed test evaluation report of Performance test results to NTPC/ BHEL promptly but not later than 7 days from the date of conductance of Performance test.
2. For Performance / Acceptance tests other than those identified at 1 above: After the conductance of Performance test, the Bidder shall submit the test evaluation report of Performance test results to NTPC/ BHEL promptly but not later than 7 (seven) days from the



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date of conductance of Performance test. However, preliminary test reports shall be submitted to the NTPC/ BHEL after completing each test run.

11. The Bidder shall submit for NTPC's approval the detailed Performance Test procedure (except for the guarantee tests for which the standard PG test procedure is identified in technical specification) containing the following:
- Object of the test.
 - Various guaranteed parameters & tests as per contract.
 - Method of conductance of test and test code.
 - Duration of test, frequency of readings & number of test runs.
 - Method of calculation.
 - Correction curves and respective equations for graphs to be fed for the online computation.
 - Instrument list consisting of range, accuracy, least count, and location of instruments along with reference approved P&IDs.
 - Scheme showing measurement points.
 - Sample calculation.
 - Acceptance criteria.
 - Any other information required for conducting the test.

12. In case during performance guarantee tests it is found that the equipment/system has failed to meet the guarantees, the Bidder shall carry out all necessary modifications and/or replacements to make the equipment/system comply with the guaranteed requirements at no extra cost to the NTPC/ BHEL and re-conduct the performance guarantee test(s) with NTPC/ BHEL's consent. However, if the specified performance guarantee(s) are still not met even after the above modifications/ replacements within ninety (90) days or a reasonable period allowed by the NTPC/ BHEL, after the tests have been completed NTPC/ BHEL will have the right to the following:

a. For Category-I Guarantees

Accept the equipment/system/plant after levying Liquidated Damages as specified hereunder. The liquidated damages, for shortfall in performance indicated elsewhere in this specification and shall be levied separately for each unit, except for the rate indicated for auxiliary power consumption for station auxiliaries which is on station basis. The liquidated damages shall be prorated for the fractional parts of the deficiencies. The performance guarantees coming under this category shall be called 'Category – I' Guarantees.

b. For Category-II Guarantees

In case the performance guarantee(s) are not met by the Bidder during demonstration test, the Bidder shall carry out all necessary modifications and/or replacements to comply with the guaranteed requirements at no extra cost to the NTPC/ BHEL and re-conduct the performance guarantee test(s) with NTPC/ BHEL's consent.

If, however, the demonstrated guarantee(s) are not met even after the above modifications / replacements within ninety (90) days, it will be concluded that, the equipment has failed to meet the guarantee(s). In such a case, NTPC/ BHEL shall Reject the equipment/ plant/ system and recover from the Bidder the payments already made. The performance guarantees under this category shall be called 'Category - II ' Guarantees. Conformance to the performance requirements under Category -II is mandatory.

c. For Category-III Guarantees

Accept the equipment/ system after assessing the deficiency in respect of the various ratings, performance parameters and capabilities and recover from the contract price an amount



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equivalent to the damages as determined by the NTPC/ BHEL. Such damages shall, however be limited to the cost of replacement of the equipment(s) / system(s) replacement of which shall remove the deficiency so as to achieve the guarantee performance. These parameters/ capacities shall be termed as category - III, guarantees.

B. Guarantees Category of Water treatment packages

1. GUARANTEES UNDER CATEGORY I: NIL

2. GUARANTEE UNDER CATEGORY –II

Noise

All the water treatment packages, equipment and systems covered under this specification shall perform continuously without exceeding the noise level over the entire range of output and operating frequency specified in General Technical Requirement.

Noise level measurement shall be carried out using applicable and internationally acceptable standards. The measurement shall be carried out with a calibrated integrating sound level meter meeting the requirement of IEC 61672-1 & 2 (latest edition) Sound pressure shall be measured all around the equipment at a distance of 1.0 m horizontally from the nearest surface of any equipment/ machine and at a height of 1.5 m above the floor level in elevation.

A minimum of 6 points around each equipment shall be covered for measurement. Additional measurement points shall be considered based on the applicable standards and the size of the equipment. The measurement shall be done with slow response on the A - weighting scale. The average of A-weighted sound pressure level measurements expressed in decibels to a reference of 0.0002 micro bar shall not exceed the guaranteed value. Corrections for background noise shall be considered in line with the applicable standards. All the necessary data for determining these corrections, in line with the applicable standards, shall be collected during the tests.

3. GUARANTEE UNDER CATEGORY –III

The parameters/capabilities to be demonstrated for various systems/ equipment shall include but not be limited to the following:

3.1 PRE-TREATMENT PLANT

A. CLARIFICATION PLANT

- i. Each clarifier unit of PT-CW system & PT-DM system shall be guaranteed for design effluent capacity meeting the effluent quality as mentioned below.
- ii. Effluent quality at the outlet of clarifiers (PT-CW system & PT-DM system) shall be guaranteed for the following:
 - Organic Matter : Less than 0.05 mg/l (see note below)
 - Iron Content : Less than 0.3 mg/l
 - Turbidity : Less than 10 NTU

Note: Organic matter shall be tested as per KmnO_4 method.

- iii. Each clarifier shall be tested to demonstrate the above-mentioned Guarantees at site under P&G test. In addition, demonstration of satisfactory working of all the clarifiers, its drives, scrapper mechanism, operation of sludge blow-off etc., shall be demonstrated.

B. FILTRATION PLANT

- i. Each Gravity filter for PT-DM system shall be guaranteed for design capacity meeting the effluent quality below with one backwash and air scouring in not less than 24 hours or more.



Backwash water requirement not to exceed 2% of the water treated between two successive backwashes.

- ii. Each Gravity filter for PT-Potable system shall be guaranteed for design capacity meeting the effluent quality below with one backwash and air scouring in not less than 24 hours or more. Backwash water requirement not to exceed 2% of the water treated between two successive backwashes.
- iii. Turbidity at outlet of each gravity filter of PT-DM and PT-Potable system shall not exceed 2 NTU with inlet turbidity of up to 10 NTU.
- iv. Each filter shall be tested to demonstrate the above-mentioned Guarantees at site under P&G test. In addition, demonstration of satisfactory working of all the filters, its backwashing operation, operation of various valves etc shall be demonstrated by Contractor.

3.2 EFFLUENT TREATMENT PLANT

TUBE SETTLERS/ LAMELLA CLARIFIERS

- i. Each Tube Settlers/Lamella Clarifier shall be guaranteed for design effluent capacity meeting the effluent quality as mentioned below.
- ii. Effluent quality at the outlet of Tube Settlers/Lamella Clarifier shall be guaranteed for the following:
 - Effluent Turbidity: 10 NTU at design flow
 - Effluent Oil & grease: 5 ppm (maximum)
- iii. Each Tube settler/Lamella clarifier shall be tested to demonstrate the above-mentioned Guarantees at site under P&G test. In addition, demonstration of satisfactory working of settler/clarifiers, operation of sludge blow-off etc shall be demonstrated by Contractor.

3.3 CHLORINE DI OXIDE DOSING SYSTEM

- i. Each CLO₂ generator for both PT & CW - Chlorination system shall be guaranteed for the design capacity.
- ii. Each chlorine di-oxide generator shall have controllable capacity range of 10% -100% or better.
- iii. Contractor shall guarantee minimum 90% yield of CLO₂ generation as per US-EPA method.
- iv. Quantity of NaClO₂ (in kg) for production of per kg of ClO₂ in the generator shall be guaranteed.

3.4 DM PLANT (ION EXCHANGE DM PLANT)

A. ACTIVATED (AC) CARBON FILTERS

- a) Each filter shall be guaranteed for the design capacity. A.C. filter shall be backwashed once in 24 hours.
- b) Free chlorine content in effluent water shall not be detectable as per latest ASTM
- c) procedure.
- d) Organic matter in the effluent water shall be below detectable level.
- e) Turbidity in the effluent water shall be less than 0.5 NTU.

B. ION-EXCHANGER UNITS

- a) Each ion exchange unit shall be guaranteed for design capacity meeting the effluent quality as mentioned below. However, each ion exchange unit shall be guaranteed for a Design flow (net) after meeting the water requirement for various regeneration steps. Service Cycle (Period between two successive regenerations) shall be 12 hours for each stream of cation and anion exchangers and 108 hours for each MB exchanger. Net output from each cation-



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anion unit between two regenerations shall not be less than Design flow (net) x 12 m³/hr and for mixed bed Design flow (net) x 108 m³/hr of treated water.

- b) Chemical consumption of the ion exchange units shall be guaranteed against the regeneration level employed and resin volume provided. Total time requirement for regeneration and backwash operation for each stream (AC filter, cation, and anion) shall not exceed four (4) hours. With mixed bed in regeneration, total time of regeneration of stream shall not exceed six (6) hours. The guaranteed values of chemical consumption shall hold good for chemical conforming to following:

- HCl - As per IS: 265 Tech. Grade
- NaOH - As per IS: 252 Pure Grade available in Flakes or lye form

- c) Effluent from the mixed bed unit shall be guaranteed to meet the following requirements, at rated capacity, throughout the period between two successive regenerations:

- i. Reactive Silica not to exceed : 0.01 ppm as SiO₂
- ii. Iron as Fe : Not detectable as per ASTM (ASTM-D-1068)
- iii. Total Hardness : Not detectable
- iv. pH Value : 6.8 - 7.3
- v. Conductivity : Not more than 0.1 micromhos/cm at 25 deg.C.

- d) Effluent from the anion exchanger shall be guaranteed as follows at rated capacity throughout the period between two regenerations:

- i. Reactive silica not to exceed : Not to exceed 0.2 ppm as SiO₂
- ii. Conductivity at 25 deg.C : Not more than 10 micro mhos/cm

- e) Sodium leakage through cation shall not exceed 2 ppm as CaCO₃ throughout the period between two regenerations.

- f) Effluent from degassifier should not have CO₂ content more than 5 ppm.

- g) Life of cation resin shall be minimum five (5) years and life of anion resin shall be minimum three (3) years.

C. POLSHING UF SYSTEM

1. Net permeate flow rate from each UF train shall be guaranteed for design capacity meeting the effluent quality as mentioned below.
2. Colloidal Silica shall be < 0.01ppm as SiO₂.
3. SDI shall be limited to 3.
4. Life of Ultrafiltration membranes shall be guaranteed for minimum five (5) years.
5. For the guaranteed water quality and the permeate water capacity, UF plant shall give an undiminished recovery of 92% up to the end of 5 years of operation with replacement guarantee of membrane elements.

3.5 DM PLANT (UF+RO+MB PLANT)

The bidder/his sub-vendor shall guarantee that the equipment offered shall meet the ratings and performance requirement stipulated for various equipment covered in this specification. Tests shall be carried out to prove the guaranteed parameters specified here under:

- A. All pumps, blowers, degasser & filters shall be guaranteed for capacity, total head and power consumption.
- B. Effluent from Degasser tower should not have CO₂ content more than 5 ppm.
- C. Filtration Capacity of Cartridge (PT system of RO) filters shall be guaranteed meeting the effluent quality and the same shall not be less than specified capacity.



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D. ULTRAFILTRATION (UF) SYSTEM

1. Net permeate flow rate from each UF train shall be guaranteed for design capacity meeting the effluent quality as mentioned below.
2. SDI shall be limited to 3.
3. Life of Ultrafiltration membranes shall be guaranteed for minimum five (5) years.
4. For the guaranteed water quality and the permeate water capacity, UF plant shall give an undiminished recovery of 92% up to the end of 5 years of operation with replacement guarantee of membrane elements.

E. REVERSE OSMOSIS (RO) PLANT

1. Net permeate flow rate from each RO train shall be guaranteed for design capacity meeting the effluent quality as mentioned below.
2. TDS of RO permeate shall not be more than 20 ppm at 36 deg C. However, the mixed bed unit (MB) at downstream of RO plant shall be designed for inlet TDS of not less than 25 ppm plus 5 ppm of CO₂.
3. For the design water quality and the permeate water capacity, RO plant shall give an undiminished recovery of 85% upto the end of 3 years of operation with replacement guarantee of membrane elements.
4. Performance of Cleaning, Flushing System arrangement shall be demonstrated.
5. Life of RO membranes shall be guaranteed for minimum three (3) years.
6. For power guarantee purpose, RO High Pressure Pumps shall be designed at 20 deg C.

F. MIXED BED UNITS

Effluent from the mixed bed unit shall be guaranteed to meet the following requirements, at rated capacity, throughout the period between two successive regenerations:

1. Reactive Silica not to exceed: 0.01 ppm as SiO₂.
2. Colloidal Silica shall be < 0.01 ppm as SiO₂.
3. Iron as Fe: Not detectable as per ASTM (ASTM-D-1068)
4. Total Hardness: Not detectable
5. pH Value: 6.8 - 7.3
6. Conductivity: Not more than 0.1 micromhos/cm at 25 deg.C.
7. Mixed Bed shall be regenerated after minimum 30 hours of operation followed by regeneration period not exceeding 6 hours.
8. Life of cation resin shall be minimum five (5) years and life of anion resin shall be minimum three (3) years.

3.6 CW Chemical Treatment Plant

1. The bidder shall guarantee that the program offered shall meet the performance requirements stipulated for CW System. Also, the bidder shall demonstrate the guaranteed chemical consumption proposed in the bid, during the contract period.
2. For the purpose of verifying the guarantees on scale, a deposit monitor/test heat exchanger/fouling monitor shall be provided by the bidder stimulating the condenser operating conditions. The deposit monitor shall be weighed in new and clean condition and then weighed again on monthly basis and after completion of the test period. Prior to commencement of treatment program and after chemical cleaning of condenser tubes, the fouling factor shall be calculated for each condenser of 2 x 800 MW units. The fouling factor shall also demonstrate the cleanliness of condenser tubes by visual examination of the same.



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3. Corrosion coupons reflecting the metallurgy of the system components shall be supplied and installed by the contractor to measure guaranteed corrosion value and corrosion rate shall be determined based on observations on monthly basis after completion of six months.
4. For the purpose of verifying bio fouling in circulating water system, a bio fouling monitor or bio film activity monitor shall be provided by the bidder. The bio fouling shall be determined based on observation on monthly basis and after completion of six months.
5. Guarantee Values of Scale, Corrosion, Fouling & Bio Fouling
 - a. Cumulative Corrosion Rate on Mild Steel < 3 mils/year
 - b. Cumulative Corrosion Rate on Stainless Steel < 0.1mils/year
 - c. Cumulative Corrosion Rate on Cu/Ni < 0.3 mils/year.
 - d. Cumulative Scaling Rate of Internal Tube Surface Area of Condenser <15mg/dm²/year
 - e. Fouling Factor: Deterioration in Heat Transfer Coefficient shall not be more than 5% of the original value just before commencement of the treatment program.
 - f. TVC (Total Viable Count) (Micro Biological Counts) < 1.2 x 100000 counts/ml of circulating water.
 - g. SRB (Sulphate Reducing Bacteria) <100 organisms/100 ml of circulating water.

Bidder shall guarantee the above design parameters in the circulating water system of all the Units of the project.

3.7 CONDENSATE POLISHING PLANT

- I. Effluent quality at outlet of each vessel at its rated design flow and design service length between two regenerations (as defined elsewhere).
- II. AIR COMPRESSOR UNIT (IF APPLICABLE FOR CPU)
 - a) Following shall be demonstrated at shop:
 - i. Capacity and discharge pressure of each air compressor.
 - b) Following shall be demonstrated at site:
 - i. Parallel operation of air compressors
 - ii. Dew point of air at the outlet of air-drying plants of instrument air compressor.
 - iii. Pressure drop across the air-drying plants of air compressors.
 - iv. Vibration level of air compressors, blowers of air-drying plant

3.8 COAL HANDLING PLANT RUN-OFF WATER TREATMENT SYSTEM

1. The System shall be designed for the inlet total suspended solids (TSS) of 100 ppm & turbidity 100 NTU.
2. Each clarifier unit shall be guaranteed for design effluent capacity meeting the effluent quality as mentioned below.
 - a. Total suspended solids (TSS) less than and equal to 10 ppm.
 - b. Turbidity Less than and equal to 10 NTU.

3.9 SEWAGE TREATMENT PLANT

Minimum outlet quality parameters to be demonstrated by bidder have been included below. However, in case the guaranteed parameters as per the latest MOEF, State pollution control board norms and Local authority requirement, are more stringent than the specified parameters given below, then more stringent outlet parameters must be followed and guaranteed by bidder. The treated sewage quality standards shall be achieved at average sewage flow rates as well as peak sewage flow rates. During the operation of the plant, the below parameters shall be demonstrated by bidder:



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S. No	Description	Value
a.	BOD ₅	Less than 10 mg/l
b.	COD	Less than 50 mg/l
c.	TSS	Less than 10 mg/l
d.	pH	7-8
e.	Coliform count	100 counts/ 100 ml
f.	NH ₄ -N	Less than 5 mg/l
g.	N Total	Less than 10 mg/l
h.	Residual chlorine	Not exceeding 0.5 mg/l
i.	Temperature	Ambient

3.10 The parameters/capabilities to be demonstrated for following systems/ equipment's shall be:

- EOT Cranes: Over load tests, travel and hoist speed checks as per relevant Indian standards IS (latest edition).
- Butterfly valves: - The functioning of various Butterfly valves, opening and closing operation as per control logic, accumulator capacity of hydraulic operated valves etc. shall be demonstrated as per the approved design document.

3.11 PUMPS (FOR ALL WATER TREATMENT PACKAGES)

- Capacity, head, and power consumption of all the pumps at the rated duty point (to be demonstrated and proved at shop with the respective job motors) and to operate in accordance with the approved pump characteristic curves. During the shop test no negative tolerance in the guaranteed capacity, head and efficiency of the pump shall be allowed.
- Current, Voltage, Motor input Power, Frequency, Speed, Bearing/ Motor winding Temperature, Vibration and noise level of pumps and drives and parallel operation (as applicable) without hunting & abnormal noise and with load sharing within 10% of each other at the rated duty point of pumps shall be demonstrated at site as a part of Performance & Guarantee test.



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PG Test Procedure for Condensate Polishing Unit System

1.0 Scope of PG test:

PG Test shall be conducted after successful trial run to establish all the guaranteed parameters/values for each service vessel:

- 1.1** Three run under normal condition at rated design flow.
- 1.2** One run under condenser leak condition at rated design flow.
- 1.3** Chemical consumption for regeneration as per technical specifications.
- 1.4** Pressure drop across the polisher service vessel in clean and dirty condition of resin at rated design flow.
- 1.5** 100% Transfer of resins from CPU service vessel to regeneration vessel and vice-versa.
- 1.6** Performance of all the interlocks provided.
- 1.7** Noise, vibration levels, protection & interlock and other functional guarantees of different rotating machines and equipment

2.0 GUARANTEES:

The Condensate polishing system shall be designed to maintain the guaranteed effluent quality & length of service runs at normal condition, start-up, and condenser leakage conditions. The guarantees shall be as below:

2.1 INFLUENT AND EFFLUENT WATER QUALITIES FOR CONDENSATE POLISHING PLANT UNDER NORMAL RUN CONDITION:

Sl. No.	IONIC CONCENTRATION (as such)	INFLUENT	EFFLUENT (maximum)
1.	Ammonia, ppb	150	--
2.	Total dissolved solids, ppb	100	20
3.	Silica, ppb	30	5* (refer note below)
4.	Iron, ppb	50	5
5.	Sodium, ppb	10	2
6.	Chlorides, ppb	10	2
7.	pH	8.5-9.0	--
8.	Effluent conductivity after removal of ammonia & amines, $\mu\text{S}/\text{cm}$ at 25°C	---	< 0.10 or less
9.	Suspended matter (Crud), ppb	Not more than 25	<5

Note:

- i) Silica value shall be 7 ppb as per resin supplier recommendations in case the temperature of the condensate is 50°C & above.
- ii) Under the above operating and design flow through the polisher units, the un-ammoniated resins shall not reach "ammonia break-point" in less than 30 days (720 hrs) of continuous operation while maintaining the above effluent quality. Whenever specific conductivity starts increasing from 0.1 micro mhos/cm in the effluent, it is deemed that "ammonia break point" is reached.

2.2 TEST UNDER STARTUP CONDITIONS (50 hrs at rated flow):

During startup conditions, the quality of influent shall be as follows:

S.No.	PARAMETER	INFLUENT (Maximum)	EFFLUENT (Maximum)
1.	TDS, ppb	2000	--



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2.	Silica, ppb	150	--
3.	Crud, ppb	1000	150

Note:

- For design purposes, average crud loading shall be considered as 500 ppb
- Useful service run between two successive regenerations at design flow rate with above conditions should not be less than 50 hours.

2.3

TEST UNDER CONDENSER LEAK CONDITION:

Under condenser tube leakage condition, the quality of influent shall be as follows:

S.No.	PARAMETER	INFLUENT	EFFLUENT (Maximum)
1.	TDS, ppb	2000	--
2.	Sodium, ppb	--	20
3.	Silica, ppb	--	20

Note:

- The influent TDS will be in addition to the normal influent load. The anion and cation load in influent design TDS shall be based on circulating water analysis.
- Useful service run between two successive regenerations at design flow rate with above conditions should not be less than 50 hours.

2.4

TEST UNDER CONDENSER LEAK CONDITION:

The quantities of hydrochloric acid (as per IS:265, technical grade) required for regeneration of one vessel resin (cation) charge and the quantity of sodium hydroxide (as per IS:252, rayon grade) lye or as flakes required for regeneration of one vessel resin (anion) charge shall be as follows:

S.No.	REGENERANT	QUANTITY (Kgs)
1.	Hydrochloric acid (100%)	125 kg x design cation resin volume (M3)
2.	Sodium hydroxide (100%)	160 kg x design anion resin volume (M3)

2.5

PRESSURE DROP:

At the design flow rate, the maximum pressure drop across the polisher service vessels shall be as follows:

S.No.	PARAMETER	PRESURE DROP AT DESIGN FLOW RATE (Kg/cm ²)
1.	Under clean conditions	2.1
2.	Under dirty conditions	3.5

Note:

- The pressure drop under clean conditions shall include losses due to entrance & exit nozzles, distributors, under drains, resins and the effluent resin traps.
- The pressure drop under dirty conditions shall include the pressure drop across effluent resin traps.

2.6 Transfer of resin from service vessel to regeneration vessel shall be complete (100%).

2.7 During PG test period, all service vessels shall also be checked for their rated design flow.



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2.8 Parallel operation of all CPU vessels at total design flow should be checked once in all units during PG test.

3.0 GENERAL REQUIREMENTS:

The clauses as given in GTR (General technical requirements), Technical specifications and Notification of award shall be final and binding.

3.1 PG Test will be conducted within a period of two months after successful completion of trial operation.

3.2 The PG test shall be undertaken only after the resins have been subjected to at least three normal regeneration and service cycles after commissioning.

3.3 During PG Test all the alarms and inter-locks to be checked

3.4 All relevant analysis results and test certificates shall be submitted by the vendor for the exchanger bed media prior to the commencement of PG Test.

3.5 All the instruments required for conducting PG test shall be calibrated by the vendor in presence of NTPC representatives prior to the start of the PG Test by the standard methods acceptable to NTPC. Wherever this is not possible, valid calibration certificates by an approved agency shall be submitted by the vendor.

3.6 Standard analytical procedures shall be followed for the determination of various chemical parameters. Laboratory facilities as available at NTPC-LARA site may be made available, if required. If laboratory facility does not exist for any test, the supplier will arrange the same from NTPC/Govt. approved laboratories.

3.7 The influent and effluent parameters shall be analyzed every 4-hour. However, online analyzers provided shall be taken for recording every 2-hour wherever applicable.

3.8 Necessary tools and instruments required for PG Test shall be arranged by the vendor. Laboratory facilities as available at site may be made available, if required. If laboratory facility does not exist for any test, the supplier will arrange the same from NTPC/Govt. approved laboratories.

3.9 In case, during PG test if the equipment/ system has failed to meet the guarantees, the vendor shall carry out all necessary modifications and/or replacements to make the equipment/system comply with the guaranteed requirements at no extra cost to the Employer and re-conduct the PG Test with employer's consent.

3.10 Vendor will submit authenticated documents with signature and stamp on each page.

3.11 If start-up and condenser leak conditions do not exist during the entire PG test period, a joint protocol will be submitted for the same.

3.12 All the log-sheets and protocols of PG test shall be jointly signed by the supplier and NTPC-LARA representatives. Unsigned or not jointly signed log-sheets & protocols will not be accepted for evaluation.

3.13 PG test report of total CPU package, complete in all respects, shall only be considered for evaluation.

3.14 Pre requisites for performance test:

i) Availability of NTPC & Supplier personnel / operational staff during the test.

ii) Uninterrupted power supply within specified parameters for the duration of the Test. Power supply is required for all Analysers.

iii) Adequate and uninterrupted Condensate Water and chemical supply.

iv) Sufficient illumination to be ensured in CPU Service area and Regeneration area.



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4.0 PERFORMANCE GUARANTEE TEST PROCEDURE FOR CONDENSATE POLISHING UNIT:

S.NO.	EQUIPMENT	OBJECTIVE	PROCEDURE	REMARKS
1.	Condensate polishing plant for turbo generator units- 1 & 2.	To establish the followings during three consecutive Normal Service runs.	---	----
		<p>i). For CPU PG test, two number identified resin lots shall be tested for three service run by ensuring that at least two (if CPU is 3x50%)/ three (if CPU is 4x33%) number service vessels of each unit should be covered during PG test under normal service run.</p> <p>ii). During PG test period, all service vessels shall be checked for their rated design flow.</p> <p>iii). Parallel operation of three CPU vessels at total design flow should be checked once in all three units during PG test.</p>	<p>Using normal regeneration level, externally regenerate the resins filled in each service vessel one by one and re-fill the service vessels with regenerated resins.</p> <p>Start auto service run of first vessel by controlling inlet and bypass valves. After establishing design flow through the first vessel, start auto service run of second vessel and then third vessel by adjusting the above valves and ensuring the design flow passing through all the three vessels.</p>	<p>i). The test will be carried out with two (if CPU is 3x50%)/ three (if CPU is 4x33%) service vessels.</p> <p>ii). In case total design flow is not available, two vessels at their design flow (---- m³/h) or one vessel at its design flow (- --- m³/h) will be tested for normal service PG test run.</p> <p>iii). Bypass valves should be full closed during PG test.</p> <p>iv). The flow rates through each service vessels and total flow will be measured with the help of online flow meters after half an hour from the time the vessels are put into service.</p> <p>v). Flow rate will be recorded every 2-hours.</p>
		iv). Service length of 30 days (720 hours) at design flow between	The service run will continue till the effluent parameters remains within limits as given	Total flow through each vessel will be measured using



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S.NO.	EQUIPMENT	OBJECTIVE	PROCEDURE	REMARKS
		<p>two regenerations using single regenerant quantity. the un-ammoniated resins shall not reach "ammonia break-point" in less than 30 days (720 hrs) of continuous operation while maintaining the effluent quality as specified in Section-2.1. Whenever specific conductivity starts increasing from 0.1 micro mhos/cm in the effluent, it is deemed that "ammonia break point" is reached.</p>	<p>in Section-2.1.; the Specific conductivity of the effluent remains less than or equal to 0.100 μS/cm at 25°C or throughput per vessel has reached ----- m³ whichever occurs earlier.</p> <p>If the inlet quality is higher than the design value as per Section-2.1, service cycle will be reduced based on the load and the same shall be established.</p> <p>The revised calculations for higher inlet load than design will be accepted after approval of NTPC-Engg (CC).</p> <p>There will be three normal PG test runs with an identified resin lot for a unit preceded by single regeneration Average result from three consecutive PG test runs will be considered for evaluation.</p>	<p>online flow integrators.</p> <p>Flow rate, total flow and online parameters will be recorded every 2-hours. Other chemical parameters will be tested 4-hourly in the laboratory.</p> <p>In case a service run is interrupted & stopped for some time and again restarted after extra rinsing, such extra rinse water volume will be added to service run output.</p>
		<p>vi) Pressure drop across the polisher service vessel of 2.1 kg/cm² in clean and 3.5 kg/cm² under dirty conditions of resin at design flow.</p>	<p>The pressure drop under clean conditions will be measured after half an hour of the vessel containing freshly regenerated resins are put into service.</p> <p>The pressure drop under dirty conditions will be measured at the end of service run.</p>	<p>The pressure drop across the resin bed will be measured using online differential pressure indicator. The pressure drop under clean conditions shall include losses due to entrance & exit nozzles, distributors, under drains, resins and the effluent resin trap and under dirty conditions shall include the pressure drop across effluent resin traps. Pressure drop will be recorded every 2-hours.</p>
2.	Condensate polishing plant for turbogenerator units- 1, & 2.	<p>To establish the followings during start up condition run:</p>	--	--
		<p>i) Useful service run of not less than 50 hours.</p>	<p>Freshly single regenerated resins are transferred to service vessel and the vessel is put into service.</p>	<p>The influent crud level during startup will be up to 1000 ppb.</p>
		<p>ii) Total crud</p>		



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		content of the effluent not more than 150 ppb.	The influent & effluent crud levels are measured every 4-hour.	The crud levels are measured gravimetrically using 0.45 micron filter paper.
3.	Condensate polishing plant for turbogenerator units- 1, & 2.	To establish the followings during condenser leak condition run:		
		i) Useful service run of not less than 50 hours. ii) Both sodium and silica contents of the effluent to be less or equal to 20 ppb. iii) All other effluent parameters as per Annexure -I.	Freshly single regenerated resins are transferred to service vessel and the vessel is put into service.	The influent TDS will be 2000 ppb in addition to the normal influent contaminants as stated in Section-2.4 . Flow rate, total flow and online parameters will be recoded every 2-hours. Other chemical parameters will be tested 4-hourly in the laboratory.
4.	Condensate polishing plant for turbogenerator units- 1, & 2.	To establish all other guarantees/ parameters as specified in Section 2.0 of this procedure and Scope.	--	--

5.0 Agency should submit the detailed PG test procedure based on the above details for approval of NTPC



PG Test Procedure for DM Plant (Ion Exchange Resin-based)

Scope: PG Test shall be conducted after successful trial run to establish:

2. Quality and quantity of water produced from different filter/exchanger beds of DM streams as per technical specification
3. Time requirement for regeneration as per technical specification
4. Chemical requirement for regeneration as per technical specification
5. Functioning of the plants in manual, semi-auto and auto modes (as specified).
6. To establish the performance under actual installed conditions with the pumps as a part of the system & when operating against the system resistance. The purpose of the test will be to confirm whether the equipment meets specifications in respect of following parameters as per the technical specification with respect to Capacity, Total dynamic head (TDH) and Power.
7. Noise, vibration levels, protection & interlock and other functional guarantees of different rotating machines and equipment

The purpose of the test will be to confirm whether the equipment meets specifications w.r.t. the guaranteed parameters. The acceptance criteria will be as per the defined technical specifications.

Test Methodology:

S.N.	Unit	Test Objective	Test Procedure	Remarks
	Activated Carbon Filters	To Check: a. The capacity of each filter. b. The effluent quality from each filter. c. Backwash & rinse time requirement of each filter d. The guarantee parameters.	a. Backwash & run each filter at the design flow rate with the corresponding D.M. stream by the mode at which the stream is running. b. Check the effluent quality of the outlet of each filter for the guaranteed parameters. c. The end of run of filter will be considered when the rated throughput is achieved or the differential pressure becomes 80% of the maximum tolerable pressure difference, whichever is earlier.	a. In case pressure difference exceeds 80% of max tolerable then the test will be repeated. Reason for high pressure difference & action taken shall be recorded in PG test report. b. The activated carbon shall work for a period of not less than 3 years without any regeneration / activation. <i>Along with P.G. Test evaluation report, a certificate in this respect shall be issued by the vendor.</i>
	DM STREAM	To Check: a. The quantity & quality of water produced from each cation, anion & MB unit. b. The time requirement for regeneration.	a. Run the units to exhaustion or to the calculated output. Single regenerate the units & consider the subsequent run at design flow as the test run for the cation, anion & MB units. b. Total backwash of counter current strong exchanger shall be done only when the DP across the strong exchanger units is more than 80% of the maximum tolerable pressure difference.	a. If there is an interruption of more than 2 hours during service run due to any reason, extra rinse water quantity is to be added in the output of respective units. Record the total time of regeneration and backwash required for ACF, Cation, Anion and MB along with chemical consumption. b. Inlet water analysis shall be determined by making arithmetic average of all two hourly readings of filtered water



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		<p>c.The chemical requirement for regeneration.</p> <p>d. The guarantee parameters.</p>	<p>c. Double regeneration is necessitated to the anion if it is subjected to alkaline brine wash or total backwash; double regeneration of cation is necessitated if it is subjected to total backwash. There after run the unit with single qty of chemicals and run the unit up to calculated throughput for P.G. Test.</p> <p>d. The end of cation exchanger will be considered when the calculated output has been reached or the effluent quality as per guarantee is not met from the cation or when the strong base anion exchanger of the relevant stream has reached its end point, whichever occurs earlier.</p> <p>e. Demonstrate total time of regeneration of cation & anion units within the guaranteed time and also demonstrate regeneration time for cation, anion and MB units within the guaranteed time.</p> <p>f. The end of run of anion exchanger will be considered when the calculated output has reached or the effluent quality as per guarantee is not met from the strong base anion or when the cation exchanger of the relevant stream has reached its end points, whichever occurs earlier.</p> <p>g. The end of run of MB exchanger will be considered when the guaranteed parameters are not met with for the effluent or when the desired output is achieved, whichever is earlier.</p> <p>h. All exchanger and degasser shall be checked for the guaranteed parameters.</p> <p>i. Before & after the test, check the resin volume in all the exchanger beds.</p>	<p>taken during the test. Based on this inlet water analysis, regeneration level employed, resin volume provided the guaranteed capacity of the stream in terms of total volume (gross output) of treated water (cu.m) between two regenerations shall be calculated before test.</p> <p>c. Quantity of treated water as determined by this test shall be checked against calculated quantity of treated water as in b) and must be equal to or more than the calculated amount.</p>
	D.M Stream parallel run of all the	To Check: The functional requirement.	<p>a. Regenerate the exhausted units.</p> <p>b. Run all the streams in parallel for at least 8 hours.</p> <p>c. Check the functional requirement</p>	<p>Ideally start all streams service run together to try to get 8 hours' parallel run together.</p> <p>Samples of water will be</p>



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streams	including DCS.	analyzed every two hours from outlet of activated carbon filter, cation exchanger, degasser pump, anion exchanger and mixed beds exchanger.
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Table A: CHEMICAL PARAMETERS (OUTPUT QUALITY)

Sample_ID	Organic Matter in ppm (as KMnO4 consumption)	Turbidity (NTU)	Sodium (as ppm CaCO3)	pH	Spec Conductivity (us/cm) at 25 deg C	Free CO2 as CO2 (ppm)	Reactive Silica as SiO2 (ppm)	Iron as Fe (ppm)	Free residual ClO2 (ppm)	Total Hardness as ppm CaCO3
ACF Outlet	*BDL	<0.5	---	---	---	---	---	---	#ND	---
Cation Outlet	---	---	Sodium leakage through cation shall not exceed 2ppm throughout the period between two regenerations.	---	---	---	---	---	---	---
Degassed Outlet	---	---	---	---	---	< / = 5.0	---	---	---	---
Anion Outlet	---	---	---	---	Not more than 10.0	---	Not to exceed 0.2	---	---	---
MB Outlet	---	---	---	6.8-7.3	Not more than 0.1	---	Not to exceed 0.01	#ND	---	#ND

Among all the parameters pH & Conductivity shall be measured by online analysers while others will be measured by mutually agreed standard test procedures.

*BDL: Below Detectable Limit, #ND: Not Detected

CYCLE OF STREAM OPERATION:

Three regeneration and service cycle (One in manual and two in auto mode) shall be carried out for each stream. And one regeneration & service cycle shall be carried out for MB exchanger. The average value for each DM stream shall be taken for evaluation.

OTHER GUARANTEES & NORMS:

- All the instruments and interlocks provided with requisite controls and alarms shall be checked during period of test record.
- List of instruments shall be provided by the vendor. All the instruments required for the P.G test should be calibrated by the contractor in presence of NTPC representative prior to the start of the Test. Whenever this is not possible, valid calibration certificate by an independent NABL-accredited calibration agency shall be submitted by the contractor.
- Before starting PG test, output calculation based on present feed water analysis will be submitted by vendor.
- Before the start of PG test, resin and ACF quantity is to be recorded for each vessel.
- Agency should submit complete resin literature details alongwith output calculation for verification by NTPC.
- If any of the guaranteed parameters cannot be tested at site NTPC laboratory, the agency shall arrange for the testing of the same at NTPC approved laboratory or NABL – accredited laboratory. After the completion of the above, the result copy to be duly signed and submitted.

Note: Agency should submit the detailed PG test procedure based on the above details for approval of NTPC.



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PG TEST PROCEDURE FOR DM PLANT (UF-RO-BASED)

1.0 SCOPE: PG Test shall be conducted after successful completion of trial run to establish the various guarantee parameters:

8. Effluent quality and capacity of water each of ultrafiltration, reverse osmosis skid, degasser and mixed bed exchangers.
9. Noise and vibration level of all rotary equipments.
10. Current, voltage, motor input power, frequency, speed, bearing/motor winding temperature, vibration and noise-level of pumps, blowers and their drives and parallel operation of pumps & blowers.
11. Total power consumption of the pumps and power consumption of individual pumps as defined in technical specifications shall be taken for evaluation.

2.0 GENERAL REQUIREMENTS:

- a. Responsibility of test conductance: Agency
- b. Water analysis standard procedures to be adopted during PG Test are as follows:
 - i. ASTM D4195: Standard Guide for Water Analysis for Reverse Osmosis Applications” or equivalent methods of the AWWA/APHA Standard Methods of USEPA.
 - ii. Standard procedures related to SWRO (Surface water RO) system include D 3739, D4189, D4194, D4195, D 4516, D4582, D 4692, D 4993.
- c. All necessary tools & tackles, equipment, any additional equipments viz. piping, valves strainers etc required for PGT shall be arranged by vendor. Laboratory facilities at site shall be made available for analysis purpose. In absence of proper lab facility, same shall be arranged by the vendor/sample to be got tested at external NABL –accredited labs.
- d. Calibration of instruments required for conducting the PGT shall be done from external Govt approved/ NABL-accredited laboratories. Calibration certificate validity should be till the end of PG Test.
- e. Quality of resin in each MB vessel along with top-up quantity, if any, is to be recorded before the start of PGT.

3.0 TEST METHODOLOGY:

- a) PGT shall be conducted for a minimum period of 72 hours for each UF and RO Train/Skid/Stream. The test shall be carried out for each train/skid in sequence.
- b) For each MB, three cycle (regeneration and service) shall be carried out. The average value for each stream shall be taken for evaluation.
- c) Inlet water analysis shall be determined by making arithmetic average of all readings of filtered water taken during the test.
- d) Based on the inlet water analysis (at MB inlet), regeneration level employed, resin volume provided, & characteristic curves employed, the guaranteed capacity of the stream in terms of total volume of treated water (cum) between regenerations shall be calculated and submitted by the agency. Resin volume for taking output should include buffer layer provided. The calculation shall be submitted to NTPC for approval.
- e) For Mixed Bed, the guaranteed output shall be as specified.
- f) DM stream shall be operated in all the modes supplied like auto/manual etc
- g) Parallel run of all the streams shall be carried out for a period of at least eight hours to check the functional requirement.
- h) Samples of water shall be withdrawn every two hours from the outlet of UF/RO/DG/MB and analysed at site laboratory/ Govt-approved laboratories/ NABL-accredited laboratories.
- i) Power consumption calculated for specified drives shall be summed up to arrive at total power consumption.
- j) Total power consumption of pumps as well as individual power consumption should not exceed as defined in technical specifications.

Note:

- i. UF-CIP/ RO-CIP procedures and recipe are to be vetted by OEM of UF/RO and to be provided before conductance of PGT.
- ii. Agency has to supply the O&M manual of UF-RO-MB plant before PGT conductance.



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4.0 PG TEST PROCEDURE:

S.N.	Unit	Test Objective	Test Procedure	Remarks
1a	Ultrafiltration	Capacity with backwash and air-scouring (if applicable)	System to be run for 72 hours.	Test duration: 72 hours for each Train/Skid/Stream.
1b		Effluent Quality	UF to be taken into service after every backwashing/cleaning. Effluent to be sampled and analysed.	Inlet & outlet flow, pH, turbidity, SDI, KMnO4 number and residual Chlorine/ ClO2 to be measured at every 2 hours.
1c		Backwash Water Requirement	Backwashing to be carried out.	Water consumption to be recorded in each successive backwash/cleaning.
2a	Feed Water inlet at RO skid	Influent flow	Adjust the flow of each RO skid as per defined technical specifications.	Test duration: 72 hours for each Train/Skid/Stream.
2b		Influent quality	RO effluent to be sampled and analysed.	Feed flow, pressure, Conductivity, pH, TDS, Res chlorine/ ClO2, SDI, ORP, Boron (if applicable) to be measured every 2 hours.
3a	RO Permeate	Effluent Capacity	Adjust the permeate and reject flow in such a way that the RO recovery meets the required technical specifications.	Test duration: 72 hours for each Train/Skid/Stream.
3b		Effluent Quality	System to be run for 72 hours.	Permeate Flow, Pressure, Conductivity, pH, TDS to be measured every 2 hours.
4	At Degasser inlet and outlet	Effluent Quality	System to be run for 72 hours.	Flow, pH, CO2 & conductivity to be measured every 2 hours.
5	At MB inlet & outlet	To check: a) The quality & quantity of water produced from each MB unit. b) The requirement for regeneration. c) The chemical requirement for regeneration.	a) Regenerate the MB units with guaranteed quantity of chemicals. b) Run the units upto calculated output. c) The end of MB exchange shall be considered when the guaranteed parameters are not achieved for the effluent or when the desired output is achieved, whichever is earlier. d) Time required for regeneration. e) Double regeneration, if necessitated to the MB after seven (or as specified elsewhere)	a) Three Service cycles for each MB shall be conducted. b) Total time of MB regeneration along with chemical consumption to be recorded. c) Guaranteed net output from each MB unit between two successive regenerations (using guaranteed chemical quantities) shall be as defined in technical specifications. Quality of MB outlet shall be as per guaranteed parameters.



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			regenerations. Use double qty of chemicals for double generation.	
6	Mixed Bed Ion Exchange Units	Parallel run of DM Streams to check the functional requirement	a) Regeneration of exhausted MB units. b) Run MB streams in parallel for eight hours. c) Check all programs of service and regeneration of MB.	Quality of MB outlet shall be as per guaranteed parameters. Ideally start all the stream service run together to try to get 8 hours parallel run together.

5.0 GUARANTEED PARAMETERS (AS SPECIFIED IN TECHNICAL SPECIFICATIONS)

S.N.	Unit	Test Objective	Parameters	Remarks
1	UF	Effluent Capacity	Net permeate flow from each UF skid/Train	
		Effluent Quality	SDI, Turbidity, BOD, Organic Matter	
		Life of UF membrane	5 years (minimum) or as specified in technical specifications	
2	RO feed	Effluent Quality	SDI, turbidity, pH, Res ClO2	
3	RO permeate	Effluent Capacity	Net permeate flow from each RO skid	
		Effluent Quality	TDS	
		Life of RO membrane	3 years (minimum) or as specified in technical specifications	
4	Degasser Tower	Effluent Capacity	As per technical specifications	
		Effluent Quality	CO2 at degasser outlet	
5	MB unit	Effluent Capacity	As per technical specifications	
		Effluent Quality	Reactive silica < 0.01 ppm as SiO2 Iron as Fe- Not Detectable as per ASTM D 1068. Total Hardness- BDL pH- 6.8-7.3 Conductivity- Max 0.1 us/cm	
		Regeneration time	As per technical specifications	

Note:

- Agency has to submit the detailed PGT procedure as per the above details for approval of NTPC.
- List of instruments has to be provided by agency during PGT procedure submission for approval purpose.



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Standard PG Test Procedure:

Pre-Treatment Plant

Scope: PG Test shall be conducted after successful trial run to establish the various guarantee parameters as defined in the technical specifications.

- (a) Guaranteed effluent quality and capacity for each of Clarifier, Gravity Filter, Tube Settler and Coal Slurry Settling Pond.
- (b) Sample collection and analysis:

Table1:

S.N.	Sample_ID	Chemical parameters	Frequency of sampling
1	Raw Water	All parameters given in feed analysis	Once/day
2	Clarifier Outlet	Flow, Organic matter, Iron content, Turbidity	Two-hourly
3	Gravity Filter Outlet	Flow, Turbidity	Two-hourly
4	Tube Settler Inlet & Outlet	Flow, Turbidity, Oil & Grease	Two-hourly
5	CSSP outlet	TSS, Particle size	Two-hourly

Note: Joint sampling to be done during PGT.

- (c) Noise and vibration levels of all rotary equipments.
- (d) Current, voltage, motor input power, frequency, speed, bearing/motor winding temperature, vibration and noise level of pumps, blowers and their drives and parallel operation of pumps and blowers, if applicable are to be demonstrated.
- (e) Capacity, head and power consumption of specified pumps.

General Requirements:

- (a) Responsibility of conducting the test: Agency
- (b) Standard analytical procedures to be followed for chemical parameter determination.
- (c) All necessary tools & tackles, equipment, any additional equipments viz. piping, valves strainers etc required for PGT shall be arranged by vendor. Laboratory facilities at site shall be made available for analysis purpose. In absence of proper lab facility, same shall be arranged by the vendor/sample to be got tested at external NABL labs.

Test Methodology:

- (a) After raw water supply is established in clarifier, flow to be adjusted as desired, amount of treatment chemicals is to be assessed by jar test at site.
- (b) PGT shall be carried out separately for clarifier, gravity filter, tube settler, coal slurry settling pond of rated flow for a time period as defined in technical specifications.
- (c) The guaranteed parameters of respective systems shall be demonstrated during performance guarantee test as per approved test procedure, test procedure is to be submitted by agency.



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PT-CW Clarifier , PT-DM Clarifier & Tube Settlers

Test Objective	Test Procedure	Remarks
Effluent Capacity	Flow is to be adjusted so that the effluent quantity from clarifiers/Tube Settler is as defined in technical specifications.	i.Duration of each test shall be 8 hours and one run in one day shall be conducted. ii.Three tests shall be run for each clarifier/Tube settler and average value of three test runs shall be considered for approval.
Effluent Quality	Chemicals shall be dosed based on laboratory Jar Test results for the water available at the time of PGT. 20% overloading test of each clarifier is to be done exactly in line with 100% flow test procedure for 8 hours.	

PT-Potable Gravity Filter & PT-DM Gravity Filter

Test Objective	Test Procedure	Remarks
Effluent Capacity	Flow is to be adjusted so that the effluent quantity from clarifier is as defined in technical specifications.	i.Duration of each test of filter shall be 24 hours. ii.Three tests shall be run for each gravity filter and average value of three test runs shall be considered for approval.
Effluent Quality	Effluent from filter is to be sampled and analysed. Backwash water requirement not to exceed 2% of water treated between two successive backwashes.	



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Test Summary (Table 2):

S.N.	Unit	Test Objective	Parameters	Remarks
1	PT-CW clarifier, PT-DM Clarifier	Effluent Capacity	Flow	By Flow Transmitter
		Effluent Quality	Turbidity & Iron	By Offline testing
			Organic matter	KMnO4 Method
2	PT-Potable Gravity Filter, PT-DM Gravity Filter	Effluent Capacity	Flow	By Flow Transmitter
		Effluent Quality	Turbidity	By Offline testing
3	Tube Settler	Effluent Capacity	Flow	By Flow Transmitter
		Effluent Quality	Turbidity, Oil & Grease	By Offline testing
4	CSSP	Effluent Quality	Effluent TSS at the outlet of each CSSP during storm water flow condition as defined in technical specifications.	By Flow transmitter and offline testing of TSS

Note:

- List of instruments is to be provided by vendor.
- Chemical consumption: As per design calculations submitted by agency.
- Agency should submit the detailed PG test procedure based on the above details for approval of NTPC.



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ANNEXURE -IV

DRAWING/ DOCUMENTS REQUIREMENT & DISTRIBUTION SCHEDULE



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After award of LOI, The drawing documents listed in MDL are minimum drawing/documents, which shall be submitted by the bidder for BHEL and Customer approval. However, any additional drawing/document if found necessary for completion of the engineering, the same shall be submitted by bidder without any commercial & delivery implication to BHEL.

The bidder has to submit the revised drawing/document along with the compliance sheet indicating enumerate reply to all BHEL and customer comments or observations. Without compliance sheet the submission of the drawings/ documents will not be considered and the delay on this account will be solely on bidder's side only. Bidder to comply with the observations of the BHEL and CUSTOMER without price & delivery implication.

Every revised submission incorporating BHEL/Customer comments shall be resubmitted within 7 day by bidder.

BHEL shall provide observation / approval within 21 days from the date of document submission by bidder. Bidder to further note that the submitted drawings/ revised drawing, should be complete in all respects. Any incomplete drawing submitted shall be treated as non-submission and delay in approval/ comments shall be attributable to bidder's account. For any clarification/ discussion required to complete the drawings, the bidder shall himself depute his personal to BHEL's/ Customer's office for across the table discussions/ finalizations/ submissions of drawings.

- (a) List and schedule of drawings/documents to be submitted after award of contract shall be as per MDL.
- Bidder to note that drawings/documents submission shall be through web-based Document Management System. Bidder would be provided access to the DMS for drawings/documents approval and adequate training for the same. Detailed methodology would be finalized during the kick-off meeting. Bidder to ensure following at their end.
 - Internet explorer version – Minimum Internet Explorer 7
 - Internet speed – 2 mbps (Minimum preferred)
 - Pop ups from our external DMS IP (124.124.36.198) should not be blocked
 - Vendor's internal proxy setting should not block DMS application's link
 - (<http://124.124.36.198/wrenchwebaccess/login.aspx>)
 - DMS user manuals to be used by BHEL PEM vendors for uploading, viewing, revising, commenting and tracking documents on PEM's DMS have been uploaded on PEM internet website (www.bhelpem.com) under the Vendor session.
 - For quick access bidder may refer the link <http://bhelpem.com/DMSManuals/DMSManuals.html>
- Bidder shall submit soft copy/hard copy/CD ROMs of all the finally approved drawings and O&M Manuals as required by Customer/Customer consultant/BHEL-site/BHEL-PEM. The exact number of hard copies/CD ROMs of these documents to be submitted shall be notified to the bidder at the time of detailed engineering and bidder shall submit the same without any commercial/ delivery implications to BHEL/Customer.
- All the drawing documents along with the O&M manual (of all the revisions) are necessarily to be submitted in soft copies in addition to hard copies.
- Bidder to submit soft copies of all the drawing and document along with quality plans for BHEL review and approval.
- Editable copy of all the drawings and documents shall be provided.

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- All the drawings shall be prepared on computer auto cad and other documents (like datasheet etc.) on MS office software. Bidder not complying to the requirement shall not be considered. For the execution of the contract regular meeting (generally once in 15 days or as per project requirement) is required.
- Vendor to come for meeting with the concerned dealing persons as per BHEL or customer requirement in a short notice.
- Bidder to submit instrument schedule, cable schedule and valve schedule in MS- Excel format during detailed engineering.
- Bidder to also furnish the auto cad copy/ MS-Excel/ MS-word (as applicable) of the following documents after award of contract. However, any other auto cad copy/ MS-Excel/ MS-word of any other document as per the insistence of BHEL and customer will also be submitted by the bidder without any delivery and commercial implication to BHEL and customer.
 - P&IDs.
 - Equipment layouts.
 - Equipment Cable tray layouts.
 - Civil assignment drawings.
 - Piping lay out drawings.
- The engineering for packages will essentially be done using Intelligent 3D modelling. Preparation of 3 D modelling drawing shall be in bidder's scope for bidder's supplied and design engineered items/ structures for turn key water treatment packages. AVEVA E3D is being used at BHEL's end for BHEL scope items hence bidder has to use same software for preparation of 3D drawings. Bidder has to submit 3D drawings in editable format for integration with BHEL's 3D drawings. Further detailing shall be shared by BHEL during detailed engineering.



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MASTER DRAWING LIST

MASTER DRAWING LIST OF CHLORINE DI OXIDE DOSING SYSTEM

SL. NO.	BHEL DRG NO	DRG TITLE	SCHEDULE OF SUBMISSION FROM LOI IN WEEKS	DRG/ DOC SIZE
1	PE-V0-508-154-13000-W103	CABLE TRAY/TRENCH & CONDUIT ROUTING DIAGRAM INCLUDING JB LOCATION OF INSIDE AND OUTSIDE CHLORINE DIOXIDE DOSING SYSTEM	12	A1
2	PE-V0-508-154-13000-W104	EARTHING LAYOUT OF INSIDE AND OUTSIDE CHLORINE DIOXIDE DOSING SYSTEM	12	A1
3	PE-V0-508-154-13000-W101	ELECTRICAL LOAD LIST	10	A4
4	PE-V0-508-154-13000-W102	DATASHEET OF MOTORS	10	A4
5	PE-V0-508-154-13000-W212	INSTRUMENT INSTALLATION DRAWINGS/ HOOK UP DIAGRAM FOR INSTRUMENTS	10	A4
6	PE-V0-508-154-13000-W201	LIST OF DRIVES, JB GROUPING AND I/O LIST	10	A4
7	PE-V0-508-154-13000-W205	INSTRUMENT SCHEDULE	10	A4
8	PE-V0-508-154-13000-W211	CABLE SCHEDULE AND INTERCONNECTION DIAGRAM	10	A4
9	PE-V0-508-154-13000-W206	DATASHEET OF ANALYSERS	12	A4
10	PE-V0-508-154-13000-W207	DATASHEET OF TRANSMITTERS	12	A4
11	PE-V0-508-154-13000-W208	DATASHEET OF LOCAL INSTRUMENTS	12	A4
12	PE-V0-508-154-13000-W209	DATASHEET OF SOLENOID VALVE	12	A4
13	PE-V0-508-154-13000-W210	DATA SHEET AND GA FOR JUNCTION BOXES	12	A4
14	PE-V0-508-154-13000-W008	GA DRAWING OF ATMOSPHERIC TANKS	10	A3
15	PE-V0-508-154-13000-W020	CIVIL INPUT DRAWING OF CHLORINE DIOXIDE DOSING SYSTEM	10	A1
16	PE-V0-508-154-13000-W002	LAYOUT OF CHLORINE DIOXIDE DOSING SYSTEM *	8	A1
17	PE-V0-508-154-13000-W021	PIPING LAYOUT INSIDE CHLORINE DIOXIDE DOSING SYSTEM AREA ALONG WITH DETAILS OF SUPPORTS	14	A1
18	PE-V0-508-154-13000-W022	YARD PIPING LAYOUT ALONG WITH DETAILS OF SUPPORTS	16	A0
19	PE-V0-508-154-13000-W017	VALVE SCHEDULE	10	A4
20	PE-V0-508-154-13000-W018	PIPING SCHEDULE	10	A4
21	PE-V0-508-154-13000-W019	PAINTING SCHEDULE	10	A4
22	PE-V0-508-154-13000-W001	P&ID FOR CHLORINE DIOXIDE DOSING SYSTEM *	6	A1
23	PE-V0-508-154-13000-W003	PROCESS DESIGN & SIZING CALCULATIONS, PRESSURE DROP CALCULATIONS OF CHLORINE DIOXIDE DOSING SYSTEM *	6	A4
24	PE-V0-508-154-13000-W005	CONTROL WRITE UP CHLORINE DIOXIDE DOSING SYSTEM *	6	A4
25	PE-V0-508-154-13000-W023	PG test procedure for CHLORINE DIOXIDE DOSING SYSTEM	18	A4
26	PE-V0-508-154-13000-W025	O& M MANUAL	20	A4
27	PE-V0-508-154-13000-W006	TECHNICAL DATA SHEET AND GA DRG OF HORIZONTAL CENTRIFUGAL PUMPS	10	A4
28	PE-V0-508-154-13000-W007	TECHNICAL DATA SHEET AND GA DRG FOR METERING PUMPS	10	A4



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WATER TREATMENT PACKAGES
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29	PE-V0-508-154-13000-W009	DATASHEET AND GA DRAWING OF CHLORINE DIOXIDE GENERATORS	10	A4
30	PE-V0-508-154-13000-W010	DATASHEET AND GA DRG OF SAFETY ITEMS	10	A4
31	PE-V0-508-154-13000-W011	DATASHEET AND GA DRG OF BUTTERFLY VALVE MANUAL AND PNEUMATIC	10	A4
32	PE-V0-508-154-13000-W012	DATASHEET AND GA DRG OF DIAPHRAGM VALVE MANUAL AND PNEUMATIC	10	A4
33	PE-V0-508-154-13000-W013	DATASHEET AND GA DRG OF GLOBE & BALL VALVE	10	A4
34	PE-V0-508-154-13000-W014	DATASHEET AND GA DRG OF PRV, SRV & NEDDLE VALVE	10	A4
35	PE-V0-508-154-13000-W015	DATASHEET AND GA DRG OF GATE VALVE	10	A4
36	PE-V0-508-154-13000-W016	DATASHEET AND GA DRG OF NRV	10	A4
37	PE-V0-508-154-13000-W004	SUB VENDOR LIST AND INSPECTION CRITERIA FOR WATER TREATMENT PACKAGES *	8	A4
38	PE-V0-508-154-13000-W301	QAP FOR HORIZONTAL CENTRIFUGAL PUMP	10	A4
39	PE-V0-508-154-13000-W302	QAP FOR METERING PUMP	10	A4
40	PE-V0-508-154-13000-W303	QAP FOR ATMOSPHERIC TANK	10	A4
41	PE-V0-508-154-13000-W304	QAP FOR BUTTERFLY VALVE MANUAL AND PNEUMATIC	10	A4
42	PE-V0-508-154-13000-W305	QAP FOR DIAPHRAGM VALVE MANUAL AND PNEUMATIC	10	A4
43	PE-V0-508-154-13000-W306	QAP FOR GLOBE VALVE	10	A4
44	PE-V0-508-154-13000-W307	QAP FOR BALL VALVE	10	A4
45	PE-V0-508-154-13000-W308	QAP FOR PRV, SRV & NEDDLE VALVE	10	A4
46	PE-V0-508-154-13000-W309	QAP FOR GATE VALVE	10	A4
47	PE-V0-508-154-13000-W310	QAP FOR NRV	10	A4
48	PE-V0-508-154-13000-W311	QAP FOR MS/CS PIPES RUBBER LINED	10	A4
49	PE-V0-508-154-13000-W312	QAP FOR CPVC PIPES	10	A4
50	PE-V0-508-154-13000-W316	QAP / ICL OF CHLORINE DIOXIDE DOSING SYSTEM (FOR BALANCE OF ITEMS)	10	A4

MASTER DRAWING LIST OF CHP RUN OFF WATER TREATMENT PLANT

SL. NO.	BHEL DRG NO	DRG TITLE	SCHEDULE OF SUBMISSION FROM LOI IN WEEKS	DRG/ DOC SIZE
1	PE-V0-508-157-W001*	P & I DIAGRAM FOR CHP RUN-OFF WATER TREATMENT PLANT*	6	A1
2	PE-V0-508-157-W002*	PROCESS SIZING & HYDRAULIC CALCULATION FOR CHP RUN-OFF WATER TREATMENT PLANT*	6	A4
3	PE-V0-508-157-W003*	COMPOSITE PLANT LAYOUT FOR CHP RUN-OFF WATER TREATMENT PLANT*	8	A0
4	PE-V0-508-157-W004*	SYSTEM DESCRIPTION & CONTROL WRITE UP FOR CHP RUN-OFF WATER TREATMENT PLANT*	6	A4
5	PE-V0-508-157-W005*	BASIC CIVIL DESIGN CRITERIA FOR CHP RUN-OFF WATER TREATMENT PLANT*	6	A4
6	PE-V0-508-157-W006	G.A OF INLET CHAMBER (PARSHALL FLUME, STILLING CHAMBER & INLET WELL.) FOR CHP RUN-OFF WATER TREATMENT PLANT*	10	A1
7	PE-V0-508-157-W007	CIVIL GA, FOUNDATION, SUPER STRUCTURE AND RCC DETAILS OF STILLING CHAMBER,	12	A1



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		PARSHALL FLUME & INLET WELL FOR CHP RUN-OFF WATER TREATMENT PLANT*		
8	PE-V0-508-157-W008	CIVIL DESIGN CALCULATION OF STILLING CHAMBER, PARSHALL FLUME & INLET WELL.FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
9	PE-V0-508-157-W009	G.A AND DATASHEET OF REACTOR CLARIFIERS FOR CHP RUN-OFF WATER TREATMENT PLANT*	10	A1
10	PE-V0-508-157-W010	CIVIL GA OF REACTOR CLARIFIER FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
11	PE-V0-508-157-W011	RCC DETAILS OF REACTOR CLARIFIER FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
12	PE-V0-508-157-W012	CIVIL DESIGN CALCULATION OF REACTOR CLARIFIER FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
13	PE-V0-508-157-W013	G.A OF SLUDGE SUMP FOR CHP RUN-OFF WATER TREATMENT PLANT*	10	A1
14	PE-V0-508-157-W014	CIVIL GA OF SLUDGE SUMP FOR CHP RUN-OFF WATER TREATMENT PLANT.	12	A1
15	PE-V0-508-157-W015	RCC DETAIL OF SLUDGE SUMP FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
16	PE-V0-508-157-W016	CIVIL DESIGN CALCULATION OF SLUDGE SUMP FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
17	PE-V0-508-157-W017	G.A OF CHEMICAL STORAGE SHED INCLUDING OVERHEAD TANK FOR CHP RUN-OFF WATER TREATMENT PLANT*	10	A1
18	PE-V0-508-157-W018	CIVIL GA & R/F DETAILS OF FOUNDATION, COLUMNS AND PLINTH BEAMS OF CHEMICAL SHED FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
19	PE-V0-508-157-W019	ARCHITECTURAL DETAILS, GROUND FLOOR PLAN, SECTION & ELEVATION, TERRACE PLAN ETC. OF CHEMICAL SHED FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
20	PE-V0-508-157-W020	CIVIL DESIGN CALCULATION OF CHEMICAL SHED FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A4
21	PE-V0-508-157-W021	DRIVE LIST (DRIVES CONTROLLED FROM DDCMIS) FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
22	PE-V0-508-157-W022	I/O LIST FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
23	PE-V0-508-157-W023	INSTRUMENT SCHEDULE FOR CHP RUN-OFF WATER TREATMENT PLANT	12	A4
24	PE-V0-508-157-W024	PAINTING SCHEDULE FOR CHP RUN-OFF WATER TREATMENT PLANT.	12	A4
25	PE-V0-508-157-W025	PIPE SCHEDULE FOR CHP RUN-OFF WATER TREATMENT PLANT.	10	A4
26	PE-V0-508-157-W026	GENERAL ARRANGEMENT & CIVIL BLOCK OUT DETAILS OF SLUICE GATE (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
27	PE-V0-508-157-W027	DATASHEET FOR PLATFORM TYPE WEIGHING SCALE. (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
28	PE-V0-508-157-W028	DATASHEET AND G.A OF AIR BLOWER (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
29	PE-V0-508-157-W029	DATASHEET & WIRING DIAGRAM OF ELECTRICAL ACTUATOR (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
30	PE-V0-508-157-W030	INSTRUMENTS HOOK UP DRAWINGS FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
31	PE-V0-508-157-W031	G.A AND DATASHEET OF TANK AGITATOR ASSEMBLY (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
32	PE-V0-508-157-W032	GA AND DATASHEET OF HORIZONTAL CENTRIFUGAL PUMPS WITH MOTOR (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4



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33	PE-V0-508-157-W033	DATASHEET FOR SAFETY SHOWER AND EMERGENCY KIT B (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
34	PE-V0-508-157-W034	LCP OF REACTOR CLARIFIERS FOR CHP RUN-OFF WATER TREATMENT PLANT.	10	A4
35	PE-V0-508-157-W035	INTERCONNECTION DIAGRAM AND CABLE SCHEDULE FOR CHP RUN-OFF WATER TREATMENT PLANT AREA	10	A4
36	PE-V0-508-157-W036	GA DRAWING & CALCULATION OF ELECTRICAL HOIST (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
37	PE-V0-508-157-W037	PIPING LAYOUT OF CHP RUN OFF WATER TREATMENT PLANT	10	
38	PE-V0-508-157-W038	OPERATION & MAINTENANCE MANUAL (CHP RUN OFF WATER SYSTEM)	10	A4
39	PE-V0-508-157-W039	DATA SHEET FOR LOCAL GAUGES (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
40	PE-V0-508-157-W040	DATA SHEET FOR FLOW ELEMENT ALONG WITH ORIFICE CALC. (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
41	PE-V0-508-157-W041	TECHNICAL DATA SHEET FOR FLOW TRANSMITTER (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
42	PE-V0-508-157-W042	DATA SHEET FOR JUNCTION BOX (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
43	PE-V0-508-157-W043	DATA SHEET FOR PRESSURE TRANSMITTER (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
44	PE-V0-508-157-W044	DATA SHEET FOR LEVEL TRANSMITTER (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
45	PE-V0-508-157-W045	CABLE TRAY LAYOUT OF CHP RUN-OFF WATER TREATMENT PLANT	10	A1
46	PE-V0-508-157-W046	PG TEST PROCEDURE FOR CHP RUN-OFF WATER TREATMENT PLANT	20	A4
47	PE-V0-508-157-W047	CONTROL LOGIC SCHEMES OF CHP RUN-OFF WATER TREATMENT PLANT	12	A4
48	PE-V0-508-157-W048	GA AND DATASHEET OF VERTICAL CENTRIFUGAL PUMPS WITH MOTOR (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
49	PE-V0-508-157-W049	GA AND DATASHEET OF SCREW PUMPS WITH MOTOR (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4
50	PE-V0-508-157-W050	GA, CROSS SECTION, PERFORMANCE CURVE AND DATASHEET OF DOSING PUMPS WITH MOTOR FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
51	PE-V0-508-157-W051	VALVE SCHEDULE OF CHP RUN-OFF WATER TREATMENT PLANT	12	A4
52	PE-V0-508-157-W052	DATASHEET AND GA DRAWING OF DIAPHRAGM VALVES FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
53	PE-V0-508-157-W053	DATASHEET AND GA DRAWING OF BUTTERFLY VALVES FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
54	PE-V0-508-157-W054	DATASHEET AND GA DRAWING OF NRV/CHECK VALVES FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
55	PE-V0-508-157-W055	DATASHEET AND GA DRAWING OF GATE VALVES FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
56	PE-V0-508-157-W056	DATASHEET AND GA DRAWING OF PLUG VALVES FOR CHP RUN-OFF WATER TREATMENT PLANT	10	A4
57	PE-V0-508-157-W057	CABLE SCHEDULE OF CHP RUN-OFF WATER TREATMENT PLANT	10	A4
58	PE-V0-508-157-W058	GA & DATA SHEET OF FILTER PRESS (CHP RUN-OFF WATER TREATMENT PLANT)	10	A4



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59	PE-V0-508-157-W059	G.A OF FILTER PRESS PLATFORM FOR CHP RUN-OFF WATER TREATMENT PLANT.	10	A4
60	PE-V0-508-157-W060	CIVIL GA, FOUNDATION, SUPER STRUCTURE AND RCC DETAILS OF FILTER PRESS PLATFORM FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A1
61	PE-V0-508-157-W061	CIVIL DESIGN CALCULATION OF FILTER PRESS PLATFORM FOR CHP RUN-OFF WATER TREATMENT PLANT*	12	A4
62	PE-V0-508-157-W062	MQP FOR SLUICE GATE	10	A4
63	PE-V0-508-157-W063	MQP FOR BUTTERFLY VALVES	10	A4
64	PE-V0-508-157-W064	MQP FOR DIAPHRAGM VALVE	10	A4
65	PE-V0-508-157-W065	MQP FOR AIR BLOWER (LOBE TYPE)	10	A4
66	PE-V0-508-157-W066	MQP FOR MS PIPES	10	A4
67	PE-V0-508-157-W067	MQP FOR METERING PUMP (DIAPHRAGM TYPE)	10	A4
68	PE-V0-508-157-W068	MQP FOR ELECTRICAL ACTUATOR	10	A4
69	PE-V0-508-157-W069	MQP FOR CENTRIFUGAL PUMPS (HORIZONTAL & VERTICAL)	10	A4
70	PE-V0-508-157-W070	MQP FOR VERTICAL WET PIT TURBINE PUMP	10	A4
71	PE-V0-508-157-W071	MQP FOR REATOR CLARIFIER	10	A4
72	PE-V0-508-157-W072	TYPE TEST REPORT OF FLOW ELEMENT (CALIBRATION)	10	A4
73	PE-V0-508-157-W073	LIST OF ALARM	10	A4
74	PE-V0-508-157-W074	MQP FOR GATE/ GLOBE/ CHECK VALVES	10	A4
75	PE-V0-508-157-W075	MQP FOR NRV FLAP TYPE	10	A4
76	PE-V0-508-157-W076	MQP FOR CI/ DI PIPES & FITTINGS	10	A4
77	PE-V0-508-157-W077	MQP FOR PRESSURE VESSEL/ ATMOSPHERIC STORAGE TANKS	10	A4
78	PE-V0-508-157-W078	ELECTRICAL LOAD LIST	10	A4
79	PE-V0-508-157-W079	TYPE TEST REPORT OF ELECTRONIC TRANSMITTER	10	A4
80	PE-V0-508-157-W080	TYPE TEST REPORT OF JUNCTION BOX (DEGREE OF PROTECTION)	10	A4
83	PE-V0-508-157-W083	INSPECTION CHECK LIST / MANUFACTURING QUALITY PLAN OF FILTER PRESS	10	A4
86	PE-V0-508-157-W086	G.A OF DISTRIBUTION CHAMBER & PUMP HOUSE*	10	A1
87	PE-V0-508-157-W087	CIVIL GA OF DISTRIBUTION CHAMBER & PUMP HOUSE*	12	A1
88	PE-V0-508-157-W088	RCC DETAIL OF DISTRIBUTION CHAMBER & PUMP HOUSE*	12	A1
89	PE-V0-508-157-W089	CIVIL DESIGN CALCULATION OF DISTRIBUTION CHAMBER & PUMP HOUSE*	12	A1

MASTER DRAWING LIST OF CW TREATMENT PLANT

SL. NO.	BHEL DRG NO	DRG TITLE	SCHEDULE OF SUBMISSION FROM LOI IN WEEKS	DRG/ DOC SIZE
1.	PE-V0-508-156-W008	CABLE TRAY ROUTING DRG SHOWING INSERTS, TRENCHES, TRESTLE, SLIT ETC. DETAILS FOR CW PLANT/ STRUCTURES FOR OUTSIDE AREA.	12	A1
2.	PE-V0-508-156-W015	LOAD LIST OF CWT PLANT	10	A4
3.	PE-V0-508-156-W016	DATA SHEET OF MOTOR FOR CWT PLANT	10	A4
4.	PE-V0-508-156-W031	FRP TYPE JUNCTION BOX	10	A4
5.	PE-V0-508-156-W004	DRIVE LIST & I/O LIST (FOR DDCMIS) FOR CWT Plant	10	A4
6.	PE-V0-508-156-W005	INSTRUMENT SCHEDULE FOR CWT PLANT	10	A4
7.	PE-V0-508-156-W028	CABLE SCHEDULE (C&I) FOR CWT PLANT	10	A4
8.	PE-V0-508-156-W014	CABLE INTERCONNECTION (C&I) FOR CWT PLANT	10	A4



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9.	PE-V0-508-156-W032	LOCAL POWER DISTRIBUTION DRAWING	12	A4
10.	PE-V0-508-156-W009	DATA SHEET FOR PG & DPG AND PT FOR CWT PLANT	12	A4
11.	PE-V0-508-156-W010	DATA SHEET FOR ULTRASONIC TYPE LEVEL TRANSMITTERS FOR CWT PLANT	12	A4
12.	PE-V0-508-156-W011	DATA SHEET FOR PH ANALYSER FOR CWT PLANT	12	A4
13.	PE-V0-508-156-W035	DATA SHEET FOR LEVEL GAUGE	12	A4
14.	PE-V0-508-156-W036	DATA SHEET FOR CONDUCTIVITY METER	10	A4
15.	PE-V0-508-156-W018	GA, CROSS SECTION, PERFORMANCE CURVE AND DATASHEET OF PUMP	10	A4
16.	PE-V0-508-156-W023	GA OF ATMOSPHERIC TANK FOR CWTP	8	A3
17.	PE-V0-508-156-W030	HOOK UP DRAWINGS FOR CWT PLANT	14	A4
18.	PE-V0-508-156-W034	GA FOR SKID AND FOUNDATION DETAILS	12	A3
19.	PE-V0-508-156-W007*	EQUIPMENT LAYOUT- CWT PLANT*	6	A1
20.	PE-V0-508-156-W025	PIPING LAYOUT DRG- CWT AREA	10	A1
21.	PE-V0-508-156-W006	PAINTING SCHEDULE FOR CWTP	10	A4
22.	PE-V0-508-156-W012	VALVE SCHEDULE FOR CWT PLANT	8	A4
23.	PE-V0-508-156-W001*	P&I DIAGRAM (CWT PLANT) *	4	A1
24.	PE-V0-508-156-W002*	PROCESS DESIGN & EQUIPMENT SIZING CALCULATION (CWT PLANT) *	4	A4
25.	PE-V0-508-156-W029*	CONTROL WRITE UP*	6	A4
26.	PE-V0-508-156-W033	PG TEST PROCEDURE	16	A4
27.	PE-V0-508-156-W027	O&M MANUAL (CWT PLANT)	16	A4
28.	PE-V0-508-156-W013	DATA SHEET AND GA FOR VALVES FOR CWTP	10	A4
29.	PE-V0-508-156-W019	DATA SHEET FOR BIO FOULING MONITOR	10	A4
30.	PE-V0-508-156-W020	DATA SHEET OF INSTANT CORROSION RATE MONITOR	10	A4
31.	PE-V0-508-156-W021	DATA SHEET OF SCALE MONITOR	10	A4
32.	PE-V0-508-156-W022	DATA SHEET OF PORTABLE ORP MONITOR	10	A4
33.	PE-V0-508-156-W024	DATA SHEET OF CORROSION TEST RACK AND COUPON	10	A4
34.	PE-V0-508-156-W003F	MQP FOR MOTORS	10	A4
35.	PE-V0-508-156-W003C	MQP FOR INSTRUMENTS AND MONITORING EQUIPMENTS	10	A4
36.	PE-V0-508-156-W037	MQP FOR DIAPHRAGM VALVE	10	A4
37.	PE-V0-508-156-W038	MQP FOR BALL VALVE	10	A4
38.	PE-V0-508-156-W039	MQP FOR FORGE CHECK VALVE	10	A4
39.	PE-V0-508-156-W040	MQP FOR CCS/CSS CHECK VALVE	10	A4
40.	PE-V0-508-156-W003	MQP for TANK AND SKID	10	A4
41.	PE-V0-508-156-W003A	MQP FOR PUMPS (CENTRIFUGAL) - ACID DILUTION PUMP	10	A4
42.	PE-V0-508-156-W003B	MQP FOR PUMP (POSITIVE DISPLACEMENT)	10	A4
43.	PE-V0-508-156-W003D	MQP FOR VALVES (GATE VALVE)	10	A4
44.	PE-V0-508-156-W003E	MQP FOR PIPES	10	A4
45.	PE-V0-508-156-W003H	MQP FOR AGITATOR	10	A4
46.	PE-V0-508-156-W003I	MQP FOR LIME PIT EFFLUENT DISPOSAL PUMPS	10	A4
47.	PE-V0-508-156-W003J	MQP FOR SULPHURIC ACID UNLOADING PUMPS	10	A4



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MASTER DRAWING LIST OF OXYGEN DOSING SYSTEM

SL. NO.	BHEL DRG NO	DRG TITLE	SCHEDULE OF SUBMISSION FROM LOI IN WEEKS	DRG/ DOC SIZE
1	PE-V0-508-154-W001*	P&ID for Oxygen Dosing System	2	A3
2	PE-V0-508-154-W002*	GA drawing and foundation detail for Oxygen Dosing System	2	A4
3	PE-V0-508-154-W003*	Technical Data sheet for Oxygen Dosing System	4	A4
4	PE-V0-508-154-W004*	Junction Box Termination Dwgs. for Oxygen Dosing System	4	A4
5	PE-V0-508-154-W005*	QAP for Oxygen Dosing System	2	A4
6	PE-V0-508-154-W006	O&M Manual for Oxygen Dosing System	16	A4

MASTER DRAWING LIST OF CHEMICAL DOSING SYSTEM

SL. NO.	BHEL DRG NO	DRG TITLE	SCHEDULE OF SUBMISSION FROM LOI IN WEEKS	DRG/ DOC SIZE
1.	PE-V0-508-154-W101*	P&I DIAGRAM FOR CHEMICAL DOSING SYSTEM	2	A3
2.	PE-V0-508-154-W102*	TECHNICAL DATA SHEET-CHEMICAL DOSING SYSTEM	4	A4
3.	PE-V0-508-154-W103*	GA DRAWING & FOUNDATION DETAILS	2	A4
4.	PE-V0-508-154-W104*	LOCAL CONTROL PANEL (INCLUDING WIRING DIAGRAM, LOGIC DIAGRAM AND FIELD TERMINATION DETAILS) - CDS	4	A4
5.	PE-V0-508-154-W105*	QAP FOR CHEMICAL DOSING SYSTEM	2	A4
6.	PE-V0-508-154-W106	O&M MANUAL FOR CHEMICAL DOSING SYSTEM	16	A4

MASTER DRAWING LIST OF LIME DOSING SYSTEM

SL. NO.	BHEL DRG NO	DRG TITLE	SCHEDULE OF SUBMISSION FROM LOI IN WEEKS	DRG/ DOC SIZE
1.	PE-V0-508-571-19000-W101*	GAD of Lime dosing system	6	A4
2.	PE-V0-508-571-19000-W102*	Technical data sheet of Lime dosing system skid mechanical, electrical & C&I components	10	A4
3.	PE-V0-508-571-19000-W103*	GA & Wiring diagram of LCP	10	A4
4.	PE-V0-508-571-19000-W104	O&M Manual	16	A4
5.	PE-V0-508-571-19000-W105*	CONTROL & OPERATIONAL WRITE-UP FOR THE SYSTEM WITH SET POINTS, I/O list, Control Scheme	10	A4
6.	PE-V0-508-571-19000-W106*	QAP For Lime Dosing System	10	A4



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MASTER DRAWING LIST OF DM PLANT

S. NO.	VENDOR DRAWING NO	DRAWING TITLE	NO. OF WEEKS FOR DOCUMENT SUBMISSION AFTER PLACING LOI/ LOA	DRG/ DOC SIZE
1.	PE-V0-508-163-W001*	P&I DIAGRAM FOR DM PLANT	4	A1
2.	PE-V0-508-163-W002*	PROCESS DESIGN & EQUIPMENT SIZING CALCULATION (DM PLANT)	4	A4
3.	PE-V0-508-163-W003*	PRESSURE DROP CALCULATION FOR DM PLANT	4	A4
4.	PE-V0-508-163-W004*	EQUIPMENT LAYOUT PLAN OF DM PLANT	4	A0
5.	PE-V0-508-163-W005	PIPING LAYOUT DRGS (DM PLANT AREA)	10	A1
6.	PE-V0-508-163-W006	PIPE SCHEDULE FOR DM PLANT	10	
7.	PE-V0-508-163-W007*	PRESSURE VESSEL DESIGN CALCULATION & THICKNESS CALCULATIONS	4	A4
8.	PE-V0-508-163-W008*	SYSTEM DESCRIPTION AND CONTROL WRITE UP FOR DM PLANT	6	A4
9.	PE-V0-508-163-W010	MQP FOR MS PIPES	10	A4
10.	PE-V0-508-163-W011	MQP FOR SS PIPES	10	A4
11.	PE-V0-508-163-W012	MQP FOR CS PIPES	10	A4
12.	PE-V0-508-163-W016	DRIVE LIST & IO LIST (FOR DDCMIS) FOR DM PLANT	10	A4
13.	PE-V0-508-163-W017	INSTRUMENT SCHEDULE FOR DM PLANT	10	A4
14.	PE-V0-508-163-W018	AC/ DC POWER DISTRIBUTION SCHEME & GAS OF LPDBS	12	A4
15.	PE-V0-508-163-W019	PAINTING SCHEDULE FOR DM	10	A4
16.	PE-V0-508-163-W020	DATA SHEET FOR CONTROL VALVES, ACTUATORS AND ACCESSORIES	10	A4
17.	PE-V0-508-163-W021	LIST OF ALARMS AND SET POINTS	10	A4
18.	PE-V0-508-163-W022	CIVIL ASSIGNMENT OF DM PLANT	10	A4
19.	PE-V0-508-163-W023	GA OF PRESSURE VESSEL FOR DMP	10	A2
20.	PE-V0-508-163-W024	DATA SHEET FOR ACTIVATED CARBON	10	A4
21.	PE-V0-508-163-W025	DATASHEET FOR RESINS	10	A4
22.	PE-V0-508-163-W026	DATA SHEET AND GA FOR AIR BLOWER FOR DM PLANT	10	A4
23.	PE-V0-508-163-W027	DATA SHEET FOR PT & DPT TRANSMITTERS FOR DM PLANT	10	A4
24.	PE-V0-508-163-W028	DATA SHEET FOR ULTRASONIC TYPE LEVEL TRANSMITTERS FOR DM PLANT	10	A4
25.	PE-V0-508-163-W030	DATA SHEET FOR TEMP/TRANSMITTER	10	A4
26.	PE-V0-508-163-W031	DATA SHEET FOR PH ANALYSER FOR DM PLANT	10	A4
27.	PE-V0-508-163-W032	DATA SHEET FOR CONCENTRATION ANALYSER	10	A4
28.	PE-V0-508-163-W033	DATA SHEET FOR CONDUCTIVITY ANALYSER	10	A4
29.	PE-V0-508-163-W034	DATA SHEET FOR SILICA ANALYSER	10	A4
30.	PE-V0-508-163-W035	DATA SHEET FOR SODIUM ANALYSER	10	A4
31.	PE-V0-508-163-W036	DATA SHEET OF SOLENOID VALVES	10	A4
32.	PE-V0-508-163-W037	GA FOR ATMOSPHERIC TANK OF DM PLANT	10	A2
33.	PE-V0-508-163-W039	VALVE SCHEDULE FOR DM PLANT	12	A4
34.	PE-V0-508-163-W040	MQP FOR PRESSURE VESSEL/ ATM. STORAGE TANKS	10	A4
35.	PE-V0-508-163-W041	MQP FOR CENTRIFUGAL PUMPS (HORIZONTAL &	10	A4



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		VERTICAL)		
36.	PE-V0-508-163-W042	MQP FOR RUBBERLINED PUMP	10	A4
37.	PE-V0-508-163-W043	MQP FOR AIR BLOWER (LOBE TYPE)	10	A4
38.	PE-V0-508-163-W044	MQP FOR AIR BLOWER (CENTRIFUGAL)	10	A4
39.	PE-V0-508-163-W045	MQP FOR AGITATOR/ MIXER	10	A4
40.	PE-V0-508-163-W046	MQP FOR VERTICAL CENTRIFUGAL PUMP	10	A4
41.	PE-V0-508-163-W047	MQP FOR OTHER MISCELLANEOUS BOI'S	10	A4
42.	PE-V0-508-163-W048	CABLE INTERCONNECTION (C&I) FOR DM PLANT	10	A4
43.	PE-V0-508-163-W049	DATA SHEET, GA, TERMINAL BOX DETAILS & CHARACTERSTIC CURVE FOR FILTER PUMP-MOTOR	10	A4
44.	PE-V0-508-163-W051	MQP FOR ELECTRICAL ACTUATOR & GEAR BOX	10	A4
45.	PE-V0-508-163-W057	QP FOR PLUG VALVE (M/S WEIR BDK)	10	A4
46.	PE-V0-508-163-W058	QP FOR RO PRESSURE TUBE (M/S PENTAIR)	10	A4
47.	PE-V0-508-163-W059	LOAD LIST OF DM PLANT	10	A4
48.	PE-V0-508-163-W060	DATA SHEET OF MOTOR FOR DM PLANT	10	A4
49.	PE-V0-508-163-W061	DATA SHEET FOR VALVE FOR DM PLANT	10	A4
50.	PE-V0-508-163-W062	MQP FOR DUAL PLATE CHECK VALVES	10	A4
51.	PE-V0-508-163-W063	MQP FOR BALL VALVES	10	A4
52.	PE-V0-508-163-W064	MQP FOR BUTTERFLY VALVES	10	A4
53.	PE-V0-508-163-W065	MQP FOR GATE/ GLOBE/ CHECK VALVES	10	A4
54.	PE-V0-508-163-W067	MQP FOR DIAPHRAGM VALVE	10	A4
55.	PE-V0-508-163-W068	MQP FOR METERING PUMP (DIAPHRAGM TYPE)	10	A4
56.	PE-V0-508-163-W069	MQP FOR PP PUMPS	10	A4
57.	PE-V0-508-163-W070	DATASHEET FOR ELECTRIC HEATER	10	A4
58.	PE-V0-508-163-W071	PG TEST PROCEDURE FOR DM PLANT	20	A4
59.	PE-V0-508-163-W073	O&M MANUAL (DM PLANT)	24	A4
60.	PE-V0-508-163-W075	CABLE TRAY ROUTING DRG SHOWING INSERTS, TRENCHES, TRESTLE, SLIT ETC/ DETAILS FOR DM PLANT BUILDING/ STRUCTURES / MCC ROOM	10	A1
61.	PE-V0-508-163-W076	CABLE SCHEDULE (C&I) FOR DM PLANT	12	A4
62.	PE-V0-508-163-W077	GA & DATA SHEET FOR UF MEMBRANE	10	A4
63.	PE-V0-508-163-W083	TECHNICAL DATA SHEET FOR HORIZONTAL/VERTICAL CENTRIFUGAL PUMP WITH MOTOR OF DM PLANT	10	A4
64.	PE-V0-508-163-W084	TECHNICAL DATA SHEET FOR EJECTORS OF DM PLANT	10	A4
65.	PE-V0-508-163-W086	TECHNICAL DATA SHEET OF MEASURING INSTRUMENTS (PG, TI, FI ETC.)	10	A4
66.	PE-V0-508-163-W087	SUB-VENDOR LIST & INSPECTION CRITERION FOR DM PLANT.	10	A4
67.	PE-V0-508-163-W092	TYPE TEST REPORT OF TRANSMITTERS, INSTRUMENTS, FLOW ELEMENT, CONTROL VALVE.	10	A4
68.	PE-V0-508-163-W093	CONTROL SCHEME OF DM PLANT	12	A4
69.	PE-V0-508-163-W095	INSTRUMENT HOOK UP	12	A4
70.	PE-V0-508-163-W096	DATASHEET & GA OF JUNCTION BOX.	10	A4
71.	PE-V0-508-163-W097	DATASHEET & GAD OF AGITATOR WITH MOTOR - DMP	10	A4
72.	PE-V0-508-163-W106	DATA SHEET AND GA FOR TWIN LOBE BLOWER FOR DM	10	A4
73.	PE-V0-508-163-W107	DATASHEET FOR MANUAL DIAPHRAGM VALVE	10	A4
74.	PE-V0-508-163-W108	DATASHEET FOR PNEUMATCIIALLY OPERATED DIAPHRAGM VALVE	10	A4



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75.	PE-V0-508-163-W109	DATASHEET FOR DUAL PLATE CHECK VALVE	10	A4
76.	PE-V0-508-163-W110	DATA SHEET OF MANUAL BALL VALVE FOR DM PLANT	10	A4
77.	PE-V0-508-163-W111	DATASHEET & GAD OF EFFLUENT DISPOSAL PUMP	10	A4
78.	PE-V0-508-163-W112	DATASHEET & GAD OF BACKWASHED WATER TRANSFER PUMP	10	A4
79.	PE-V0-508-163-W113	DATASHEET & GAD OF ACID UNLOADING PUMP	10	A4
80.	PE-V0-508-163-W115	DATA SHEET FOR ORP ANALYSER FOR DM PLANT	10	A4
81.	PE-V0-508-163-W116	MQP FOR RUBBER LINING	10	A4
82.	PE-V0-508-163-W133	QP FOR PRESSURE VESSELS/ ATM. TANK, ACID & ALAKLI STORAGE TANK.	10	A4
83.	PE-V0-508-163-W135	DATASHEET & GA DRAWING FOR PLUG VALVES	10	A4
84.	PE-V0-508-163-W136	DATASHEET & GA DRAWING FOR GLOBE VALVES	10	A4
85.	PE-V0-508-163-W140	DATASHEET & GA DRAWING OF FLAP TYPE NRV	10	A4
86.	PE-V0-508-163-W141	QP FOR PRESSURE VESSELS/ ATM. TANK	10	A4
87.	PE-V0-508-163-W143	TYPE TEST REPORT OF INSTRUMENT CABLE	10	A4
88.	PE-V0-508-163-W145	TYPE TEST REPORT OF CONTROL VALVE FOR DM PLANT (CV TEST REPORT)	10	A4
89.	PE-V0-508-163-W038	DATASHEET AND GA DRAWING FOR UF MODULE AND PRESSURE VESSEL	10	A4
90.	PE-V0-508-163-W050	DATASHEET AND GA DRAWING FOR UF MODULE AND PRESSURE VESSEL	10	A4
91.	PE-V0-508-163-W052	DATASHEET AND GA DRAWING FOR RO HIGH PRESSURE PUMP	10	A4

MASTER DRAWING LIST OF PT PLANT

S. NO.	VENDOR DRAWING NO	DRAWING TITLE	NO. OF WEEKS FOR DOCUMENT SUBMISSION AFTER PLACING LOI/ LOA	DRG/ DOC SIZE
1.	PE-V0-508-158-W001*	P&ID FOR PRE-TREATMENT PLANT	4	A1
2.	PE-V0-508-158-W002*	PROCESS DESIGN, EQUIPMENT SIZING, HYDRAULIC & DROP CALCULATION FOR PT PLANT	4	A4
3.	PE-V0-508-158-W005*	LAYOUT OF PT PLANT	6	A0
4.	PE-V0-508-158-W011	G.A DRAWING & DATA SHEET FOR REACTOR CLARIFIER FOR PTCW & DM SYSTEM	8	A1
5.	PE-V0-508-158-W013*	G.A OF CHEMICAL HOUSE INCLUDING OVERHEAD TANK (TOP OF CHEMICAL HOUSE)	12	A1
6.	PE-V0-508-158-W014	G.A OF GRAVITY FILTER HOUSE, FILTER WATER RESRVOIR & PUMP HOUSE (PT DM)	10	A1
7.	PE-V0-508-158-W016*	WATER TREATMENT PLANT -LAYOUTS AND DETAILS OF INTERCONNECTING PATHWAYS AND PAVING DETAILS FOR ALL FACILITIES	12	A1
8.	PE-V0-508-158-W017*	WTP-CIVIL GA, FOUND., SUPER STRUCTURE & RCC DETAILS OF CASCADE AERATOR, STILLING CHAMBER, PARSHALL FLUME CHAMBER FOR PT - CW SYSTEM	10	A1
9.	PE-V0-508-158-W018*	WATER TREATMENT PLANT - CIVIL GA, FOUNDATION, SUPER STRUCTURE & RCC DETAILS OF AERATOR, STILLING CHAMBER, PARSHALL FLUME AND INLET CHAMBER (FOR PT - DM)	10	A1
10.	PE-V0-508-158-W019*	WATER TREATMENT PLANT – CIVIL GA AND SECTIONAL DETAILS OF PT-CW CLARIFIER	8	A1



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11.	PE-V0-508-158-W020*	WATER TREATMENT PLANT – RCC DETAILS OF PT-CW CLARIFIER	8	A1
12.	PE-V0-508-158-W021*	WATER TREATMENT PLANT – CIVIL GA AND SECTIONAL DETAILS OF PT-DM CLARIFIER	8	A1
13.	PE-V0-508-158-W022*	WATER TREATMENT PLANT – RCC DETAILS OF PT-DM CLARIFIER	8	A1
14.	PE-V0-508-158-W023*	WATER TREATMENT PLANT -GRAVITY FILTER HOUSE - ARCHITECTURAL FLOOR PLAN AT GROUND FLOOR, CHANNEL CUM WALKWAY AND ROOF	10	A1
15.	PE-V0-508-158-W024*	CIVIL GA OF GRAVITY FILTER HOUSE, FILTERED WATER RESERVOIR, SUMP AND PUMP HOUSE FOR PTP	10	A1
16.	PE-V0-508-158-W025*	RCC DETAILS OF GRAVITY FILTER HOUSE, FILTERED WATER RESERVOIR, SUMP AND PUMP HOUSE FOR PTP	10	A4
17.	PE-V0-508-158-W039*	WATER TREATMENT PLANT - CIVIL GA & RC DETAILS OF SLUDGE SUMP & BACKWASH WASTE COLLECTION PIT	12	A1
18.	PE-V0-508-158-W045*	WATER TREATMENT PLANT - CIVIL ANALYSIS AND DESIGN OF AERATOR/ STILLING CHAMBER ETC.FOR PT-CW	10	A4
19.	PE-V0-508-158-W046*	WATER TREATMENT PLANT – CIVIL ANALYSIS AND DESIGN OF AERATOR /STILLING CHAMBER ETC. FOR DM	10	A4
20.	PE-V0-508-158-W047*	WATER TREATMENT PLANT - CIVIL ANALYSIS AND DESIGN OF PT-CW CLARIFIERS	10	A4
21.	PE-V0-508-158-W048*	WATER TREATMENT PLANT - CIVIL ANALYSIS AND DESIGN OF PT-DM CLARIFIERS	10	A4
22.	PE-V0-508-158-W050*	WATER TREATMENT PLANT -GRAVITY FILTER HOUSE - ANALYSIS AND DESIGN OF SUPERSTRUCTURE & FOUNDATION	12	A4
23.	PE-V0-508-158-W054*	WATER TREATMENT PLANT – CIVIL ANALYSIS AND DESIGN OF SLUDGE SUMP & BACKWASH COLLECTION PIT	12	A4
24.	PE-V0-508-158-W058	DATASHEET AND GA OF AIR BLOWER FOR PTP PLANT	12	A4
25.	PE-V0-508-158-W060	ELECTRICAL HOIST GA AND DATA SHEET FOR CHEMICAL HOUSE	10	A4
26.	PE-V0-508-158-W061	PIPE SCHEDULE FOR PT PLANT	8	A4
27.	PE-V0-508-158-W062	VALVE SCHEDULE FOR PT PLANT	8	A4
28.	PE-V0-508-158-W063	OPERATION & MAINTENANCE MANUAL FOR WTP	24	A4
29.	PE-V0-508-158-W064	GA and Data Sheet for Vertical Pumps with Motors	12	A4
30.	PE-V0-508-158-W065	INSTRUMENT SCHEDULE PT	8	A4
31.	PE-V0-508-158-W066	LIST OF ALARM FOR PT PLANT AREA	10	A4
32.	PE-V0-508-158-W067	INTERCONNECTION DIAGRAM DM	12	A4
33.	PE-V0-508-158-W068	INSTRUMENTS HOOK UP DRAWINGS (PT-DM PLANT AREA)	18	A4
34.	PE-V0-508-158-W069	TYPE TEST REPORTS OF TRANSMITTERS, INST CABLES & CONTROL CABLES	18	A4
35.	PE-V0-508-158-W070	TYPE TEST REPORT OF JUNCTION BOX (DEGREE OF PROTECTION)	18	A4
36.	PE-V0-508-158-W071	DATA SHEET FOR ULTRASONIC TYPE LEVEL TRANSMITTERS	16	A4
37.	PE-V0-508-158-W072	DATA SHEET FOR PRESSURE TRANSMITTER	16	A4
38.	PE-V0-508-158-W073	LOGIC DIAGRAM FOR PT PLANT	18	A4
39.	PE-V0-508-158-W074	DATA SHEET FOR LOCAL GAUGES (PRESSURE INDICATOR/ DIFFERENTIAL PRESSURE INDICATOR/ TEMPERATURE INDICATOR/ VACUUM GAUGE/ LEVEL INDICATOR)	16	A4
40.	PE-V0-508-158-W075	DATA SHEET OF FLOW TRANSMITTERS	14	A4
41.	PE-V0-508-158-W077	G.A & DATASHEET OF BUTTERFLY VALVE FOR	12	A4



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		PT PLANT		
42.	PE-V0-508-158-W078	DATASHEET AND GA OF PLUG VALVE FOR WWRO	12	A4
43.	PE-V0-508-158-W079	G.A & DATASHEET OF GLOBE VALVE FOR PT PLANT	12	A4
44.	PE-V0-508-158-W080	G.A & DATASHEET OF NON-RETURN VALVE FOR PT PLANT	12	A4
45.	PE-V0-508-158-W081	G.A & DATASHEET OF MANUAL & MOTORISED GATE VALVES FOR PT PLANT	12	A4
46.	PE-V0-508-158-W082	DATASHEET & GAD OF DIAPHRAM VALVE FOR PT PLANT	12	A4
47.	PE-V0-508-158-W084	GA & TDS of Sluice Gate (Penstock)	12	A4
48.	PE-V0-508-158-W085	MQP FOR PLUG VALVES	12	A4
49.	PE-V0-508-158-W088	G.A & DATASHEET OF AGITATOR FOR PT PLANT	12	A4
50.	PE-V0-508-158-W091	MQP FOR AIR BLOWERS -LOBE TYPE > = 5 KW-ENDORSEMENT	12	A4
51.	PE-V0-508-158-W092	MQP FOR VALVE- DIAPHGRAGM TYPE	12	A4
52.	PE-V0-508-158-W093	MQP FOR VALVE- BUTTERFLY	12	A4
53.	PE-V0-508-158-W095	MQP FORGATE- SLUICE /ISOLATION GATE-ENDORSEMENT	12	A4
54.	PE-V0-508-158-W096	MQP FOR PIPE-MS (BLACK/GI) - (IS 1239 / IS 3589) (UP TO 1000 NB)-ENDORSEMENT	14	A4
55.	PE-V0-508-158-W098	MQP FOR PUMPS- HORIZONTAL & VERTICAL CENTRIFUGAL-ENDORSEMENT	14	A4
56.	PE-V0-508-158-W099	MQP FOR PUMP-METERING/ DOSING-ENDORSEMENT	14	A4
57.	PE-V0-508-158-W100	MQP FOR PUMPS-SCREW TYPE	12	A4
58.	PE-V0-508-158-W103	PAINTING SCHEDULE FOR PT PLANT	10	A4
59.	PE-V0-508-158-W104	PIPING LAYOUT FOR PT PLANT	20	A4
60.	PE-V0-508-158-W105	MQP FOR ELECTRICAL ACTUATOR (WITH GEAR BOX IF APPLICABLE)	14	A4
61.	PE-V0-508-158-W101	CABLE SCHEDULE (C&I) [BRANCH CABLE] PT	12	A4
62.	PE-V0-508-158-W106	I/O & DRIVE LIST- WS (DM/PT)	12	A4
63.	PE-V0-508-158-W107	GA OF JUNCTION BOX - DM/PT	12	A4
64.	PE-V0-508-158-W108	GA, CROSS SECTION, CH CURVE AND DATASHEET FOR LIME SLURRY TRANSFER AND LIME DOSING PUMP	12	A4
65.	PE-V0-508-158-W117*	SYSTEM DESCRIPTION & CONTROL WRITE UP FOR PRE-TREATMENT PLANT	4	A4
66.	PE-V0-508-158-W118*	BASIC CIVIL DESIGN CRITERIA FOR PT PLANT TALCHER	4	A4

MASTER DRAWING LIST OF STP

S. NO.	VENDOR DRAWING NO	DRAWING TITLE	NO. OF WEEKS FOR DOCUMENT SUBMISSION AFTER PLACING LOI/ LOA	DRG/ DOC SIZE
1.	PE-V0-492-673-W001*	P&ID, VALVE SCHEDULE & PIPING SCHEDULE FOR SEWAGE TREATMENT PLANT	4	A1
2.	PE-V0-492-673-W002*	EQUIPMENT LAYOUT OF SEWAGE TREATMENT PLANT	6	A1
3.	PE-V0-492-673-W003*	CONTROL WRITE UP	4	A4
4.	PE-V0-492-673-W004	CIVIL INPUT DRAWING FOR PACKAGED STP	8	A1
5.	PE-V0-492-673-W005	PIPING LAYOUT INSIDE & OUTSIDE STP AREA ALONG WITH DETAILS OF SUPPORTS	10	A1
6.	PE-V0-492-673-W006	PG TEST PROCEDURE FOR SEWAGE	10	A4



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		TREATMENT PLANT – CW SYSTEM CIVIL WORKS		
7.	PE-V0-492-673-W007	DATASHEET & GA OF EQUIPMENTS FOR PACKAGED STP	12	A4
8.	PE-V0-492-673-W008	O&M MANUAL FOR PACKAGE STP -CW	14	A4
9.	PE-V0-492-673-W101	ELECTRICAL LOAD LIST	10	A4
10.	PE-V0-492-673-W201	CABLE SCHEDULE AND INTERCONNECTION DIAGRAM	10	A4
11.	PE-V0-492-673-W202	DATASHEET & GA DRAWING OF MICRO CONTROLLER BASED CONTROL PANEL	10	A4
12.	PE-V0-492-673-W102	CABLE TRAY LAYOUT WITH SUPPORT FOR STP - RW & CW	12	A1
13.	PE-V0-492-673-W401	QAP FOR LOCAL CONTROL PANEL (MICRO CONTROLLER BASED)	10	A4

MASTER DRAWING LIST OF CPU

S. NO.	VENDOR DRAWING NO	DRAWING TITLE	NO. OF WEEKS FOR DOCUMENT SUBMISSION AFTER PLACING LOI/ LOA	DRG/ DOC SIZE
1.	PE-V0-508-155-W037-1	CABLE TRAY/TRENCH & CONDUIT ROUTING DIAGRAM FOR CONDENSATE POLISHING UNIT (SERVICE VESSEL AREA)	12	A1
2.	PE-V0-508-155-W134	CABLE TRAY/TRENCH & CONDUIT ROUTING DIAGRAM FOR CONDENSATE POLISHING UNIT (REGENERATION AREA)	12	A1
3.	PE-V0-508-155-W128	ELECTRICAL LOAD LIST FOR CPU	8	A4
4.	PE-V0-508-155-W121	DATA SHEET OF MOTORS FOR CPP	14	A4
5.	PE-V0-508-155-W029	TECHNICAL DATASHEET ALONG WITH GA DRAWING FOR ELECTRIC HEATER FOR CPU	12	A4
6.	PE-V0-508-155-W011	CONTROL LOGICS FOR CPP	14	A4
7.	PE-V0-508-155-W017	HMI - LOGS, TRENDS AND BAR CHARTS FOR CPP	14	A4
8.	PE-V0-508-155-W130	EARTHING LAYOUT OF CPU SERVICE VESSEL AREA	12	A1
9.	PE-V0-508-155-W131	EARTHING LAYOUT OF CPU REGENERATION AREA	12	A1
10.	PE-V0-508-155-W123	I/O LIST AND DRIVE LIST	12	A4
11.	PE-V0-508-155-W008	LIST OF 230V AC UPS LOAD (FOR CPP)	10	A4
12.	PE-V0-508-155-W048	ALARM AND ANNUNCIATION LIST	10	A4
13.	PE-V0-508-155-W051	INTERCONNECTION SCHEDULE FOR CPP	14	A4
14.	PE-V0-508-155-W124	INSTRUMENTS SCHEDULE FOR FOR CPP	14	A4
15.	PE-V0-508-155-W125	INSTRUMENTATION CABLE LIST & ICS FOR CPP	14	A4
16.	PE-V0-508-155-W012	TYPE TEST REPORT FOR ELECTRONIC TRANSMITTERS (FOR CPP)	16	A4
17.	PE-V0-508-155-W016	TYPE TEST REPORT OF JUNCTION BOX (DEGREE OF PROTECTION) FOR CPP	16	A4
18.	PE-V0-508-155-W132	TYPE TEST REPORT OF CV TEST FOR CONTROL VALVE (FOR CPP)	16	A4
19.	PE-V0-508-155-W022	DATA SHEET FOR ELECTRONIC TRANSMITTERS	16	A4
20.	PE-V0-508-155-W023	DATA SHEET FOR LEVEL TRANSMITTER - ULTRASONIC	16	A4
21.	PE-V0-508-155-W024	DATASHEET OF SOLENOID VALVES	16	A4
22.	PE-V0-508-155-W030	DATA SHEET FOR PNEUMATIC OPERATED	16	A4



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		CONTROL VALVES FOR CPP		
23.	PE-V0-508-155-W045	Data Sheet of Motorized Butterfly Valve	16	A4
24.	PE-V0-508-155-W078	DATA SHEET AND GA FOR JUNCTION BOX / ANALYZER PANEL AND JB LAYOUT	16	A4
25.	PE-V0-508-155-W136	DATA SHEETS OF INSTRUMENTS FOR STG BALANCE TG INSTRUMENTS (FOR CPP)	16	A4
26.	PE-V0-508-155-W020	GA OF AC & DC POWER DISTRIBUTION BOARD (FOR CPP)	16	A4
27.	PE-V0-508-155-W032	GA DRAWING OF DM WATER STORAGE TANKS	10	A3
28.	PE-V0-508-155-W033	GA DRAWING OF SERVICE VESSEL	10	A3
29.	PE-V0-508-155-W034	GA DRAWING OF REGENERATION VESSELS	10	A3
30.	PE-V0-508-155-W035	GA DRAWING OF ACID STORAGE TANK	10	A3
31.	PE-V0-508-155-W036	GA DRAWING OF ALKALI STORAGE TANK	10	A3
32.	PE-V0-508-155-W037	GA DRAWING OF ACID MEASURING TANK	10	A3
33.	PE-V0-508-155-W038	GA DRAWING OF ALKALI PREPARATION TANK	10	A3
34.	PE-V0-508-155-W039	GA DRAWING OF ALKALI DAY TANK	10	A3
35.	PE-V0-508-155-W040	GA DRAWING OF AC FILTER FOR ALKALI	10	A3
36.	PE-V0-508-155-W041	GA DRAWING OF HOT WATER TANK	10	A3
37.	PE-V0-508-155-W042	GA DRAWING OF PRIMING TANK OF NEUTRALISATION PIT	10	A3
38.	PE-V0-508-155-W043	GA DRAWING OF LIME TANK OF NEUTRALISATION PIT	10	A3
39.	PE-V0-508-155-W046	GA FOR RESIN MAKE-UP HOPPER	10	A3
40.	PE-V0-508-155-W047	GA FOR RESIN TRANSFER WASTE WATER COLLECTION SUMP (IF APPLICABLE)	10	A3
41.	PE-V0-508-155-W119	CIVIL SCOPE OF SERVICE VESSEL AREA	12	A1
42.	PE-V0-508-155-W127	CIVIL SCOPE DRG FOR REGN AREA	12	A1
43.	PE-V0-508-155-W002*	EQUIPMENT LAYOUT OF CONDENSATE POLISHING UNIT (SERVICE VESSEL AREA)	6	A1
44.	PE-V0-508-155-W003*	EQUIPMENT LAYOUT OF CONDENSATE POLISHING UNIT (REGENERATION AREA)	6	A1
45.	PE-V0-508-155-W052	EXTERNAL PIPING LAYOUT FROM CPP SERVICE VESSELS TO REGENERATION AREA	18	A1
46.	PE-V0-508-155-W053	EXTERNAL PIPING LAYOUT IN REGENERATION AREA	18	A1
47.	PE-V0-508-155-W054	PIPING LAYOUT AROUND SERVICE VESSELS	18	A1
48.	PE-V0-508-155-W055	INTERNAL PIPING LAYOUT IN REGENERATION BUILDING	18	A1
49.	PE-V0-508-155-W056	YARD PIPING FROM N-PIT TO ASH SLURRY SUMP	18	A0
50.	PE-V0-508-155-W049	PIPING SCHEDULE (LINE LIST) FOR CPP	8	A4
51.	PE-V0-508-155-W050	VALVE SCHEDULE (VALVE LIST) FOR CPP	8	A4
52.	PE-V0-508-155-W122	PAINTING SCHEDULE FOR CPU	8	A4
53.	PE-V0-508-155-W001*	P & I DIAGRAM OF CONDENSATE POLISHING UNIT (LEGENDS)	4	A1
54.	PE-V0-508-155-W001-1*	P & I DIAGRAM OF CONDENSATE POLISHING PLANT (CPP)	4	A1
55.	PE-V0-508-155-W001-2*	P & I DIAGRAM OF CONDENSATE POLISHING PLANT (CPP)	4	A1
56.	PE-V0-508-155-W001-3*	P & I DIAGRAM OF REGENERATION SYSTEM OF CPP	4	A1
57.	PE-V0-508-155-W133	TYPE TEST REPORT FOR FLOW NOZZLES & ORIFICE PLATES (FOR CPP)	16	A1
58.	PE-V0-508-155-W004*	PROCESS CALCULATION AND EQUIPMENT SIZING FOR CPP	4	A4
59.	PE-V0-508-155-W004-1*	THICKNESS CALCULATION FOR PRESSURE VESSEL FOR CPP	4	A4
60.	PE-V0-508-155-W004-2*	PRESSURE DROP CALCULATION FOR CPP	4	A4



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61.	PE-V0-508-155-W006*	OPERATION & CONTROL PHILOSOPHY FOR CPU	4	A4
62.	PE-V0-508-155-W057	PERFORMANCE & GUARANTEE TEST PROCEDURE FOR CONDENSATE POLISHING PLANT	18	A4
63.	PE-V0-508-155-W058	O&M MANUAL OF CPP	20	A4
64.	PE-V0-508-155-W004-3	DATASHEET OF RESIN	4	A4
65.	PE-V0-508-155-W021	DATASHEET AND GA OF ANALYSER RACK/PANEL	12	A4
66.	PE-V0-508-155-W025	DATA SHEET FOR AIR FILTER REGULATOR	12	A4
67.	PE-V0-508-155-W026	DATA SHEET FOR PH ANALYSER	14	A4
68.	PE-V0-508-155-W027	DATA SHEET FOR SODIUM ANALYSER	14	A4
69.	PE-V0-508-155-W028	DATA SHEET FOR CONDUCTIVITY ANALYSER	14	A4
70.	PE-V0-508-155-W059	DATA SHEET OF AC FILTER MEDIA	12	A4
71.	PE-V0-508-155-W061	DATA SHEET ALONG WITH GA OF DUAL PLATE VALVE	14	A4
72.	PE-V0-508-155-W063	DATA SHEET ALONG WITH GA OF BALL VALVE (MANUAL)	14	A4
73.	PE-V0-508-155-W064	DATA SHEET ALONG WITH GA OF BALL VALVE (AUTO)	14	A4
74.	PE-V0-508-155-W065	DATA SHEET ALONG WITH GA OF HIGH PR BALL VALVE (MANUAL)	14	A4
75.	PE-V0-508-155-W066	DATA SHEET ALONG WITH GA OF HIGH PR BALL VALVE (AUTO)	14	A4
76.	PE-V0-508-155-W068	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF REGENERATION PUMPS	14	A4
77.	PE-V0-508-155-W069	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF ACID UNLOADING PUMPS	14	A4
78.	PE-V0-508-155-W070	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF ALKALI UNLOADING PUMPS	14	A4
79.	PE-V0-508-155-W071	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF EFFLUENT DISPOSAL PUMPS	14	A4
80.	PE-V0-508-155-W072	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF METERING PUMPS (ALKALI)	14	A4
81.	PE-V0-508-155-W073	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF METERING PUMPS (ACID)	14	A4
82.	PE-V0-508-155-W074	DATA SHEET ALONG WITH GA, C/S OF BLOWERS OF SERVICE AREA	14	A4
83.	PE-V0-508-155-W075	DATA SHEET ALONG WITH GA, C/S OF BLOWERS OF REGENERATION AREA	14	A4
84.	PE-V0-508-155-W076	DATA SHEET OF SAFETY SHOWERS	14	A4
85.	PE-V0-508-155-W077	DATA SHEET OF AGITATORS FOR ALKALI PREPARATION AND ALKALI DAY TANK	14	A4
86.	PE-V0-508-155-W079	DATA SHEET ALONG WITH GA OF DIAPHRAGM VALVE (MANUAL)	14	A4
87.	PE-V0-508-155-W080	DATA SHEET ALONG WITH GA OF DIAPHRAGM VALVE (AUTO)	14	A4
88.	PE-V0-508-155-W081	DATA SHEET ALONG WITH GA OF BUTTERFLY VALVE (MANUAL)	14	A4
89.	PE-V0-508-155-W082	DATA SHEET ALONG WITH GA OF BUTTERFLY VALVE (AUTO)	14	A4
90.	PE-V0-508-155-W083	DATA SHEET ALONG WITH GA OF HIGH PR BUTTERFLY VALVE (MANUAL)	14	A4
91.	PE-V0-508-155-W084	DATA SHEET ALONG WITH GA OF HIGH PR BUTTERFLY VALVE (AUTO)	14	A4
92.	PE-V0-508-155-W085	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF ALKALI TRANSFER PUMPS		A4
93.	PE-V0-508-155-W086	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF DM WATER PUMPS FOR RESIN TRANSFER	14	A4
94.	PE-V0-508-155-W087	DATA SHEET ALONG WITH GA, C/S AND CH. CURVE OF RESIN TRANSFER WASTE WATER RECYCLE PUMPS	14	A4



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95.	PE-V0-508-155-W138	DATASHEET AND GA OF PRE-FILTERS	14	A4
96.	PE-V0-508-155-W139	DATA SHEET FOR INSTRUMENTATION CABLE F & G TYPE (FOR CPP)	14	A4
97.	PE-V0-508-155-W141	DATA SHEET ALONG WITH GA OF COMPRESSOR & GA DRAWING FOR AIR RECEIVER FOR CPU	14	A4
98.	PE-V0-508-155-W142	DATA SHEET ALONG WITH GA OF NON-RETURN VALVE	14	A4
99.	PE-V0-508-155-W086A	MOTOR DATASHEET FOR DM WATER PUMPS FOR RESIN TRANSFER FOR CPU	12	A4
100.	PE-V0-508-155-W089	MQP FOR ELECTRIC ACTUATOR (WITH GEAR BOX)	14	A4
101.	PE-V0-508-155-W143	MQP FOR SERVICE VESSEL	12	A4
102.	PE-V0-508-155-W096	MQP FOR HORIZONTAL CENTRIFUGAL PUMPS	14	A4
103.	PE-V0-508-155-W100	MQP FOR METERING PUMPS (DIAPHRAGM TYPE)	14	A4
104.	PE-V0-508-155-W101	MQP FOR AIR BLOWER (LOBE TYPE)	14	A4
105.	PE-V0-508-155-W102	MQP FOR RUBBER LINING	12	A4
106.	PE-V0-508-155-W103	MQP FOR FABRICATION OF HIGH-PRESSURE PIPES & FITTINGS	14	A4
107.	PE-V0-508-155-W105	MQP FOR BUTTERFLY VALVES (MANUAL & PNEU/ELEC) UPTO 300# CLASS	14	A4
108.	PE-V0-508-155-W107	MQP FOR DIAPHRAGM VALVE (MANUAL/PNEU.)	14	A4
109.	PE-V0-508-155-W109	MQP FOR DUAL PLATE TYPE VALVES (SS & CI CLASS 150)	14	A4
110.	PE-V0-508-155-W111	MQP FOR BALL VALVE (UPTO PN 10) (CAT III ITEM- QP IS NOT APPLICABLE)	14	A4
111.	PE-V0-508-155-W007-1	HOOK UP & INSTALLATION DRAWING FOR INSTRUMENTS FOR CPP	16	A4
112.	PE-V0-508-155-W116	MQP FOR SS PIPES (ERW/SEAMLESS)	14	A4
113.	PE-V0-508-155-W014	MQP FOR BUTTERFLY VALVE (MANUAL/PNEUMATIC/MOTOR OPERATED)	14	A4
114.	PE-V0-508-155-W019	WPS FOR MS PIPE (IS: 1239/3589) AT SITE FOR CPU	14	A4
115.	PE-V0-508-155-W044	WPS FOR SS PIPES AT SITE FOR CPU	14	A4
116.	PE-V0-508-155-W009	MQP FOR PRESSURE VESSEL (PRE-FILTER RUBBERLINED-OTHER THAN SERVICE VESSEL)	12	A4

MASTER DRAWING LIST OF ETP

S. NO.	VENDOR DRAWING NO	DRAWING TITLE	NO. OF WEEKS FOR DOCUMENT SUBMISSION AFTER PLACING LOI/ LOA	DRG/ DOC SIZE
1.	PE-V0-508-164-W001	DATASHEET AND GA DRAWING FOR PLUG VALVES FOR ETP	8	A4
2.	PE-V0-508-164-W003	G.A & DATASHEET OF AGITATOR FOR LET PLANT	8	A4
3.	PE-V0-508-164-W005	DATASHEET AND GA DRAWING FOR GATE VALVES FOR ETP	8	A4
4.	PE-V0-508-164-W007	DATASHEET AND GA DRAWING FOR DIAPHRAGM VALVES FOR ETP	8	A4
5.	PE-V0-508-164-W009	DATASHEET AND GA DRAWING FOR BALL VALVES FOR ETP	10	A4
6.	PE-V0-508-164-W011	DATASHEET AND GA DRAWING FOR HORIZONTAL CENTRIFUGAL PUMPS FOR ETP	10	A4
7.	PE-V0-508-164-W012*	P & ID FOR ETP	4	A2