

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
PRE-SHUTDOWN ACTIVITIES								
1		Connection for N2 Pumper				1		
2		Installation of scaffoldings at equipment as per job requirement.			Bidder to add cost in each activity which required scaffolding. Separate lump sum cost will not be paid.			
GENERAL SHUTDOWN ACTIVITIES								
1		Depressurising and N2 purging			At Start of shut down, As per schedule of each unit / plant / train.	1		
2		Complete Blinding of battery limits			At Start of shut down, As per schedule of each unit / plant / train.	1		
3		De-blinding of battery limits			At end of shut down, As per schedule of each unit / plant / train.	1		
4		Leak Testing and N ₂ purging			At end of shut down, As per schedule of each unit / plant / train.	1		
POST-SHUTDOWN ACTIVITIES								
1		Removal of all scaffoldings			Bidder to add cost in each activity which required scaffolding.			
2		Re-Installation of insulation			Bidder to add cost in each activity which required insulation			
3		Overall housekeeping/Area Cleaning			Part of ATA activities, no separate cost will be paid.			
AMINE UNIT (TRAIN-01 & 02) - 02 UNITS:-								
GROUP-A: COLUMNS:-								
AA1	C - 4402	Amine Regenerator (Qty: 02 Nos.)			20 Trays SA-240 316L Drawings not available			
1	&	Blinding		Spanner Size = 48mm	N1 N2 Spiral wound gasket 18" 150# SS316L-F.G 2EA (Wire Mesh Type Demister Pad. Drawing not available)			

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2	C - 5402	Water / Chemical flushing and cleaning/inplace cleaning	ID 11 ft x 75.33 ft length (TL/TL)	Scaffolding Material	N3 N4 Spiral wound gasket 4" 150# SS316L-F.G 2EA (Oil Catcher 1EA SA-240 316L)	2		
3		Opening of manways.			N5-1 N5-2 N6-1 N6-2 Spiral wound gasket 16" 150# SS316L-F.G 4EA			
4		Ventilation / Safety clearance / Confined space entry						
5		Initial Inspection	No. of trays = 20					
6		M.Cleaning of Column Shell internal, vortex breaker, distributor, bridle & LG's etc.						
7		Final inspection			N7-1 N7-2 N8 Spiral wound gasket 14" 150# SS316L-F.G 3EA			
8		Boxup & Deblinding, Housekeeping			N9 Spiral wound gasket 8" 150# SS316L-F.G 1EA			
AA2	C-4401	Amine Absorber (Qty: 02 No.)			N1-1 N1-2 Spiral wound gasket 14" 600# SS316L- F.G 2EA	2		
1	& C-5401	Blinding	ID 9.5 ft x 73.67 ft length (TL/TL)	Spanner Size = 75mm	N2 N3 Spiral wound gasket 12" 600# SS316L-F.G 2EA			
2		Water / Chemical flushing and cleaning/inplace cleaning		Scaffolding Material	N4 Spiral wound gasket 14" 600# SS316L-F.G 1EA			
3		Opening of manways.			M1 M2 M3 M4 Spiral wound gasket 24" 600# SS316L-F.G 4EA			
4		Ventilation / Safety clearance / Confined space entry	No. of trays = 24		N5 N7 RTJ Oval Ring R37 SS316L 2EA			

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5		Initial Inspection	I.D. of Manway = 24 in 600# WN/RF 04 Nos.		N6 L1-1 L1-2 L2-1 L2-2 L3- 1 L3-2 P1-1 P1-2 T1-1 T1-2 T1-3 T1-4 T1-5 T1-6 U1 S2- 1 S2-2 RTJ Oval Ring R24 SS316L 18EA			
6		M.Cleaning of Column Shell internal, vortex breaker, distributor, bridle & LG's etc.	Bolt Size = 1 7/8"		L4-1 L4-2 RTJ Oval Ring R31 SS316L 2EA			
7		Final inspection						
8		Boxup & Deblinding, Housekeeping						
GROUP-B: VESSELS:-								
AB1	V-3901	K-Test Separator (Qty: 01 Nos.)			N1 Spiral wound gasket 8" 600# SS316L-F.G 1EA	1		
1		Blinding	Horizontal Vessel	Spanner Size = 75mm	N2 Spiral wound gasket 3" 600# SS316L-F.G 1EA			
2		Water Flushing		Scaffolding Material	N3 Spiral wound gasket 6" 600# SS316L-F.G 1EA			
3		Opening of manways.	Size: 1000 mm ID x 4500 mm (TL/TL)		N4 N5 N6 N7 Spiral wound gasket 2" 600# SS316L-F.G 4EA			
4		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24 in. 600# WN/RF 01 No.		I1 I2 Spiral wound gasket 1 1/2" 600# SS316L-F.G 2EA			
5		Internal Inspection of vessel			I3 Spiral wound gasket 3/4" 600# SS316L-F.G 1EA			

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6		Cleaning of vessel, demisters, internals, bridle & LG's.	Bolt Size = 1 7/8"		I4-A I4-B I5-A I5-B I6-A I6-B I7-A I7-B Spiral wound gasket 2" 600# SS316L-F.G 8EA			
7		Final inspection			M1 Spiral wound gasket 24" 600# SS316L-F.G 1EA			
8		Boxup & Deblinding, Housekeeping						
AB2	V-4201	K-Production Separator (Qty: 01 Nos.)			N1 Spiral wound gasket 20" 600# SS316L-F.G 1EA	1		
1		Blinding	Horizontal Vessel	Spanner Size = 75mm	N2 Spiral wound gasket 06" 600# SS316L-F.G 1EA			
2		Water Flushing		Scaffolding Material	N3 Spiral wound gasket 16" 600# SS316L-F.G 1EA			
3		Opening of manways.	Size: 1980 mm ID x 6706 mm (TL/TL)		N4 N5 N7 Spiral wound gasket 2" 600# SS316L-F.G 3EA			
4		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24 in. 600# WN/RF 01 No.		N6 Spiral wound gasket 4" 600# SS316L-F.G 1EA			
5		Internal Inspection of vessel			I1 I2 Spiral wound gasket 1 1/2" 600# SS316L-F.G 2EA			
6		Cleaning of vessel, demisters, internals, bridle & LG's.	Bolt Size = 1 7/8"		I3 Spiral wound gasket 3/4" 600# SS316L-F.G 1EA			

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7		Final inspection			I4-A I4-B I5-A I5-B I6-A I6-B I7-A I7-B Spiral wound gasket 2" 600# SS316L-F.G 8EA			
8		Boxup & Deblinding, Housekeeping			M1 Spiral wound gasket 24" 600# SS316L-F.G 1EA			
AB3	V-5201	T-Production Separator (Qty: 01 Nos.)			N1 Spiral wound gasket 12" 600# SS316L-F.G 1EA	1		
1		Blinding	Horizontal Vessel	Spanner Size = 75mm	N2 Spiral wound gasket 4" 600# SS316L-F.G 1EA			
2		Water Flushing		Scaffolding Material	N3 Spiral wound gasket 10" 600# SS316L-F.G 1EA			
3		Opening of manways.	Size: 1370 mm ID x 5100 mm (TL/TL)		N4 N5 N7 Spiral wound gasket 2" 600# SS316L-F.G 3EA			
4		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24 in. 600# WN/RF 01 No.		N6 Spiral wound gasket 6" 600# SS316L-F.G 4EA			
5		Internal Inspection of vessel			I1 I2 Spiral wound gasket 1 1/2" 600# SS316L-F.G 2EA			
6		Cleaning of vessel, demisters, internals, bridle & LG's.	Bolt Size = 1 7/8"		I3 Spiral wound gasket 3/4" 600# SS316L-F.G 1EA			
7		Final inspection			I4-A I4-B I5-A I5-B Spiral wound gasket 2" 600# SS316L-F.G 4EA			

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8		Boxup & Deblinding, Housekeeping			I7-A I7-B Spiral wound gasket 6" 600# SS316L-F.G 2EA			
					M1 Spiral wound gasket 24" 600# SS316L-F.G 1EA			
AB4	V-4401	Feed Gas K.O drum (Qty: 02 Nos.)			(13) C E1 E2 F H1 H2 RTJ Oval Ring R24 SS316L 6EA	2		
1	& V-5401	Blinding	Vertical vessel		(19)A B Spiral wound gasket 10" 600# SS316L-F.G 2EA			
2		Opening of manways.	ID 6.5 ft x 9.5 ft length (TL/TL)	Spanner Size = 64mm	(31) D RTJ Oval Ring R37 SS316L 1EA			
3		Ventilation / Safety clearance / Confined space entry	Manway = 20",600#,RF	Scaffolding Material	(43) G RTJ Oval Ring R45 SS316L 1EA			
4		Internal cleaning of complete vessel.			MW Spiral wound gasket 20" 600# SS316L-F.G 1EA			
5		Cleaning of LG's, bridle of K.O. vessel	Bolt Size = 1 5/8"					
6		Inspection						
7		Boxup & Deblinding, Housekeeping						
AB5	V-4402	Feed Gas Filter Coalscer (Qty: 02 Nos.)			Manway 42" 600# RF SS316L-F.G 1EA (SERIES NOT GIVEN)	2		
1	& V-5402	Blinding	ID 3.28 ft	Spanner Size = 99mm	P1 P2 K1 K2 J1 J2 G D C1 C2 B 2" 900# RJ LWN 11EA			
2		Opening of top cover	10 ft length (WL/WL)	Scaffolding Material	L 2" 900# RJ LWN 01EA			
3		Removal of Filters	Bolt Size = 2 1/2"		I 4" 900# RJ LWN 01EA			

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4		Internal cleaning of Vessel/Shell, LGs, bridle			H F 3" 900# RJ LWN 02EA			
5		Reinstallation/Replacement of Filters			A E 10" 900# RJ LWN 02EA			
6		Inspection						
7		Boxup & Deblinding, Housekeeping						
AB6	V-4403	Treated Gas K.O drum (Qty: 02 Nos.)			(8) RTJ Oval Ring R24 SS316L 17EA	2		
1	& V-5403	Blinding			(16) RTJ Oval Ring R31 SS316L 1EA			
2		Water Circulation and flushing			(22) RTJ Oval Ring R37 SS316L 2EA			
3		Opening of manways.	ID 6.5 ft x 15 ft	Spanner Size = 75mm	(30) Spiral wound gasket 12" 600# SS316L-F.G 2EA			
4		Ventilation / Safety clearance / Confined space entry	Manway = 24",600#, RF	Scaffolding Material	MW1 MW2 Spiral wound gasket 24" 600# SS316L- F.G 2EA			
5		Internal cleaning of complete vessel	Bolt Size = 1 3/4"					
6		Inspection & Cleaning of demister & LG's, bridle of K.O. vessel						
7		Inspection						
8		Boxup & Deblinding, Housekeeping						
AB7	V-4404	Rich Amine Flash drum (Qty: 02 Nos.)			A Spiral wound gasket 16" 150# SS316L-F.G 1EA			
1	& V-5404	Blinding	ID 12 ft x 30 ft	Spanner Size = 48mm	B D1 D2 E1 E2 F J K1 K2 K3 K4 L O R S1`8 U1`4 Spiral wound gasket 2" 150# SS316L-F.G 26EA			
2		Water Circulation and flushing of vessel and column	Bolt Size = 1 1/4"	Scaffolding Material	C Spiral wound gasket 8" 150# SS316L-F.G 1EA			

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3		Opening of manways of vessel and column			G I N Q T1 T2 Spiral wound gasket 3" 150# SS316L-F.G 6EA	2		
4		Ventilation / Safety clearance / Confined space entry	Manway = 24", 150#, RF		H P Spiral wound gasket 4" 150# SS316L-F.G 2EA			
5		Internal Inspection of vessel and column			M Spiral wound gasket 14" 150# SS316L-F.G 1EA			
6		Dismantling/removal of demisters & repair if any			MW1 MW2 MW3 Spiral wound gasket 24" 150# SS316L-F.G 3EA			
7		Cleaning of vessel, demisters, bridle & LG's.			HW Spiral wound gasket 8" 150# SS316L-F.G 1EA			
8		Re-installation of demisters						
9		Final inspection						
10		Boxup & Deblinding, Housekeeping						
AB8	V-4406	Amine Regenerator Reflux drum (Qty: 02 Nos.)			A 18" 150# WN RF 01EA	2		
1	& V-5406	Blinding	ID 6.5 ft x 12 ft Length (TL/TL)		B 6" 150# WN RF 01EA			
2		Opening of manways.			C E F1 F2 G H J1 J2 K1 K2 L1 L2 2" 150# WN RF 12EA			
3		Ventilation / Safety clearance / Confined space entry	Manway = 24", 150#, RF.	Spanner Size = 64mm	A 12" 150# WN RF 01EA			
4		Internal Inspection of vessel	Bolt Size = 1 5/8"	Scaffolding Material	I 4" 150# WN RF 01EA			
5		Dismantling/removal of demisters & repair if any			MW 24" 150# WN RF 01EA			
6		Cleaning of vessel, demisters, bridle & LG's.						
7		Re-installation of demisters						

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8		Final inspection						
9		Boxup & Deblinding, Housekeeping						
AB9	V-4407	Amine Drain drum (Qty: 02 Nos.)			A Spiral wound gasket 8" 150# 316L-F.G. 1EA	2		
1	&	Blinding	ID 6.5 ft x 20 ft Length (TL/TL)		B C Spiral wound gasket 2" 300# 316L-F.G. 2EA			
2	V-5407	Opening of manways.			D E F G H K L M O P Spiral wound gasket 2" 150# 316L-F.G. 10EA			
3		Ventilation / Safety clearance / Confined space entry	Manway =24", 150#, RF	Spanner Size = 48mm	I J Spiral wound gasket 4" 150# 316L-F.G. 2EA			
4		Internal Inspection of vessel and repair(if any)	Bolt Size = 1 1/4"	Scaffolding Material	N Spiral wound gasket 20" 150# 316L-F.G. 1EA			
5		Cleaning of vessel, bridle & LG's.			MW Spiral wound gasket 24" 150# SS316L-F.G 1EA			
6		Final inspection						
7		Boxup & Deblinding, Housekeeping						
GROUP-C: HEAT EXCHANGERS:-								
AC1	E-4401	Inlet Gas Trim Cooler (Qty: 02 Nos.)			Test ring arrangement			
1	&	Scaffolding at Channel Head (pre-shutdown activity)	BEU-Horizontal (Shell and Tube)		Bundle pulling arrangement to be identified			
2	E-5401	Blinding	278 "U" Tubes x 0.62"(ID)		Head Gaskets: (Special) Channel side: OD:42.83" ID: 40.08" THK:0.18" (Web In Middle) Tube Side: OD:42.83" ID: 40.08" THK:0.18" 01 each			

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3		Dismantling of exchanger inlet and outlet nozzle connections	x196.85" LG	Spanner Size = 75mm	N1 N2 Spiral wound gasket 10" 600# SS316L-F.G 2EA	2		
4		Opening of Channel Head Cover		Scaffolding Material	N3 N4 Spiral wound gasket 6" 150# SS316L-F.G 2EA			
5		Removal & Inspection of bundle	Shell ID = 40 in.		N5 Spiral wound gasket 2" 150# SS316L-F.G 1EA			
6		Cleaning of tubes & tube bundles by Water jetting	Bolt Size = 1 7/8"					
7		Cleaning of Shell and channel						
8		Insertion of Bundle						
9		Pressure / leak testing						
10		Boxup & Deblinging						
11		Removal of Scaffolding, Housekeeping						
AC2	E-4403	Treated Gas Trim Cooler (Qty: 02 Nos.)			Test ring arrangement	2		
1	& E-5403	Scaffolding at Channel Head (pre-shutdown activity)	BEU-Horizontal (Shell and Tube)		Bundle pulling arrangement to be identified			
2		Blinding	328 "U" Tubes x 0.584"(ID) x141.732" LG	Spanner Size = 67,48mm	Head Gaskets: (Special) Channel side: OD:40" ID: 37.24" THK:0.18" (Web In Middle) Tube Side: OD:40" ID: 37.24" THK:0.18" 01 each			
3		Dismantling of exchanger inlet and outlet nozzle connections		Scaffolding Material	N1 N2 Spiral wound gasket 3" 150# SS316L-F.G 2EA			
4		Opening of Channel Head Cover			N3 N4 Spiral wound gasket 12" 600# SS316L-F.G 2EA			

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5		Removal & Inspection of bundle	Shell ID = 36 in.		N5 N6 Spiral wound gasket 2" 600# SS316L-F.G 2EA			
6		Cleaning of tubes & tube bundles by Water jetting	Bolt Size = 1 3/4" , 1 1/4"					
7		Cleaning of Shell and channel						
8		Insertion of Bundle						
9		Pressure / leak testing						
10		Boxup & Deblinging						
11		Removal of Scaffolding, Housekeeping						
AC3	E-4406 A/B	Amine Regenerator Reboiler (Qty: 01 No., only one will be attended)			Test ring arrangement	1 (only one will be attended)		
1	&	Scaffolding at Channel Head (pre-shutdown activity)	BKU-Horizontal (Shell and Tube		Bundle pulling arrangement to be identified			
2	E-5406 A/B	Blinding	1646 "U" Tubes x 0.584"(ID) x196.85" LG		Head Gaskets: (Special) Channel side: (Web)OD:71.161" ID: 68.189" THK:0.175" Tube Side: OD:71.161" ID: 68.189" THK:0.175" 01 each			
3		Dismantling of exchanger inlet and outlet nozzle connections		Spanner Size = 48mm	N1 N2 N3 N4 12" SPW 150# SS316L-F.G 04EA			
4		Opening of Channel Head Cover		Scaffolding Material	N5 14" SPW 150# SS316L-F.G 01 EA			
5		Removal & Inspection of bundle		Shell ID = 68 in.				
6		Cleaning of tubes & tube bundles by Water jetting	Bolt Size = 1 1/4"		U1 L1 L2 L3 L4 2" 150# SS316L-F.G 05EA			
7		Cleaning of Shell and channel						
8		Insertion of Bundle						
9	Pressure / leak testing							

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10		Boxup & Deblinging						
11		Removal of Scaffolding, Housekeeping						
AC4	E-4404 A/B/C	Rich/Lean Amine Exchangers (Qty: 06 Nos.)				6		
1	& E-5404 A/B/C	Scaffolding at both ends (pre-shutdown activity)	Plate & Frame Heat Exchanger					
2		Cleaning of all 06 nos. strainer at inlet of lean and rich amine streams	Bolt Size = 1 1/4"					
3		Chemical cleaning of both lean and rich amine sides. Arrangements for chemical cleaning (i.e. pumps, tanks, temporary connection etc.						
4		Pressure Testing		Spanner Size = 48mm				
5		Final Inspection		Scaffolding Material				
6		Boxup & Housekeeping						
AC5	EA-4401	Lean Amine Air Cooler (Qty: 02 Nos.)				2		
1	& EA-5401	Scaffolding (Pre-S/down activity)	Fin Fan Cooler					
2		External cleaning of tubes and fins. Note: Tank and pump arrangement will be of contractor	No. of Tubes = 2208	Spanner Size = 48mm				
3		General inspection and preventive maintenance of condenser fans, fan blades, belts, pulleys, manual louvers and tube end plugs; including but not limited to complete external cleaning of rotors, tubes and fins, tightening of all structural bolts, rotor blade angle correction, blade deflection measurement, greasing of bearings (through greasing ports), pulleys alignment verification / correction and replacement of belts (conditional).	Tube ID = 0.7638"	Scaffolding Material				

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4		Final Inspection	Tube Length = 326.77					
5		Boxup & Housekeeping	Bolt Size = 1 1/4"					
AC6	EA-4402	Amine Regenerator Reflux Condenser (Qty: 02 Nos.)				2		
1	& EA-5402	Scaffolding (Pre-S/down activity)	Fin Fan Cooler					
2		External cleaning of tubes and fins. Note: Tank and pump arrangement will be of contractor	No. of Tubes = 920	Spanner Size = 48mm				
3		General inspection and preventive maintenance of condenser fans, fan blades, belts, pulleys, manual louvers and tube end plugs; including but not limited to complete external cleaning of rotors, tubes and fins, tightening of all structural bolts, rotor blade angle correction, blade deflection measurement, greasing of bearings (through greasing ports), pulleys alignment verification / correction and replacement of belts (conditional).	Tube ID = 0.834"	Scaffolding Material				
4		Final Inspection	Tube Length = 326.77					
5		Dismantling , cleaning and re-installation of strainers of Pumps.P-4402 A/B, P-5402A/B, P- 4403 A/B/C, P-5403A/B/C, P-4404 A/B/C, P- 5404A/B/C, P-4405A/B, P-5405A/B	Bolt Size = 1 1/4"					
6		Boxup & Housekeeping						
AC7	H-200	Reboiler (Early Facility Train 1)						

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1		Blinding			N2 N12 1 1/2" 150# SW 03 Nos. ; N 3 N4 2" 150# 03 Nos.	1		
2		Scaffolding (if required)						
3		Insulation removal and reinstallation						
4		Reboiler shell cleaning and inside painting			N6 8" 150# SW			
5		Reboiler stripping column dismantling, packing inspection, and cleaning.			Gasket 71 1/2" O.D x 1/8" Thk x 66" I.D 01 No.			
6		Reboiler fire tubes carbon cleaning.						
7		Cleaning of reboiler burners, inlet air screens and servicing/adjustment of air dampener.			Gasket 23 3/8" O.D x 1/8" thk x 20" I.D 02 No.			
8		Fabrication and installation of thermowell						
9		Cleaning of all instrumentation and guages						
10		High temperature aluminium painting of manway, stacks along with skid and associated piping						
11		Boxup & Deblinding						
AC8	E-400	Lean, Rich Glycol Exchanger (Early Facility 1)				1		
1		Insulation removal and reinstallation			Shellside Inlet & Outlet Nozzels = 4" 150# 02 Nos.			
2		Chemical cleaning of both lean and rich glycol sides. Arrangements for chemical cleaning (i.e. pumps, tanks, temporary connection etc.	Shell & Tube exchanger		Tubeside Inlet & Outlet Nozzels = 2" 150# 02 Nos. Shell Drain = 2" 150# 01			
3		Bundle pulling and cleaning and hydrojetting			U-type tube bundle			
4		Pressure Testing			No. of tube = 650			
5		Final Inspection			Tube Size = 14mm x 2000 mm			
6		Boxup & Housekeeping			Shell Dia = 479 mm; Length = 2894 mm			
GROUP-D: FILTERS:-								

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AD1	F-4401 A/B	Lean Amine Filters (Qty: 04 Nos.)				4		
1	&	Opening of top cover	I.D. of Vessel = ID 23.62 in		A B 6" 150# SPW RF 02EA			
2	F-5401 A/B	Removal of elements	Length of Vessel = 67.09 (TL/TL)		D1 D2 2" 150# SPW RF 02EA			
3		Internal cleaning of vessel	Filter Element Size = Dia 152.4 x 1016 mm		no of filter element installed per unit 05			
4		Interim Inspection	Filter Element Qty = 5		part no: HFU640UY020J			
5		Installation of new elements	Internal Material: SS 316L		filter element size: Ø152.4 x 1016 mm			
6		Final inspection						
7		Boxup & Housekeeping						
AD2	F-4402 A/B	Carbon Bed After Filters (Qty: 04 Nos.)				4		
1	&	Opening of top cover	I.D. of Vessel = ID 31.5 in		A B 6" 150# SPW RF 02EA			
2	F-5402 A/B	Removal of elements	Length of Vessel = 64.45 (TL/TL)		D1 D2 2" 150# SPW RF 02EA			
3		Internal cleaning of vessel	Filter Element Size = 5-1/2" O.D. x 36"		no of filter element installed per unit 12			
4		Interim Inspection	Filter Element Qty = 20		part no: HFU640CAS010J			
5		Installation of new elements	Internal Material: SS 316L		filter element size: Ø152.4 x 1016 mm			
6		Final inspection						
7		Boxup & Housekeeping						
GROUP-E: UTILITIES:-								

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
AE1	CT-9801	COOLING TOWER			FILL SIZES LAYER 2 B1 105EA(1000*750*500(15 PIECES)) B2 06EA (1000*750*350(11 PIECES)) B3 09EA (1000*750*300(9 PIECES))B4 35EA(900*750*500(15 PIECES)) B5 02EA (1000*750*350(11 PIECES)) B6 03EA (900*750*300(9 PIECES))	1		
1		Cleaning/replacement of top water deck & nozzles			N1 N2 N3 N4 N5 8" 150# RF WN 05EA			
2		Cleaning of basin & pump suction pit			Fills and drift eliminators			
3		Repair of suction pit gate strainers, if any			4" 150# RF SPW INNER AND OUTER RING OF CS 20EA			
4		Inspection/cleaning/Installation of damaged/fallen fills,tower splash and drift eliminator etc. if any.			6" 150# RF SPW INNER AND OUTER RING OF CS 10EA			
5		General Inspection and preventive maintenance of tower fans, fan blades, belts and pulleys including complete external cleaning of rotors, tightening of all structural bolts, rotor blade angle correction, blade deflection measurement, pulleys alignment verification / correction and replacement of belts (conditional).			8" 150# RF SPW INNER AND OUTER RING OF CS 5EA			

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
6		Cleaning / repair of pump suction strainers			DRIFT ELIMINATORS SIZES (C1(12EA): 1000*500 C2(108EA): 950*500 C3(04EA): 1000*400 C4(36EA): 950*400			
7		General cleaning of area and replacement of corroded structure of fan motors.			FILLS SIZES LAYER 1 A1 84EA(1000*500*500(15 PIECES) A2 14EA(850*500*500(15 PIECES)) A3 42EA (900*500*500(15 PIECES)) A4 24EA(1000*500*400(12 PIECES) A5 04EA(850*500*400(12 PIECES)) A6 06EA (900*500*400(12 PIECES))			
AE2	A-4301	CPI Separator				1		
1		Opening of manways	Manhole: 24" 300# 02Nos.		N1 N10A/B N12 4" 150# WN RF 04EA			
2		Inspection and cleaning CPI plate packs			N2 6" 150# WN RF 01EA			
3		Internal cleaning of water, oil and sludge compartment i.e.removal of mud/slurry			N3 N5 N9A/B/C 3" 150# WN RF 05EA			
4		Final Inspection			N4 A/B/C/D N6 N8 A/B/C/D/E/F N11 2" 150# WN RF 11EA			
5		Box up & Housekeeping			MW 1/2 24" 300# WN RF			
6		Dismantling, cleaning and re-installation of suction strainers of Pumps P-4302A/B/C, P-4303 A/B, P-4304 A/B, P-4305, P- 8201A/B						

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
AE3	V-8301	Close Drain Vessel				1		
1		Blinding	Man Hole: 20", 150#, RF		A/D 4" 150# WN RF 02EA			
2		Opening of manways	ID 8 ft. x 24 ft. Length (TL/TL)		B/C/E/G 2" 150# WN RF 04EA			
3		Ventilation/Safety clearance			F1 F2 24" 150# WN RF 02EA			
4		Internal Inspection of vessel			MW 20" 150# WN RF 01EA			
5		Cleaning of vessel						
6		Box up & Housekeeping						
7		Deblinding						
AE4	V-4301	Degasser Vessel				1		
1		Blinding	Manway: 24", 150 #, RF		A/C: 3", 150 WNRF, 01EA			
2		Opening of manways	ID: 1524mm		B1/B2/B3/ B4/D1/D2/E/G: 2", 150# WNRF, 01EA			
3		Ventilation/Safety clearance	Length: 4572 (TL/TL)		F: 1/2", 3000#, NPT, 01No.			
4		Internal Inspection of vessel	Material: SA516, Gr 70					
5		Cleaning of vessel	Fluid: Produced Water					
6		Box up & Housekeeping						
7		Deblinding						
AE5	V-7102	OVHD Compressor Suction Scrubber				2		
1	&	Blinding	Size: 30" ID x 102" TL/TL		A/B: 04", 300#, WNRF, 01EA			
2	V-7202	Opening of manways	Material: SA-516, Gr70		C/D1/D2/E1/E2/F1/F2/G/I /J: 02", 300#, WNRF, 01EA			
3		Ventilation/Safety clearance						
4		Internal Inspection of vessel						
5		Cleaning of vessel						
6		Box up & Housekeeping						

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
7		Deblinding						
AE6		Turbine Stack (03 Nos.) and Power Gensets Stacks (06 Nos.)				9		
1		Surface finishing of stacks for painting work.						
2		High temperature aluminium painting of stacks						
GROUP-B: VESSELS:-								
DB1	V-4501	Molecular Sieve Inlet Scrubber (Qty: 02 Nos.)			M1 24" 600# SPW WN RF 01	2		
1	&	Blinding	Vertical Vessel		N1 N2 12" 600# SPW WN RF 02EA			
2	V-5501	Opening of manways, dismantling of interconnecting piping.	ID 4.53 ft x 6.89 ft Length (TL/TL)	Spanner Size = 75mm	N3 N5 N6 K1A K1B K2A K2B 2" 600# WN RF 07 EA			
3		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24 in. 600# WN/RF 01 No.	Scaffolding Material	N4 3" 600# SPW WN RF 01EA			
4		Internal Inspection of vessel	SA-516 Gr.70N (SS 304 L Internals)		Demister installed (detailed drawing not available)			
5		Cleaning of vessel internals, demisters, bridle & LG's.	Bolt Size = M 36					
6		Final inspection						
7		Boxup & Deblinding, Housekeeping						
DB2	V-4503	Regeneration Gas Scrubber (Qty: 02 Nos.)			N1 N2 6" 600# WN RF 02EA			
1	&	Blinding	Vertical Vessel		N3/N5 K1A/B K2 A/B K3 A/B 2"-600# 08EA			

OIL & GAS DEVELOPMENT COMPANY LIMITED

KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)

Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
2	V-5503	Opening of manways, dismantling of interconnecting piping.	Size: OD 20 in x 9.09 ft. Length (TL/TL)	Spanner Size = 2" / 51mm	N4 4" 600# WN RF 01EA	2		
3		Ventilation / Safety clearance / Confined space entry		Scaffolding Material	K1A/B K2A/B K3A/B Spiral wound gasket 2"-600 SS316L-F.G 6EA			
4		Internal Inspection of vessel	SA-516 Gr.70N (SS 304 L Internals)					
5		Cleaning of vessel internals, demisters, bridle & LG's.	Bolt Size = 1 3/8"					
6		Final inspection						
7		Boxup & Deblinding, Housekeeping						

GROUP-C: HEAT EXCHANGERS:-

DC1	E-4503	Feed Gas Cooler (Qty: 02 Nos.)			Scaffolding at both front and rear heads	2		
1	&	Scaffolding at Channel Head (pre-shutdown activity)	Horizontal (Shell and Tube)		Fixed tubesheet			
2	E-5503	Dismantling of exchanger inlet and outlet nozzle connections	416 Tubes x 0.62"(ID) x143.7" LG	Spanner Size = 2" / 51mm	Tube side flange front gasket 634mm x 574 mm kamprofile AISI 304 FG 01EA			
3		Opening of Channel Head Cover		Scaffolding Material	tube side flange rear gasket 634mm x 574 mm kamprofile AISI 304 FG 01EA			
4		Cleaning of tubes by water jetting			S1 S2 4" 150# SPW GASKET WN RF 02EA			
5		shell side water flushing and suitable chemical		Shell ID = 23.25 in.				
6		Cleaning of Shell and channel	Bolt Size = 1 3/8"		T1 T2 12" 600# SPW GASKET WN RF 02 EA			
7		Pressure/leak testing						
8		Box up						
9		Removal of Scaffolding & Housekeeping						

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
DC2	E-4501	Regeneration Gas Pre-Heater (Qty: 02 Nos.)			Scaffolding at both front and rear heads	2		
1	& E-5501	Scaffolding at Channel Head (pre-shutdown activity)	Horizontal (Shell and Tube)		tube side gasket 841mm x 749mm x 5mm thickness kamprofile AISI 304 FG 01EA			
2		Dismantling of exchanger inlet and outlet nozzle connections	540 Tubes x 0.584" (ID) x 320.86" LG	Spanner Size = 57mm, 67mm, 75mm	shell side flange front gasket 841mm x 761mm x 5mm thickness kamprofile AISI 304 FG 01EA			
3		Opening of Channel Head Cover		Scaffolding Material	shell side flange head gasket 1012mm x 918mm x 5mm thickness kamprofile AISI 304 FG 01EA			
4		Removal & Inspection of bundle			floating head gasket detail 740mm x 666mm x 5mm thickness 01EA			
5		Cleaning of tubes & tube bundles by Water jetting	Shell ID = 29.53 in.		S1 T1 T2 6" 900# GASKET WN RJ 03EA			
6		Cleaning of Shell and channel	Bolt Size = 1 1/2" , 1 3/4" , 1 7/8"		S2 8" 900# WN RJ 01EA			
7		Insertion of Bundle			Test ring arrangement			
8		Pressure/leak testing			Bundle pulling arrangement to be identified			
9		Box up						
10		Removal of Scaffolding & Housekeeping						
DC3	E-4502	Regeneration Gas Heater (Qty: 02 Nos.)			Scaffolding at one end U bundle			

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
1	& E-5502	Scaffolding at Channel Head (pre-shutdown activity)	BFU-Horizontal (Shell and Tube)		tube side gasket 523mm x 463mm X 5mm thicknesskamprofile AISI 304 FG 01EA	2		
2		Dismantling of exchanger inlet and outlet nozzle connections	93 "U" tubes x 0.584"ID x 170.08" LG	Spanner Size = 48mm	SHELL SIDE GASKET 523mm x 465mm x 5mm thinckness kamprofile AISI 304 FG 01EA			
3		Opening of Channel Head Cover		Scaffolding Material	S1 6" 300# SPW GASKET WN RF 01EA			
4		Removal & Inspection of bundle			S2 4" 300# SPW GASKET WN RF 01EA			
5		Cleaning of tubes & tube bundles by Water jetting		Shell ID = 17.25 in.				
6		Cleaning of Shell and channel	Bolt Size = 1 1/4"		T1 T2 6" 900# GASKET WN RJ 02EA			
7		Insertion of Bundle			Test ring arrangement			
8		Pressure/leak testing			Bundle pulling arrangement to be identified			
9		Box up						
10		Removal of Scaffolding & Housekeeping						
DC4	EA-4501	Regeneration Gas Cooler (Qty: 02 Nos.)				2		
1	& EA-5501	Scaffolding (Pre-S/down activity)	Fin Fan Cooler					
2		External cleaning of tubes and fins. Note: Tank and pump arrangement will be of contractor	264 Tubes x 0.834"(ID) x240" LG	Spanner Size = 51mm				
3		General inspection and preventive maintenance of condenser fans, fan blades, belts, pulleys and manual louvers.		Scaffolding Material				
4		Final Inspection						
5		Box up & Housekeeping	Bolt Size = 1 3/8"					
GROUP-D: FILTERS:-								
DD1	F-4501 A/B	Feed Gas Filter Coalscer (Qty: 04 Nos.)			M1 36" 600# SPW WN RF 01EA (SERIES B)			

OIL & GAS DEVELOPMENT COMPANY LIMITED

KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)

Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
1	& F-5501 A/B	Opening of top cover	I.D. of Vessel = ID 36 in		N1 N2 12" 600# SPW WN RF 02EA	4		
2		Removal of elements	Length of Vessel = 14.64 ft. (TL/TL)	Spanner Size = 99mm	N3 N4 N5 K1A K1B K2A K2B K3 2" 600# SPW WN RF 08EA			
3		Internal cleaning of vessel	Filter Element Size =Dia 140 mm x 36"	Scaffolding Material	ALL SPW GASKETS ARE GRAPHITE INNER AND OUTER SS 304			
4		Inspection of vane packs	Filter Element Qty = 14					
5		Installation of new elements	Internal Material: Fiberglass/ SS Material					
6		Final inspection	Bolt Size = 2 1/2"					
7		Box up & Housekeeping						
DD2	F-4502 A/B	Dry Gas Filter (Qty: 04 Nos.)			M1 24" WN RF 01EA	4		
1	& F-5502 A/B	Opening of top cover	I.D. of Vessel = ID 24 in		N1 N2 12" 600# SPW RF 02EA			
2		Removal of elements	Length of Vessel	Spanner Size = 75mm	N3 N4 2" 600# SPW WN RF 02EA			
3		Internal cleaning of vessel	Filter Element Size =Dia 140 mm x 36"		N5 3" 600# SPW LWN RF 01EA			
4		Interim Inspection	Filter Element Qty = 8		K1 2" 600# SPW LWN RF 01EA			
5		Installation of new elements	Internal Material: Fiberglass/ SS Material		ALL SPW GASKETS ARE GRAPHITE INNER AND OUTER SS 304			
7		Final inspection	Bolt Size = 1 7/8"					
8		Box up & Housekeeping						

LPG & CONDENSATE RECOVERY UNIT (TRAIN-01 & 02) - 02 UNITS:-

GROUP-A: COLUMNS:-

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
LA1	C-4501	Inlet Gas Absorber (Qty: 02 No.)			N1 N4 10"-600# Spiral wound gasket WN RF 2EA	2		
1	& C-5501	Blinding	ID 78 in x 418 in length (TL/TL)		N2 3"-600# same as N1 note WN RF 1EA			
2		Opening of manways.		Spanner Size = 75mm	N3/N5/N8/N9 L1A/B/C/D L2A/B 2"-600# WN RF 10EA			
3		Ventilation / Safety clearance	Packing	Scaffolding Material	N6 4"-600# WN RF 1EA			
4		Initial Inspection	I.D. of Manway = 24", 600#, RF		N7 6"-600# same WN RF1EA			
5		Internal cleaning & Final inspection	Bolt Size = 1 7/8"		M1/M2 24"-600# Spiral wound gasket WN RF 2EA			
6		Box up & Deblinding, Housekeeping			H 12"-600# Spiral wound gasket WN RF			
					All gaskets are graphite with 316 SS strip.			
LA2	C - 7101	Condensate Stabilizer Column (Qty: 02 Nos.)						
1	& C - 7201	Blinding	ID 36 in x 694 in length (TL/TL)		A 8"-600# Spiral wound gasket WN RF1EA			
2		Water / Chemical flushing and cleaning/inplace cleaning	No. of trays = 25	Spanner Size = 64mm	B/C/E/G/J/I1/I2/K 2"-600# Spiral wound gasket WN RF8EA			
3		Opening of manways.		Scaffolding Material	D 3"-600# Spiral wound gasket WN RF 1EA			

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
4		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 20" 600# WN/RF 04 Nos.		F/L 4"-600# Spiral wound gasket WN RF 2EA	2		
5		Initial Inspection	Bolt Size = 1 5/8"		H 6"-600# Spiral wound gasket WN RF 1EA			
6		M.Cleaning of Column Shell internal,vortex breaker,distributer, bridle & LG's etc.			M1/M2/M3/M4 20" 600 Spiral wound gasket WN RF 4EA			
7		Final inspection			All gaskets are graphite with 316 SS strip.			
8		Box up & Deblinding, Housekeeping						
LA3	C - 4502	De-Ethanizer Column (Qty: 02 Nos.)				2		
1	& C - 5502	Blinding	ID 56/64 in x 1166 in length (TL/TL)		N1 N2 3"-600# Spiral wound gasket WN RF 02EA			
2		Water / Chemical flushing and cleaning/inplace cleaning		Spanner Size = 75mm	N3/N6/N8/N11/N13/N14/ N15/N15/N17 2"-600# WN RF 09EA			
3		Opening of manways.	No. of trays = 42	Scaffolding Material	N4/N5/N7/N10/N12 6"-600# WN RF 05EA			
4		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24", 600#, RF 05 Nos.		M1-6 24" 600# WN RF 06EA			
5		Initial Inspection	Bolt Size = 1 7/8"		All gaskets are graphite with 316 SS strip.			
6		M.Cleaning of Column Shell internal,vortex breaker,distributer, bridle & LG's etc.						
7		Final inspection						
8		Box up & Deblinding, Housekeeping						
LA4	C - 4503	De-Butanizer Column (Qty: 02 Nos.)			N1 3" 300# Spiral wound gasket 01EA			

OIL & GAS DEVELOPMENT COMPANY LIMITED

KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)

Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
1	& C - 5503	Blinding	ID 48 in x 1012 in length (TL/TL)		N2/N10 6"-300# WN RF 02 EA	2		
2		Opening of manways.		Spanner Size = 57mm	N4/N5/N8 4"-300# WN RF 03EA			
3		Ventilation / Safety clearance / Confined space entry	No. of trays = 36	Scaffolding Material	N3/N6/N9/N11/N12/N13/ N14 2"-300# WN RF 07EA			
4		Initial Inspection	I.D. of Manway = 24", 300#, RF 05 Nos.		M1/M2/M3/M4/M5 24" 300 WN RF			
5		Inplace Cleaning of all trays	Bolt Size = M 39		All gaskets are graphite with 316 SS strip.			
6		M.Cleaning of Column Shell internal, vortex breaker,distributer, bridle & LG's etc.						
7		Final inspection						
8		Box up & Deblinding, Housekeeping						

GROUP-B: VESSELS:-

LB1	V-7101	Condensate Flash Separator (Qty: 02 Nos.)			(7) 4" 300# Spiral wound gasket SS316L/FG 1EA	2		
1	& V-7201	Blinding	Horizontal Vessel		(12) 2" 300# Spiral wound gasket SS316L/FG 16EA			
2		Opening of manways.	Size: ID 36 in x 132 in Length (TL/TL)	Spanner Size = 48 mm	(23) 3" 300# Spiral wound gasket SS316L/FG 1EA			
3		Vessel and water boot flushing with water	I.D. of Manway = 20 in. 300# WN/RF 01 No.	Scaffolding Material	MW 20" 300# Spiral wound gasket SS316L/FG 1EA			
4		Ventilation / Safety clearance / Confined space entry	Bolt Size = 1 1/4"					
5		Internal Inspection of vessel						

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
6		Cleaning of vessel internals, bridle & LG's.						
7		Final inspection						
8		Box up & Deblinding, Housekeeping						
LB2	V-4504	Low Temperature Separator (Qty: 02 Nos.)			MANWAY M1 24" 900# WN RJ 01EA	2		
1	& V-5504	Blinding	Vertical Vessel		N1 12" 900# WN RJ 01EA			
2		Opening of manways.	Size: 63" (1600mm) ID x 206" (5232.4mm) (TL/TL)	Spanner Size = 99 mm	N2 8" 900 WN RJ 01EA			
3		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24 in. 900# WN/RF 01 No.	Scaffolding Material	N3 3" 900# WN RJ 01EA			
4		Internal Inspection of vessel	Bolt Size = 2 1/2"		N4 4" 900# WN RJ 01EA			
5		Final inspection			N5(a-b) N6(a-b) N7(a-b) 2" 900# WN RJ 06EA			
6		Box up & Deblinding, Housekeeping			N8 N9 N10 2" 900# WN RJ 03EA			
					ALL GASKETS ARE OF SS 316L			
LB3	V-4506	De-Butanizer Reflux Drum (Qty: 02 Nos.)				2		
1	& V-5506	Blinding			(6) Spiral wound gasket 2" 300# SS 316L-F.G 10EA			
2		Opening of manways.	Size: ID 48 in x 168 in Length (TL/TL)	Spanner Size = 57 mm	(17) Spiral wound gasket 3" 300# SS 316L-F.G 1EA			
3		Ventilation / Safety clearance / Confined space entry	I.D. of Manway = 24", 300#, RF	Scaffolding Material	(22) Spiral wound gasket 4" 300# SS 316L-F.G 1EA			

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
4		Internal Inspection of vessel	Bolt Size = 1 1/2"		(33) Spiral wound gasket 6" 300# SS 316L-F.G 1EA			
5		Cleaning of vessel, bridle & LG's.			MW 24" 300# Spiral wound gasket SS316L/FG 1EA			
6		Final inspection			ALL GASKETS ARE WELD NECK RF			
7		Box up & Deblinding, Housekeeping						
GROUP-C: HEAT EXCHANGERS:-								
LC1	E-7101	Stabilizer Re-Boiler (Qty: 02 Nos.)			Test ring arrangement	2		
1	& E7201	Scaffolding at Channel Head (pre-shutdown activity)	BKU-Horizontal (Shell and Tube		Bundle pulling arrangement to be identified			
2		Blinding	140 "U" Tubes x 0.584"(ID) x144" LG	Spanner Size = 38 mm	Channel side (Left gasket) 699OD x 629ID (WEB) Special			
3		Dismantling of exchanger inlet and outlet nozzle connections		Scaffolding Material	Shell side (Right gasket) 699OD x 629ID Special			
4		Opening of Channel Head Cover			A C D E 6" 600# SPW WN RF 04EA			
5		Removal & Inspection of bundle	Shell ID = 48 in.		B 3" 600# SPW WN RF 01EA			
6		Cleaning of tubes & tube bundles by Water jetting	Bolt Size = 1"		F1 F2 G1 G2 I J 2" 600# SPW WN RF 06EA			
7		Cleaning of Shell and channel, mechanical cleaning of tubes						
8		Insertion of Bundle						
9		Pressure/leak testing						
10		Box up & deblinding.						
11		Removal of Scaffolding & Housekeeping						
LC2	E-4507	De-Butanizer Reboiler (Qty: 02 Nos.)						
1	& E-5507	Scaffolding at Channel Head (pre-shutdown activity)	BKU-Horizontal (Shell and Tube		Test ring arrangement			
2		Blinding	140 "U" Tubes	Spanner Size = 34 mm	Bundle pulling arrangement to be identified			

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
3		Dismantling of exchanger inlet and outlet nozzle connections	154 Tubes x 0.584"(ID) x144' LG	Scaffolding Material	Channel side (Left gasket) 776OD x 716ID (WEB) Special	2		
4		Opening of Channel Head Cover			Shell side (Right gasket) 776OD x 716ID Special			
5		Removal & Inspection of bundle	Shell ID = 28 in.		N1 N2 6" 300# SPW WN RF 02 EA			
6		Cleaning of tubes & tube bundles by Water jetting	Bolt Size = 7/8"		N4 N3 4" 300# SPW WN RF 02 EA			
7		Cleaning of Shell and channel, mechanical cleaning of tubes			N5 3" 300# SPW WN RF 01 EA			
8		Insertion of Bundle			N7A N7B N8A N8B N9 N10 2" 300# SPW WN RF 06 EA			
9		Pressure/leak testing						
10		Box up & deblinding.						
11		Removal of Scaffolding & Housekeeping						
LC3	EA-4501	De-Butanizer Overhead Condenser (Qty: 02 Nos.)				2		
1	& EA-5501	Scaffolding (Pre-S/down activity)	Fin Fan Cooler					
2		External cleaning of tubes and fins. Note: Tank and pump arrangement will be contractor's responsibility	552 Tubes x 0.782"(ID) x413.38" LG	Scaffolding Material				
3		General inspection and preventive maintenance of condenser fans, fan blades, belts, pulleys, manual louvers and tube end plugs; including but not limited to complete external cleaning of rotors, tubes and fins, tightening of all structural bolts, rotor blade angle correction, blade deflection measurement, replacement of gearbox shaft oil seals, flushing of gearbox and refilling of fresh oil.						
4		Final Inspection & box up						
5		Removal of Scaffolding & Housekeeping						
LC4	EA-4502	Condensate Cooler (Qty: 02 Nos.)						
1	&	Scaffolding (Pre-S/down activity)	Fin Fan Cooler					

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
2	EA-5502	External cleaning of tubes and fins. Note: Tank and pump arrangement will be contractor's responsibility	368 Tubes x 0.782"(ID) x19.685" LG			2		
3		General inspection and preventive maintenance of condenser fans, fan blades, belts, pulleys, manual louvers and tube end plugs; including but not limited to complete external cleaning of rotors, tubes and fins, tightening of all structural bolts, rotor blade angle correction, blade deflection measurement, replacement of gearbox shaft oil seals, flushing of gearbox and refilling of fresh oil.		Scaffolding Material				
4		Final Inspection & box up						
5		Removal of Scaffolding & Housekeeping						
LC5	E-4503	Inlet Gas Multi-pass Heat Exchanger (Qty: 02 Nos.)			Gaskets for blast purging	2		
1	& E-5503	Scaffolding at both ends (pre-shutdown activity)	Plate & Frame Heat Exchanger					
2		Dismantling, removal, cleaning and re-installation of dry gas inlet line strainer.		Scaffolding Material				
3		Back blast purging of dry gas inlet stream with N2 and subsequent re-instatement for normal operation.						
4		Final Inspection & box up						
5		Removal of Scaffolding & Housekeeping						
LC6	E-4506	De-Ethanizer Overhead condenser (Qty: 02 Nos.)				2		
1	& E-5506	Scaffolding at both ends (pre-shutdown activity)	Plate & Frame Heat Exchanger					
2		Back blast purging of dry gas inlet stream with N2 and subsequent re-instatement for normal operation.		Scaffolding Material				
3		Final Inspection						
4		Box up, Rempval of Scaffolding & Housekeeping						

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
5		Dismantling, cleaning and re-installation of suction strainers of P-4501 A/B, P-4502 A/B, P-4503 A/B						
GROUP-D: FILTERS:-								
LD1	F-7101 A/B	Condensate Filters (Qty: 04 Nos.)			a/b 3"-300# Spiral wound gasket graphite 02EA	4		
1	& F-7201 A/B	Opening of top cover	I.D. of Vessel = ID 9.75 in		c/d/e/f 2"-300# Spiral wound gasket graphite 04EA			
2		Removal of elements	Length of Vessel = 5.158 ft. (TL/TL)	Spanner Size = 38 mm	10" 300# WN RF 01EA			
3		Internal cleaning of vessel		Scaffolding Material				
4		Interim Inspection	Filter Element Qty = 3					
5		Installation of new elements	Bolt Size = 1"					
6		Final inspection						
7		Box up & Housekeeping						
LD2	F-7102 A/B	Condensate Filter Coalscer (Qty: 04 Nos.)			A/D 3"-300# WN RF Spiral wound gasket Graphite 02EA	4		
1	& F-7202 A/B	Opening of Side Cover			F/G/H/J 2"-300# WN RF Spiral wound gasket Graphite 04EA			
2		Removal of elements		Spanner Size = 43 mm	B1/B2/C/K/I 2"-300# WN RF Spiral wound gasket Graphite 05EA			
3		Internal cleaning of vessel	Horizontal Vessel	Scaffolding Material	E1/E2 2"-300# WN RF Spiral wound gasket Graphit 02EA			
4		Interim Inspection	Filter Element Qty = 4		L1/L2 2"-300# WN RF Spiral wound gasket Graphite 02EA			

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
5		Installation of new elements	Bolt Size = 1 1/8"		M1/M2 2"-300# WN RF Spiral wound gasket Graphite 02EA			
6		Final inspection			14" 300# WN RF 316L/FG 01EA			
7		Box up & Housekeeping						
MANUAL VALVES(seat passing problems)								
S.#	EQUIP. NAME	EQ.TAG.NO	DESCRIPTION/LOCATION	VALVE TAG	TYPE/SIZE/RATING	QTY	Unit Rate	Total Price
DEHYDRATION-TRAIN-I VALVES:-								
1	Regeneration Gas	K-4501 A	Suction Valve	VB-222	Ball Valve(Flanged), 4" x 600#	2		
2	Molecular Sieve D	V-4502A	Steam valve of BDV	VB-232	Ball Valve(Flanged), 4" x 900#	1		
3	PDIT-4504 Downstream	PDIT-4504	Downstream Valve		SW, 1/2", 600#	1		
4	By-pass Valve of L	LCV-4501	By-pass Valve		Ball Valve(Flanged), 4"x 600#	1		
DEHY-T-I Total Valves						5		
DEHYDRATION-TRAIN-II VALVES:-								
1	Regeneration Gas	K-5501 B	Suction Valve	VB-222	Ball Valve(Flanged), 4" x 600#	2		
2	PDIT-5504 up/down	PDIT-5504	Isolation Valve		SW, 1/2", 600#	1		
3	Regeneration Gas	K-5501 B	Discharge valves		Ball Valve(Flanged), 4"x 600#	1		
DEHY-T-II Total Valves						4		
LPG AND CONDENSATE RECOVERY UNIT-TRAIN-I VALVES:-								
1	Absorber Bottom Feed	P-4501A/B	Suction valves	VB-216	Ball Valve(Flanged), 6"x 300#	2		
2	Absorber Bottom Feed	P-4501A/B	Discharge valves	VB-216	Ball Valve(Flanged), 4"x 300#	2		
3	De-C2 Reflux pump	P-4502A/B	Suction valves	VB-216	Ball Valve(Flanged), 6"x 300#	2		
4	De-C2 Reflux pump	P-4502A/B	Discharge valves	VB-216	Ball Valve(Flanged), 4"x 300#	2		
5	De-C4 Reflux drum	P-4503 A/B	Suction Valves	VB-211	Ball Valve(Flanged), 6"x 300#	2		
6	Multi pass heat exchanger	E-4503	Steam valve of ESD	VB-221	Ball Valve(Flanged), 12"x 600#	1		

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
7	Aborber Bottom F	P-4501B	NRV at Discharge		Ball Valve(Flanged), 4"x 300#	1		
8	Turbo Train-1	TE-4501	rain valve (Expander side)		SW, 3/4", 600#	1		
LPG-T-I						Total Valves	13	
LPG AND CONDENSATE RECOVERY UNIT-TRAIN-II VALVES:-								
1	Aborber Bottom F	P-5501A/B	Suction valves	VB-216	Ball Valve(Flanged), 6"x 300#	2		
2	Aborber Bottom F	P-5501A/B	Discharge valves	VB-216	Ball Valve(Flanged), 4"x 300#	2		
3	De-C2 Reflux pump	P-5502A/B	Suction valves	VB-216	Ball Valve(Flanged), 6"x 300#	2		
4	De-C2 Reflux pump	P-5502A/B	Discharge valves	VB-217	Ball Valve(Flanged), 4"x 300#	2		
5	De-C4 Reflux drum	P-5503 A/B	Suction Valves	VB-211	Ball Valve(Flanged), 6"x 300#	2		
6	De-C4 Reflux drum	P-5503 A/B	Discharge Valves		Ball Valve(Flanged), 4"x 300#	2		
7	De-C2 Reflux pump	P-5502A/B	Recycle Valves		SW, 1", 300#	1		
8	Aborber Bottom F	P-5501A	NRV at Discharge		Ball Valve(Flanged), 4"x 300#	1		
9	Aborber Bottom F	P-5501A/B	ain valve at common line		SW, 3/4", 300#	1		
10	Aborber Bottom F	P-5501	Recycle Valves		Ball Valve(Flanged), 4"x 300#	1		
LPG-T-II						Total Valves	16	
UTILITIES (COOLING TOWER/ HOT OIL):-								
1	Cooling tower	CT-9801	-9804 Isolating v	VB-201	Ball Valve(Flanged), 6"x 150#	2		
2	Secondary Hot O	P-8103A/B/C	Suction valves	VB-211	Ball Valve(Flanged), 20"x 300#	2		
UTILITIES						Total Valves	4	
Scope Of Work: Dismantling, lifting, shifting, testing, repair, re-testing and re-installation to be carried out by contractor with compatible tools & tackles/precision lathe machines. Material for seats repairing like teflon, SS will be provided/arranged by contractor. OGDCL will provide special kits only.								
MODIFICATION JOBS								
Sr#	ECR #	Modification Description	Pipe Size & Spec	Material	Detail of scope	Dia Inches	Unit Rate	Total Price

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
1	KT-ECR-1003	Provision of 2" new line from dry gas to De-ethanizer column at upstream of over head line 6" NRV. (for hot purging & column pressurization)	2", SS 316 / CS, SS316L 10S / CS Sch 80	Bidder scope include cutting, fabrication, welding, DPT, Installation of supports where required and lifting / shifting etc. Bidder shall arrange all welding equipment, plant, consumables required for fabrication & welding. DPT shall also be carried out by bidder however any other NDT like RT, MPI, PMI shall be arranged by OGDCL.		8 Dia Inches SS 316 + 17 Dia Inches CS approx.		
2	KT-ECR-1004	Installation of isolation valve for o/h gas from deethanizer reflux drum to mpx inlet.	6", SS 316, Sch 80			12		
3	KT-ECR-1005	Drainage of Regeneration Gas Liquid to CPI System from Dehyd	2", CS, Sch 80			34		
4	KT-ECR-1006	Close drain modification of Production Separators and Slug Catchers K- Slug Catcher SC-4101 K-Test Separator V-3201 K-Prod Separator V-4201 T-Prod Separator V-5201 T-Slug Catcher SC-5101	2", CS, Sch 80			8		
5	KT-ECR-1007	Relocation of nitrogen generation package from Sinjhoru to KPD	2", CS, Sch 80 3", CS, Sch 80			85 35		
6	KT-ECR-1044	Installation of new TAY-separator (Capacity: 40 MMSCFD)	8" 6" 4" 2" 1" Material CS/Galv. CS Sch 80 for all above sizes			24 12 8 26 5		
7	(TBP)	Dehydration Train-2 Tie-in with early facility Train-1. New isolation valve installation on return line.	12", CS, Sch 80			120		
8	KT-ECR-1008	Modification required for cold flare line re-location	8", SS 316, Sch 10S			64		

OIL & GAS DEVELOPMENT COMPANY LIMITED								
KPD-TAY PLANT - ATA 2019 (MECHANICAL SCOPE OF WORK REGISTER)								
Act #	Tag #.	Job Description	Specifications	Tools Required	Remarks	QTY	Unit Price (Except PST/ICT)	Total Price (Except PST/ICT)
9	KPD-MOC-MEC-01	Sale gas PCV 14" line Installation	14", CS Sch 80 10", CS Sch 80			28 40		
10	(TBP)	Tie-ins (Size: 03", 02 Nos) of Incinerator (Closed Drain & Fuel Gas)	3", CS Sch 80			18		
11	(TBP)	Tie ins for installation of sample probe of newly procured moisture analyzer	1", CS, Sch 80			1		
12	(TBP)	Installation of PSV/PCV before K/T Slug Cather Inlet ESDVs	4", CS, Sch 80 6", CS, Sch 80 6", Low Tepmt CS, Sch 80 8", Low Tepmt CS, Sch 40			12 18 18		
						24		
Grand Total (inclusive of all taxes (except Provincial Sales Tax/ ICT Tax on services in Pakistan), duties, levies, charges etc)								
All tools, consumables & equipments for executing the above mentioned jobs will be in contractor’s scope. Spanner sizes are mentioned only for facilitations.								

Electrical Section Scope of Work / Job List For ATA-2019 of KPD-TAY Palnt.

PLANT MOTORS								
S.No.	Description	Tag No.	Bearing		Job Description /Scope	Quantity	Unit Price (except PST/ICT)	Total Price (except PST/ICT)
			DE	NDE				
1	Lean Amine Air Cooler Fan 30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-4401 FA2	6313/C3	6312/C3	Inspection, checking, cleaning, Dismantling, Shifting, greasing, meggering, ,bearing replacement (if required), re-installation, alignment, commissioning and testing for smooth operation and parameters recording and submission of record in binder form. Testing Jobs include for LV Motors; 1. Insulation Resistance 2. Winding Resistance Note: Applicable standard: NETA MTS 2019, ISO 20958, IEEE 43 or equivalent	1		
2	Lean Amine Air Cooler Fan 30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-4401 FA7	6313/C3	6312/C3		1		
3	Reflux Condenser Cooler Fan30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-5402 FA1	6313/C3	6312/C3		1		
4	Absorber Pump 15kW, 400V, 50Hz, RPM: 2920, 27.4A	P-5501B	6309/C3	6309/C3		1		
5	Fan Cooler-1 37kW, 400V, 50Hz, RPM: 975, 70.8A	EA4501A	6315/C3	6313/C3		1		
6	Fan Cooler-1 37kW, 400V, 50Hz, RPM: 975, 70.8A	EA4501B	6315/C3	6313/C3		1		
7	Fan Cooler 37kW, 400V, 50Hz, RPM: 975	EA4502	6315/C3	6313/C3		1		
8	Fan Cooler-1 37kW, 400V, 50Hz, RPM: 975, 70.8A	EA5501A	6315/C3	6313/C3		1		
9	Fan Cooler-1 37kW, 400V, 50Hz, RPM: 975, 70.8A	EA5501B	6315/C3	6313/C3		1		
10	Fan Cooler 37kW, 400V, 50Hz, RPM: 975	EA5502	6315/C3	6313/C3		1		
11	Cooling Water Circulation Pump 90kW, 400V, 50Hz, RPM: 2978, 159A	P-9803A	6317/C3	6317/C3		1		
12	Cooling Water Circulation Pump 90kW, 400V, 50Hz, RPM: 2978, 159A	P-9803B	6317/C3	6317/C3		1		
13	Cooling Water Circulation Pump 90kW, 400V, 50Hz, RPM: 2978, 159A	P-9803C	6317/C3	6317/C3		1		
14	Hot Oil Circulation Pump 110kW, 400V, 50Hz, RPM: 2975, 188A	P-8101A	6314-C3	6314-M-C3-INSU		1		
15	Cooling Water Fan Cooler 7.5kW, 400V, 50Hz, RPM: 1435, 14.9A	B9805A	6208DDU/C3	6208DDU/C3		1		
16	Cooling Water Fan Cooler 7.5kW, 400V, 50Hz, RPM: 1435, 14.9A	B9805B	6208DDU/C3	6208DDU/C3		1		
17	Cooling Water Fan Cooler 7.5kW, 400V, 50Hz, RPM: 1435, 14.9A	B9805C	6208DDU/C3	6208DDU/C3		1		
18	Cooling Water Fan Cooler 7.5kW, 400V, 50Hz, RPM: 1435, 14.9A	B9805D	6208DDU/C3	6208DDU/C3		1		
19	Cooling Water Fan Cooler 7.5kW, 400V, 50Hz, RPM: 1435, 14.9A	B9805E	6208DDU/C3	6208DDU/C3		1		
20	Hot Oil Circulation Pump 110kW, 400V, 50Hz, RPM: 2975, 188A	P-8101A	6314-C3	6314-M-C3-INSU		1		
21	Hot Oil Circulation Pump 110kW, 400V, 50Hz, RPM: 2975, 188A	P-8101C	6314-C3	6314-M-C3-INSU		1		
22	Fire Water Pump 160KW, 289A	P-8801A	6313	6313		1		
23	Fire Water Jockey Pump37KW, 66.8A	P-8802B	6212/C3	6312/C3		1		
24	Instrument Air Compressors 90kW, RPM: 1485, 162.4	K-8601A	6316/C3	6316/C3		1		
25	Instrument Air Compressors 90kW, RPM: 1485, 162.4	K-8601B	6316/C3	6316/C3		1		
26	Nitrogen Compressor Motor 37KW, 65.2A	A				1		
27	Nitrogen Compressor Motor 37KW, 65.2A	B				1		
28	Air Cooling Fan 45KW, 80A	A-1	6314-C3	6314-C3		1		
29	Air Cooling Fan 45KW, 80A	A-2	6314-C3	6314-C3		1		
30	Air Cooling Fan 45KW, 80A	B-1	6314-C3	6314-C3		1		
31	Air Cooling Fan 45KW, 80A	B-2	6314-C3	6314-C3		1		
32	Air Cooling Fan 45KW, 80A	C-1	6314-C3	6314-C3		1		

33	Air Cooling Fan 45KW, 80A	C-2	6314-C3	6314-C3	1		
34	Gas Recycle Compressor 75KW, 135.3A	K-4501A			1		
35	Gas Recycle Compressor 75KW, 135.3A	K-4501B			1		
36	Regeneration Gas Cooler Fan 15KW, 27.1A	FA-4501A	6309-ZZ-C3	6209-ZZ-C3	1		
37	Regeneration Gas Cooler Fan 15KW, 27.1A	FA-4501B	6309-ZZ-C3	6209-ZZ-C3	1		
38	Gas Recycle Compressor 75KW, 135.3A	K-5501A	6314C3	6314C3/VL2071	1		
39	Gas Recycle Compressor 75KW, 135.3A	K-5501B			1		
40	Regeneration Gas Cooler Fan 15KW, 27.1A	FA-5501A	6309-ZZ-C3	6209-ZZ-C3	1		
41	Regeneration Gas Cooler Fan 15KW, 27.1A	FA-5501B	6309-ZZ-C3	6209-ZZ-C3	1		

MEDIUM VOLTAGE SWITCHGEAR -002

Location	Description	Tag No.	Job Description	Quantity		
Main MCC Area	Amine Charge P. M. Module (VCU & Soft starter) 500KW, 6600V, 50HZ, RPM: 2984, 49.9A	P-4404A	MV Modules: Inspection, Servicing, Cleaning, Testing Of Breakers / Contactors, Aux/Power Contactors, & Tightening Of All Connections in Copartments. MV Switcgear Testing must include; 1. Bolted connection Contact Resistance Testing 2. Insulation Resistance Testing 3. Vacuum Bottle Integrity Testing 4. Opening / Closing Timing Test 5. Instrument Transformer Testing (Ratio, Burden, Knee Point) Make: Siemens Simoprime World Note: Applicable Standard NETA MTS 2019, IEEE C37.09 or Eq.	1		
		P-4404B		1		
		P-4404C		1		
		P-5404A		1		
		P-5404B		1		
	Hot Oil Secondary P. M. Module (VCU & Soft Starter) 200kW, 6600V, 50Hz, RPM: 993, 22.9A	P-5404C		1		
		P-8103A		1		
		P-8103B		1		
		P-8103C		1		
		P-8103D		1		
	1250KVA T/F VCU 6.6KV, 400A	MCC-1		1		
	1600KVA T/F VCU 6.6KV, 400A	MCC-2		1		
		MCC-3A		1		
	2000KVA T/F VCU 6.6KV, 400A	MCC-3B		1		
		MCC-4A		1		
		MCC-4B		1		
	MV VCB 6.6KV, 2500A, Siemens	MCC-5A		1		
		MCC-5B		1		
	Sectionalizer VCB 6.6KV, 2500A	Incomer-1		1		
		Incomer-2		1		
	Chiller Feeder VCU 6.6KV, 400A	L07		1		
	Camp Feeder VCU 6.6KV, 400A	L22		1		
		L01		1		
		L27		1		

LV SWITCHGEAR -MCC-01

Location	Description	Tag No.	Job Description	Quantity		
	ACB Module, 400V, 2000A, 4P			1		
	Amine Booster P. M. Module 55KW, 400V, 50HZ, RPM: 2975, 95.7A	P-4403A		1		
		P-4403B		1		
		P-4403C		1		
	Amine Circulation P. M. Module 75KW, 400V, 50HZ, RPM: 2980, 129.7A	P-4402A		1		
		P-4402B		1		
	Amine Regen Reflux P. M. Module 5.5KW, 400V, 50HZ, RPM: 2900, 10.4A	P-4405A		1		
		P-4405B		1		
	Amine Drain P. M. Module 15KW, 400V, 50HZ, RPM: 2930, 27.0A	P-4407		1		
	Lean Amine Air Cooler Fan M. Module 30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-4401 FA1		1		
		EA-4401 FA2		1		

MCC-1	Reflux Condenser Cooler Fan M. Module 30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-4401FA3	L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Thermal Overload Testing by Primary Injection on Modules greater than 15KW.	1		
		EA-4401 FA4		1		
		EA-4401 FA5		1		
		EA-4401 FA6		1		
		EA-4401 FA7		1		
		EA-4401 FA8		1		
		EA-4402 FA1		1		
		EA-4402 FA2		1		
		EA-4402 FA3		1		
		EA-4402 FA4		1		
	Gas Recycle Compressor M. Module 75KW, 1035.3A	K-4501A	Make: Siemens Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or equivalent	1		
		K-4501B		1		
	Regeneration Gas Cooler Fan M. Module 15KW, 27.1A	FA-4501A		1		
		FA-4501B		1		
	Stabilizer Overhead Compressor Module 90KW, 400V, 50HZ, RPM: 1480, 165.5A	KCP32-A		1		
		KCP32-B		1		
	De-Ethanizer Reflux P. M. Module 15kW, 400V, 50Hz, RPM: 2920, 27.4A	P-4502-A		1		
		P-4502-B		1		
	De-Butanizer Reflux P. M. Module 30kW, 400V, 50Hz, RPM: 2955, 52.8A	P-4503-A		1		
		P-4503-B		1		
Absorber P. M. Module 15kW, 400V, 50Hz, RPM: 2920, 27.4A	P-4501-A	1				
	P-4501-B	1				
Turbo Expander Motor Module 2.2kW, 400V, 50Hz, RPM: 2895, 4.17A	TER-4501A	1				
	TER-4501B	1				
Fan Cooler-1 M. Module 37kW, 400V, 50Hz, RPM: 975, 70.8A	EA4501-A	1				
	EA4501-B	1				
Fan Cooler M. Module 37kW, 400V, 50Hz, RPM: 975	EA4502	1				
LV SWITCHGEAR -MCC-02						
Location	Description	Tag No.	Job Description	Quantity		
MCC-2	ACB Module 400V, 2000A, 4P		L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Thermal Overload Testing by Primary Injection on modules greater than 15 KW. Make: Siemens Sivacon 8PT	1		
	Amine Booster P. M. Module 55KW, 400V, 50HZ, RPM: 2975, 95.7A	P-5403A		1		
		P-5403B		1		
		P-5403C		1		
	Amine Circulation P. M. Module 75KW, 400V, 50HZ, RPM: 2980, 129.7A	P-5402A		1		
		P-5402B		1		
	Amine Regen Reflux P. M. Module 5.5KW, 400V, 50HZ, RPM: 2900, 10.4A	P-5405A		1		
		P-5405B		1		
	Amine Drain P. M. Module 15KW, 400V, 50HZ, RPM: 2930, 27.0A	P-5407		1		
		EA-5401 FA1		1		
		EA-5401 FA2		1		
		EA-5401 FA3		1		
		EA-5401 FA4		1		
		EA-5401 FA5		1		
		EA-5401 FA6		1		
	Lean Amine Air Cooler Fan M. Module 30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-5401 FA7		1		
		EA-5401 FA8		1		
		EA-5402 FA1		1		
	Reflux Condenser Cooler Fan P M. Module 30KW, 400V, 50HZ, RPM: 985, 61.7A	EA-5402 FA2		1		
		EA-5402 FA3		1		
	EA-5402 FA4	1				

	Gas Recycle Compressor M. Module 75KW, 135.3A	K-5501A	Note: Applicable standard : NETA MTS 2019 or equivalent	1		
		K-5501B		1		
	15KW, 27.1A	FA-5501A		1		
		FA-5501B		1		
	Stabilizer Overhead Compressor Module 90KW, 400V, 50Hz, RPM: 1480, 165.5A	KCP32C		1		
		KCP32D		1		
	De-Ethanizer Reflux P. M. Module 15kW, 400V, 50Hz, RPM: 2920, 27.4A	P-5502A		1		
		P-5502B		1		
	De-Butanizer Reflux P. M. Module 30kW, 400V, 50Hz, RPM: 2955, 52.8A	P-5503A		1		
		P-5503B		1		
	Absorber P. M. Module 15kW, 400V, 50Hz, RPM: 2920, 27.4A	P-5501A		1		
		P-5501B		1		
	Turbo Expander Motor Module 2.2kW, 400V, 50Hz, RPM: 2895, 4.17A	TER-5501A		1		
		TER-5501B		1		
	Fan Cooler-1 M. Module 37kW, 400V, 50Hz, RPM: 975, 70.8A	EA5501A		1		
	EA5501B	1				
Fan Cooler M. Module 37kW, 400V, 50Hz, RPM: 975	EA5502	1				
LV SWITCHGEAR -MCC-03A & 03B						
Location	Description	Tag No.	Job Description	Quantity		
MCC-3	ACB Module 400V, 2500A, 4P	Incomer-1	L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Make: Siemens Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or equivalent	1		
		Incomer-2		1		
		Bus Coupler		1		
				1		
	Instrument Air Compressors Module 90kW, RPM: 1485, 162.4A	K-8601A		1		
		K-8601B		1		
LV SWITCHGEAR -MCC-04A & 04B						
Location	Description	Tag No.	Job Description	Quantity		
MCC-4	ACB Module 400V, 3200A, 4P	Incomer-1	L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Thermal Overload Testing by Primary Injection on modules greater than 30KW. Make: Siemens Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or equivalent	1		
		Incomer-2		1		
		Bus Coupler		1		
				1		
	LPG Off Spec P. M. Module 7.5KW, 13.5A	P-6201		1		
	LPG Loading P. M. Module 37KW, 66.8A	P-6202A		1		
		P-6202B		1		
		P-6202C		1		
				1		
	Hot Oil Circulation P. M. Module 110kW, 400V, 50Hz, RPM: 2975, 188A	P-8101A		1		
		P-8101B		1		
		P-8101C		1		
		P-8101D		1		
		P-81A		1		
		P-81B		1		
		P-81C		1		

	Hot Oil Fan Blower Module 90kW, 400V, 50Hz, RPM:2965, 151A	P-81D P-81E P-81F		1 1 1		
MV SWG / LV SWITCHGEAR -MCC-05A & 05B						
Location	Description	Tag No.	Job Description	Quantity		
SW-5 HT VCU's	Vacuum Contactor For 2000KVA T/F 6.6KV, 400A	SWG005-A SWG005-B	MV Modules: Inspection, Servicing, Cleaning, Testing Of Breakers / Contactors, Aux/Power Contactors, & Tightening Of All Connections in Copartments. MV Switthgear Testing must include;	1 1		
MCC-5	ACB Module 400V, 3200A, 4P	Incomer-1, (F31) Incomer-2, (F33) Bus Coupler, (F32)	Switthgear Testing must include; 1. Bolted connection Contact Resistance Testing 2. Insulation Resistance Testing 3. Vacuum Bottle Integrity Testing 4. Opening / Closing Timing Test 5. Instrument Transformer Testing (Ratio, Burden, Knee Point)	1 1 1 1 1		
	Recovered Oil P. M. Module 5.5KW, 9.9A	P-4303A P-4303B		1 1		
	Produced Water Transfer P. M. Module 4KW, 7.2A	P-4302A P-4302B P-4302C	Make: Siemens Simoprime World Note: Applicable Standard NETA MTS 2019, IEEE C37.09 or Eq. LV Modules: L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include;	1 1 1		
	Well Reinjection P. M. Module 55KW, 99.2A	P-4304A P-4304B		1 1		
	Evaporation Pond P. M. Module 7.5KW, 13.5A	P-4305	1. Thermal Overload Testing by Primary Injection on modules greater than 15KW.	1		
	Fire Water P. M. Module 160KW, 289A,	P-8801A P-8801B	Make: Siemens Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or equivalent	1 1		
	Fire Water Jockey P. M. Module 37KW, 66.8A	P-8803-A P-8803-B		1 1		
	Raw Water P. M. Module 30kW, 400V, 50Hz, RPM: 2950, 55A	P-8702-A P-8702-B		1 1		
	Treated Water P. M. Module 15kW, 400V, 50Hz, RPM: 2930, 28.5A	P-8703-A P-8703-B		1 1		
	Deep Well P. Module, 30KW, 54.1A	P-8701-A P-8701-B P-8201-B		1 1 1		
AC / DC UPS RECTIFIERS						
Location	Description	Tag No	Job Description	Remarks	Quantity	
UPS Room	80KVA UPS Three Phase to Three Phase 175 Batteries, 12VDC, 98AH Make: APC Schneider MGE 5500 Galaxy	A & B	Inspection, Cleaning, Testing & Tightening Of Terminals And Power Cables Along With 350 No Batteries. Testing Jobs include; 1. Compare bolted connection resistance values to values of similar connections. 2. Test static transfer from inverter to bypass and back. Use normal load, if possible. 3. Verify sync indicators for static switch and bypass switches. 4. Perform electrical tests for UPS system breakers 5. Perform electrical tests for UPS system automatic transfer switches 6. Perform electrical tests for UPS system batteries. 7. Specific Gravity for Battery Banks. 8. Discharge Test for Battery Banks. Note: Applicable Standards; NETA MTS 2019, IEEE 450 or Equivalent.		02 No	

Main MCC	DC Rectifiers 400VAC/110VDC, 55Batteries, 226AH, 2V Cell		Inspection, Cleaning, Testing & Tightening Of Terminals And Power Cables Along With 55 No Batteries. Testing jobs include; 1. Compare bolted connection resistance values to values of similar connections. 2. Verify sync indicators for static switch and bypass switches. 3. Perform electrical tests for UPS system breakers 4. Perform electrical tests for UPS system automatic transfer switches 5. Perform electrical tests for UPS system batteries 6. Discharge Test for Battery Bank 7. Specific Gravity for Battery Bank Note: Applicable Standards; NETA MTS 2019, IEEE 450 or Equivalent.		1		
	Make: ESIS Power BORA 3110-50						
Distribution Transformers							
Location	Description		Job Description	Remarks	Quantity	Unit Price	Total Price
Transformers Near Main MCC	1250KVA Transformer 6.6KV/400V, Oil Immersed	MCC-1	Transformers: Inspection, Servicing, Cleaning, tightening of connections, silica gel inspection and replacement (if required), Buchholz relay testing, temperature gauges/controllers testing and transformer testing,		1		
		MCC-2	Jobs include; 1. Bolted Connection Resistance Test 2. Insulation Resistance Test		1		
	1600KVA Transformer 6.6KV/400V, Oil Immersed	MCC-3A	3. Turn Ratio Test 4. Power Factor / Dissipation Factor Test on winding 5. Power Factor or Dissipation Factor on each Bushing (If applicable)		1		
		MCC-3B	6. Excitation Current Test 7. Leakage Reactance Test 8. Oil Testing		1		
	2000KVA Transformer 6.6KV/400V, Oil Immersed	MCC-4A	a. Dielectric Breakdown Voltage b. Acid Neutralization number c. Specific Gravity		1		
		MCC-4B	d. Interfacial Tension e. Color f. Visual Condition		1		
		Chiller Transformer	g. Water in insulating liquids h. Power Factor / Dissipation Factor i. Dissolved Gas Analysis		1		
		MCC-5A	9. Sweep Frequency Response Analysis (SFRA) 10. Dielectric Response Analysis (DRA)		1		
MCC-5	MCC-5B	Note: MCC 03, 04 & 05 Transformers are redundant therefore only oil testing from sr# a to sr# i can be performed while all health tests must be carried out on MCC 01, 02, Chiller & Camp Transformer as they do not have redundant transformers.		1			
Camp	Camp Transformer	Make: PEL Note : Applicable Standard; NETA MTS 2019, IEEE C57.149, IEC60422, IEEE C57.104 or Equivalent.		1			
Allied Services, Earth Testing & Bus Bars							
Location	Description		Job Description	Remakrs	Quantity		
Whole Plant	Allied Services		Allied Services For Electric Supply At Different Locations Within Plant.		1		
	Earth Resistance Measurement		Cleaning, Testing & Measurement of Earth pits.		1		

Power House, Main MCC, RO & Cooling Tower	MV & LV Bus Bars (Power House, Main MCC, RO & Cooling Tower		Inspection, cleaning, testing and tightening (if required) of; MV SWGR -1, MV SWGR 2, LV MCC 1, 2, 3, 4 , 5 and LV MCC GT 1, GT 2, GT3, and LV MCC RO PLANT, LV MCC Cooling Tower, LV SWGR AA01 AND AA02 (Power House). Testing Job includes; 1. Bolted Connection Contact Resistance Test 2. High Potential Test of Bus Bar		1		
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GAS TURBINE LV SWITCHGEAR

Sale Gas Turbines

Location	Description	Tag No.	Job Description	Remarks	Quantity			
GTs MCC	Starting Motor 30KW Module Altivar Starter	A	L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Thermal Overload Testing by Primary Injection on modules greater than 15KW. Make: Siemens Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or equivalent		1			
		B			1			
		C			1			
	Tech Lube Oil P. M. Module 2.2KW, 4.6A	A			1			
		B			1			
		C			1			
	Emergency Lube Oil P. M. Module, 2.2 KW, 4.65A	A			1			
		B			1			
		C			1			
	Air Cooling Fan M. Module 45KW, 80A	A-1			1			
		A-2			1			
		B-1			1			
		B-2			1			
		C-1			1			
		C-2			1			
	GT Enclosure Ventilation Fan M. Module	A-1			1			
		A-2			1			
		A-3			1			
		B-1			1			
		B-2			1			
		B-3			1			
		C-1			1			
		C-2			1			
		C-3			1			
	30KVA GT UPS Three Phase to Three Phase 400/230 32 Batteries, 12VDC, 65AH	GT-1			Inspection, Cleaning & Tightening Of Terminals And Power Cables. Jobs include; 1. Compare bolted connection resistance values to values of similar connections. 2. Test static transfer from inverter to bypass and back. Use normal load, if possible.	1		
		GT-2			3. Test dc under-voltage trip level on inverter input breaker. Set according to manufacturer's published data. 4. Verify sync indicators for static switch and bypass switches. 5. Perform electrical tests for UPS system breakers	1		

	Make: APC SUVTP30KH Schneider Electric	GT-3	6. Perform electrical tests for UPS system automatic transfer switches 7. Perform electrical tests for UPS system batteries. 8. Specific Gravity for Battery Banks. 9. Discharge Test for Battery Banks. Note: Applicable Standards; NETA MTS 2019, IEEE 450 or Equivalent.	1		
GT-2 MCC	Nitrogen Compressor Module: 37KW, 65.2A	A	L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Thermal Overload Testing by Primary Injection	1		
		B	Make: Siemens Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or Equivalent.	1		
Water Treatment Unit & Utilities (RO Plant)						
Location	Description	Tag No.	Job Description	Quantity		
RO Plant	Backwash Water P. M. Module 22kW, 380V, 50Hz, RPM: 1465, 43A	P-8708-A	LV Modules: L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Thermal Overload Testing by Primary Injection on modules greater than 15KW. Make: ABB MNS 2.0	1		
		P-8708-B		1		
	RO Wash Pump 7.5kW, 380V, 50Hz, RPM: 2930, 14.5A	P-8707		1		
		P-8705-A		1		
	RO Water Supply P. M. Module 37kW, 400V, 50Hz, RPM: 2950, 63.5A	P-8705-B		1		
Make Up Water Treatment Unit (Cooling Tower)						
	Description	Tag No.	Job Description	Quantity	Unit Price	Total Price
Cooling Tower	Cooling Water Circulation P. M. Module 90kW, 400V, 50Hz, RPM: 2978, 159A	P-9803A	LV Modules: L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Servicing and inspection of VFDs/Soft Starters, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Testing Jobs Include; 1. Air Circuit Breaker Testing (IR, Contact Resistance, Timing Test, ETU Testing by Secondary Injection) 2. Thermal Overload Testing by Primary Injection on modules greater than 15KW. Make: ABB MNS 2.0 Note: Applicable standard : NETA MTS 2019 or equivalent	1		
		P-9803B		1		
		P-9803C		1		
	Side Steam Filter Blender Motor Module 15kW, 400V, 50Hz, RPM: 1465, 28A	A		1		
		B9805A		1		
		B9805B		1		
		B9805C		1		
		B9805D		1		
	Cooling Water Fan Cooler Module 7.5kW, 400V, 50Hz, RPM: 1435, 14.9A	B9805E		1		
Power Generation: (MV SWG)						
Location	Description	Tag No.	Job Description	Quantity		
	20KVA UPS Three Phase to Single Phase 30 Batteries. 12VDC. 65AH	A	Inspection, Cleaning & Tightening Of Terminals And Power Cables. Jobs include; 1. Compare bolted connection resistance values to values of similar connections. 2. Test static transfer from inverter to bypass and back. Use normal load, if possible. 3. Verify sync indicators for static switch and bypass switches. 4. Perform electrical tests for UPS system breakers 5. Perform electrical tests for UPS system automatic transfer switches	1		

Power House LV Switchgear	09 Batteries, 12VDC, 65AH Make: Emerson Power Network Liebert	B	6. Perform electrical tests for UPS system batteries. 7. Specific Gravity for Battery Banks. 8. Discharge Test for Battery Banks. Note: Applicable standard : NETA MTS 2019 or equivalent.	1		
	UPS Distribution Panel	1	LV Modules: L.T. Modules: Inspection, Servicing, Cleaning, Testing Of Contactors, Thermal Relays, Aux. Contactors, Power Points, & Tightening Of All Connections. Make: Shenzhen BOAN RENDA Sivacon 8PT Note: Applicable standard : NETA MTS 2019 or equivalent	1		
	LV Switchgear 16 No MCCB Feeder Modules	AA01		1		
		AA02		1		
Switchgear -1 Power House MV Room	Vacuum Circuit Breaker (VCB) of Gas Generators 6.6KV, 1250A, Make: Siemens NSXAirs	AH15	MV Modules: Inspection, Servicing, Cleaning, Testing, Of Breakers / Contactors, Aux/Power Contactors, & Tightening Of All Connections in Compartments. and mechanical assembly MV Switchgear Testing include; 1. Bolted connection Contact Resistance Testing 2. Insulation Resistance Testing 3. Vacuum Bottle Integrity Testing 4. Opening / Closing Timing Test 5. Instrument Transformer Testing (Ratio, Burden, Knee Point) . Make: Siemens NXAirs Note: Applicable Standard NETA MTS 2019, IEEE C37.09 or Equivalent.	1		
		GG-1		1		
		AH13		1		
		GG-2		1		
		AH12		1		
		GG-3		1		
		AH09		1		
	VCB Out Going Feeder 6.6KV, 3150A, Make: Siemens NSXAirs	GG-4		1		
		AH07		1		
	Sectionalizer VCB 6.6KV, 3150A, Make: Siemens NSXAirs	GG-5		1		
		AH03		1		
	Potential Transformer Trolley 6.6KV/110V, Make: Siemens NSXAirs	EDG		1		
		AH-14		1		
		AH-02		1		
		AH-10		1		
		AH-04		1		
		AH-01		1		
	DC Chargers 40AH Three Phase to Single Phase 09 Batteries, 12VDC, 65AH Make: Emerson Power Network	AH-06		1		
		AH-16		1		
		1	Inspection, Cleaning & Tightening Of Terminals And Power Cables Along With Batteries. Jobs Include; 1. Compare bolted connection resistance values to values of similar connections. 2. DC voltage trip 3. Verify sync indicators for static switch and bypass switches. 4. Perform electrical tests for UPS system breakers 5. Perform electrical tests for UPS system automatic transfer switches 6. Perform electrical tests for UPS system batteries 7. Discharge Test for Battery Bank 8. Specific Gravity for Battery Bank Applicable Standards: NETA MTS 2019, IEEE 450 or equivalent.	1		

MV Switchgears and Motor Protection Relays					
Location	Description	Job Description	Quantity		
Power House	Generator Protection Relay (Siemens Siprotec 7SJ68)	Testing of MV Protection Relays includes; 1. Perform insulation-resistance tests from each circuit to the grounded frame in accordance with manufacturer's published data. 2. Apply voltage or current to all analog inputs and verify correct registration of the relay meter functions. 3. Protection Elements testing: Check functional operation of each element used in the protection scheme 4. Control Verification: Check operation of all active digital inputs, Check all output contacts or SCRs, preferably by operating the controlled device such as circuit breaker, auxiliary relay, or alarm. 5. Minimum Test Equipment Requirement: Megger (Freja 500 Series) or Doble (F6150 series) or Omicron (CMC 256 or 356) or similar. All testing should be automated and done through equipment software. Note: Applicable Standard : NETA MTS 2019, IEEE C37.233 or equivalent.	6		
	Generator Differential Relay (Siemens Siprotec 7UT68)		6		
MCC	Switchgear Incoming/Outgoing/Sectionalizer Protection Relays (Siemens Siprotec Relays 7SJ8031, Siemens Siprotec Compact 7SJ8011, Siemens Siprotec 7SJ6021 and Siemens Siprotec 7SJ68)		20		
	MV Motor Protection Relays (IGEL Electric GmbH Siemens MSR-HD) and IGEL Soft starters (IGEL Electric GmbH Siemens ISA-HD)		10		

Grand Total in PKR (inclusive of all taxes, duties, levies, charges etc., except Provincial Sales Tax (PST)/ Islamabad Capital Territory Sales Tax (ICT) on services)