



Bill of Quantity

No.	Description	Items	CAT	CS	IT	Unit Cost	Quan.	Unit	Total	Remarks
1	Fire alarm control Panel						1	set	-	
2	Smoke Detectors		F	5	4	2,160.00	23	units	49,680.00	
3	Heat Detectors		F	5	4	1,620.00	3	units	4,860.00	
4	Manual Pull Station		F	5	4	1,890.00	3	units	5,670.00	
5	Horn Strobe Annunciator		F	5	4	2,700.00	3	units	8,100.00	
6	Twisted Pair wire 2.5mm2		F	5	4	108.00	5	lm	540.00	
7	20mmØ IMC pipe		F	5	4	540.00	5	lm	2,700.00	
8	Locknut and Bushing		F	5	4	1,350.00	5	pcs	6,750.00	
9	15mmØ FMC Conduit		F	5	4	1,890.00	5	lm	9,450.00	
10	FMC Connectors		F	5	4	1,890.00	1	pcs	1,890.00	
11	Junction Box		F	5	4	2,160.00	1	pcs	2,160.00	
12	Hangers and Supports		F	5	4	810.00	1	lot	810.00	
13	Testing and Commissioning		F	5	4	1,890.00	1	lot	1,890.00	
14	Pump efficiency	Replacement of existing wear rings with non metallic wear rings (ALTERNATIVE OPTION)			5		12	pcs	-	
15	Pump efficiency	Mechanical overhaul of shaft, shroud, and impeller and diffuser			5		1	lot	-	
16	Instrumentation and Monitoring	Temperature Sensor tapping point	M		5	5,000.00	12	pcs	60,000.00	Clearance can be reduced to up to 50% up to 5% efficiency gain
17	Instrumentation and Monitoring	Purchase portable thermodynamic testing equipment	M		6	250,000.00	1	pcs	250,000.00	
18	Instrumentation and Monitoring	Replace BP2 and BP4 with VFD controls	M		6	50,000.00	2	pcs	100,000.00	Thermodynamic method
19	Instrumentation and Monitoring	Permanent thermodynamic device	M		6		6	pcs	-	
20	Instrumentation and Monitoring	Key Software modules	M		6		1	lot	-	
21	Instrumentation and Monitoring	Permanent vibration analyzer	M		6	50,000.00	6	pcs	300,000.00	Will provide continuous monitoring of efficiency and flow (derived from efficiency) for individual pump and transferred to central panel
22	Instrumentation and Monitoring	Replace manual monitoring by SCADA system			6	200,000.00	1	lot	200,000.00	Will log average pump efficiency, individual and total production volumes (as determined by thermodynamic device), pump energy usage and real time pump curve data
23	Instrumentation	Replacement of defective PG	M		3	2,000.00	1	pcs	2,000.00	Will provide continuous monitoring of pump vibration activity and generate time based graphs of FFT and 3D spectrum
24	Instrumentation	Use more durable asset tags and stickers	M		4	1,000.00	1	lot	1,000.00	monitoring and control of pump
25	Instrumentation	Pressure gauge	M	2	7	2,500.00	12	pcs	30,000.00	
26	Pipe design	Replace suction side concentric reducers to flat on top eccentric reducers	P		4	20,000.00	6	pcs	120,000.00	
27	Pipe design	Suction strainer	M	3	6	5,000.00	8	pcs	40,000.00	for replacement of defective PG
28	Pipe design	Flow conditioner (ALTERNATIVE OPTION)	P	3	6	10,000.00	8	pcs	80,000.00	
29	Pipe design	Long radius elbow with guide vanes (ALTERNATIVE OPTION)	P	3	5	15,000.00	8	pcs	120,000.00	
30	Pipe design	Flange type long radius elbow (ALTERNATIVE OPTION)	P	3	4	15,000.00	8	pcs	120,000.00	
31	Maintenance	Piping System rust removal and recoating by weather proof paint	P		1	50,000.00	1	lot	50,000.00	
32	Maintenance	Check valve leaks mechanical seal replacements	P		2	20,000.00	1	-	20,000.00	
33	Maintenance	Pump and motor bearing grease refreshment	M	2	1	5,000.00	1	lot	5,000.00	For exposed indoor and outdoor pipes.
34	Maintenance	Replace manual type lubrication with Automated Lubrication System	M		6	1,000,000.00	1	lot	1,000,000.00	
35	Reliability	Additional Booster Pump and Accessories	M		6	5,000,000.00	1	lot	5,000,000.00	
36	Reliability	Operation sequence policy change							-	
37	Reliability	RCM implementation and training							-	
38	Structural Support	Rehabilitate concrete saddle	S		5	10,000.00	2	pcs	20,000.00	
39	Structural Support	Modify CV concrete saddle	S		5	10,000.00	8	pcs	80,000.00	
40	System efficiency	Replace existing motor with new high efficiency motors			4				-	
41	Office reconditioning	Office Sound proofing			5	50,000.00	1	lot	50,000.00	
42	Office reconditioning	Desktop ergonomics improvement			5	250,000.00	1	lot	250,000.00	
43	Outside lighting	80 Watts LED street light	F	2	6	1,500.00	4	pcs	6,000.00	Reduce transmitted noise to very low levels well below the threshold



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										Implement ergonomic adjustments for office hardwares such as chairs, tables, desktop pc and accessories, lights, etc.
44	Interior lighting	Manual light switch	F	2	5	10,000.00	1	lot	10,000.00	
45	Natural Ventillation Provision	Wall louver panels	M		5	100,000.00	1	lot	100,000.00	
46	Sound protection	Earmuffs	M	3	9	500.00	20	pcs	10,000.00	
47	Natural Ventillation Provision	Wall louver panels				50,000.00	1	set	50,000.00	
48	Sound protection	Earmuffs				20,000.00	5	pcs	100,000.00	For visitors