



2 X 660 MW THERMAL POWER PLANT, UNIT 3 & 4

Bill of Quantities

Name of work: Supply, installation, testing and commissioning of fire Hydrant & d suppression system at Chharla railway siding

Sl. No.	Item Description	Qty	UOM	Unit Rate(in Rs)
A	Fire Hydrant System			
SUPPLY				
A1	MECHANICAL SCOPE			
1	Vertical turbine fire water pump of cap 137 M3/hr at 70 meter head with suction strainer	2	Nos	
2	Pressure guage Pr. Range 0-16kg/cm2 including cut-off ball valve	5	Nos	
3	Valves			
3.1	Sluice valve 150 NB (PN-16) with required counter flanges, nuts, bolts & washer etc. complete.	4	Nos	
3.2	NRV 150 NB CI (PN-16) with required counter flanges, nuts, bolts & washer etc. complete.	2	Nos	
3.3	Butterfly valve 150 NB Cast iron butterfly valves tested to ISI marked,PN16 tested to 500 psi	1	Nos	
3.4	Ball valve brass 25 NB	4	Nos	
3.5	Ball valve brass 15 NB	4	Nos	
3.6	Air release valve 25 NB	2	Nos	
4	MS class C Heavy duty pipes as per IS : 1239 Part I or IS:3589 including fittings like flanges, tees, elbows, bends junctions, reducers etc.			
4.1	250 NB	12	Mtrs.	
4.2	200 NB	12	Mtrs.	
4.3	150 NB	800	Mtrs.	
4.4	80 NB	24	Mtrs.	
4.5	25NB	18	Mtrs.	
4.6	15 NB	12	Mtrs.	
5	Structural steel supports such as MS channels, angles, flats, rods as required at site with anchor fasteners, clamps, threaded rods, nuts, bolts, washers etc.)	1000	KG	
6	Fire Accessories.			
6.1	Fire Brigade connection 150 mm size breach inlet connection with four connecting points 63 mm size fixed over 150 mm dia Pipe with necessary companion flanges,nuts,bolts,gasket,washers,outlets,necessary as specified	1	Nos	
6.2	Single headed hydrant valve as per IS 5290, made of Stainless Steel with 63 mm dia instantaneous outlet and 80 mm dia flanged inlet ,Blank caps , chain and hand wheels etc complete. with Orifice plate (6MM THK) as required to minimize the pressure at discharge.	20	Nos	

6.3	fire hose cabinet of about 750 mm x 600 mm x 250 mm size made of 16 SWG M.S plate capable of accommodating two lengths of 65 mm dia. delivery hose of 15 Mtr. length with locking arrangement, and lever for opening the door after breaking glass. Each hose box to be fitted with glass door in front, painted 'FIRE' in red luminous paint. Hinges should be sturdy to bear the weight of fully open door without sagging. Cabinet should be painted two coats of red enamel paint over a primer suitable for fixing to wall /floor with all necessary supports etc. complete as specified.	4	Nos	
6.4	Fire Hose 63x15 mtr long, lexible RRL (Rubber reinforced Lining) type & ISI marked hose including SS male and female instantaneous type coupling with ISI marked (IS: 636) machine wound complete in all respect.	15	Nos	
6.5	SS304 material Standard Branch pipe, ISI Mark having 63 mm male inlet and fitted with 20 mm nozzle.	6	Nos	
7	Civil work - pedstal support for hydrant piping	150	Nos	
MECHANICAL SCOPE SUPPLY TOTAL COST				
A2	ELECTRICAL SCOPE			
1	Electrical LT MCC Panel (415V - Indoor) consisting 1 Incomer & 2 Nos. 45 kW DOL starter:	1	Set	
2	Squirrel Cage INDUCTION MOTOR 45KW/60 HP, 4 POLE , 3 PHASE,VERTICAL FLANGE mounted	2	Nos	
3	Local Control Panel with LED Indications and Start Stop Push Buttons for motor control	1	Set	
4	120sqmm 1core copper flexible cable	30	Meters	
5	LT Power Cable for 45 kW Motors 3Cx70 sq.mm. (1100V grade 1.1KV XLPE insulated and PVC sheathed steel Armoured, Aluminium conductor cables)	200	Meters	
6	Control Cable 12Cx2.5 sq.mm. (1.1 kV, 2.5 sq.mm. YWY, Stranded annealed bare copper conductor)	200	Meters	
7	Copper lugs for 120sqmm 1c flexible wire	10	Nos	
8	PVC Cable gland for 120sqmm 1c flexible	10	Nos	
9	Aluminium Lugs for 3Cx70 sq.mm. Cable	15	Nos	
10	300x300mm Bimetallic plate	1	Nos	
11	Copper Lugs 2.5 sqmm	100	Nos	
12	Cable Gland (Double Compression) for 3Cx70 sq.mm. 1100V grade 1.1KV XLPE insulated and PVC sheathed steel Armoured, Aluminium conductor cables	4	Nos	
13	Cable Gland (Double Compression) for Control Cable 12Cx2.5 sq.mm. (1.1 kV, 2.5 sq.mm. YWY, Stranded annealed bare copper conductor)	4	Nos	
14	Industrial type Water Level Switch(Float Type) for Motor Control	1	Nos	
15	Perforated cable trays 150mmx50mmx1.6mm for both Power cable & control cable	80	Meters	
16	GI strip for Earthing (25mmx5mm)	200	Meters	
17	LED Flood Light,50W,230VAC	2	Nos	
18	3Cx2.5 sq.mm. Power Cable for Lighting	100	Meters	

ELECTRICAL SCOPE SUPPLY TOTAL COST				
A3	TOTAL SUPPLY COST (A1+A2)			
SERVICES				
A4	MECHANICAL SCOPE			
a	Erection & commissioning of vertical pumps moto driven			
1	Erection & commissioning of motor driven vertical turbine pump	2	Nos	
b	Installation & commissioning of fire system accessories			
1	Erection & commissioning of 4 Way inlet connection - 150 mm dia (Fire brigade connection)	1	Nos	
2	Erection & commissioning of hydrant valves	20	Nos	
3	Erection of hose cabinet	4	Nos	
c	Erection & commissioning of valves			
1	150 NB	7	Nos	
2	upto 50NB	10	Nos	
d	Fabrication/ Erection of Piping System & support structure			
1	Up to 50 NB	30	mtr	
2	Up to 80 NB	24	mtr	
3	150NB	762	mtr	
4	200 NB	12	mtr	
5	250NB & Above	12	mtr	
6	Erection of piping civil support	150	Nos	
7	Erection of Underground Piping 100 to 250 NB with wrapping coating	50	mtr	
e	Fabrication & Erection of Steel Structure			
f	Application of Paint(Enamel)			
		478	Sq Mt	
g	Manpower supply for unforeseen job			
1	Helper	12	Manday	
2	Rigger	12	Manday	
3	Fitter/grinder/cutter/welder	12	Manday	
h	Supply,Erection & Dismantling of scaffolding			
		50	sq mt	
MECHANICAL SERVICES TOTAL COST				
A5	ELECTRICAL SCOPE			
a	Erection, Testing & Commissioning of MCC Panel			
1	Erection of MCC Panel	1	Set	
2	Testing & Commissioning of MCC Panel	1	AU	
b	Erection, Testing & Commissioning of LCP			
3	Erection of LCP	1	Set	
4	Testing & Commissioning of LCP	1	AU	
c	Cable Laying & Termination			
5	120sqmm 1core copper flexible cable	30	Meter	
6	Cable End Termination of 120sqmm 1core copper flexible cable (Complete R,Y,B,N Termination)	1	Set	
7	Cable Laying of 3Cx70 sq.mm. (1100V grade 1.1KV XLPE insulated and PVC sheathed steel Armoured, Aluminium conductor cables)	200	Meter	
8	Cable End Termination of 3Cx70 sq.mm. (1100V grade 1.1KV XLPE insulated and PVC sheathed steel Armoured, Aluminium conductor cables)	2	Set	
9	Cable Laying of 12Cx2.5 sq.mm. (1100V grade 1.1KV XLPE insulated and PVC sheathed steel Armoured, Aluminium conductor cables)	200	Meter	

10	Cable End Termination of 12Cx2.5 sq.mm. (1100V grade 1.1KV XLPE insulated and PVC sheathed steel Armoured, Aluminium conductor cables)	4	Set	
11	Cable Laying & Termination of 3Cx2.5 sq.mm.	100	Meter	
d	Earthing Work			
12	Erection of Earthing strip and Connection	200	Meter	
e	Cable Tray			
13	Erection of Cable Tray	80	Meter	
f	Lighting Work			
14	Installation of LED Fixture	2	Nos	
g	Level Switch			
15	Installation & Commissioning of Level Switch	1	Nos	
h	Additional manpower supply for Unforeseen Job			
16.1	Rigger	5	Mandays	
16.2	Helper	5	Mandays	
16.3	Electrical Helper	5	Mandays	
16.4	Jr. Electrician/Welder/cutter/fiter	5	Mandays	
16.5	Supervisor	5	Mandays	
ELECTRICAL SERVICES TOTAL COST				
A6	TOTAL SERVICES COST (A4+A5)			
A7	GRAND TOTAL COST- FIRE HYDRANT SYSTEM (A3+A6)			

Bill of Quantities (Dust Suppression system)				
Sl. No.	Item Description	Qty	UOM	Unit Rate(in Rs)
B	Dust suppression system			
	Mechanical			
B1	SUPPLY			
1	Sprinklers	20	Nos	
2	Pressure guage Pr. Range 0-16kg/cm2 including cut-off ball valve	2	Nos	
3	Valves			
3.6	Ball valve brass 25 NB	22	Nos.	
3.7	Ball valve brass 15 NB	2	Nos.	
3.9	Air release valve 25 NB	2	Nos.	
4	MS class C Heavy duty pipes as per IS : 1239 Part I or IS:3589 including fittings like flanges, tees, elbows, bends junctions, reducers etc.			
4.1.1	150 NB	750	Mtrs.	
4.1.2	25NB	66	Mtrs.	
4.1.3	15 NB	6	Mtrs.	
5	Structural steel supports such as MS channels, angles, flats, rods as required at site with anchor fasteners, clamps, threaded rods, nuts, bolts, washers etc.)	1000	KG	
7	Civil work pedstal support for dust suppression piping, Concrete Supports (300 mm X 450 mm X 1000 mm)	150	NOS	
	SUPPLY TOTAL COST			
B2	SERVICES			
A	Erection & commissioning of valves			
1	upto 50NB	26	Nos	

B	Fabrication/ Erection of Piping System & support structure			
1	Up to 50 NB	72	mtr	
2	150NB	710	mtr	
4	Erection of piping civil support	150	Nos	
5	Erection of Under ground Piping 150 NB	40	Mtrs.	
C	Fabrication & Erection of Steel Structure	1	MT	
D	Erection of sprinklers	20	Nos	
E	Application of Paint(Enamel)	429	Sq Mt	
F	Erection of scaffolding	50	Sq Mt	
G	Manpower supply for unforeseen jobs			
1	Helper	12	Manday	
2	Rigger	12	Manday	
3	Fitter/grinder/cutter/welder	12	Manday	
	SERVICE TOTAL COST			
B3	GRAND TOTAL- DUST SUPPRESSION SYSTEM (B1+B2)			

Bill of Quantities (Civil)

C	Civil work			
1	Earth work in ordinary soil within 50m. initial lead & 1.5m. initial lift including rough dressing and breaking clods to maximum 5 cm to 7 cm and laying in layers not exceeding .3 m in depth complete as per the direction of Engg.-in-charge.	453.1	Cum	
2	Cutting in dis integrated rock not requiring blasting to be removed by pick axes and crow bars and depositing materials within 50 m initial lead and 1,5 m initial lift including rough dressing as per direction and specification of the department including stacking the useful materials separately.	160	Cum	
3	Filling in foundation and plinth with excavated materials including watering and ramming as directed by the Engineer -in -charge.	410	cum	
4	Cement concrete (1:4:8) by using 25 to 40mm graded hard granite crusher broken metal including all cost, laying of concrete, watering, curing, conveyance, T&P, royalties, taxes of all materials, scaffolding & labour charges etc. complete as per direction of Engg.-in-charge.	15.06	cum	
5	ReinforcementCement concrete M -25 grade by using 20 mm and down graded hard granite crusher broken metal including all cost, laying of concrete, watering, curing, conveyance, T&P, royalties, taxes of all materials, scaffolding & labour charges etc. complete as per direction of Engg.-in-charge.	183.2	Cum	
6	Supplying ,fitting and placing uncoated HYSD bar reinforcement complete as per drawing and technical specification as directed by Engineer in - charge	17.65	MT	

7	Structural steel and Iron Work wrought and put up in trusses and record racks.	2.5	MT	
8	Supply, fixing of GCI sheets 0.80 mm in roof drilling hole in wind ties including fixing of ridges vallys wind ties etc.	70	sqm	
9	Rigid and and smooth centring and shuttering for RCC works .	541.8	sqm	
10	Priming one coat with any approved primer.	24	sqm	
11	Painting two coat with approved paint	24	sqm	
C1	Grand total civil work			

Total Cost (A7+B3+C1)

