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THE FOLLOWING POWER PLANT IS AVAILABLE FOR SALE WITH US WITH IMMEDIATE DELIVERY:

1 No. - 445 MW SIEMENS ELECTRIC (2009/10) make, Combined Cycle Power Plant, having the Following Technical Specifications:

PLANT DETAILS:

445 MW combined cycle plant the plant is based on Siemens V94.2 gas turbines.

The plant was installed in 2006, natural gas was available only from March 2009. The following are the commissioning dates of various equipment.

- GT # 1A - 30 March 2009
- GT #1B - 10 March 2009
- Open Cycle declared on 04 June 2009
- STG was commissioned on 22 June 2010
- Combined Cycle declared on 30 June 2010

The plant running hours as following:

GT # 1A = 32,361 EOH
GT # 1B = 22,913 EOH
STG = 19,460 EOH

STEAM TURBINE:

The operating hours of the steam turbine is 17900 hours.

GAS TURBINES:

Dehumidifier is built in feature of V94.2.

TECHNICAL DETAILS:

Equipment	Manufacturer	Details	Qty
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Gas Turbine	Siemens Electric	V94.2, 139 MW	2
Gas Turbine Generator	Electrosila		2
Steam Turbine	LMZ	K166/107, 158MW	1
Steam Turbine Generator	Electrosila	15.85kv, 200MW	1
Heat Recovery Boiler	L&T	HP 222tph @107bar, MP 38tph @ 22bar and LP 19tph @4.5bar	2
Generator Transformers	Crompton Greaves	400 kv / 15.75 kv	2
Auxiliary Transformers	Crompton Greaves	6.6 kv / 415 v	2
HP / IP/ LP Boiler	Nasosenergomash/	270m ³ /hr	3
Feedwater Pumps	Nasosenergomash/	65m ³ /hr	2
	Kirloskar	25m ³ /hr	2
CEP	Nasosenergomash	245tph	2
DM Plant	Doshi Ion Exchange		1
CW Pumps	Kirloskar		3
CW Pump Motors	WEG		3
Cooling Tower	Paharpur	16 cells	1
Emergency Diesel Generator	Cummins	1250kva	1

TECHNICAL SPECIFICATIONS:

GAS TURBINE & AUXILIARIES		
GAS TURBINE		
Make, model, Type	:	Make SIEMENS Model : BM 380 Frame : V94.2
Design ISO Output	:	156000 kW
Overall Correction factor for power	:	0.8938
Auxiliary power consumption	:	1409 kW
Net site electrical output in Open cycle mode	:	139530 kW
Net electrical output in combined cycle mode	:	139086 kW
Heat rate correction factor to site condition	:	0.966

Net heat rate on LCV basis	:	2675.6 Kcal/Hr(GT heat rate for combined cycle operation)
Type of fuel	:	Natural Gas
Type of governing system	:	Siemens \ symadyn
Exhaust temp	:	556.2 °C
Exhaust Flow	:	480.87 Kg/sec
Fuel consumption	:	9.9 Kg/sec
NOx level	:	50 ppm
NOx Control	:	Dry Low NOx burners
Turning gear	:	Through oil jets around 100 RPM
Full Speed of machine	:	3000 RPM
Compressor	:	Axial,17 stage, 5 th and 10 th stage for bleeding.
Turbine	:	2 combustion chamber, 4 stage
Water washing	:	DM water, Offline as well as On line.
Starting Device	:	Electrical starting, through generator and frequency converter. Power requirement=2900 kW
Air filter	:	2 micron,Main& Pre filter, self cleaning pulse jet type.
GAS TURBINE AUXILAIRIES		
Shaft mounted Oil Pump	:	Not Provided
Auxiliary oil pump	:	37 kW Qty - 2 Nos.
Emergency Oil pump	:	37 kW Qty - 1 No.
Vapour extraction fan	:	0.3 kW Qty - 1 No.
Turning gear	:	Hydraulic oil driven Qty - 1 No.
Air filter cleaning compressor	:	Qty - 2 Nos.
GT EXHAUST SYSTEM		
DIVERTER DAMPER		
Make	:	Bachmann India Limited, Faridabad
Position	:	Between Inlet duct & Guillotine Damper
Damper dimensions	:	5600 x 5600 mm
Qty	:	2 Nos. for GTG# 1A & 1B
Sealing system	:	Duplex
Sealing Efficiency	:	100 % with SAF 99.98 Without SAF
Function	:	Isolation

Operating time	:	60 Sec
Max. operating temp.	:	600 ⁰ C
Main Drive Actuator	:	Make :Limitorque , Faridabad Model : SMB-4 Qty : 1 No. Data Sheet no : J-0787/03-004
Gear Box	:	Make :Limitorque , Faridabad Model : H10 BC + SGA2.92 Qty : 1 No. Data Sheet no : J-0787/03-004
Seal Air Blower	:	Make : Patel Air Flow Type : Centrifugal Qty : 2 Nos. Data Sheet no : J-0787/03-005
Motor for Blower	:	Make : CGL Type : Sq. Cage , 3 phase AC Size : 20 HP Qty : 2 Nos. Data Sheet no : J-0787-03-0006
Gate Valve Actuator	:	Make :Limitorque , Faridabad Type : Electric Size : L120-20 Qty : 2 Nos. Data Sheet no : J-0787-03-0004
B.F.V. Actuator	:	Make :Limitorque , Faridabad Type : Electric Size : L120-10 + T-100 Qty : 1 No. Data Sheet no : J-0787-03-0004
Gate Valve	:	Make : K.S.B. Class : 150 # Size : 200 NB Qty : 2 Nos.
Blade Seals	:	Make : Bachmann India Limited, Faridabad Type : Flexible metal Material : Inconel 625 Qty : 2 sets/unit (1 HRSG sie& 1 Bypass side)
Reference Documents	:	GA Drgno : J-0787-03-0000,R4,10 Sheets
GUILLOTINE DAMPER		
Position	:	Between Diverter Damper & HRSG Inlet
Damper dimensions	:	5600mm x 5600mm
Qty	:	2 Nos. for GTG# 1A & 1B
Sealing system	:	Duplex

Sealing Efficiency	:	100 % with SAF 99.98 Without SAF
Function	:	Isolation
Operating time	:	5 Min
Max. operating temp.	:	600 ⁰ C
Main Drive Actuator	:	Make :Limitorque , Faridabad Model : SMB-3 Qty : 1 No. Motor : 19.74 HP , 4 pole
Gear Box	:	Make :Limitorque , Faridabad Model : H6 BC Qty : 1 No.
Seal Air Blower	:	Make : Patel Air Flow Capacity : 0.58 m ³ /sec Type : Impeller directly mounted on motor shaft
Motor for Blower	:	Make : CGL Type : Sq. Cage , 3 phase AC Size : 7.26 HP,2 Pole
Gate Valve Actuator	:	Make :Limitorque , Faridabad Type : Electric Size : L120-10 Motor : 0.54 HP , 2 Pole
Reference Documents	:	P&ID no : J-0787-03-0011,R2
EXPANSION JOINT (HRSG INLET)		
Qty	:	2 Nos. for GTG# 1A & 1B
Axial Compression movement	:	120 mm
Axial Ext. movement	:	10 mm
Lateral movement	:	110 mm
MOC	:	Inlet Frame : IS 2062 Gr. B Outlet Frame : SA 387 Gr. 12 Fabric element : UFV-100
Reference Documents	:	Drgno : J-0787-07-0000,R4 (2 sheets)
EXPANSION JOINT (DIVERTER DAMPER INLET)		
Qty	:	2 Nos. for GTG# 1A & 1B
Axial Compression movement	:	40 mm
Axial Ext. movement	:	10 mm
Lateral movement	:	10 mm
MOC	:	Inlet Frame : IS 2062 Gr. B Fabric element : UFV-100
Reference Documents	:	Drgno : J-0787-01-0000,R3 (2 sheets)
EXPANSION JOINT (DIVERTER DAMPER OUTET TOWARDS STACK)		

Qty	:	2 Nos. for GTG# 1A & 1B
Axial Compression movement	:	30 mm
Axial Ext. movement	:	10 mm
Lateral movement	:	10 mm
MOC	:	Inlet Frame : IS 2062 Gr. B Fabric element : UFV-100
Reference Documents	:	Drgno : J-0787-02-0000,R3 (2 sheets)
SILENCER TRANSITION (SQ. TO SQ.) & (SQ. TO ROUND)		
Qty	:	2 Nos. for GTG# 1A & 1B
MOC	:	Shell plate : IS 2062 Gr. B Insulation Cover : SS 409
Reference Documents	:	Drgno : J-0787-08-0000,R3 (2 sheets) Drg no : J-0787-10-0000,R2 (2 sheets)
EXHAUST SILENCER		
Qty	:	2 Nos. for GTG# 1A & 1B
MOC	:	Main Frame : IS 2062 Gr. B Insulation Cover : SS 409
Reference Documents	:	Drgno : J-0787-09-0000,R3 (3 sheets)
BYPASS STACK		
Qty	:	2 Nos. for GTG# 1A & 1B
MOC	:	Shell plate : IS 2062 Gr. B Insulation Cover : SS 409
Reference Documents	:	Drgno : J-0787-11-0000,R2 (3 sheets)
HRSG		
PERFORMANCE PARAMETERS		
Manufacturer	:	Larsen & Toubro Limited,
Type of Boiler	:	Vertical Induced Circulation
Max. Continuous rating (MCR):	:	HP circuit - 221 Tonnes/hr IP circuit - 38 Tonnes/hr LP circuit - 38.85 Tonnes/hr
Steam Temp. at terminal Point	:	HP circuit - 528 ⁰ C IP circuit - 324 ⁰ C LP circuit - 223 ⁰ C
Steam Pressure. at terminal Point	:	HP circuit - 112.7 Bar IP circuit - 23.70 Bar LP circuit - 4.5 Bar
HP DRUM		
Make	:	ISGEC, Yamunanagar

Qty	:	1 No. for HRSG A 1 No. for HRSG B
Construction Code	:	IBR 1950
Fluid circulated	:	Steam & DM water
Heating Surface	:	31.42 m ²
Capacity	:	41.5 m ³
Dimensions	:	OD 2500 x 10458 mm length
Thickness	:	Shell - 95.6 mm Dish End - 54.9 mm
Insulation thk	:	200 mm
Material	:	SA 302 Grade B
Weight	:	Empty - 81.3 MT
Design Pressure	:	127.5 Kg/cm ² (g)
Hydro Test Pressure	:	191.25 Kg/cm ² (g)
Design Temperature	:	331 ⁰ C
Reference Documents	:	GA Drg no - PV-01-1564
IP DRUM		
Make	:	Vibha Steel , Vadodara
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Capacity	:	23.58 m ³
Heating Surface	:	47.2 m ²
Dimensions	:	OD 2564 x 5426 mm length
Insulation thk	:	100 mm
Fluid circulated	:	Steam & DM water
Thickness	:	Shell - 28.2 mm Dish End - 31.6 mm
Material	:	SA 516 Grade 70
Weight	:	Empty - 16.2 MT
Design Pressure	:	30.6 Kg/cm ² (g)
Hydro Test Pressure	:	45.9 Kg/cm ² (g)
Design Temperature	:	236.2 ⁰ C
Reference Documents	:	GA Drg no. VY830001-32530-DM101-1A
LP DRUM		
Make	:	Vibha Steel , Vadodara
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Capacity	:	18.28 m ³
Heating Surface	:	37.6 m ²
Dimensions	:	OD 2500 x 4298 mm length

Insulation thk	:	75 mm
Fluid circulated	:	Steam & DM water
Thickness	:	Shell - 09 mm Dish End - 16 mm
Material	:	SA 516 Grade 70
Weight	:	Empty - 5.7 MT
Design Pressure	:	9 Kg/cm ² (g)
Hydro Test Pressure	:	13.5 Kg/cm ² (g)
Design Temperature	:	183 ⁰ C
Reference Documents	:	GA Drg no. VY830001-32550-DM101-1A
DEAERATOR		
Make	:	Larsen & Toubro Limited, Vadodara
Qty	:	1 No. for HRSG A 1 No. for HRSG B
DA Type	:	Spray Type
Design Pressure	:	8.77 Kg/cm ² (g)
Design Temperature	:	205 ⁰ C
Hydro Test Pressure	:	11.4 Kg/cm ² (g)
Fluid circulated	:	Steam & Boiler Feed Water
Capacity	:	278400 Kg/hr
Weight	:	Empty - 21000 Kgs
MOC	:	SA 516 Grade 70 Lining shell - SS 304
Dimensions	:	OD 3032 x 9250 Length x 16 mm thk
Reference Documents	:	GA Dr no - 540301
CONTINUOUS BLOW DOWN TANK		
Make	:	AVU Engineers , Hyderabad
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Design code	:	IBR
Tag No.	:	1A BD 200T
Design Pressure	:	9 Kg/cm ² (g)
Design Temperature	:	179.1 ⁰ C
Hydro Test Pressure	:	13.5 Kg/cm ² (g)
Fluid circulated	:	Boiler Quality water & steam
Capacity	:	5.3 m ³
Weight	:	Empty - 3314 Kgs
Insulation thk	:	75 mm
Reference Documents	:	GA Drg no - AVU/1-2K4/L&T/CBD/0748

INTERMITTENT BLOW DOWN TANK		
Make	:	AVU Engineers , Hyderabad
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Design code	:	IBR
Tag No.	:	1A BD 201T
Design Pressure	:	2.5 Kg/cm ² (g)
Design Temperature	:	200 °C
Hydro Test Pressure	:	3.75 Kg/cm ² (g)
Fluid circulated	:	Boiler Quality water & steam
Capacity	:	5.3 m ³
Weight	:	Empty - 2454 Kgs
Insulation thk	:	50 mm
Reference Documents	:	GA Drg no - AVU/1-2K4/L&T/CBD/0749A
HP SUPERHEATER		
Make	:	Samuang Corporation, Korea
Qty	:	2 Nos.
Type	:	Convection
Heating Surface	:	12376 m ²
Weight	:	Empty - 43.5 T
No. of Tubes (SH2/SH1)	:	328
OD of tubes	:	38
Max. Gas Temp.	:	551.7 ⁰ C
MOC of Tubes	:	SA 213 T91
Super Heater Headers	:	
Outside Diameter	:	355.6 mm
Design Pressure	:	129 Kg/cm ² (g)
Weight	:	1.5 T
Material	:	SA 335 P1
IP SUPERHEATER		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Convection
Heating Surface	:	1957 m ²
Weight	:	Empty - 16.7 T
No. of Tubes (SH2/SH1)	:	164
OD of tubes	:	44.5
Max. Gas Temp.	:	333.3 ⁰ C

MOC of Tubes	:	SA 210 A1
Super Heater Headers	:	
Outside Diameter	:	273.1
Design Pressure	:	32.10 Kg/cm ² (g)
Weight	:	0.5 T
Material	:	SA 106 Grade B
LP SUPERHEATER		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Convection
Heating Surface	:	739 m ²
Weight	:	Empty - 7.6 T
No. of Tubes (SH2/SH1)	:	82
OD of tubes	:	38
Max. Gas Temp.	:	233.9 ⁰ C
MOC of Tubes	:	SA 210 A1
Super Heater Headers		
Outside Diameter	:	323.9 mm
Design Pressure	:	10.27 Kg/cm ² (g)
Weight	:	0.5 T
Material	:	SA 106 Grade B
HP EVAPORATOR		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Induced Circulation
Heating Surface	:	28174.4 m ²
Fin Height	:	30 mm
Fin Density	:	265 mm
Fin Thickness	:	0.8 mm
Tube Coils		
Type	:	Serpentine Tube arrangement
No. of rows/sections	:	14
OD/thickness	:	38.1/3.25 mm
Design Pressure	:	129 Kg/cm ² (g)
Design Temperature	:	358 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	406.4/406.4 mm
IP EVAPORATOR		

Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Induced Circulation
Heating Surface	:	12971.7 m ²
Fin Height	:	23.5 mm
Fin Density	:	230 mm
Fin Thickness	:	0.8 mm
Tube Coils	:	
Type	:	Serpentine Tube arrangement
No. of rows/sections	:	8
OD/thickness	:	38/3.25 mm
Design Pressure	:	32.1 Kg/cm ² (g)
Design Temperature	:	267 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	273.1/323.9 mm
LP EVAPORATOR		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Induced Circulation
Heating Surface	:	15063.7 m ²
Fin Height	:	30.2 mm
Fin Density	:	290 mm
Fin Thickness	:	0.8 mm
Tube Coils	:	
Type	:	Serpentine Tube arrangement
No. of rows/sections	:	8
OD/thickness	:	31.8/2.9 mm
Design Pressure	:	10.3 Kg/cm ² (g)
Design Temperature	:	213 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	168.3/406.4 mm
HP ECONOMISER		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Induced Circulation
Heating Surface	:	25393.5/19564.5 m ²
Fin Height	:	30/30.2 mm
Fin Density	:	280/290 mm

Fin Thickness	:	0.8 mm
Tube Coils	:	
Type	:	Serpentine Tube arrangement
No. of rows/sections	:	12/12
OD/thickness	:	38.1/3.25 & 31.8/2.9 mm
Design Pressure	:	204/204 Kg/cm2(g)
Design Temperature	:	331/236 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	273.1/323.9 & 273.1/273.1
LP ECONOMISER		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Induced Circulation
Heating Surface	:	3031.1 m ²
Fin Height	:	40.21312 mm
Fin Density	:	290 mm
Fin Thickness	:	0.8 mm
Tube Coils	:	
Type	:	Serpentine Tube arrangement
No. of rows/sections	:	12
OD/thickness	:	31.8/2.9 mm
Design Pressure	:	49 Kg/cm2(g)
Design Temperature	:	232 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	273.1/273.1 mm
LP ECONOMISER		
Make	:	Samuang Corporation, Korea
Qty	:	1 No.
Type	:	Induced Circulation
Heating Surface	:	22595.6 m ²
Fin Height	:	30.2 mm
Fin Density	:	290 mm
Fin Thickness	:	0.8 mm
Tube Coils	:	
Type	:	Serpentine Tube arrangement
No. of rows/sections	:	12
OD/thickness	:	31.8/2.9 mm
Design Pressure	:	23.5 Kg/cm2(g)

Design Temperature	:	155 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	273.1/273.1 mm
CONDENSATE PRE HEATER		
Make	:	Sulzer Pumps,Thane
Qty	:	2 Nos. for HRSG A 2 Nos. for HRSG B
Heating Surface	:	22595.6 m ²
Fin Height	:	30.2 mm
Fin Density	:	290 mm
Fin Thickness	:	0.8 mm
Tube Coils	:	
Type	:	Serpentine Tube arrangement
No. of banks/assemblies	:	82
OD/thickness	:	31.8 mm
Design Pressure	:	23.5 Kg/cm2(g)
Design Temperature	:	155 ⁰ C
MOC	:	SA 210 A1
Size of Inlet/outlet headers	:	273.1/273.1 mm
PHOPHATE DOSING SYSTEM		
Make	:	Milton Roy , Chennai
Nos. of tanks per HRSG	:	2 Nos.
Type of tank	:	Vertical
Material of Tank	:	SS 304
Capacity	:	330 litres
Size of tank	:	OD 900 mm x 1300 Height
Dosing Pump	:	
Make	:	Milton Roy , Chennai
Type of Dosing Pump	:	Plunger
Nos. of Dosing Tank	:	6 Nos.
Diaphrahm Material	:	Packing PTFE - Bridge Rope
Design Code	:	API675
Rated Capacity	:	HP - 12 LPH IP - 3.5 LPH LP - 3.5 LPH
SAFETY VALVES		
Make	:	Tyco Sunmar Limited
Type	:	Spring Loaded

Size	:	HP Drum - 2.5/2.5 inch IP Drum - 3/3 inch LP Drum - 3/3 inch HP Superheater - 2 inch IP Superheater - 3 inch LP Superheater - 3 inch
Qty	:	HP Drum - 2 Nos. IP Drum - 2 Nos. LP Drum - 2 Nos. HP Superheater - 1 No. IP Superheater - 1 No. LP Superheater - 1 No.
Capacity (Tonnes/hr)	:	HP Drum - 98.5/99.3 IP Drum - 15.1/15.8 LP Drum - 10.6/11 HP Superheater - 41.8 IP Superheater - 13.2 LP Superheater - 14.7
HP BOILER STARTUP PUMP		
Make	:	EnsivalMoret , Belgium
Model no.	:	PRNR100-26
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Capacity	:	200 m ³ /hr
Total Head	:	53 MLC
Speed	:	2570 rpm
Motor	:	Make - ABB Rating - 45 kW Frame Size - 225
Performance Standard	:	HIS
No. of stages	:	One
MOC	:	Impeller & Casing - A 487 Gr. CA6NM Casing wear ring & impeller wear ring - A 276 TY 410 Shaft - AISI 4140
Casing	:	Volute type
IP BOILER STARTUP PUMP		
Make	:	Sulzer Pumps,Thane
Model no.	:	ZE 40-1200
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Capacity	:	27 m ³ /hr

Total Head	:	45 MLC
Speed	:	2950 rpm
Motor	:	Make - CGL Rating - 7.5 kW Frame Size - ND 160 M
Performance Standard	:	HIS
No. of stages	:	One
MOC	:	Impeller & Casing - A 487 Gr. CA6NM Shaft - A 276 TY 410
LP BOILER STARTUP PUMP		
Make	:	Sulzer Pumps,Thane
Model no.	:	ZE 40-1200
Qty	:	1 No. for HRSG A 1 No. for HRSG B
Capacity	:	14 m ³ /hr
Total Head	:	39 MLC
Speed	:	2950 rpm
Motor	:	Make - CGL Rating - 5.5 kW Frame Size - ND/325
Performance Standard	:	HIS
No. of stages	:	One
MOC	:	Impeller & Casing - A 487 Gr. CA6NM Shaft - A 276 TY 410
Reference Documents	:	GA drg no - VY830001-33213-DM001
LP BOILER FEED PUMP		
Make	:	KSB Pumps Limited
Model no.	:	WKS 50/5 (DSB)
Qty	:	2 Nos. for HRSG A 2 Nos. for HRSG B
Capacity	:	25 m ³ /hr
Total Head	:	140 MLC
Speed	:	2900 rpm
Motor	:	Make - Bharat Bijlee Rating - 18.5 kW Frame Size - 180M
Performance Standard	:	HIS
No. of stages	:	5 (Five)
MOC	:	Impeller - A 743 Gr. CA6NM Casing - A 216 Gr. WCB Shaft - A 276 TY 410

Reference Documents	:	GA drg no - F041058386-1
CPH RECIRCULATION PUMP		
Make	:	Sulzer Pumps,Thane
Model no.	:	ZE 80-2250
Qty	:	2 Nos. for HRSG A 2 Nos. for HRSG B
Capacity	:	79.42 m ³ /hr
Total Head	:	68.5 MLC
Speed	:	2950 rpm
Motor	:	Make - CGL Rating - 30 kW Frame Size - ND 200 L
Performance Standard	:	HIS
No. of stages	:	One
MOC	:	Volute Casing - A 743 Gr. CA6NM Shaft - A 276 TY 410
Reference Documents	:	GA drg no - VY830001-33215-DM001-B
JIB CRANE		
Make	:	Reva Cranes & Hoists
Location	:	Outdoor
Class of duty	:	II as per IS 3938/IS 807
Qty	:	2 Nos.
Capacity	:	2 Tonnes
Lift	:	250 Mtrs.
Boom Radius	:	3 Mtrs.
Swivelling of boom	:	90 ⁰
Swivelling speed	:	0.25 rpm
Swivelling Motor	:	0.55 kW/6 pole
Hoisting Speed	:	3.15 M/min
Hoisting Motor	:	2.2 kW
Hoisting Brake	:	DC Disc
CT Speed	:	16 M/min
CT Motor	:	1 x 0.55 kW,Sq. cage
CT Brake	:	DC Disc
Wire rope	:	Dia 8 mm , Stel core 6 x 36
Drum dia	:	OD 200 mm , 4 fall
STEAM TURBINE & AUXILIARIES		
Make & Nos.	:	LMZ, Russia Qty - 1 No.

Type of STG	:	HP- Reaction-Impulse LP- Impulse
MCR at generator terminal	:	166128 kW
Speed of turbine	:	3000 rpm
Turning gear speed	:	Cog wheel, 4 RPM
Condenser back pressure	:	0.088 bar
Steam flow to condenser	:	555.94 T/Hr.
Minimum flow for synch.	:	27.36 (5%) T/Hr.
Minimum pressure & Temp before rolling the machine	:	45/350 Bar
Exhaust conditions Temp, Dry fraction, Enthalpy	:	Temp-34.4 °C, Enthalpy - 536.27 kCal/kG, D fraction – 13.9 %
Type of governing system	:	Mechanical-Hydraulic
Type of control oil	:	Separate from lube Oil, Fire resistance Oil.
Steam	:	HP/IP/LP units
Steam flow Superheated outlet	:	441.97/75.99/37.98 T/Hr.
Steam Temperature	:	528/324/219 °C
Superheater outlet pressure	:	112.7/23.7/4.4 Bar
Drum Pressure	:	113.7/24.5/5.2 Bar
Gland Sealing system	:	Start Up/Normal Operation
Source of steam	:	LP Steam/Self sealing
Quantity	:	6/0.34 Kg/sec
pressure	:	1.18/1.18 Bar
Temperature	:	160-170/ 126 °C
Type of lube oil	:	Mineral oil
ELECTRICAL		
GAS TURBINE GENERATOR TRANSFORMER		
Make	:	Crompton Greaves ,Kanjur
Service	:	Outdoor
Duty	:	Continuous
Type Designation	:	Suitable for Bi-directional power flow
MVA rating ONAN Cooling	:	115 MVA
MVA rating ONAF Cooling	:	154 MVA
MVA rating OFAF Cooling	:	192 MVA
Rated Voltage	:	HV winding - 420 KV LV winding - 15.75 KV
Rated Current	:	HV winding - 263.9 A LV winding - 7038.2 A
Connections	:	HV winding - Star LV winding - Delta

Vector Group	:	YNd1
Type of Cooling	:	ONAN/ONAF/OFAF
No. x capacity of cooling units	:	2 x 60%
No. of cooling units required for full load operation	:	2 x 50%
Cooling system Fan Motor	:	Make : Alstom Qty : 3 W + 1 S Rating : 0.7 kW
Cooling system oil Pump	:	Make : Flow Well Qty : 1 W + 1 S Rating : 4.4 kW
Winding Insulation	:	Type - Cellulose Based Class - Class A
Tap Changer	:	Type - Off Circuit Tap Changer Manufacturer - Paragon , Mumbai
X / R ratio	:	51 approx
Winding Resistance	:	HV winding - 1 ohm per phase LV winding - 0.00375 ohm per phase
Approximate max. flux density	:	1.65 Wb/m ²
HV Bushings	:	Manufacture - CGL Type - OIP Condensor Max. creepage distance - 25mm/KV Rating : 420 KV- 800A Reference Standard - IS 2099
LV Bushings	:	Manufacture - Alstom Type - Porcelain , Oil filled Max. creepage distance - 25mm/KV Rating : 24 KV- 12500A (min.) Reference Standard - IS 2099
HV Neutral Bushings	:	Manufacture - CGL Type - Porcelain , Oil communicating Rating : 36 KV- 630A (min.) Reference Standard - IS 2099
Coolers (Radiator Banks)	:	Total weight with Oil - 28500 Kgs Total weight without oil - 21500 Kgs Thickness of radiator fins - 1.2 mm Type of mounting - Separately mounted
Gas detection device	:	Manufacturer - ATVUS/PRAYOG Type - 3 Inch , Double Float
Fault Pressure Device	:	Manufacturer - Sukrut Type - Self resetting Number Provided - one (1) Operating Pressure - 8 psi

Winding - Type	:	Type of winding - Disc/Layer/Helical Current density at rated load for HV winding- 3.5A/mm ² Current density at rated load for LV winding- 3.5A/mm ²
Winding temp. Indicator	:	Manufacturer - Perfect Control Model no. - PC 171 Accuracy - 1.50 %
Transformer core details	:	Net core area - 7000 cm ² Core material & grade used - CRGO Silicon Steel Thickness of stamping - 0.27 mm
Transformer Oil	:	As per IS 335
Approximate volume of Oil	:	63500 Litres
Approximate overall dimensions (L x B x H)	:	15100 x 9000 x 10400 mm
Quantity	:	2 Nos.
Cooling	:	ONAN/ONAF/OFAF
Voltage (KV) HV/LV	:	420 / 15.75
BIL (KVP) HV/LV	:	1300 / 125
No. of phases	:	3 Phase
Frequency	:	50 Hz
Connection & Symbol	:	Star/Delta - TNd1
Location	:	Ground mounted
Mounting	:	Mounted on roller assembly
Type of Conservator	:	COPS
Type of Tank	:	Bell Tank
Type of Tap charger	:	Off circuit , Paragon Associates make , 132 KV , 400A , 5 Position
Location of Tap charger	:	In-Tank
Tank Base construction	:	Roller assembly
Cooling Plant	:	Radiator with Fans & Pumps
Cooler Mounting	:	Radiator with isolation valves.Fans mounted on radiators
Type of bushing	:	HV - 420 KV / 800A Condensor type bushing HV N - 36 KV / 2000A Porcelain type bushing LV - 24 KV / 12500A Oil filled type bushing
Vaccum withstand level for tank	:	Full Vaccum
Oil filled Vs. Nitrogen filled despatch	:	N ₂ Filled
Integral Vs. Bolted Jacking pad	:	Integral

Oil sampling arrangement	:	Top & bottom sampling valve provided on the tank
Control panels	:	Marshalling Box & OLTC Motor drive Unit
Reference Documents	:	GA Drg no - T61B 9045F Rating & Diagram Plate - Drg no - T62B 3167F Foundation detail - Drg no - T63B 8789 H Valve schedule plate - Drg no - T62B3221H
STEAM TURBINE GENERATOR TRANSFORMER		
Make	:	Crompton Greaves ,Kanjur
Service	:	Outdoor
Duty	:	Continuous
Type Designation	:	Suitable for Bi-directional power flow
MVA rating ONAN Cooling	:	125 MVA
MVA rating ONAF Cooling	:	167 MVA
MVA rating OFAF Cooling	:	208 MVA
Rated Voltage	:	HV winding - 420 KV LV winding - 15.75 KV
Rated Current	:	HV winding - 285.9 A LV winding - 7624.7 A
Connections	:	HV winding - Star LV winding - Delta
Vector Group	:	YNd1
Type of Cooling	:	ONAN/ONAF/OFAF
No. x capacity of cooling units	:	2 x 60%
No. of cooling units required for full load operation	:	2 x 50%
Cooling system Fan Motor	:	Make : Alstom Qty : 4 W + 1 S Rating : 0.7 kW
Cooling system oil Pump	:	Make : Flow Well Qty : 1 W + 1 S Rating : 4.4 kW
Winding Insulation	:	Type - Cellulose Based Class - Class A
Tap Changer	:	Type - Off Circuit Tap Changer Manufacturer - Paragon , Mumbai

X / R ratio	:	42 approx
Winding Resistance	:	HV winding - 0.92 ohm per phase LV winding - 0.00367 ohm per phase
Approximate max. flux density	:	1.60 Wb/m ²
HV Bushings	:	Manufacture - CGL Type - OIP Condensor Max. creepage distance - 25mm/KV Rating : 420 KV- 800A Reference Standard - IS 2099
LV Bushings	:	Manufacture - Alstom Type - Porcelain , Oil filled Max. creepage distance - 25mm/KV Rating : 24 KV- 12500A (min.) Reference Standard - IS 2099
HV Neutral Bushings	:	Manufacture - CGL Type - Porcelain , Oil communicating Rating : 36 KV- 630A (min.) Reference Standard - IS 2099
Coolers (Radiator Banks)	:	Total weight with Oil - 31000 Kgs Total weight without oil - 23400 Kgs Thickness of radiator fins - 1.2 mm Type of mounting - Separately mounted
Gas detection device	:	Manufacturer - ATVUS/PRAYOG Type - 3 Inch , Double Float
Fault Pressure Device	:	Manufacturer - Sukrut Type - Self resetting Number Provided - one (1) Operating Pressure - 8 psi
Winding - Type	:	Type of winding - Disc/Layer/Helical Current density at rated load for HV winding- 3.5A/mm ² Current density at rated load for LV winding- 3.5A/mm ²
Winding temp. Indicator	:	Manufacturer - Perfect Control Model no. - PC 171 Accuracy - 1.50 %
Transformer core details	:	Net core area - 7000 cm ² Core material & grade used - CRGO Silicon Steel Thickness of stamping - 0.27
Transformer Oil	:	As per IS 335
Approximate volume of Oil	:	68100 Litres

Approximate overall dimensions (L x B x H)	:	15100 x 10000 x 10500 mm
Location	:	Gas Turbine Building
Quantity	:	1 No.
Cooling	:	ONAN/ONAF/OFAF
Voltage (KV) HV/LV	:	420 / 15.75
BIL (KVP) HV/LV	:	1300 / 125
No. of phases	:	3 Phase
Frequency	:	50 Hz
Connection & Symbol	:	Star/Delta - YNd1
Location	:	Ground mounted
Mounting	:	Mounted on roller assembly
Type of Conservator	:	COPS
Type of Tank	:	Bell Tank
Type of Tap charger	:	Off circuit , Paragon Associates make , 132 KV , 400A , 5 Position
Location of Tap charger	:	In-Tank
Tank Base construction	:	Roller assembly
Cooling Plant	:	Radiator with Fans & Pumps
Cooler Mounting	:	Radiator with isolation valves.Fans mounted on radiators
Type of bushing	:	HV - 420 KV / 800A Condensor type bushing HV N - 36 KV / 2000A Porcelain type bushing LV - 24 KV / 12500A Oil filled type bushing
Vacuum withstand level for tank	:	Full Vacuum
Oil filled Vs. Nitrogen filled despatch	:	N2 Filled
Integral Vs. Bolted Jacking pad	:	Integral
Oil sampling arrangement	:	Top & bottom sampling valve provided on the tank
Control panels	:	Marshalling Box & OLTC Motor drive Unit
Reference Documents	:	GA Drg no - T61B 9046F Rating & Diagram Plate - Drg no - T62B 3168F Foundation detail - Drg no - T63B 8791 H Valve schedule plate - Drg no - T62B3248H
UNIT AUXILIARY TRANSFORMER		
Rating	:	21 MVA
Manufacturer	:	Crompton Greaves ,Kanjur
Service	:	Outdoor

Duty	:	Continuous
Designation	:	Oil filled
Rating ONAN/ONAF	:	16.8/21
Rated Voltage	:	HV Winding - 15.75 KV LV winding - 6.9 KV
Rated Current	:	HV Winding - 769.8 A LV winding - 1757.2 A
Connections	:	HV Winding - Delta LV winding - Star
Vector Group	:	Dyn11
No. x capacity of cooling units	:	2 x 50%
No. of cooling units required for full load operation	:	2 x 50%
Make of Fan Motor	:	Alstom
Winding Insulation	:	Type - Uniform Class - Class A
Tap Charger	:	Type - On load Tap charger Manufacturer - Easun MR
Bushings (LV / HV / LV Neutral)	:	Make - JSI Type - Oil filled Porcelain type Reference Standard - IS 2099
Radiator cooler banks	:	Overall dimensions - 2000 x 520 mm Total weight with oil - 4850 Kgs Total weight without oil - 3610 Kgs Thickness of radiator tubes - 1.2 mm
Gas detection device	:	Manufacturer - Prayog Type - Double float type
Fault Pressure Device	:	Manufacturer - Sukrut Type - Spring loaded Qty - 1 No.
Winding	:	Type - Helical/Disc
Winding temp. Indicator	:	Make -Precimesure Perfect control Model no. - PC 171 Accuracy - ± 2 degrees
Oil Temp. Indicator	:	Make -Precimesure Perfect control Model no. - PC 171 Accuracy - ± 2 degrees
Transformer details	:	Net core area - 1470 cm ² Core material & grade used - M4 Thickness of stamping - 0.27 mm
Transformer Oil	:	As per IS 335
STATION AUXILIARY TRANSFORMER		

Rating & Qty	:	2500 KVA - 1 No. 1600 KVA - 1 No. 500 KVA - 1 No.
Type of Transformer	:	Resin Cast dry Type
No. of Phases	:	Three
Voltage Ratio	:	6600 / 433
Frequency	:	50 Hz
Connections	:	Delta / Star
Vector Group	:	Dyn11
Tappings on Primary winding	:	± 5% in steps of 2.5%
Percentage Impedance	:	For 2500 KVA - 9 % with no negative tolerance For 1600 KVA - 6.25 + IEC Tolerance For 500 KVA - 4.0 + IEC Tolerance
Winding Material	:	Copper
Type of Cooling	:	AN
Class of Insulation	:	F
Max. temp. rise in winding over 45 deg celcius ambient	:	90 deg celcius
Insulation Level	:	HV : LI 60/20 AC KVp/KVrms LV : -/ 3 AC KVp/KVrms LV Neutral : -/ 3 AC KVp/KVrms
Applicable Standard	:	IS 2026 & IS 11171 (1985)
Application	:	Indoor
Protection class of Enclosure	:	For 2500 KVA - IP 31 For 1600 KVA - IP 31 For 500 KVA - IP 43
Total Weight	:	For 2500 KVA - 7700 Kgs (+ 10 % tolerance) For 1600 KVA - 5800 Kgs (+ 10 % tolerance) For 500 KVA - 3100 Kgs (+ 10 % tolerance)
Reference Documents	:	For 2500 KVA : Outline GA drg no. - 2 OG 1147 & Outline GA drg no. - 2 OG 1153 For 1600 KVA : Outline GA drg no. - 2 OG 1150 & Outline GA drg no. - 2 OG 1154 For 500 KVA : Outline GA drg no. - 2 OG 1155
EMERGENCY DG SET		
Manufacturer of main items		
Main Vendor	:	Powerica
Engine along with accessories	:	Cummins
Alternator	:	Stamford
Control panel	:	Powerica

Battery	:	Exide
Battery charger	:	Powerica
AMF Panel	:	Powerica
DG Breaker panel/ DG Aux. MCC	:	Powerica
Power output at Generator terminals at 0.8 p.f. (lag) at 50°C ambient	:	1250KVA
Applicable standards	:	
Engine	:	ISO3046
Alternator	:	IS4722
Battery	:	IS7372
AMF Panel	:	IS8543
DG Breaker panel/ DG Aux. MCC	:	IS8543
Diesel Engine	:	
Manufacturer and Model No.	:	KTA50G3
Type	:	IC
No. of cycles	:	4 cylces
No. of cylinders	:	16 cylinders
Cylinder orientation	:	60deg. V
RPM	:	1500 rpm
Service	:	Prime power
Bore x Stroke	:	159 mm x 159 mm
Piston displacement	:	50 M3
Power at design RPM	:	1096 KW
Compression ratio	:	14.5 : 1
Type of cooling	:	Radiator
Generator	:	
Make	:	Stamford
Type	:	Brushless type
Service	:	Continuous
Capacity	:	1250KVA
Voltage	:	415V
Phase	:	3 phase
R.P.M	:	1500RPM
Power Factor	:	0.8 lag
D.G AMF / DG Breaker Panel	:	
Make	:	Powerica
Type	:	Vertical free standing
Sheet thickness	:	2 mm / 3mm
Degree of protection	:	IP52

Wire type	:	PVC flexible
Voltage grade	:	1.1KV
Conductor material	:	copper
Conductor size	:	2.5sq.mm
UPS		
Manufacturer	:	Emerson Network Power Pvt. Limited
Qty	:	1 No.
Type	:	7400 Series
Output rating at design ambient	:	75 KVA
Input supply voltage & frequency	:	415 V , 50 Hz
Batteries		
Type	:	SMF Lead acid battery
Manufacturer	:	HBL Nife
End cell Voltage	:	1.75 V
No. of cells	:	192 Nos.
Battery backup time	:	30 minutes
Battery rating	:	320 AH
Material of Battery racks	:	CRCA Sheet
GENERATOR CIRCUIT BREAKER		
Manufacturer	:	Japan AE Power Systems Corporation
Type	:	SF ⁶ gas, puffer type (Model No.IIB')
Applicable Standards	:	IEEE C37.013
Cooling	:	Natural
Location	:	GT hall
Type of Service	:	Gas Turbine Generator Circuit Breaker
Number of poles	:	3 Poles
Frequency	:	50Hz
System	:	3-phase, 3-wire
Type of Grounding	:	High Resistance
Conductor Temperature	:	105° C (for Silver Contacts)
Enclosure Temperature	:	80°C
Type of Drive Unit (interrupter)	:	Hydraulic
Degree of Protection	:	IP 54
Dimensions (L X W X H), mm	:	4190 x 3400 x 2390mm 4190 x 3400 x 2590mm
Weight, kg	:	9500 Kgs

DCS (BOP)		
Make	:	Siemens , New Delhi
Model	:	TelepermXpadd
Working Platform	:	Windows XP , serverless archieve
I/O capacity	:	5000 Nos.
Speed	:	Network Bus - 100 MBPS Data Bus -- 10 MBPS
FUEL SUPPLY SYSTEM		
Main Vendor	:	Multitex Limited, Delhi
GAS SCRUBBER SKID (MODULE 1)		
Reference Documents	:	GA Drg no - WB-SKD-85-09
Emergency Shutdown Valve		
Service	:	At inlet of the skid
Make	:	Virgo , Pune
Model No.	:	T88300-F2-SB
Tag no.	:	1CNG-402V
Size	:	300 NB
Qty	:	1 No.
MOC	:	Body & Trim - SA 216 grade WCB
Knock Out Drum		
Qty	:	1 No.
Service Fluid	:	Natural Gas
Specific Gravity/Density	:	0.613
Flow Rate	:	1.5 - 21.2 Kg/Sec
Design Code	:	ASME Sec VIII Div. I
Design Pressure	:	49 Bar
Design Temperature	:	65 ⁰ C
Inlet size of the drum	:	300 mm
Outlet size of the drum	:	300 mm
Filtering Rating	:	8 micron - 100 % 6-8 micron - 99 % 4-6 micron - 90 %
Pressure Drop	:	0.5 Bar (Dirty) , 0.25 Bar (Clean condition)
Cyclone Tubes	:	Qty : 32 Nos. Size : OD 114 mm
Size	:	864mm OD x 1325 mm height

MOC	:	Housing : SA 516 Gr. 70 Filter Media : SS Nozzle : SA 106 Gr. B
Reference Documents	:	Drg no - WB-SKID85-PV-05-05-A1-01,R1
Pressure Safety Valve		
Service	:	At Scrubber
Make	:	SEBIM
Model No.	:	6636-2-C-1.5"-F-2"-AV
Tag no.	:	1CNG-405V
Size	:	40 x 50 NB / 600 # x 150 #
Qty	:	1 No.
Capacity	:	5842 Nm ³ /Hr
MOC	:	Body & Bonnet - SA 216 grade WCB Nozzle & Disc - SS 316
Control Valve		
Service	:	At Scrubber drain line
Make	:	Dresser Valve India Limited
Model No.	:	88-21715
Tag no.	:	1CNG-411V
Size	:	25 NB
Qty	:	1 No.
MOC	:	Body - SA 216 grade WCB Trim - SS 316
N2 Purging Skid		
Gas specified	:	Nitrogen
Qty	:	1 No.
Cylinder capacity	:	46.7 Kg/cm ³
Cylinder size	:	OD 232 x 1370mm length
Cylinder Qty	:	45 Nos.
Standard	:	As per IS 7285
Type of Cylinder bottom	:	Concave Bottom
Cylinder working pressure	:	150 Kg/cm ²
Reference Documents	:	GA drgno : WB-SKD-85-19,R1 GA drg no : WB-SKD-85-20,R1
Pressure Regulator		
Make	:	Gortor
Model No.	:	Baai R 101S
Size	:	200 NB , 300 class
Tag No.	:	1 CNG421 VA / VB
Qty	:	2 Nos.
Location	:	Module 1

Type	:	Pilot Controlled , Globe Type
MOC	:	Body - A216 WCB Stem - 17-4PH
Slam Shut Valve		
Make	:	Gortor
Model No.	:	HSV 086
Size	:	250 NB , 300 class
Tag No.	:	1 CNG420 VA / VB
Qty	:	2 Nos.
Location	:	Module 1
Type	:	Pilot Controlled , Globe Type
MOC	:	Body - A216 WCB Stem - C-35
Condensate Tank		
Qty	:	1 No.
Fluid	:	Condensate
Pressure	:	3 Kg/cm ²
Temperature	:	45 ° C
Dimensions	:	OD 1000 mm x 2600mm length
MOC	:	Shell & Dished end : SA 516 grade 70 Flange : SA 105
Reference Documents	:	GA drgno : WB-SKD-85-07-A,R3 GA drg no : WB-SKD-85-07-B,R3
Flame Arrestor		
Make	:	Precon
Model No.	:	PFCI/FA/2050
Service Area	:	At drain tank
Tag No.	:	1CNG401D
Qty	:	1 No.
Size	:	50NB x class 150
MOC	:	Body - SA 216 grade WCB Weather Hood - SS
Vent Stack		
Qty	:	1 No.
MOC	:	IS 2062 Grade B
Dimensions	:	ID 610 mm x 10 mm thk x 12000 mm height
Reference Documents	:	GA drgno : WB-SKD-85-08
NATURAL GAS FILTER SEPERATOR SKID (MODULE 2)		
Reference Documents	:	GA Drg no - WB-SKD-85-10
N2 Purging Skid		

Gas specified	:	Nitrogen
Qty	:	1 No.
Cylinder capacity	:	46.7 Kg/cm ³
Cylinder size	:	OD 232 x 1370mm length
Cylinder Qty	:	45 Nos.
Standard	:	As per IS 7285
Type of Cylinder bottom	:	Concave Bottom
Cylinder working pressure	:	150 Kg/cm ²
Reference Documents	:	GA drgno : WB-SKD-85-19,R1 GA drg no : WB-SKD-85-20,R1
Condensate Tank		
Qty	:	1 No. for Module-1
Fluid	:	Condensate
Pressure	:	3 Kg/cm ²
Temperature	:	45 ⁰ C
Dimensions	:	OD 1000 mm x 2600mm length
MOC	:	Shell & Dished end : SA 516 grade 70 Flange : SA 105
Reference Documents	:	GA drgno : WB-SKD-85-07-A,R3 GA drg no : WB-SKD-85-07-B,R3
Flame Arrestor		
Make	:	Precon
Model No.	:	PFCI/FA/2050
Service Area	:	At drain tank
Tag No.	:	1CNG501D
Qty	:	1 No.
Size	:	50NB x class 150
MOC	:	Body - SA 216 grade WCB Weather Hood - SS
Filter Sperator		
Qty	:	2 Nos.
Service Fluid	:	Natural Gas
Specific Gravity/Density	:	0.613
Flow Rate	:	1.5 - 21.2 Kg/Sec
Design Code	:	ASME Sec VIII Div. I
Design Pressure	:	48 Bar
Design Temperature	:	50 ⁰ C
Inlet size of the drum	:	300 mm
Outlet size of the drum	:	300 mm
Filtering Rating	:	2 micron - 99.9 %

Pressure Drop	:	0.35 Bar (dirty) , 0.2 Bar (clean Condition)
Filter Elements	:	Material : Glass Fibre Qty : 32 Nos. Size : OD 114 mm x 914 mm long
Size	:	610mm OD x 4100 mm height
MOC	:	housing : SA 516 Gr. 70 Filter Media : FG + SS 316/304 Nozzle : SA 106 Gr. B
Reference Documents	:	Drg no - WB-SKID-85-PV-05-06-A1-01,R1
Pressure Safety Valve		
Service	:	At Filter Seperator
Make	:	SEBIM
Model No.	:	6636-2-C-1.5"-G-2"-AV
Tag no.	:	1CNG-507VA & VB
Size	:	40 x 65 NB / 300 # x 150 #
Qty	:	2 Nos.
Capacity	:	5842 Nm ³ /Hr
MOC	:	Body & Bonnet - SA 216 grade WCB Nozzle & Disc - SS 316
Control Valve		
Service	:	At Filter Seperator drain line
Make	:	Dresser Valve India Limited
Model No.	:	88-21715
Tag no.	:	1CNG-513VA / VB ,517 VA / VB
Size	:	25 NB
Qty	:	4 Nos.
MOC	:	Body - SA 216 grade WCC Trim - SS 316
BURN PIT SKID		
Pipe	:	25 NB , Sch 80 as per ASTM A 106 Gr. B - 3.5 Mtrs. 50 NB , Sch 80 as per ASTM A 106 Gr. B - 2 Mtrs.
Elbow	:	25 NB , 3000 class - 7 Nos. 50 NB , 3000 class - 5 Nos.
Tee	:	25 NB , 3000 class - 1 No. 50 NB , 3000 class - 1 No.
Reference Documents	:	GA Drg no - WB-SKID-85-21
AC SYSTEM		
Main Vendor	:	Voltas Limited , Hyderabad
COOLING TOWER		

Make	:	Paharpur Cooling Tower , Kolkata
Type , Model No.	:	Induced Draft cross flow , 3851
Service area	:	Control Building
Designation	:	1CHV401AA & 1CHV401AB
Quantity	:	2 Nos.(1W + 1S)
Design Cooling Capacity	:	70 TR
Design ambient wet bulb temp.	:	28.3 dec C
Water Flow rate	:	65 m3/hr
Hot water inlet Temp.	:	32.2 deg C
Cold water temp.	:	36.2 deg C
MOC	:	Fill arrangement,fill& Drift eliminators - PVC Casing - FRP Inlet Louvers - PVC integral with fill Fan Blade - Cast Alumimium
Motor	:	Make -Paharpur Rating - 1.5 Kw Frame Size : 90L
Water Losses	:	Evaporation losses - 0.67 % Drift losses - 0.01 % Make up water Quantity/size/quick fill - 0.9/50mm/50mm
Air Quantity	:	7.75 m3/sec
Noise level	:	85 dB
Fan Tip Speed	:	1366
Weight	:	Bare - 454 Kgs Operating - 1256 Kgs
Fan Capacity	:	10 m3/sec
Reference Documents	:	Data Sheet no. - KON 02 CT DS02 GA Drg no. - P91/3008 & P92-3032
CONDENSOR		
Make	:	Voltas Limited,Dadra
Service area	:	Control Building (Control room,control equipment room, UPS room,Shiftsupervisor,E&I lab
Designation	:	1CHV404AA & 1CHV404AB
Model No.	:	9076
Type	:	Shell & Tube
Quantity	:	1 W + 1 S
Refrigerent	:	R-22
Refrigerent storage capacity	:	68 Kgs

MOC	:	Shell : IS 2062 Grade A Tube : Integrally finned seamless copper tubes per with C12200 Head & water box : Cast iron as per IS 210
Main Dimensions	:	Shell : OD 406 mm x 8 mm thk Tube : 18 mm OD x 1.1 mm thk x 2134 mm length
No. of Tubes	:	98 nos. (no. of passes - 2)
Hot water inlet Temp.	:	32.2 deg C
Cold water temp.	:	36.2 deg C
Water velocity in tubes	:	2 M/s
Circulating water quantity required	:	290US GPM
Maximum condensor capacity	:	400US GPM
Condensing Temp.	:	110 deg F
Maximum working pressure	:	Refrigerent side - 20.5 bar (g) Water Side -10 Bar
Condensor Motor	:	Make - ABB Rating - 55 kW Frame Size - HX+250MB4 Insulation class - F Dimensions - 1100(L) x 650(B) x 910(H) mm Type - Sq. cage induction motor Ref. Data Sheet no : KON 02 EM DS 012B & GA Drg no - 3GYN 490851/490777
Reference Documents	:	Data Sheet no. - KON 02 CD DS015
COMPRESSOR		
Make	:	Voltas Limited
Service area	:	Control Building (Control room,control equipment room, UPS room,Shiftsupervisor,E&I lab
Designation	:	1CHV403CA/1CHV403CB
Model No.	:	5066
Capacity	:	70 TR
Type	:	Open / Reciprocating
Quantity	:	1 W + 1 S
Working pressure	:	17 Kg/cm ²
Start	:	Partly Loaded
Weight	:	Compressor - 434 Kgs Motor - 360 Kgs
Refrigerent	:	R-22
Operating speed	:	1450 rpm

Motor	:	Make - ABB Rating - 55 kW , 4 Pole
Make & Grade of oil used	:	ServofrizGrd 68
Cylinder Construction	:	No. of Cylinders - 6 with 'V' type alignment Bore x stroke of cylinder - 3.10 x 53.7/16"
MOC	:	Compressor Body,Cylinder and Cylinder Liner - Cast iron as per IS 210 Grade FG 260 Piston - Cast iron as per IS 210 Grade FG 300 Crankshaft - ASTM 100/70 Gr 700/2 IS 1865
Reference Documents	:	Data Sheet no - KON 02 CP DS 014
BASKET STRAINER		
Make	:	Jaypee,Newdelhi
Type	:	Basket (simplex)
Purpose	:	AC Cooling Water
Mesh Size	:	20 mesh
Size	:	100 NB
Quantity	:	2 Nos.
Designation	:	1CHV414MA & 1CHV414MB
Flow rate	:	65.85 m3/hr
MOC	:	Body - MS fabricated to IS 2062 Wire Mesh - SS 304
Pressure Drop	:	Clean condition - 1 MWC 50% choked condition - 2 MWC
Working pressure	:	4-5 Bar
Reference Documents	:	Data Sheet no - KON 02 PV DS 06F Drg No - JPI/ESBS/VLTS
AIR HANDLING UNIT		
Make & Type	:	Voltas (V-500) & Double skin ,Draw through
Service area	:	Control Building
Designation	:	1CHV400XA & 1CHV400XB
Quantity	:	2 Nos.m (1 W + 1 S)
Dimensions	:	3200 mm x 3250 mm x 2250 mm (L x W x H)
Total operating weight	:	3500 Kgs
Thickness of casing	:	25 mm
No. of sections	:	3 # (fan , 6 Row Coil & Pre-filter section)

Cooling Coil	:	Type - DX type Cooling capacity - 211680 Kcal/hr Air Quantity - 47600 m3/hr No. of rows - 6 No. of circuits - 30 per coil MOC of coils - Copper C12200 MOC of fins - Aluminium
AHU Motor	:	Make - ABB Rating - 18.5 kW Frame Size - HX+180MLB4 Insulation class - F Dimensions - 865(L) x 500(B) x 655(H) mm Type - Sq. cage induction motor Ref. Data Sheet no : KON 02 EM DS 012C & GA drg no - 3GYN 490370/453117
Centrifugal Fans	:	Make/Model - Kruger FDA 900T Type - DIDW Qty - 1 No. Selected capacity - 47600 CMH Impeller Speed - 451 rpm MOC - Impeller & casing (GI Sheet) , Shaft (EN-8) Motor - 18.5 kW
Reference Documents	:	Data Sheet No - KON 02 AH DS 016 GA Drg no - V 500
CONTROL BUILDING FIRE DAMPER		
Manufacturer	:	TSC Instruments
Designation	:	1CHV 408Y to 1CHV412 Y
Quantity	:	2100 x 900 mm - 1 No. (Double leaves) 3000 x 900 mm - 1 No. (Double leaves) 0600 x 450 mm - 2 Nos. (Single leaf) 0450 x 700 mm - 2 Nos. (Single leaf)
Type	:	Rectangular low leakage
MOC	:	Frame - 14 G sheet , MS as per IS 1079 Louver - 16 G sheet , MS as per IS 1079 Shaft - MS as per IS 9550 grade 1
Fusible link melting temp.	:	79 deg Celcius
Reference Documents	:	GA Drg no - DR/TSC-2/126/04-05/1
DM PLANT FIRE DAMPER		
Manufacturer	:	George Rao &Company,Mumbai
Type	:	Fusible Link Operated Fire damper

MOC	:	Frame - 16G GI Louvers - 16 G GI Shaft - MS plated
Fusible Link	:	Manufacturing Std - UL555 Material - Copper plates
GATE VALVE		
Make	:	H Sarkar
Purpose	:	AC Cooling Water
Type	:	Outside screw & yoke with position indicator
Design Standard	:	IS 14846
Pressure rating	:	Class 125 PN 1.0
Size	:	100 NB
Quantity	:	12 Nos.
Designation	:	1CHV403VA & VB,1CHV404VA & VB,1CHV405VA & VB,1CHV406VA & VB,1CHV409VA & VB 1CHV411VA & VB
MOC	:	Body , Wedge , Hand wheel - CI as per IS 210 FG 260 Stem , Seat ring - SS AISI 410
Reference Documents	:	Data Sheet no - KON 02 PV DS 06C
GLOBE VALVE		
Make	:	H Sarkar
Purpose	:	AC Cooling Water
Type	:	Outside screw & rising spindle
Design Standard	:	BS 5152
Pressure rating	:	Class 125 PN 1.0
Size	:	100 NB
Quantity	:	04 Nos.
Designation	:	1CHV408VA & VB and 1CHV410VA & VB
MOC	:	Body ,Wedge,Hand wheel - CI as per IS 210 FG 260 Stem , Seat ring - SS AISI 410
CHECK VALVE		
Make	:	H Sarkar
Purpose	:	AC Cooling Water
Type	:	Swing
Design Standard	:	IS 5312
Pressure rating	:	Class 125 PN 1.0
Size	:	100 NB

Quantity	:	02 Nos.
Designation	:	1CHV407VA & VB
MOC	:	Body , Cover & Flap - CI as per IS 210 FG 260 Hinge Bracket - ASTM A 216 grade WCB
Reference Documents	:	Data Sheet no - KON 02 PV DS 06D
GM GATE VALVE		
Make	:	SANT
Purpose	:	AC water make up & Quick fill
Type	:	Inside screw rising stem
Design Standard	:	IS 778
Pressure rating	:	Class 1 PN 1.0
Size	:	50 NB
Quantity	:	13 Nos.
Designation	:	1CHV400VA & VB,1CHV401VA & VB,1CHV402VA & VB,1CHV416VA & VB,1CHV417VA,1CHV418VA & VB , 1CHV420 VA & VB
MOC	:	Body,Bonnet,wedge,gland - Leaded Tin Bronze Spindle - Forged Brass
Reference Documents	:	Data Sheet no - KON 02 PV DS 06B
GM GLOBE VALVE		
Make	:	SANT
Purpose	:	AC refrigerent piping liquid line
Type	:	Inside screw rising stem
Design Standard	:	IS 778
Pressure rating	:	Class 2 PN 1.0
Size	:	40 NB
Quantity	:	06 Nos.
Designation	:	1CHV412VA & VB,1CHV413VA & VB 1CHV415VA & VB
MOC	:	Body,Bonnet,disc,gland - Leaded Tin Bronze Spindle - Forged Brass
Reference Documents	:	Data Sheet no - KON 02 PV DS 06A
PRE FILTERS		
Make	:	Puromatic
Service	:	Control Building
Location	:	Air Handling Unit
Quantity	:	15 Nos.
Size	:	610 x 610 x 50 mm

Flow rate through each filter	:	3170 CMH
Maximum face velocity	:	2.5 m/s
Pressure Drop	:	Clean condition : 3 -4 MWC 50% choked condition - 7 MWC
MOC	:	16 G Aluminium
Testing Code	:	EN779/ASHRAE 52-76
Reference Documents	:	Data Sheet no - KON 02 PF DS 011A
FINE FILTERS		
Make	:	Puromatic
Location	:	Plenum at the discharge of Air Handling Unit
Quantity	:	24 Nos.
Size	:	610 x 610 x 305 mm
Designation	:	1CHV418F
Flow rate through each filter	:	1980 CMH
Maximum face velocity	:	2.5 m/s
Pressure Drop	:	Clean condition : 6 MWC 50% choked condition - 10 MWC
MOC	:	16 G Aluminium
Testing Code	:	EN779/ASHRAE 52-76
Reference Documents	:	Data Sheet no - KON 02 PF DS 011B
CONDENSOR WATER COOLING PUMP		
Make	:	Beacon Weir
Type	:	Back pull out type, single stage
Service	:	Condensor water cooling
Designation	:	1CHV405PA & PB
Quantity	:	1 W + 1 S
Model No.	:	CNW-80-160
Rated Flow	:	65.85 m ³ /hr
Total developed head at rated flow	:	25.41 MWC
Pump Efficiency	:	0.72
Design Standard	:	ISO 2858/DIN 24256 (manufacturing) and HIS testing as per IS 9137 Class C
Type of impeller	:	Closed
Casing	:	Radially split
MOC	:	Casing - 2% Ni cast iron as per IS 210 Gr FG 260 Impeller - BS 1400 LTB-2 Bronze Shaft & Shaft sleeve - SS AISI 410

Motor	:	Make - ABB Rating - 7.5 kW Frame size - HX+132SMB2 Reference document - Data Sheet no- KON 02 EM DS 012A
Reference Documents	:	Data Sheet no - KON 02 PM DS 01 GA Drg no - 188533
PACKAGE AC		
Make	:	Voltas Limited, Dadra
Service area	:	DM plant
Model No.	:	DPUASC85
Quantity	:	3 Nos.
Tag nos.	:	1CHV417XA,XB& XC
Refrirerent used	:	R-22
Capacity of each unit	:	8.5 TR
Dimensions (L x B x H)	:	900 x 642 x 1855 mm
Compressor	:	Make - Copeland Zr Scroll Motor rating - 9.6 kW
Condensor	:	Type - Air Cooled Model no. - DC 85S MOC of tube - Copper Dimensions - 1325 x 460 x 750 mm
Blower Fan	:	Type -Centrifugal forward curved Capacity - 4000 m3/hr Motor rating - 0.75 kW
Cooling Coils	:	Type - Direct Expansion MOC of tube - Copper
Filters	:	Make - Voltas Limited Particle size - 10 microns
Reference Documents	:	Data Sheet no - KON 02PF DS 011A
ACW SYSTEM		
ACW PUMP		
Supplier	:	WPIL , Kolkata
Quantity	:	3 Nos. (2W + 1S)
Type	:	Vertical Wet Pit non Pull Out type
Capacity	:	1540 m3/hr
Model No.	:	F 20 TC
Total Head at rated capacity	:	33 MLC
Design & testing standard	:	HIS
Pump rated Speed	:	1485 rpm
Weight of pump	:	2370 Kgs

MOC	:	Impeller - CF 8M Suction bell & Bowl - 2% NiCl IS 210 FG 260 Impeller Shaft -SS 410
Reference drawing	:	Data Sheet no : WPIL/ACW/01 GA drg no : SK-5864-B
Motor	:	Make - Alstom , Kolkata Rating - 180 kW
RUBBER EXPANSION JOINTS		
Manufacturer	:	M/s Cori Engineers,Chennai
Size,Location& Qty	:	400 ID at ACW Pump Discharge – 3 Nos.
Material	:	IS 2062 grade B
Design Pressure	:	5.1 Kg/cm2
Design Temp.	:	Max. 50 deg C
Test Vaccum	:	730 mm of Hg
Shore Hardness	:	65 ± 5 deg Sh. A
Flowing Medium	:	Cooling Water
Axial Compression, elongation & lateral deflection	:	12 mm
Torsional movement & angular deflection	:	2 Deg
Reference Drawing	:	CEPL/2446/L&T/1011/01,R6 (2 Sheets)
ACW STRAINER		
Make	:	Otoklin , Mumbai
Quantity	:	1 No.
Model No.	:	750 NBDBF
Reference drawing	:	Drg no - L&T/GA/DBF/9887
TRASH RACK		
Supplier	:	M/s Indoasiatic,New Delhi
Quantity	:	3 sets
No of Pieces / set	:	3 nos. / set
Size	:	7.0 m x 4.6 m
Size of opening between horz. & Vertical bars	:	100 mm
MOC	:	IS: 2062 Gr B Galvanised (Hot dip galvanised)
Location	:	CW Pump bay
Reference Drawing	:	Drg no : IAE/L&T/KCCPP/012,R2
STOP LOG GATES		
Supplier	:	M/s Indoasiatic,New Delhi
Quantity	:	1 set

No. of pieces/set	:	4 nos. / set
Type	:	Side sealing using single musical note seal and bottom seal using plain rubber seal
Size	:	6.3 m X 1.1 m
MOC	:	Is: 2062 Gr B Galvanised (Zinc Spray)
Location	:	ACW Pump bay
Reference Drawing	:	Drg no : IAE/L&T/KCCPP/003,R2 Drg no : IAE/L&T/KCCPP/006,R3 Drg no : IAE/L&T/KCCPP/007,R3 Drg no : IAE/L&T/KCCPP/013,R3
EFFLUENT TREATMENT PLANT		
Main Vendor	:	Doshi Ion Exchange , Ahmedabad
CAUSTIC DOSING TANK		
Make	:	Unimech
Qty	:	2 Nos.
Tag nos.	:	1CET406TA,1CET406TB
Position	:	Vertical
Orientation	:	Cylindrical with flat removable Top
Capacity	:	500 Litres
Dimensions	:	Inside Dia - 900 mm Height - 1200 mm
MOC	:	MS Rubberlined
Reference Documents	:	GA drg no - 1720-VFD-02
ACID DOSING TANK		
Make	:	Unimech
Qty	:	2 Nos.
Tag nos.	:	1CET407TA,1CET407TB
Size	:	900 mm ID x 1200 mm Height
MOC	:	MS Rubberlined
Capacity	:	2100 Litres
Weight	:	Filled - 3.1 T Empty - 1.0 T
Reference Documents	:	GA drg no - 1720-VFD-01
PRIMING TANK		
Make	:	Unimech
Qty	:	2 Nos.
Tag nos.	:	1CET410TA,1CET410TB
Size	:	1600 mm ID x 1500 mm Height
MOC	:	MS Rubberlined as per IS 4682 Part 1
Capacity	:	2100 Litres

Weight	:	Filled - 3.1 T Empty - 1.0 T
Reference Documents	:	GA drg no - 1720-MLC-03
AGITATORS FOR CAUSTIC DOSING TANK		
Make	:	Vallabh Das & Sons , Mumbai
Qty	:	2 Nos.
Tag nos.	:	1CET408CA & 1CET409CB
Model	:	VS/310
Sevice	:	Caustic Dosing Tank
Type	:	Impeller
Agitator Mounting	:	Vertical
Main Dimensions	:	Impeller dia - 425 mm Shaft length - 1000 mm Shaft Dia - 25 mm
Agitator rotation speed	:	100 rpm
MOC	:	Blade & Shaft - SS 316
Motor	:	Make - CGL Rating - 0.37 KW RPM - 1450
Reference Documents	:	Data Sheet no : GMD-04 Drg no : VS/310
BLOWER FOR EHT & SUMP PIT-III		
Make	:	Kay International , Sonapat
Model no.	:	610 AC
Tag nos.	:	1CET407CA & CB
Qty	:	2 Nos.
Type	:	Twin Lobe
Capacity	:	13.3 m3/min
Pressure	:	4.5 MWC
MOC	:	Casing & Lobe - CI as per IS 210 Grade FG 260 Shaft- 8 17 M17,BS 970 Gear - 8 15 M40,BS 970
Motor Details	:	Rating - 18.75 kW Make - Alstom Type - Squirrel cage,foot mounted
Reference Documents	:	Data Sheet no : GMD-015 GA drg no : K-GA-0610AH053A3
EFFLUENT DISPOSAL PUMP		
Make	:	SU Motors , Mumbai
Tag nos.	:	1CET406P-A,1CET406P-B

Model no.	:	CPP2:250 x 200-400
Sr. No.	:	59969 & 59970
Head	:	15 MLC
Efficiency	:	0.52
Type	:	Horizontal back pull out end suction top design
Qty	:	2 Nos.
Capacity	:	600 m3/hr
MOC	:	Casing & Impeller - CI as per IS 210 FG 260 rubberlined Shaft & Shaft sleeve - SA 479 Gr. 410
Motor	:	Rating - 55 kW Make : Alstom Frame Size : ND 200L Ref. Data Sheet no - GMD-012
Reference Documents	:	Data Sheet no : 1720-GMD-011 GA drg no : CH-90 CC- 1480/6
EFFLUENT TRANSFER PUMP		
Make	:	SU Motors , Mumbai
Tag nos.	:	1CET401P-A,1CET401P-B
Model no.	:	CPV1:80 x 50-315
Sr. No.	:	59944 & 59945
Head	:	32 MLC
Efficiency	:	0.39
Type	:	Vertical submerged centrifugal type
Qty	:	2 Nos.
Capacity	:	30 m3/hr
MOC	:	Casing & Impeller - 2% Ni CI (IS 210 FG 260 rubberlined) Shaft & Shaft sleeve - SA 479 Gr. 410
Motor	:	Rating - 11 kW Make : Alstom Frame Size : DDE Ref. Data Sheet no - GMD-002
Reference Documents	:	Data Sheet no : 1720-GMD-001 GA drg no : CH-90 CC- 1408/1
VERTICAL SUMP PUMP FOR HOLDING PIT 1A		
Make	:	SU Motors , Mumbai
Tag nos.	:	1CET402P-A,1CET402P-B
Model no.	:	CPV1:50 x 40-315
Sr. No.	:	59948 x 59949
Head	:	27 MLC
Efficiency	:	0.3

Type	:	Vertical submerged centrifugal type
Qty	:	2 Nos.
Capacity	:	10 m ³ /hr
MOC	:	Casing & Impeller - 2% Ni CI (IS 210 FG 260 rubberlined) Shaft & Shaft sleeve - SA 479 Gr. 410
Motor	:	Rating - 3.7 kW Make : Alstom Frame Size : DDE Ref. Data Sheet no - GMD-004
Reference Documents	:	Data Sheet no : 1720-GMD-003 GA drg no : CH-90 CC- 1408/2
VERTICAL SUMP PUMP FOR SUMP PIT 1B		
Make	:	SU Motors , Mumbai
Tag nos.	:	1CET405P-A,1CET405P-B
Model no.	:	CPV1:50 x 40-315
Sr. No.	:	59946 & 59947
Head	:	28 MLC
Efficiency	:	0.19
Type	:	Vertical submerged centrifugal type
Qty	:	2 Nos.
Capacity	:	05 m ³ /hr
MOC	:	Casing & Impeller - 2% Ni CI (IS 210 FG 260 rubberlined) Shaft & Shaft sleeve - SA 479 Gr. 410
Motor	:	Rating - 3.7 kW Make : Alstom Frame Size : DDE Ref. Data Sheet no - GMD-006
Reference Documents	:	Data Sheet no : 1720-GMD-005 GA drg no : CH-90 CC- 1408/3
VERTICAL SUMP PUMP FOR SUMP PIT II		
Make	:	SU Motors , Mumbai
Tag nos.	:	1CET403P-A,1CET403P-B
Model no.	:	CPV1:100 x 80- 250
Serial No.	:	59963 & 59964
Head	:	20 MLC
Efficiency	:	0.68
Type	:	Vertical submerged centrifugal type
Qty	:	2 Nos.
Capacity	:	55 m ³ /hr

MOC	:	Casing & Impeller - 2% Ni CI (IS 210 FG 260 rubberlined) Shaft & Shaft sleeve - SA 479 Gr. 410
Motor	:	Rating - 7.5 kW Make : Alstom Frame Size : DDE Ref. Data Sheet no - GMD-008
Reference Documents	:	Data Sheet no : 1720-GMD-007 GA drg no : CH-90 CC- 1408/4
VERTICAL SUMP PUMP FOR SUMP PIT III		
Make	:	SU Motors , Mumbai
Tag nos.	:	1CET404P-A,1CET404P-B
Model no.	:	CPV1:50 x 40- 250
Serial No.	:	59950 & 59951
Head	:	20 MLC
Efficiency	:	0.3
Type	:	Vertical submerged centrifugal type
Qty	:	2 Nos.
Capacity	:	6 m3/hr
MOC	:	Casing & Impeller - 2% Ni CI (IS 210 FG 260 rubberlined) Shaft & Shaft sleeve - SA 479 Gr. 410
Motor	:	Rating - 2.2 kW Make : Alstom Frame Size : DDE Ref. Data Sheet no - GMD-010
Reference Documents	:	Data Sheet no : 1720-GMD-009 GA drg no : CH-90 CC- 1408/5
ORIFICE PLATE ASSEMBLY		
Manufacturer	:	Micro Precision , Faridabad
Qty	:	1 No.
Tag no.	:	1CFEET 401
Size	:	300 NB, class 150
MOC	:	SS 316
Reference Documents	:	Data Sheet no : 1720-INST-09 GA Drg no : MOB-CR-3092
OIL WATER SEPERATOR		
Make	:	K Pack Systems
Qty	:	1 No.
Tag no.	:	1CET409T
Service	:	Oil Water Seperator
Type	:	TPI oil water seperator

Total Flow	:	45 m3/hr
Design Pressure	:	0.31 Kg/cm2
Oil removal efficiency	:	0.98
Dimensions (L x B x H)	:	2700 x 2000 x 3100 mm
Reference Documents	:	Data Sheet no : GMD-013 GA Drg no : KPS/DOSHI/TPI/01 & 2
DM PLANT		
Main Vendor	:	Doshi Ion Exchange , Ahmedabad
TANKS / VESSELS		
Weak Acid Cation vessel		
Manufacturer	:	Vihim , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CDW400A-A & B
Working Pressure	:	6 Kg/cm2
Dimensions (ID x Height)	:	1700 x 2600 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-04
Activated Carbon Filter vessel		
Manufacturer	:	Vihim , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CDW401F-A & B
Working Pressure	:	6 Kg/cm2
Dimensions (ID x Height)	:	1800 x 2300 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-03
Caustic dilution tank for SBA		
Manufacturer	:	Unimech , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW403A
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	1200 x 1650 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-17
Caustic dilution tank for MB		
Manufacturer	:	Unimech , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW403TB
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	1200 x 1650 mm
MOC	:	IS 2062 Grade B

Reference Documents	:	Drg no : 1603-MLC-16
Caustic dilution tank for N-Pit		
Manufacturer	:	Unimech , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW406T
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	800 x 1600 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-18
Acid measuring tank for N-Pit		
Manufacturer	:	Unimech , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW405T
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	800 x 1600 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-14
Pressure sand filter		
Manufacturer	:	Vihim , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CPW400F-A & B
Working Pressure	:	7.5 Kg/cm ²
Dimensions (ID x Height)	:	2300 x 2000 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-02
MB exchangers- A & B		
Manufacturer	:	Dhara , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CDW403A-A & B
Working Pressure	:	4.5 Kg/cm ²
Dimensions (ID x Height)	:	1100 x 2000 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-07
Acid measuring tank for MB		
Manufacturer	:	Vibha , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW402TB
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	1200 x 1700 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-13

Acid measuring tank for SAC		
Manufacturer	:	Vibha , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW402TA
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	1200 x 1700 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-12
Morpholine dosing tank		
Manufacturer	:	Vibha , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW411T
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	500 x 1100 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-09
Degasser tower		
Manufacturer	:	Vibha , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW402F
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	900 x 3300 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-04
Degasser water storage tank		
Manufacturer	:	Everest , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW400T
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	3000 x 4500 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-08
SAC vessels # A & B		
Manufacturer	:	Dhara , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CDW401A & B
Working Pressure	:	6 Kg/cm ²
Dimensions (ID x Height)	:	1300 x 2500 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-05
SBA vessels # A & B		

Manufacturer	:	Dhara , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CDW402A & B
Working Pressure	:	5 Kg/cm ²
Dimensions (ID x Height)	:	1900 x 2900 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-06
Bulk Acid Storage tank		
Manufacturer	:	Everest , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CDW401T-A & B
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	2500 x 3600 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-11
Bulk Caustic storage tank		
Manufacturer	:	Everest , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW407T
Working Pressure	:	Atmospheric
Dimensions (ID x Height)	:	2500 x 3300 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-15
Hot water tank		
Manufacturer	:	Unimech , Ahmedabad
Qty	:	1 No.
Tag No.	:	1CDW404T
Working Pressure	:	4.5 Kg/cm ²
Dimensions (ID x Height)	:	1900 x 2500 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	Drg no : 1603-MLC-10
ACF Potable water tank		
Manufacturer	:	Unimech , Ahmedabad
Qty	:	2 Nos.
Tag No.	:	1CPW401F-A & B
Working Pressure	:	7.0 Kg/cm ²
Dimensions (ID x Height)	:	700 x 2200 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	1603-VFD-20
PSF for potable plant		
Manufacturer	:	FS Engineers , Ahmedabad
Qty	:	2 Nos.

Tag No.	:	1CPW400F-A & B
Working Pressure	:	7.5 Kg/cm ²
Dimensions (ID x Height)	:	700 x 2200 mm
MOC	:	IS 2062 Grade B
Reference Documents	:	1603-VFD-19
PUMPS		
DM PLANT SUPPLY PUMPS		
Make	:	Flowmore , Ghaziabad
Model no	:	5623-65 x 40
Qty	:	2 Nos. (1W + 1S)
Capacity	:	36 m ³ /hr
MOC	:	Impeller : SS304 Casing : 2 % Ni Cl Shaft : SS 410
Motor	:	Make : Kirloskar Rating : 15 kW, 2 pole Qty : 2 Nos. Frame Size : PM 160M Speed : 2935 rpm Data Sheet no : GMD-001M
Reference Documents	:	GMD-001
DE-GASSED WATER TRANSFER PUMP		
Make	:	Flowmore , Ghaziabad
Model no	:	5623-65 x 40
Type	:	Horizontal End Suction type
Tag nos.	:	77901022K5(A) 77902022K5(A)
Qty	:	2 Nos.
Capacity	:	30.2 m ³ /hr
MOC	:	Impeller : CF8M ASTM A 743 Casing : CF8M ASTM A 743 Shaft : SS 316
Motor	:	Make : Kirloskar Rating : 15 kW, 2 pole Qty : 2 Nos. Frame Size : PM 160M Speed : 2935 rpm Data Sheet no : GMD-007M
Reference Documents	:	GMD-007
MORPHOLINE DOSING PUMP		
Make	:	Milton Roy, Chennai
Model no	:	MRA - 13H
Qty	:	2 Nos.

Capacity	:	0 to 3.5 Litres/hr
MOC	:	Liquid End/Head : SS 316 Diaphragm : PTFE Valve Seat : Teflon Housing : CI as per IS 210 Gr 220
Motor	:	Make : Rating : 0.37 kW Qty : . Frame Size : Speed : 1440 rpm Data Sheet no :
Suction Strainer	:	Type : Y Type MOC : CF8M
Reference Documents	:	GMD-010
DM REGENERATION PUMPS		
Make	:	Flowmore , Ghaziabad
Model no	:	F5523A-75 x 50
Serial Nos.	:	77901022K5(B) 77902022K5(B)
Qty	:	2 Nos.
Capacity	:	25 m3/hr
MOC	:	Impeller : CF8M ASTM A 743 Casing : CF8M ASTM A 743 Shaft : SS 316
Motor	:	Make : ABB Rating : 15 kW, 2 pole Qty : 2 Nos. Frame Size : PM 160M Speed : 2935 rpm Data Sheet no : GMD-001M
Reference Documents	:	GMD-008
BULK CAUSTIC UNLOADING PUMPS		
Make	:	SAM Pumps
Model no	:	TCH + N 25/130
Tag nos.	:	1CDW404P-A & B
Serial Nos.	:	12951 & 12952
Qty	:	2 Nos.
Capacity	:	11 m3/hr
MOC	:	Impeller : SS 316 Casing : SS 316 Shaft : SS 316

Motor	:	Make : Kirloskar Rating : 2.2 kW,2 pole Qty : 2 Nos. Frame Size : PM 90L Speed : 2830 rpm Data Sheet no : GMD-016
Reference Documents	:	GMD-015
NEUTRALISED EFFLUENT DISPOSAL PUMP		
Make	:	Kishore
Model no	:	CHL50-315
Qty	:	2 Nos.
Capacity	:	25 m3/hr
MOC	:	Impeller : Rubberlined CI as per IS 210 FG 260 Casing : Rubberlined CI as per IS 210 FG 260 Shaft : SS 316
Motor	:	Make : ABB Rating : 15 kW,2 pole Qty : 2 Nos. Frame Size : PM 160M Speed : 2935 rpm Data Sheet no : GMD-001M
Reference Documents	:	GMD-016
POTABLE WATER SUPPLY PUMP		
Make	:	SAM Pumps
Model no	:	CPC-40/260
Model no	:	1CPW400P-A & B
Serial Nos.	:	12949/50
Qty	:	2 Nos.
Capacity	:	11 m3/hr
MOC	:	Impeller : SS304 Casing : 2 % Ni CI Shaft : SS 410
Motor	:	Make : Kirloskar Rating : 9.3 kW,2 pole Qty : 2 Nos. Frame Size : PM 160M Speed : 2935 rpm Data Sheet no : GMD-002M
Reference Documents	:	GMD-002
ACID UNLOADING PUMP		
Make	:	Anticorrosive Equipment
Model no	:	EXP-55CT
Model no	:	1CDW402P-A & B
Serial Nos.	:	04503EX561609/10

Qty	:	2 Nos.
Capacity	:	11 m ³ /hr
MOC	:	Impeller : SS304 Casing : 2 % Ni Cl Shaft : SS 410
Motor	:	Make : CGL Rating : 3.7 kW Speed : 1440 rpm Data Sheet no : GMD-002M
Reference Documents	:	GMD-002
DM WATER TRANSFER PUMP		
Supplier		M/s Flowmore ,Delhi
Quantity		2 Nos.
Type		Horizontal End Suction Pump,Single Stage
Model No.		M5553 - 65 x 40
Capacity		21 m ³ /hr
Head		40 Mtrs.
Design & testing standard		HIS
Total Head at rated capacity		40 mLC
Pump Input		4.86 kW
Efficiency		0.47
Pump rated Speed		1440 RPM
MOC		Impeller - SS - CF 8M (ASTM A 743) Pump Shaft - SS 316
Reference drawing		GA drg no. - GA/762 02 012K5(A),R2 Drg no. - CSD/762 02 012K5(A),R2
Motor Rating		Make : ABB Rating : 7.5 kW Frame Size : HX 132 SMC 4 Type :Horizontal Solid Shaft motor,3 phase
HRSG FILL PUMP		
Supplier		M/s Flowmore ,Delhi
Quantity		1 No.
Type		Horizontal End Suction Pump,Single Stage
Model No.		M5524 - 100 x 80
Capacity		95 m ³ /hr
Head		40 Mtrs.
Design & testing standard		HIS
Total Head at rated capacity		40 mLC
Pump Input		18.47 kW
Efficiency		0.56
Pump rated Speed		1470 RPM

MOC		Impeller - SS - CF 8M (ASTM A 743) Pump Shaft - SS 316
Reference drawing		GA drg no. - GA/762 01 012K5(B),R4 Drg no. - CSD/762 01 012K5(B),R2
Motor Rating		Make : ABB Rating :22 kW Frame Size : HX 180 MIC 4 Type : Horizontal Solid Shaft motor,3 phase
BLOWERS		
POTABLE WATER BLOWERS		
Make	:	M/s Everest Blowers, Delhi
Model no.	:	M 450
Qty	:	2 Nos.
Type	:	Twin Lobe Blower
Capacity	:	0.55 m3/min
Pressure	:	5000 MMWC
Motor	:	Rating : 3.0 HP Speed : 1450 RPM Type : 3 phase,Sq. cage,Foot mounted
MOC	:	Casing & Lobe : CI as per IS 210 FG 260 Shaft : EN-18
Reference Document	:	Data Sheet no : GMD-004,R3
BLOWERS - PRESSURE SAND FILTERS		
Make	:	M/s Everest Blowers, Delhi
Model no.	:	53
Qty	:	2 Nos.
Type	:	Twin Lobe Blower
Capacity	:	3.46 m3/min
Pressure	:	5000 MMWC
Motor	:	Make : Kirloskar Rating : 5.5 kW, 4 pole Qty : 2 Nos. Frame Size : PM 132 S Speed : 1440 rpm Data Sheet no : GMD-003M
MOC	:	Casing & Lobe : CI as per IS 210 FG 260 Shaft : EN-18
Reference Document	:	Data Sheet no : GMD-003,R3
DEGASSER AIR BLOWERS		
Make	:	M/s C Doctor,Ahmedabad
Model no.	:	CD-RD-BC-481-SWSI
Qty	:	2 Nos.
Type	:	Centrifugal

Capacity	:	45 m3/min
Pressure	:	55 MMWC
Motor	:	Make : Kirloskar Rating : 1.5 kW,4 pole Frame Size : PM 90L Speed : 1400 RPM Data Sheet no : GMD-006
MOC	:	Casing & Impeller : MS as per IS 1079
Reference Document	:	Data Sheet no : GMD-006,R1
BLOWERS - MIXED BED EXCHANGERS		
Make	:	M/s Everest Blowers , Delhi
Model no.	:	44
Qty	:	2 Nos.
Type	:	Twin Lobe Blower
Capacity	:	1.90 m3/min
Pressure	:	5000 MMWC
Motor	:	Qty : 2 Nos. Frame Size : PM 132 S Rating : 7.5 HP Speed : 1450 RPM Data Sheet no : GMD-005M
MOC	:	Casing & Lobe : CI as per IS 210 FG 260
Reference Document	:	Data Sheet no : GMD-005,R3
AGITATORS		
MORPHOLINE DOSING SYSTEM - AGITATOR		
Make	:	Vallabh Das & Sons
Qty	:	1 No.
Type	:	Impeller Type
Shaft Length	:	900 mm
MOC	:	Blade , Shaft , Muff Coupling - SS 316
Motor	:	Rating : 0.25 HP Speed : 950 rpm
Reference Document	:	Data Sheet no : GMD-009,R2
MB CAUSTIC DILUTION TANK - AGITATOR		
Make	:	Vallabh Das & Sons
Qty	:	1 No.
Type	:	Impeller Type
Shaft Length	:	1450 mm
MOC	:	Blade , Shaft , Muff Coupling - SS 316
Motor	:	Rating : 0.5 HP Speed : 950 rpm
Reference Documents	:	Data Sheet no : GMD-011,R2

SBA CAUSTIC DILUTION TANK - AGITATOR		
Make	:	Vallabh Das & Sons
Qty	:	1 No.
Type	:	Impeller Type
Shaft Length	:	1400 mm
MOC	:	Blade , Shaft , Muff Coupling - SS 316
Motor	:	Rating : 0.5 HP Speed : 950 rpm
Reference Document	:	Data Sheet no : GMD-012,R2
N-PIT CAUSTIC DILUTION TANK - AGITATOR		
Make	:	Vallabh Das & Sons
Qty	:	1 No.
Type	:	Impeller Type
Shaft Length	:	1450 mm
MOC	:	Blade , Shaft , Muff Coupling - SS 316
Motor	:	Rating : 0.5 HP Speed : 950 rpm
Reference Document	:	Data Sheet no : GMD-013,R2
SIDE STREAM FILTRATION		
VALVELESS AUTOWASH GRAVITY FILTER		
Manufacturer	:	M/s Otoklin , Mumbai
Quantity	:	4 Nos.
Design Pressure	:	Atmospheric
Design temperature	:	50 deg C
Model No.	:	VAG 39
Fluid Handled	:	Water
Back wash water Qty	:	26m ³ /3-5 min (approx.)
Net flow rate	:	124 m ³ /hr per filter
Filter Media	:	Water Borne Quartz Sand
Bed Depth	:	600 mm
Partical Size	:	0.7 to 1.2 mm
Inlet Header	:	300 NB ASA 150#
Outlet Header	:	400 NB BW end
Material	:	IS 2062 Gr. B
Reference Documents	:	L&T/GA/VAG/9869,R7,Sheet 1 of 1
Accessories	:	Rotameter , Valves , Sight Glass etc.

PHOTOGRAPHS:













Gas Turbine GT# 1B



Inlet Filter House of GT # 1A and 1B



Exhaust Duct



Gas Conditioning Skid



Gas Turbine Generator & Auxiliaries



Steam Turbine & Generator



Steam Turbine Auxiliaries

BALANCE OF PLANT



HRSG



Corrosion on structures of HRSG # 1A and 1B



Condition of HP Boiler Feed Pumps



Condition of IP Boiler Feed Pumps

**BFW Pumps
Cooling Tower**

Cooling tower is of concrete structure



Cooling Tower



Cooling Water Pumps

DM Plant & Dozing System



DM Water Plant



Tanks for DM plant



Dozing Skids



Transformer



HT Switchgear



Switch yard Control



Battery Bank for GTG



Battery

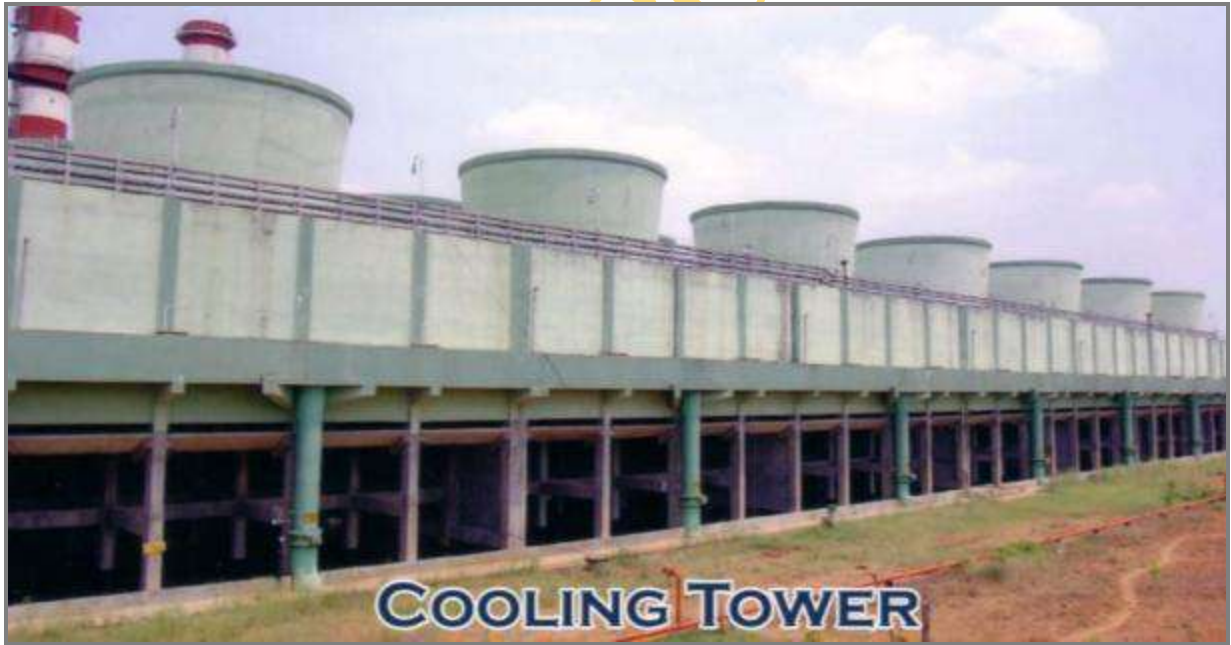
CONTROL SYSTEM & DCS PANELS

Control Room











DM PLANT

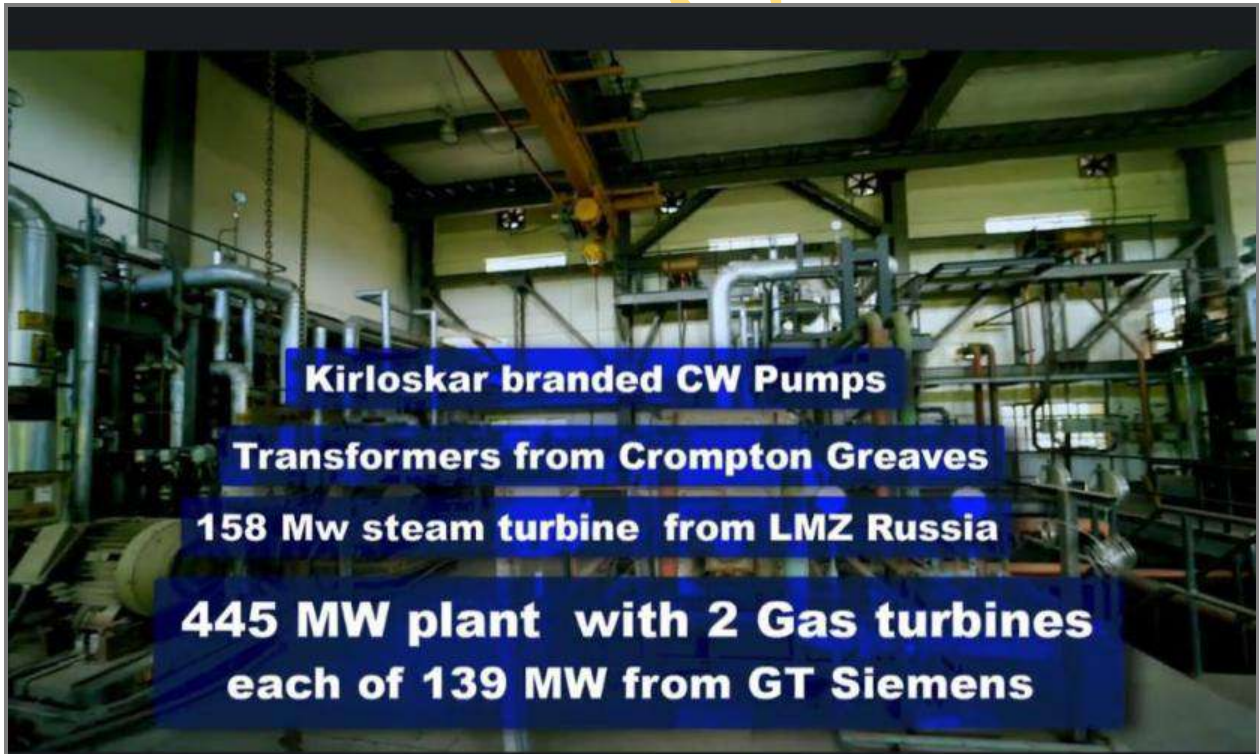


STEAM TURBINE AND GENERATOR HALL











DC













