

70 MW Westinghouse Combined Cycle Power Plant

1. Gas Turbine

Tag Information:

Brand Mark :	Siemens Westinghouse Gas Turbine
Model No:	W251B11A
Rating:	48.000 KW
Speed:	5400 RPM
Site Conditions:	ISO

Operation Information :

Operation Hours : 100.174 (1999-2015).

Operation Condition:

The turbine runs mostly at base load that's why the machine condition is very well. The unit's all maintenance are carried out by manufacturer annually from the beginning and all maintenance reports are available. The major maintenance was performed in 2009 and the Extended- HGPI (Hot Gas Path Inspection) maintenance was performed in 2012. All compressor blades are also renewing as well as renewing turbine blades at Extended-HGPI maintenance.

2. Gas Turbine Gearbox

Mfgr:	Lufkin Gears
Address:	Lufkin Industries Inc. Lufkin, Texas
Model No:	N3007C
Ratio:	1,806:1
Input Rpm:	5418
Unit Rating:	115267 HP
Application Factor:	1,43
Application Power:	80460 HP
Lubricant:	AGMA Lubricant Number L.T. For 50oF to 125oF
Teeth Profile:	Involute
Number of Teeth on pinion=	67
Number of Teeth on gear=	121

3. Gas Turbine Generator

Mfgr:	Brush Electrical Machines Ltd.
Frame Size:	BDAX 7.290 ER
Type:	CRA
Relevant Specification:	IEC 34-3
Rating:	56 MW / 65882 MVA
P.F.:	0,85 @ 56 MW
Cooling Fan Capacity:	1080 m3/min
Weight	
Wound Stator:	59239 kg
Rotor and Exciter Arm:	14906 kg
Exciter Field:	1247 kg
Miscellaneous:	8848 kg

Total Machine: 84240 kg

4. Gas Turbine Start Motor

Mfgr: Voith Transmissions Inc.
Address: 25 Winship Road, York, PA 17402, USA
Tel.: 717-767-3200
Fax.: 717-767-3210
Internet:
VTI Part / DWG NO.: 0103280
Torque Converter Model: VOITH EL 7.5 YFG 2.2

Customer Outline DWG No.: N / A
Customer Order No.: 080116
VOITH Outline DWG No.: 0103280
Date of Assembly: 10.08.1996
Rated Power: 1073 HP / 800 Kw
Rated Speed (RPM): 2980

5. Gas Turbine Transformer

Brand Mark: BEST

Type: DO 65000/34,5
Rated Power: 65 MVA
Rated Frequency: 50 Hz
Cooling Method: ONAN
Phase: 3
Applicable standards: TS-267 IEC 76
Rated Voltage: 34,5 kV / 11,5 KV
Rated Current: HV (1087.8 A), LV (3263.3 A)
Insulation level: 170 kV / 70 kV
Vector group (connection symbol): YN d 5
Impedance voltage: 9,231%
Short Circuit Time: 3 seconds
Insulation Class: A
Weight of Active Part: 49.5 t
Weight of Oil: 10.25 t
Total Weight: 74.85 t
Type of Oil: NYNAS NYTRO 10 XT
Outline Dimension (m): 7.5 m x 3.6 m
Height (m): 6 m

OFF LOAD TAP CHANGER

Type: ASP FII-HI 37395 36 kV
Level Number: 5
Product Year: 1998

CURRENT TRANSFORMER

Ratio: 3263 A / 2 A
Type: 10 VA
Class: 10 P 10

6. Steam Turbine

Tag Information

Marka:	Mitsubishi Heavy Industries, Ltd. , Tokyo,
Mfg.Date: Feb.1999	
Type:	Mitsubishi Steam Turbine, Extraction Mixed Pressure Condensing
Output:	max 25000 kW
Speed:	3000 rpm
Main Steam Press.:	max 1260 psia
Main Steam Temp.:	max 9500F
Mixing Steam Press.:	50-90 psia
Mixing Steam Temp.:	max 4750F
Exhaust Steam Press.:	1,5inHgabs
Work Order:	66892

Operation Information

Operation Hours : 92.377 Saat

7. Steam Turbine Generator

Mfgr:	Mitsubishi Electric Corporation
Power :	29059 kVA
Voltage:	11500 V
Amper:	1459 A
Power Factor:	0,85 PF
Frequency:	50 Hz
Speed:	3000 rpm
Phases:	3 Phases
Type:	MB
Rule:	IEC-34-1
Inlet Air Temp.:	400C
Temp.Rise Limit:	Stator 84 deg C, Rotor 80 deg C
Voltage:	280 Exc. Volt
Amper:	552 Exc. Amp.
Year :	1999
Cooling Fan Capacity:	660 m3/min

8. Steam Turbine Transformer

Brand Mark:	BEST
Type:	DO 25000/34,5
Rated Power:	25 MVA
Rated Frequency:	50 Hz
Cooling Method:	ONAN
Phase:	3
Applicable standards:	TS-267 IEC 76
Rated Voltage:	34,5 kV / 11,5 KV
Rated Current:	HV (418 A), LV (1255 A)
Insulation level:	170 kV / 70 kV

Vector group (connection symbol): YN d 5
Impedance voltage : % 9,156%
Short Circuit Time: 3 seconds
Insulation Class: A
Weight of Active Part: 20.50 t
Weight of Oil: 5.50 t
Total Weight: 35.15 t
Type of Oil: NYNAS NYTRO 10 XT
Outline Dimension: (m) 4,5 m x 3.4 m
Height (m): 4.3 m

OFF LOAD TAP CHANGER

Type: ASP FII-HI 37315 36 kV
Level Number: 5
Product Year: 1998

CURRENT TRANSFORMER

Ratio: 1255 A / 2 A
Type: 10 VA
Class: 10 P 10