



vCampus **Live! 2011**

Plant Performance and Condition Based Maintenance Using OSIsoft Foundation

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WHERE PI GEEKS MEET





Introduction to ProcessPlugins

ProcessPlugins:

- Engineers with extensive plant performance and condition monitoring experience.
- Experts in OSIsoft technology and the relationship to business systems.
- A result of having built hundreds of custom applications for the OSIsoft PI System
- A flexible set of configurations that empower you to monitor a single asset or an entire fleet.





ProcessPlugins Key Drivers

- The system resides entirely within the OSIsoft platform.
- Calculations reside in the open PI AF environment for total visibility (No black box).
- PI AF provides robust, scalable, repeatable and flexible calculations.
- The system is a self-documenting living resource for all of your performance engineering methodologies.
- Process Plugins utilizes OSIsoft visualizations including PI WebParts, and makes full use of PI Notifications.
- Process Plugins stays up to date on OSIsoft releases to match every step.





How **ProcessPlugins** Work

- A library of PI AF templates driven by a Windows service that utilize and enhance the capability of PI AF.
- Custom performance and condition monitoring calculations and methodologies configurations.
- Additional industry specific Units of Measure.
- Custom visualization templates for PI ProcessBook, PI WebParts, and PI DataLink.



ABCCorp - PI System Explorer

File Edit View Go Tools Help

Database Query Date Back Check In New Template Search

Library

- Element Templates
 - oPPI_EPACNOXfromCO2
 - oPPI_EPACNOXfromO2
 - oPPI_EPACSO2fromCO2
 - oPPI_EPACSO2fromO2
 - oPPI_EPAmNOXfromCO2
 - oPPI_EPAmNOXfromO2
 - oPPI_EPAmSO2fromCO2

Element Templates

Group by: Category

Filter

Name	Description
oPPI_EPACNOXfromCO2	ppm NOx from CO2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPACNOXfromO2	ppm NOx from Excess O2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPACSO2fromCO2	ppm SO2 from CO2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPACSO2fromO2	ppm SO2 from Excess O2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPAmNOXfromCO2	lb/MMBtu NOx from CO2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPAmNOXfromO2	lb/MMBtu NOx from Excess O2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPAmSO2fromCO2	lb/MMBtu SO2 from CO2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_EPAmSO2fromO2	lb/MMBtu SO2 from Excess O2, From CFR 40, part 60, Revised as of July 1, 1993, Section 60.45
oPPI_GasEnthalpyMolar	Enthalpy of Flue Gas based upon NIST JANAF Thermochemical Tables
oPPI_GasEnthalpyWeight	Enthalpy of Flue Gas based upon NIST JANAF Thermochemical Tables

92 Element Templates



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File Edit View Go Tools Help

Database Query Date Back Check In New Template Search

Library

- PPI_CurveTableXY
- PPI_CurveTableZXY
- PPI_DataFromXML
- PPI_DrawCurve
- PPI_DrawExhCircle
- PPI_DrawPlot
- PPI_DrawPolar
- PPI_Filter

Element Templates

Group by: Category

Filter

Name	Description	Category
PPI_CurveTableXY	PPI Function - Y Result from X-Y Table	Basic Function
PPI_CurveTableZXY	PPI Function - Y Result from Z-X-Y Table	Basic Function
PPI_DataFromXML	PPI Function - Retrieve remote XML file data	
PPI_DrawCurve	PPI Function - Write table values to PI tags for XY Plot displa...	Basic Function
PPI_DrawExhCircle	PPI Function - Write values to PI tags for Polar Plot display. ...	Basic Function
PPI_DrawPlot	PPI Function - Write values to PI tags for Plotting on display ...	Basic Function
PPI_DrawPolar	PPI Function - Write table values to PI tags for Polar or XY (...)	Basic Function
PPI_Filter	PPI Function - Filter PI Tag (Median, Sum, or Avg if >1 tag) S...	Basic Function
PPI_Iterate	PPI Function - Stored is written to Retrieved every minute	Basic Function
PPI_WriteTableFrom	PPI Function - Write remote XML file data to specified table	Basic Function

92 Element Templates



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File Edit View Go Tools Help

Database Query Date Back Check In New Template Search

Library

- PPIStmEng_HPS
- PPIStmEng_HPT
- PPIStmEng_HPX
- PPIStmEng_HsatP
- PPIStmEng_HsatT
- PPIStmEng_HTL
- PPIStmEng_PsatT
- PPIStmEng_SPH

Element Templates

Group by: Category

Filter

Name	Description	Category
PPIHum_SHtoRH	PPI Function - Relative Humidity from Specific Humidity	Environmental Functions
PPIHum_SHtoWB	PPI Function - Wet Bulb Temperature from Specific Humidity	Environmental Functions
PPIHum_WBtoSH	PPI Function - Specific Humidity from Wet Bulb Temperature	Environmental Functions
PPIStmEng_HPS	PPI Function - Enthalpy given Pressure, Entropy	Steam Table Function - English
PPIStmEng_HPT	PPI Function - Enthalpy given Pressure, Temperature	Steam Table Function - English
PPIStmEng_HPX	PPI Function - Enthalpy given Pressure, Quality Fraction	Steam Table Function - English
PPIStmEng_HsatP	PPI Function - Saturation Enthalpy given Pressure	Steam Table Function - English
PPIStmEng_HsatT	PPI Function - Saturation Enthalpy given Temperature	Steam Table Function - English
PPIStmEng_HTL	PPI Function - Liquid Enthalpy given Temperature	Steam Table Function - English
PPIStmEng_PsatT	PPI Function - Saturation Pressure given Temperature	Steam Table Function - English

92 Element Templates



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File Edit View Go Tools Help

Database Query Date Back Check In New Template Search

Library

- PPISmSI_TPS
- PPISmSI_TsatP
- PPISmSI_VPH
- PPISmSI_VPS
- PPISmSI_VPT
- PPISmSI_VPTL
- PPISmSI_VsatP
- PPISmSI_VsatT

Element Templates

Group by: Category

Filter

Name	Description	Category
PPISmSI_VsatP	PPI Function - Saturation Specific Volume given Pressure	Steam Table Function - SI
PPISmSI_VPH	PPI Function - Specific Volume given Pressure, Enthalpy	Steam Table Function - SI
PPISmSI_VPS	PPI Function - Specific Volume given Pressure, Entropy	Steam Table Function - SI
PPISmSI_VPT	PPI Function - Specific Volume given Pressure, Temperature	Steam Table Function - SI
PPISmSI_VPTL	PPI Function - Liquid Specific Volume given Pressure, Temp...	Steam Table Function - SI
PPISmSI_VsatP	PPI Function - Saturation Specific Volume given Pressure	Steam Table Function - SI
PPISmSI_VsatT	PPI Function - Saturation Specific Volume given Temperature	Steam Table Function - SI
PPISmSI_VTL	PPI Function - Liquid Specific Volume given Temperature	Steam Table Function - SI
PPISmSI_XPH	PPI Function - Quality Fraction given Pressure, Enthalpy	Steam Table Function - SI
PPISmSI_XPS	PPI Function - Quality Fraction given Pressure, Entropy	Steam Table Function - SI

oPPI_EPAcNOXfromCO2 Modified:9/22/2011 9:34:10 AM.





Units of Measure (UOM)

ProcessPlugins UOMs are Plant Ready

- Industry Standard UOMs are available with drop-downs.
- Units may be easily added or edited to conform to any syntax standards.
- PI AF performs unit conversions automatically, simplifying calculations and precluding conversion errors.



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File Edit View Go Tools Help

Database Query Date Back Check In New Class New UOM Search

Unit of Measure

Filter

- Electric Potential
- Energy**
- Energy Cost
- Force
- Heat Capacity
- Heat Transfer Coefficient

Energy

Filter

Name	Abbreviation	Class	Canonical	Reference
Btu	Btu	Energy	1055.05585262 J	1055.05585262 J
cal	cal	Energy	4.1868 J	4.1868 J
ft-lbf	ft-lbf	Energy	1.35581796 J	1.35581796 J
GJ	GJ	Energy	1000000000 J	1000000000 J
HPh	HPh	Energy	2684519.64 J	2684519.64 J
J	J	Energy	1 J	1 J
kcal	kcal	Energy	4186.8 J	4186.8 J
kJ	kJ	Energy	1000 J	1000 J
kVAh	kVAh	Energy	3600000 J	3600000 J
kVARh	kVARh	Energy	3600000 J	3600000 J
kWh	kWh	Energy	3600000 J	3600000 J
MJ	MJ	Energy	1000000 J	1000000 J
MMBtu	MMBtu	Energy	1055055852.62 J	1055055852.62 J
MMcal	MMcal	Energy	4186800 J	4186800 J
MWh	MWh	Energy	3600000000 J	3600000000 J
Nm	Nm	Energy	1 J	1 J

Unit-of-Measure Database on KPOTTERPI1 (35 Classes, 314 UOMs) Modified:9/13/2011 2:10:52 PM.



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File Edit View Go Tools Help

Database Query Date Back Check In New Class New UOM Search

Unit of Measure

Filter

- Power
- Power Rate of Change
- Pressure
- Specific Energy
- Specific Volume
- Temperature

Power

Filter

Name	Abbreviation	Class	Canonical	Reference
kBtu/h	kBtu/h	Power	293.071070172222 W	293.07107017222...
kJ/h	kJ/h	Power	0.277777777777778 W	0.277777777777...
kVA	kVA	Power	1000 W	1000 W
kVAR	kVAR	Power	1000 W	1000 W
kW	kW	Power	1000 W	1000 W
MJ/h	MJ/h	Power	277.777777777778 W	277.777777777...
MMBtu/d	MMBtu/d	Power	12211.2945905093 W	12211.294590509...
MMBtu/h	MMBtu/h	Power	293071.070172222 W	293071.07017222...
MMBtu/min	MMBtu/min	Power	17584264.2103333 W	17584264.210333...
MMcal/h	MMcal/h	Power	1163 W	1163 W
MVA	MVA	Power	1000000 W	1000000 W
MVAR	MVAR	Power	1000000 W	1000000 W
MW	MW	Power	1000000 W	1000000 W
VA	VA	Power	1 W	1 W
VAR	VAR	Power	1 W	1 W
W	W	Power	1 W	1 W

Unit-of-Measure Database on KPOTTERPI1 (35 Classes, 314 UOMs) Modified:9/13/2011 2:10:52 PM.



ABCCorp - PI System Explorer

File Edit View Go Tools Help

Database Query Date Back Check In New Class New UOM Search

Unit of Measure

Filter

- Velocity
- Volume
- Volume Flow Rate
- Volumetric Cost
- Volumetric Heating Value

Volume Flow Rate

Filter

Name	Abbreviation	Class	Canonical	Reference
kbbl/d	kbbl/d	Volume Flow Rate	0.00184013072833333 m3/s	0.0018401307283...
kbbl/h	kbbl/h	Volume Flow Rate	0.04416313748 m3/s	0.04416313748 m...
kbbl/mo	kbbl/mo	Volume Flow Rate	6.04560403559205E-05 m3/s	6.0456040355920...
km3/d	km3/d	Volume Flow Rate	0.0115740740740741 m3/s	0.0115740740740...
KSCFD	KSCFD	Volume Flow Rate	0.00032774128 m3/s	0.00032774128 m...
KSCFH	KSCFH	Volume Flow Rate	0.00786579072 m3/s	0.00786579072 m...
L/s	L/s	Volume Flow Rate	0.001 m3/s	0.001 m3/s
m3/h	m3/h	Volume Flow Rate	0.000277777777777778 m3/s	0.0002777777777...
m3/m	m3/m	Volume Flow Rate	0.0166666666666667 m3/s	0.0166666666666...
m3/s	m3/s	Volume Flow Rate	1 m3/s	1 m3/s
ML/d	ML/d	Volume Flow Rate	0.0115740740740741 m3/s	0.0115740740740...
MMSCFD	MMSCFD	Volume Flow Rate	0.32774128 m3/s	0.32774128 m3/s
MMSCFH	MMSCFH	Volume Flow Rate	7.86579072 m3/s	7.86579072 m3/s
MSCFH	MSCFH	Volume Flow Rate	0.00786579072 m3/s	0.00786579072 m...
SCFH	SCFH	Volume Flow Rate	7.86579072E-06 m3/s	7.86579072E-06 ...
SCFM	SCFM	Volume Flow Rate	0.0004719474432 m3/s	0.0004719474432...

Unit-of-Measure Database on KPOTTERPI1 (35 Classes, 314 UOMs) Modified:9/13/2011 2:10:52 PM.



Element Relative Display

Search

Search Mask

Elements of Interest

Group by: Template

Filter

Name	Description
Generator Kazadale 61	
Generator Kazadale 62	
Generator Kazadale 63	
Generator Kazadale 64	
Generator Kazadale 65	
Generator Kazadale 66	
Generator Kazadale 67	
Generator Kazadale 91	
Generator Kazadale 92	
Generator Richville 1000	
Generator Richville 2000	
Generator San Gando A	
Generator San Gando B	
Generator San Gando C	
Generator Ticu 101	
Generator Ticu 201	
Generator Ticu S1	

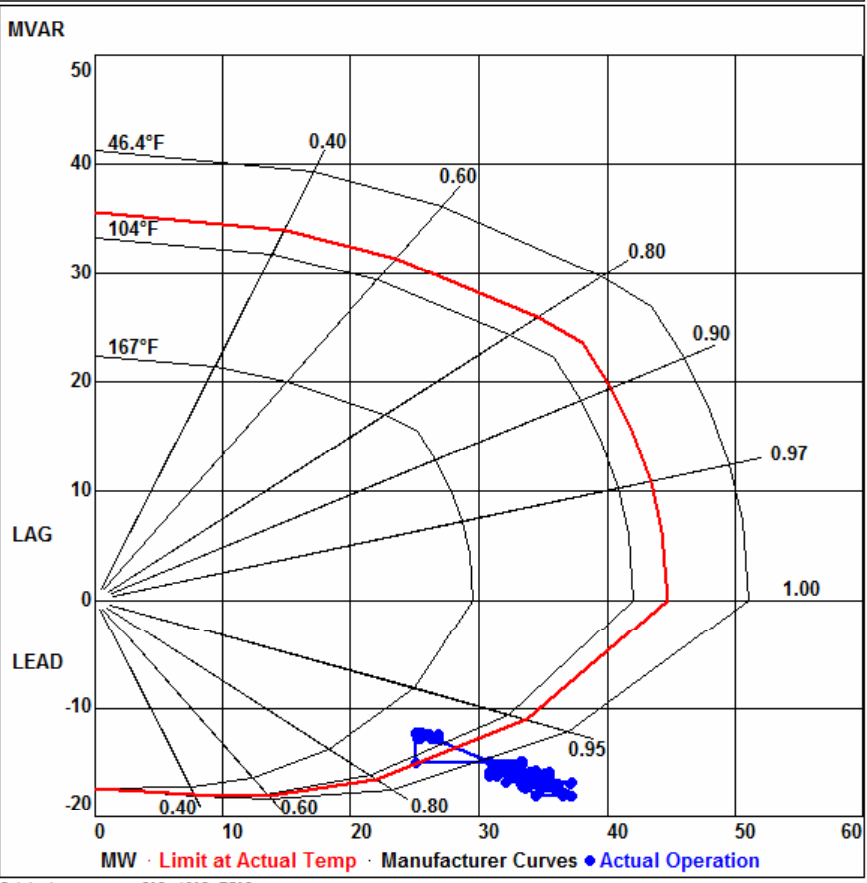
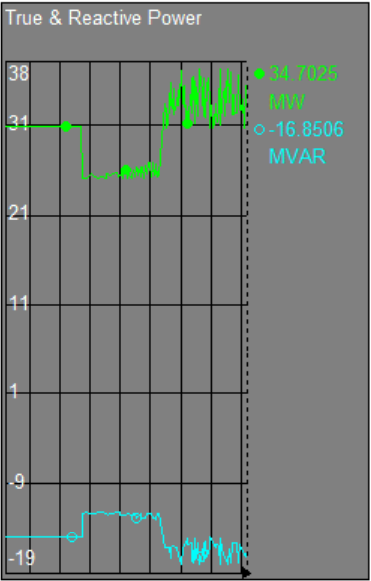
Train Sum HRSG Generator Exh Profile Comp Wash Pumps Costs Corp Overview

SAN GANDO GENERATOR A

FIELD INPUTS:
 Gross Generation: 34.7 MW
 Reactive Power: -16.9 MVAR
 Cooling Air Temp: 91.2 °F

CALCULATED RESULTS:
 Power Factor: 0.900
 Apparent Power: 38.6 MVA
 MAX Apparent Power: 32.0 MVA

ALARM STATUS: ALARM



- by: Template
- description
- adale CGT 61
- adale CGT 62
- adale CGT 63
- adale CGT 64
- adale CGT 65
- adale CGT 66
- adale CGT 67
- adale CGT 91
- adale CGT 92
- hville CGT 1000
- hville CGT 2000
- 1 Gando CTG A
- 1 Gando CTG B
- 1 Gando CTG C

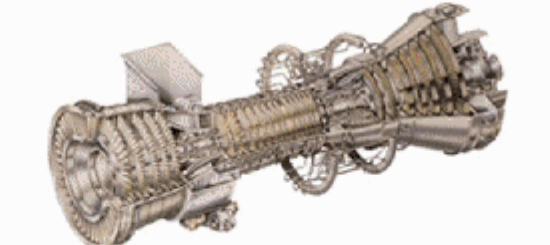
RICHVILLE CGT 1000

AIR INLET	
Barometric Pressure	15.9 psi
Ambient Air Temperature	68.5 °F
Compressor Suction Temp	68.5 °F
Compressor Suction dP	0.00 inH2O

AIR COMPRESSOR	
Discharge Temperature	896.0 °F
Discharge Pressure	267.2 psi
Isentropic Efficiency	79.0 %
Polytropic Efficiency	85.4 %

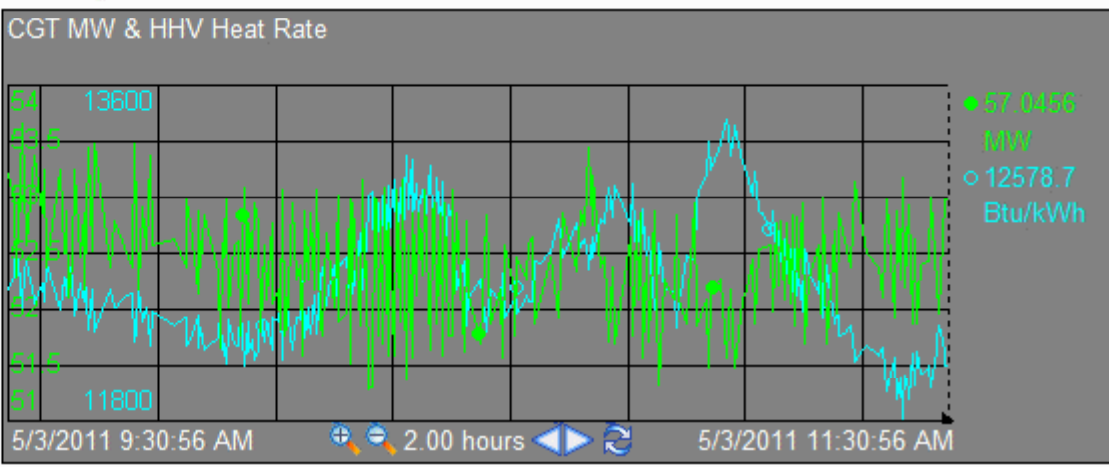
EXHAUST	
Minimum Temperature	907.8 °F
Maximum Temperature	1,058.7 °F
Average Temperature	988.9 °F
Expected Temperature	1,036.5 °F

TURBINE PERFORMANCE	
Fuel Gas Flow	11,941 SCFM
Fuel LPG Flow	0 SCFM
Gross Generation	57.32 MW
Gross Gen Corrected to Ref	54.80 MW
Baseload Capacity (Iso-Corr)	57.53 MW



STACK EMISSIONS	
Oxygen	14.4 %
NOx	4.86 ppm
NOx (EPA Calc)	0.0163 lb/MMBtu
CO	0.38 ppm
CO (Calc)	0.0008 lb/MMBtu

HEAT RATE	
LHV Heat Rate Actual	11,911 Btu/kWh
LHV Heat Rate Corrected*	11,784 Btu/kWh
LHV Heat Rate Expected	9,193 Btu/kWh
HHV Heat Rate Actual	13,118 Btu/kWh
HHV Heat Rate Corrected*	12,978 Btu/kWh
HHV Heat Rate Expected	10,125 Btu/kWh
*CTG Base Loaded:	YES



HRSG	
HRSG Efficiency	72.5 %
HRSG Effectiveness	90.5 %



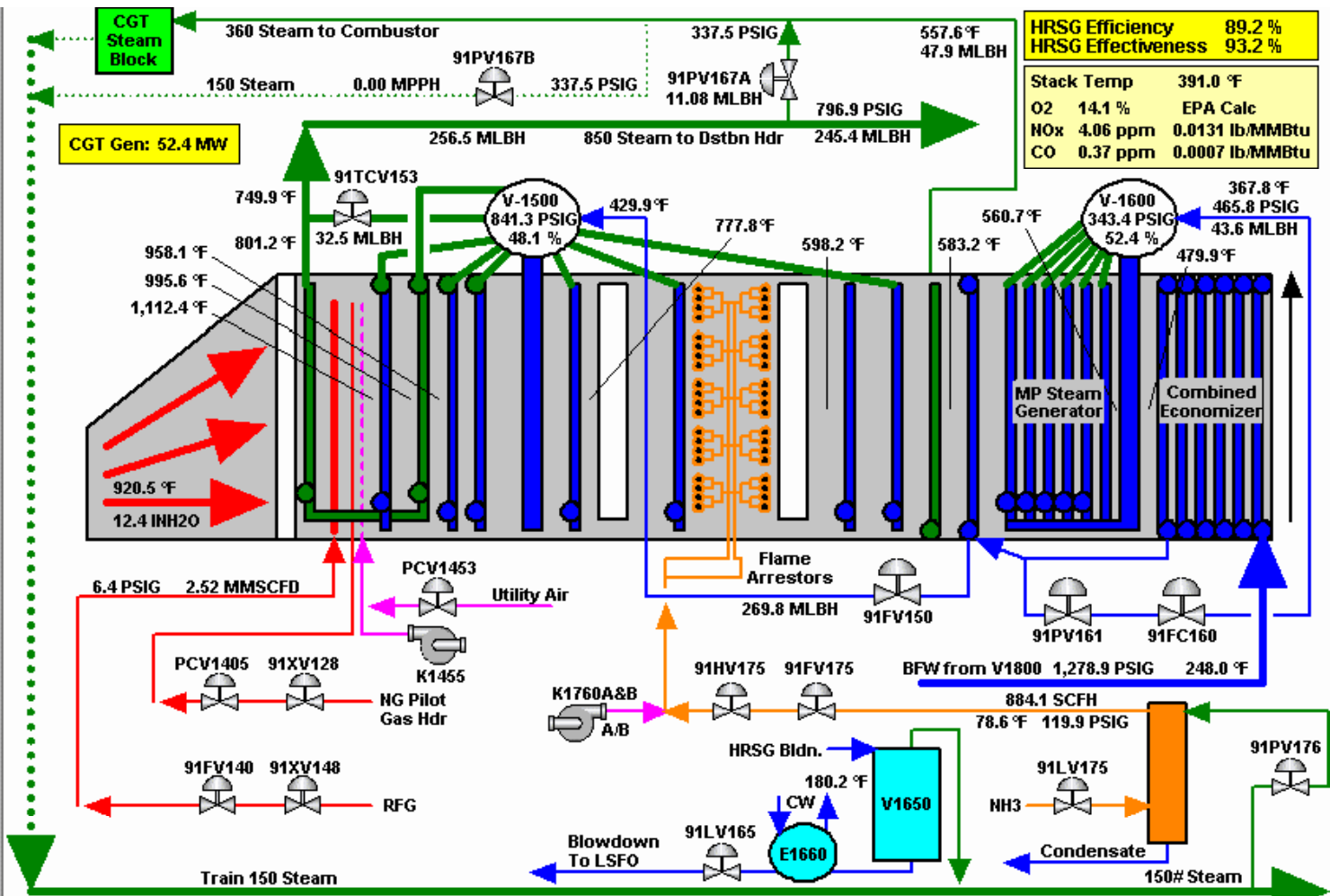
Search Mask

Elements of Interest

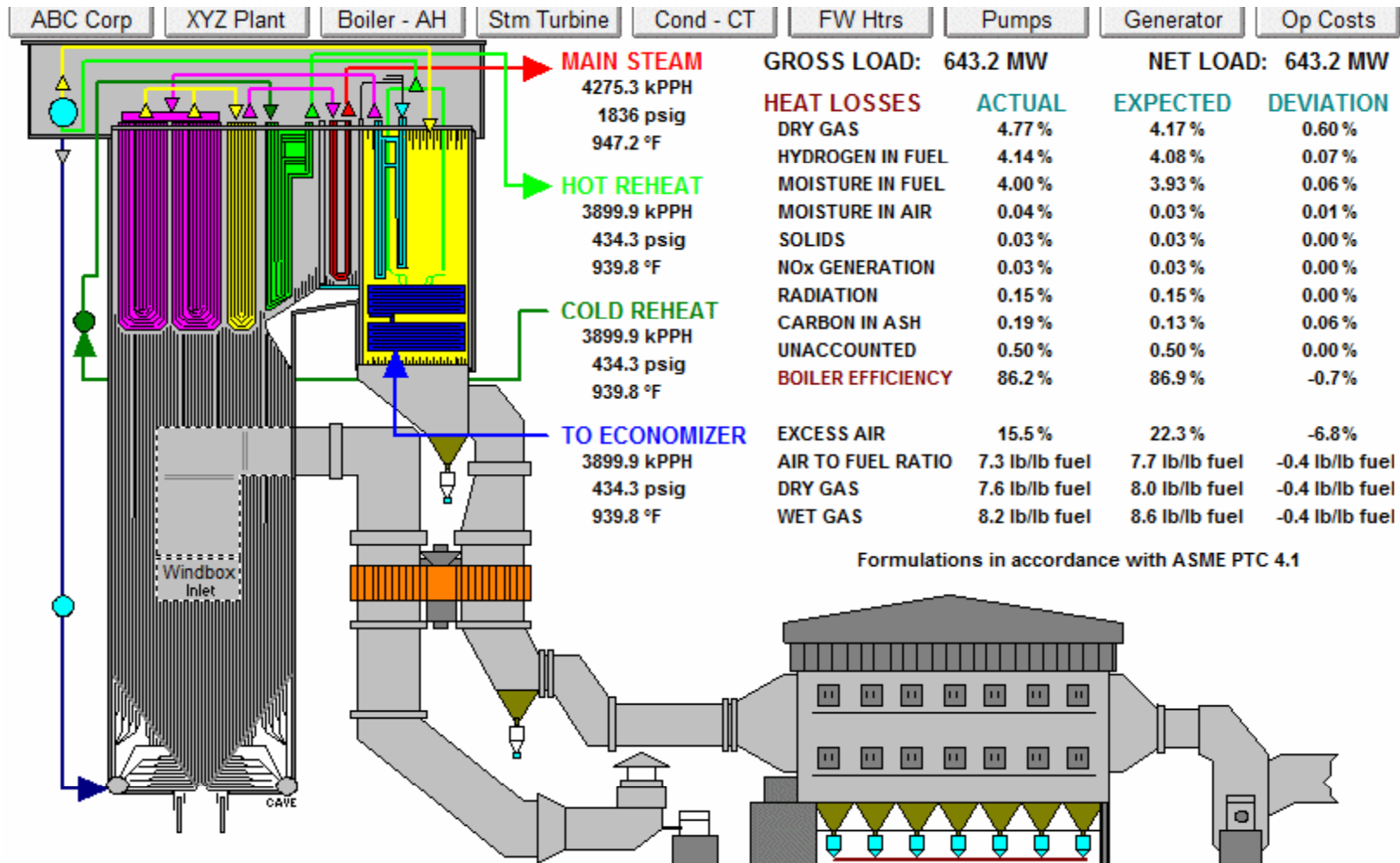
Group by: Template

Filter

Name	Description
HRSG Kazadale 91	
HRSG Kazadale 92	
HRSG Richville 1000	
HRSG Richville 2000	
HRSG San Gando A	
HRSG San Gando B	
HRSG San Gando C	
HRSG Ticu 101	
HRSG Ticu 201	



HRSG Efficiency	89.2 %
HRSG Effectiveness	93.2 %
Stack Temp	391.0 °F
O2	14.1 %
NOx	4.06 ppm
CO	0.37 ppm
EPA Calc	0.0131 lb/MMBtu
	0.0007 lb/MMBtu



Element Relative Display

Search

Search Mask

Elements of Interest

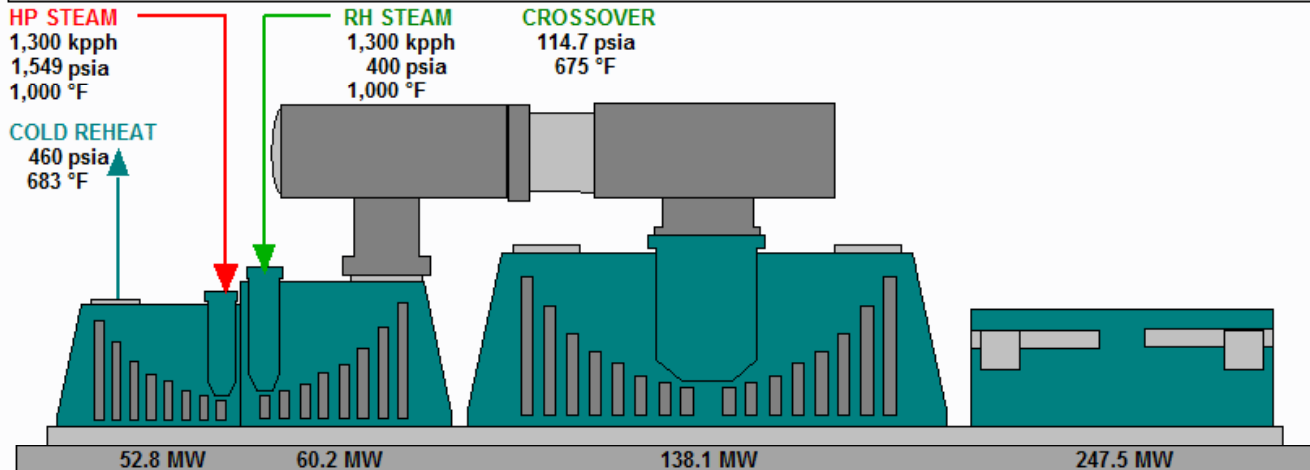
Group by: Template

Filter

Name	Description
Steam Turbine	XYZ Plant - U1
Steam Turbine	XYZ Plant - U2
Steam Turbine	XYZ Plant - U3

ABC Corp | XYZ Plant | Boiler - AH | Stm Turbine | Cond - CT | FW Htrs | Pumps | Generator | Op Costs

XYZ UNIT 1 STEAM TURBINE PERFORMANCE

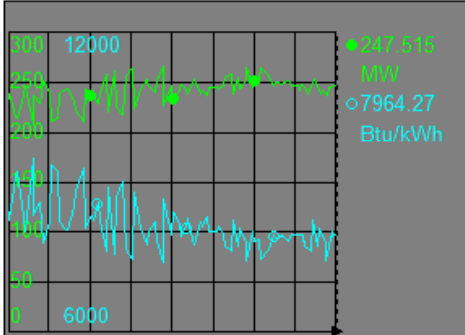


TURBINE EFFICIENCY			
	ACTUAL	EXPECTED	DEVIATION
HP:	87.4 %	83.6 %	3.8 %
IP:	91.7 %	91.8 %	-0.2 %
LP:	94.0 %	79.2 %	14.8 %

EXHAUST			
PRESS:	1.80 inHg	FLOW:	1,319 kpph
	ACTUAL	EXPECTED	DEV
ELEP:	974.4 Btu/lbm	1030.7 Btu/lbm	-5.5 %
UEEP:	1008.9 Btu/lbm	1065.1 Btu/lbm	-5.3 %

FLOW FACTOR			
	ACTUAL	EXPECTED	DEVIATION
HP:	23.8	23.9	-0.2 %
IP:	95.0	95.0	0.0 %
LP:	297.0	315.0	-5.7 %

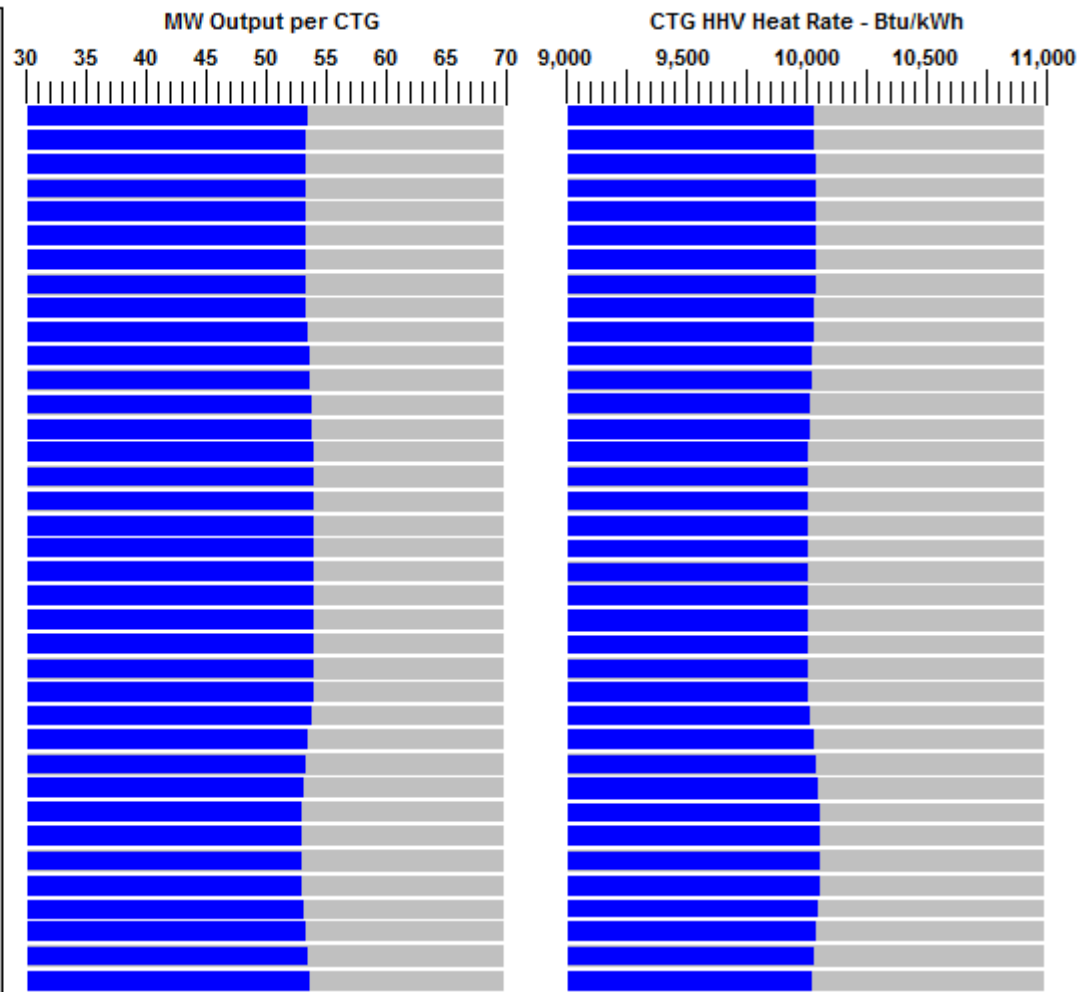
TURBINE POWER			
TURBINE CYCLE HR: 7964.3 Btu/kWh			
	ACTUAL	EXPECTED	DEV
HP:	52.8 MW	52.8 MW	0.0 %
IP:	60.2 MW	60.2 MW	0.0 %
LP:	138.1 MW	138.1 MW	0.0 %
STM TOTAL:	251.1 MW	251.1 MW	0.0 %



*Formulations IAW ASME Paper No. 62-WA-209, A Method for Predicting the Performance of Steam Turbine Generators by R.C.Spencer, K.C.Cotton, C.N.Cannon, 1962
Process Plugins™



FORECAST			
	Amb Air	Output	Heat Rate
10/5/2011 8:00:00 AM	56.0 °F	53.7 MW	10,045 Btu/kWh
10/5/2011 9:00:00 AM	56.3 °F	53.6 MW	10,048 Btu/kWh
10/5/2011 10:00:00 AM	56.7 °F	53.6 MW	10,051 Btu/kWh
10/5/2011 11:00:00 AM	57.0 °F	53.5 MW	10,054 Btu/kWh
10/5/2011 12:00:00 PM	57.0 °F	53.5 MW	10,054 Btu/kWh
10/5/2011 1:00:00 PM	57.0 °F	53.5 MW	10,054 Btu/kWh
10/5/2011 2:00:00 PM	57.0 °F	53.5 MW	10,054 Btu/kWh
10/5/2011 3:00:00 PM	56.7 °F	53.6 MW	10,051 Btu/kWh
10/5/2011 4:00:00 PM	56.3 °F	53.6 MW	10,048 Btu/kWh
10/5/2011 5:00:00 PM	56.0 °F	53.7 MW	10,045 Btu/kWh
10/5/2011 6:00:00 PM	55.3 °F	53.8 MW	10,039 Btu/kWh
10/5/2011 7:00:00 PM	54.7 °F	53.9 MW	10,033 Btu/kWh
10/5/2011 8:00:00 PM	54.0 °F	54.0 MW	10,027 Btu/kWh
10/5/2011 9:00:00 PM	53.7 °F	54.1 MW	10,024 Btu/kWh
10/5/2011 10:00:00 PM	53.3 °F	54.2 MW	10,021 Btu/kWh
10/5/2011 11:00:00 PM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 12:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 1:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 2:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 3:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 4:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 5:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 6:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 7:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 8:00:00 AM	53.0 °F	54.2 MW	10,018 Btu/kWh
10/6/2011 9:00:00 AM	54.3 °F	54.0 MW	10,030 Btu/kWh
10/6/2011 10:00:00 AM	55.7 °F	53.7 MW	10,042 Btu/kWh
10/6/2011 11:00:00 AM	57.0 °F	53.5 MW	10,054 Btu/kWh
10/6/2011 12:00:00 PM	57.7 °F	53.4 MW	10,060 Btu/kWh
10/6/2011 1:00:00 PM	58.3 °F	53.3 MW	10,066 Btu/kWh
10/6/2011 2:00:00 PM	59.0 °F	53.1 MW	10,072 Btu/kWh
10/6/2011 3:00:00 PM	58.7 °F	53.2 MW	10,069 Btu/kWh
10/6/2011 4:00:00 PM	58.3 °F	53.3 MW	10,066 Btu/kWh
10/6/2011 5:00:00 PM	58.0 °F	53.3 MW	10,063 Btu/kWh
10/6/2011 6:00:00 PM	57.0 °F	53.5 MW	10,054 Btu/kWh
10/6/2011 7:00:00 PM	56.0 °F	53.7 MW	10,045 Btu/kWh
10/6/2011 8:00:00 PM	55.0 °F	53.9 MW	10,036 Btu/kWh





ProcessPlugins Forecaster

- Weather forecast data is used to automatically calculate your future capacity and performance.
- Projection is 7 days into the future
- Incorporates specific machine curves
- Works with Wind Turbines, Solar Panels, Combustion Gas Turbines, and Cooling Towers



Compressor Overview

T5 Profile

Pumps

Engine Performance

LP Compressor

Performance

HP Compressor

Performance

PI TreeView

- [-] Pumps
 - [-] P1123A
 - [-] P1123B

FIELD INPUTS:

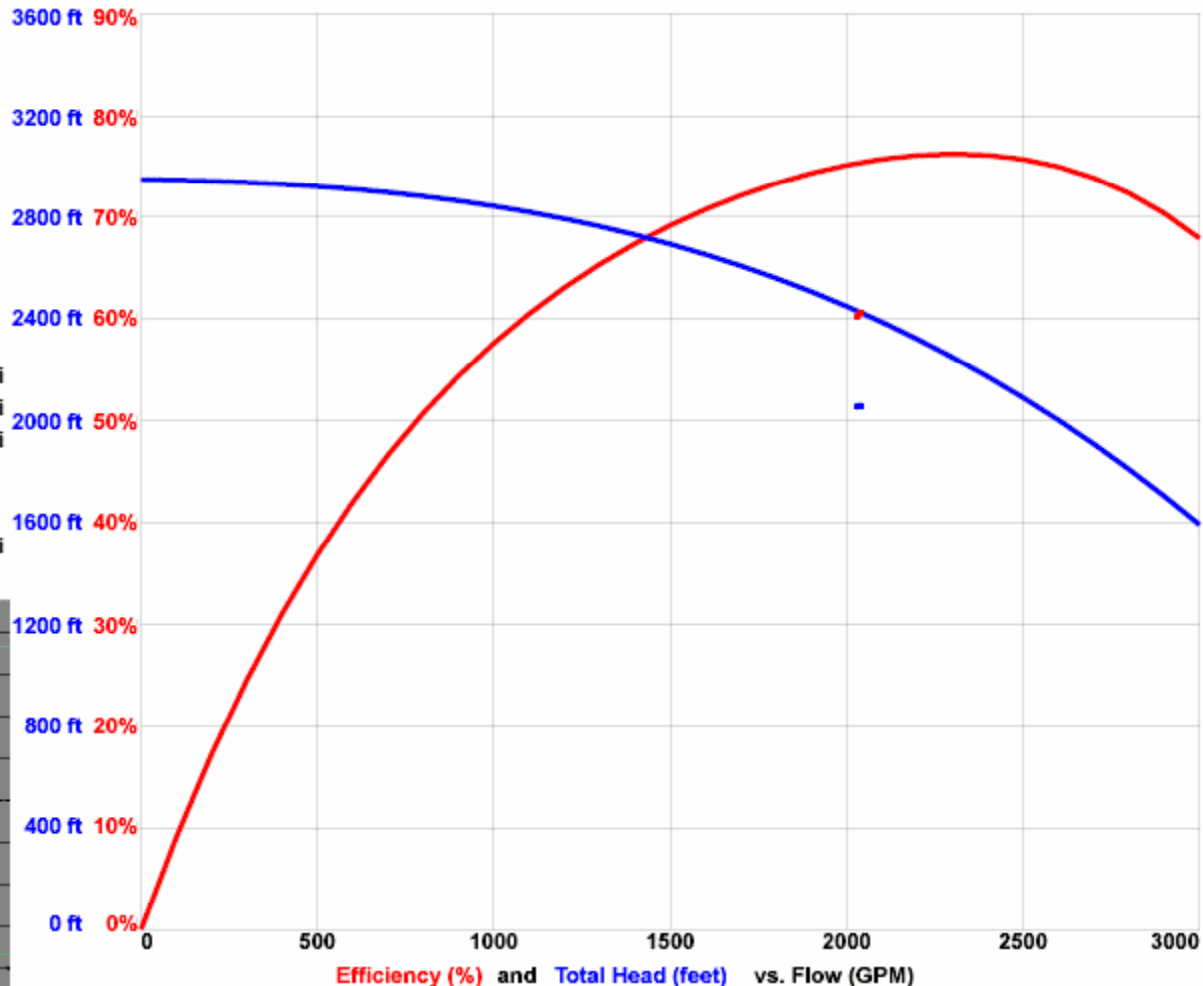
Temperature: 131.4 °F
 Suction Press: 49.1 psig
 Discharge Press: 952.1 psig
 Mass Flow: 2,040.4 GPM
 Motor Voltage: 4,127 V
 Control Valve: 69.0 %

CALCULATED RESULTS:

Pump Flow: 2,040.4 GPM
 Motor Power: 1,860.5 hp
 Fluid Power: 1,078.6 hp
 Suction Head: 112.5 ft 49.5 psi
 NPSH: 134.0 ft 57.2 psi
 Discharge Head: 2,171.8 ft 955.7 psi

	ACTUAL	DESIGN
Total Head:	2,059.2 ft	2,425.7 ft
	879.8 psi	1,036.4 psi
Efficiency:	60.7 %	75.4 %

EFFICIENCY	ACTUAL	DESIGN
76		
72		
70		
68		
66		
64		
60		



[Compressor Overview](#)

[T5 Profile](#)

[Pumps](#)

[Engine Performance](#)

[LP Compressor](#)

[Performance](#)

[HP Compressor](#)

[Performance](#)

[PI TreeView](#)

Compressors

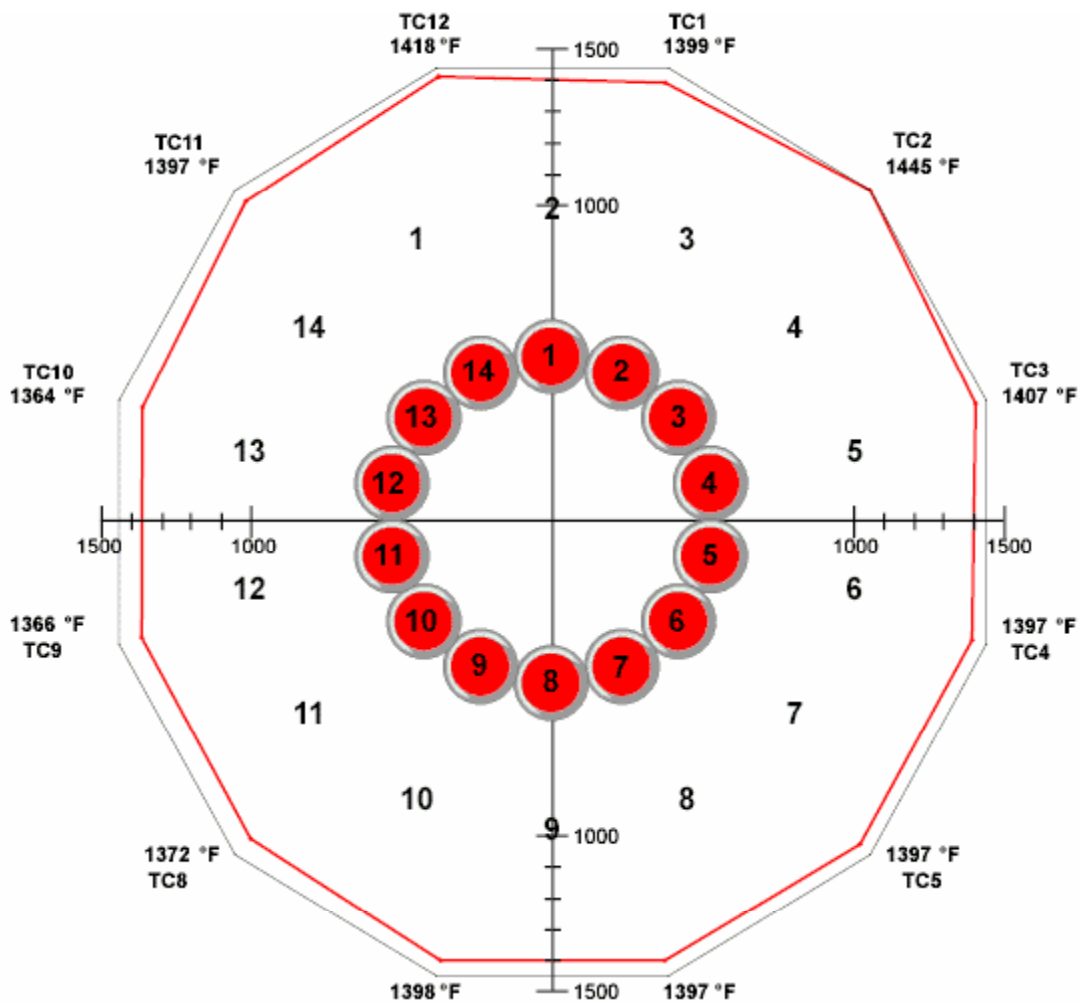
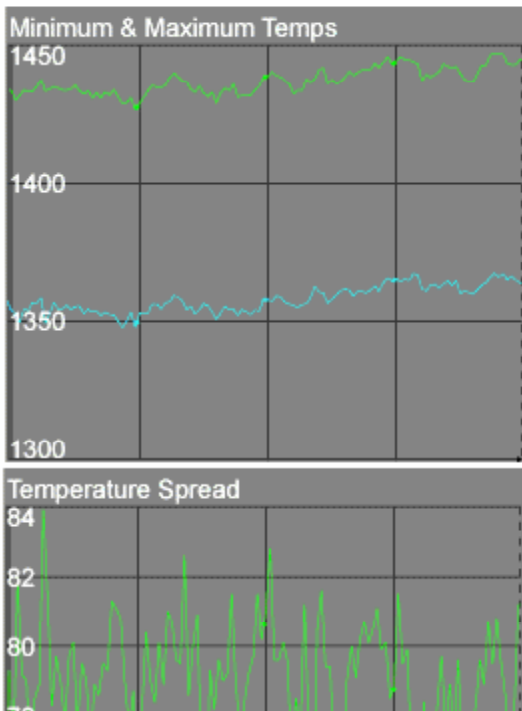
- C1403A
- C1403B
- C1403C

Solar Turbines

A Caterpillar Company

NGP: 99.8 % NPT: 89.8 %

Swirl Angle: 30.0 °
Minimum Temperature: 1363.7 °F
Maximum Temperature: 1444.9 °F
Temperature Spread: 81.2 °F





ProcessPlugins displays in PI WebParts

- All PI ProcessBook displays are replicated in PI WebParts for use in SharePoint



Compressor Overview

T5 Profile

Pumps

Engine Performance

LP Compressor

Performance

HP Compressor

Performance

PI TreeView

Compressors

- C1403A
- C1403B
- C1403C

Solar Turbines

A Caterpillar Company

NGP: 97.5 % NPT: 88.7 %

SPEED:

Actual 7,821 RPM
 Nominal 7,641 RPM
 Deviation 180 RPM

EFFICIENCY:

Actual 0.757
 Nominal 0.780
 Deviation -0.023

HORSEPOWER:

Shaft 8,447 hp

ISENTROPIC HEAD:

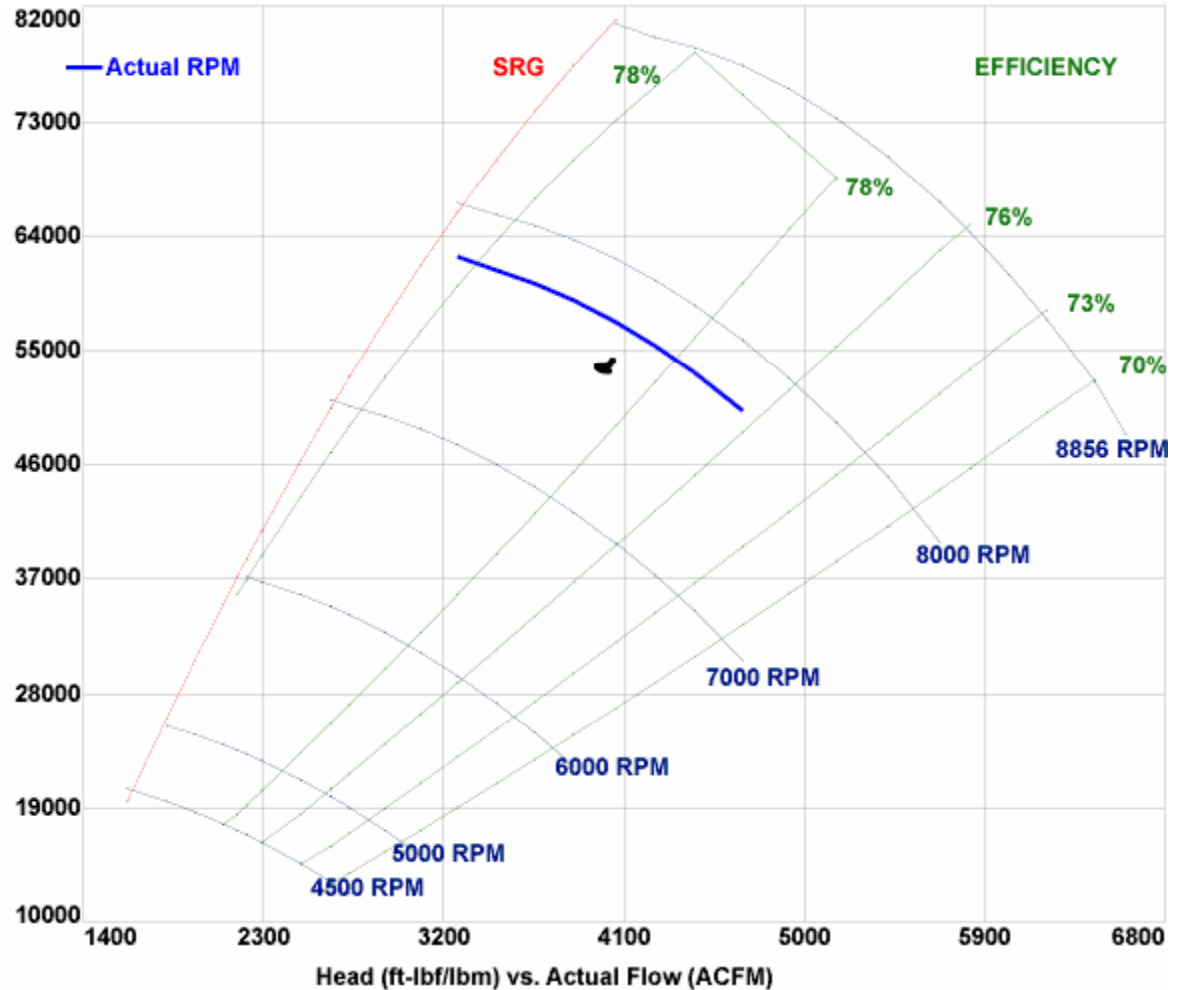
Actual 54,218 ft-lbf/lbm
 Predicted 54,879 ft-lbf/lbm
 Deviation -1.20 %

INLET FLOW:

Actual 4,042 acfm
 Standard 127 MMscfd

SETPOINTS:

NGP 97.8 %
 T5 1,402 °F
 SoLoNOx T5 1,368 °F
 Discharge 1,338 psig
 Flow 145 MMscfd
 Suction 305 psig





Key Advantages

- Entire system is within the OSIsoft Enterprise Infrastructure
- No worries about operating system changes, Windows patches, NERC CIP requirements, or OSIsoft Enterprise Infrastructure updates to any part of the platform.
- No need to juggle visualization methods since only OSIsoft client tools render the Process Plugins displays.
- Key business systems are already connectable to OSIsoft Enterprise Infrastructure for condition based maintenance.





PLEASE
PAUSE FOR
DEMO





Key Advantages

- Calculations are never in a black box so verification and further enhancements are simple. Your system is self documenting.
- PI AF templates provide flexible drag-and-drop calculations for any type of equipment.
- All plants are easily monitored from a single location and single instance of the Process Plugins solutions.
- With minimal training, you can configure your own systems, or have Process Innovations do it for you.



ProcessPlugins

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Thank you

