Process Plugins Calculations & Characterization Embedded in PI Asset Framework

Presented by **Williams Midstream**

Agenda

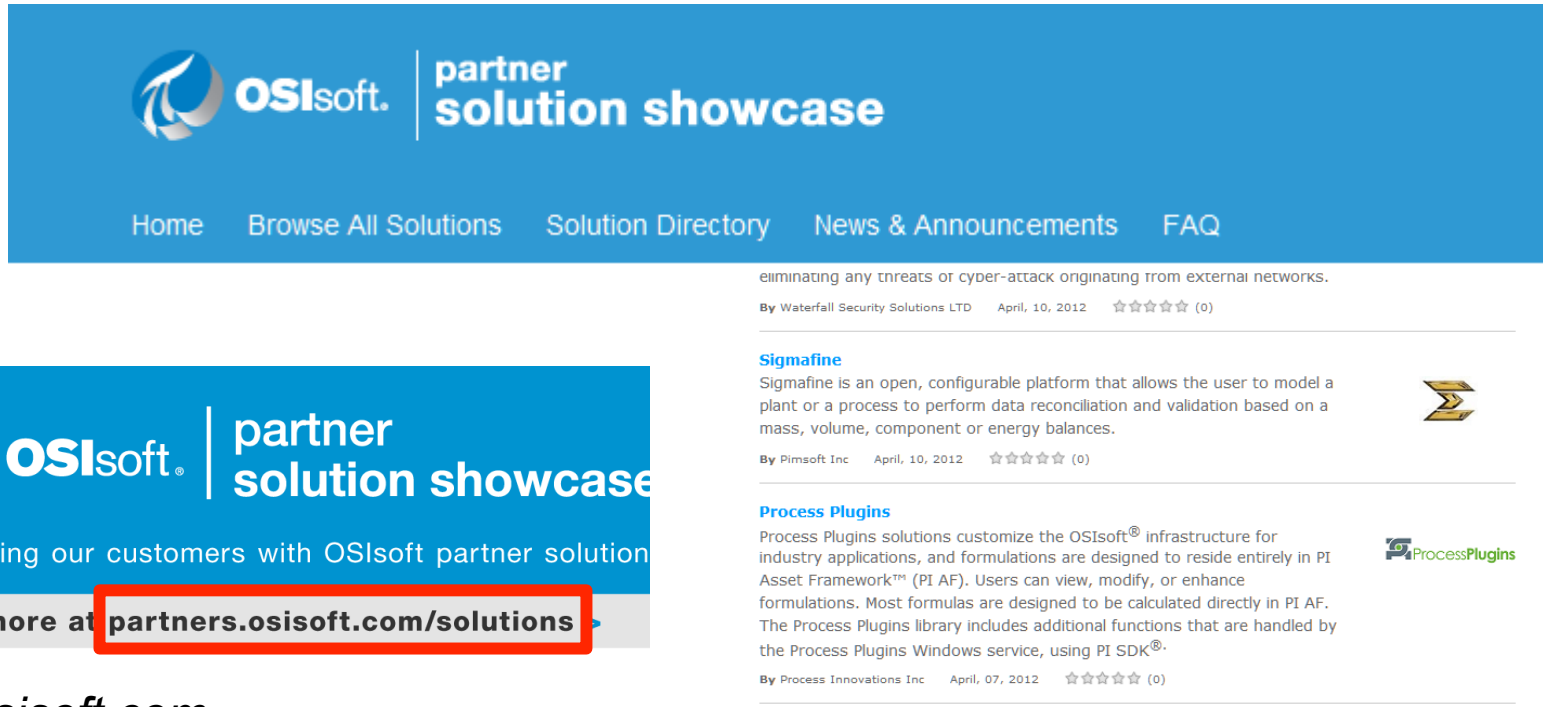
- Review of Agenda
- Webinar Series and Partner Solution Showcase
- Introductions
- Williams Midstream
- Process Innovations Inc.
- Demonstration
- Questions
- Conclusions and Thank You!

Mission

“Our mission is to maximize the Value our customers get from our product and services”

OSIsoft Partner Solution Showcase

- Find software solutions from OSIsoft partners with specific industry and domain expertise.
- http://partners.osisoft.com/solutions



pss@osisoft.com

Williams Midstream

- Williams Midstream is one of the largest providers of energy infrastructure in North America
- Their businesses are:
  - Natural gas gathering and processing
  - NGL & crude oil transportation
  - NGL storage
  - Olefins production
- http://co.williams.com

Process Innovations Inc.

- Process Innovations Inc. has been an OSIsoft partner for more than 8 years. The business is focused solely on adding value to the OSIsoft Infrastructure.
- Process Plugins provides immediate value to OSIsoft's PI System. Process Plugins tools reside directly in the stable OSIsoft platform. These specialized, easily customizable solutions automate and manage performance monitoring, analysis, reporting and prediction.
- www.ProcessPlugins.com

Presenters

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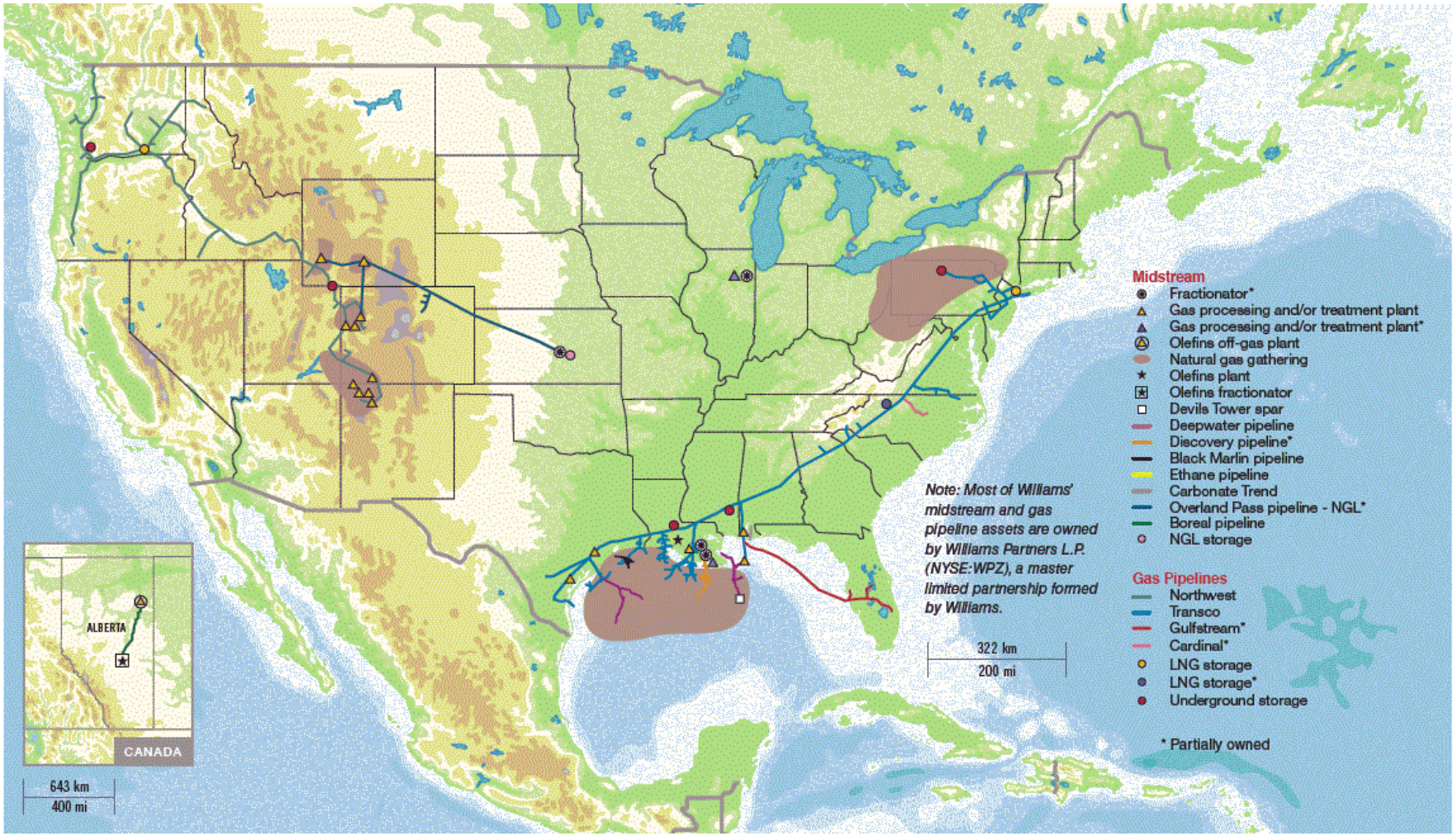
Williams

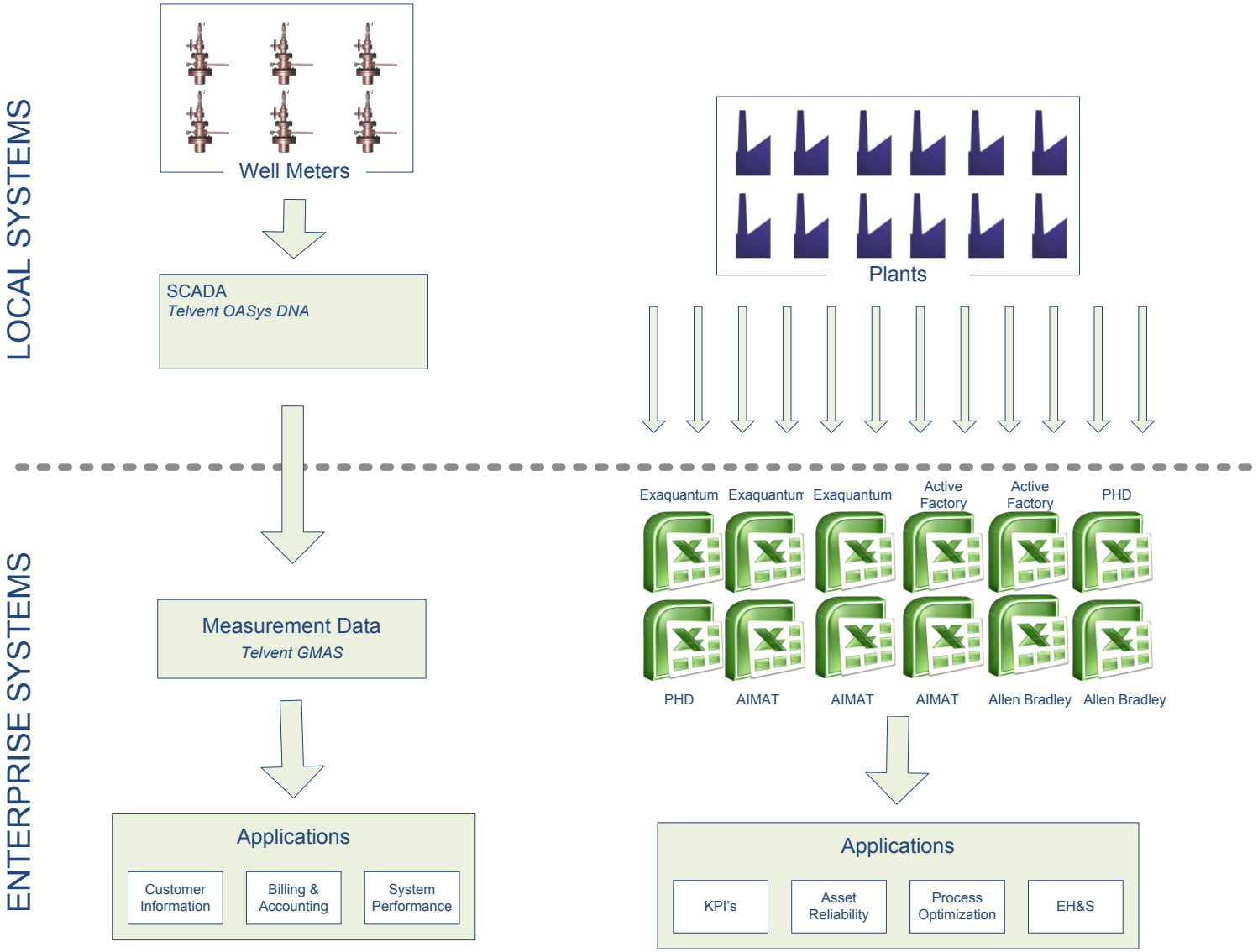
Williams Assets



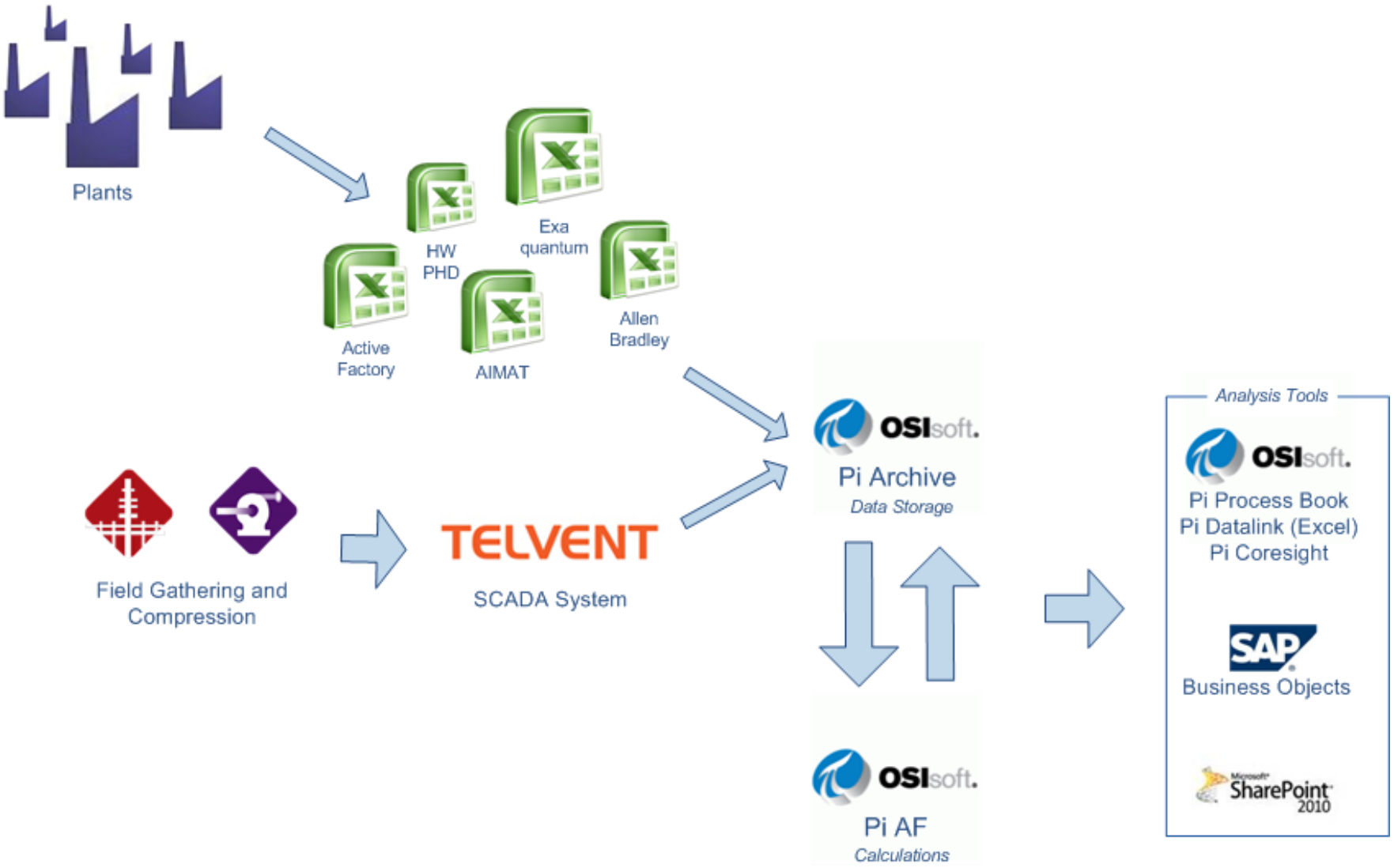
The challenge is to provide centralized, well organized, consistent monitoring and analysis of Williams' fleet of assets.

PI System at Williams Midstream

Williams Midstream – Before the PI System



Williams Midstream – After the PI System



Williams Midstream and the PI System

Williams uses the OSIsoft infrastructure to provide insight into their operations.

- PI Server™
- PI Asset Framework™ (PI AF)
- PI ProcessBook™
- PI WebParts™
- PI Coresight™
- PI OLEDB Enterprise™
- PI System Management Tools™ (PI SMT)
- PI System Explorer™
- PI DataLink™

PI WebParts at Williams Midstream

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:

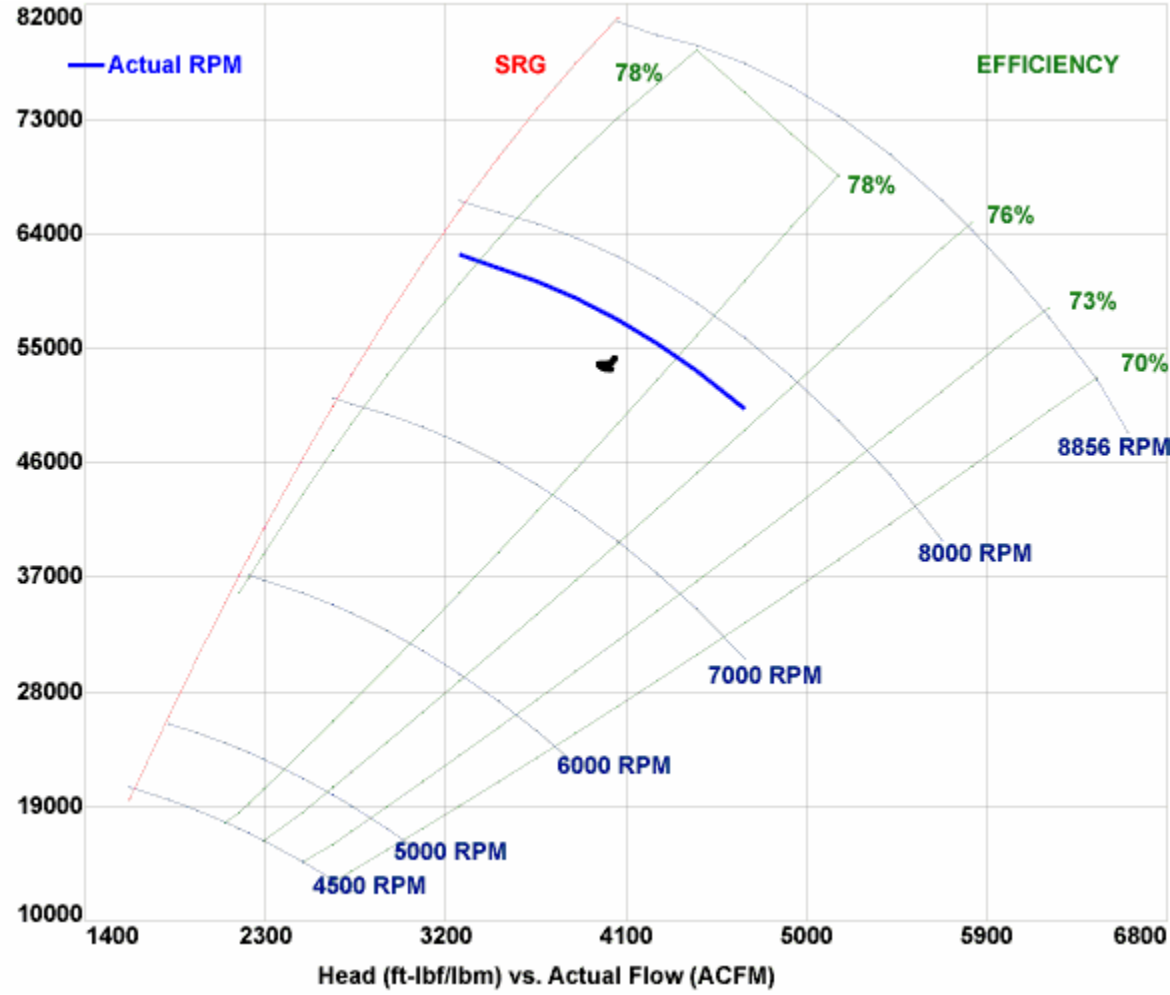
Actual	54,218 ft-lbf/lbm
Predicted	54,879 ft-lbf/lbm
Deviation	-1.20 %

INLET FLOW:

Actual	4,042 acfm
Standard	127 MMscfd

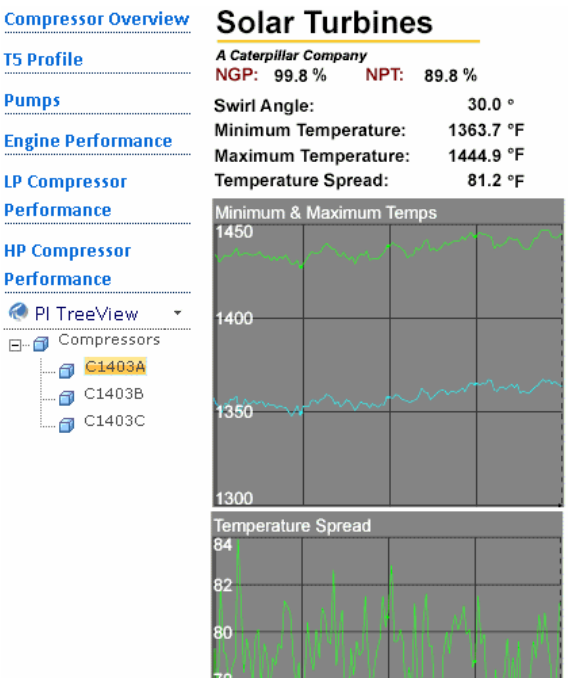
SETPOINTS:

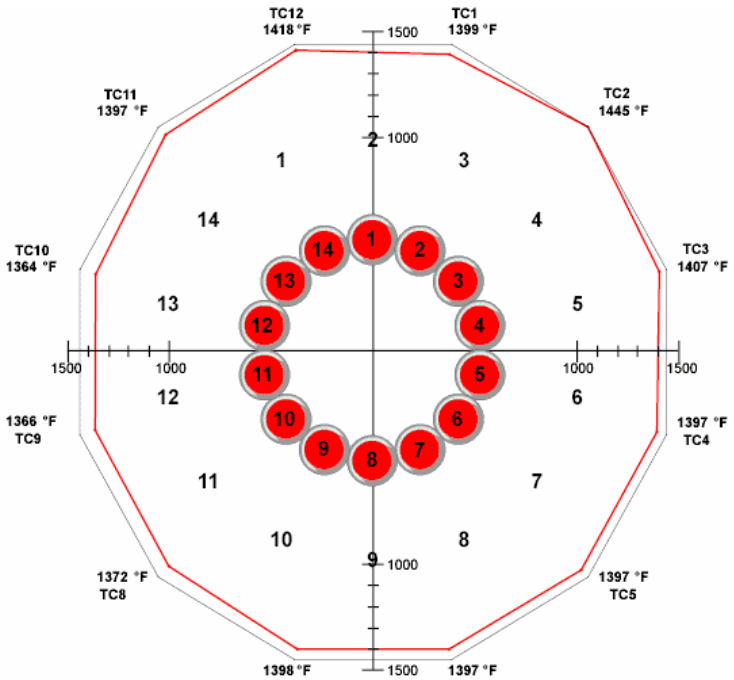
NGP	97.8 %
T5	1,402 °F
SoLoNOx T5	1,368 °F
Discharge	1,338 psig
Flow	145 MMscfd
Suction	305 psig

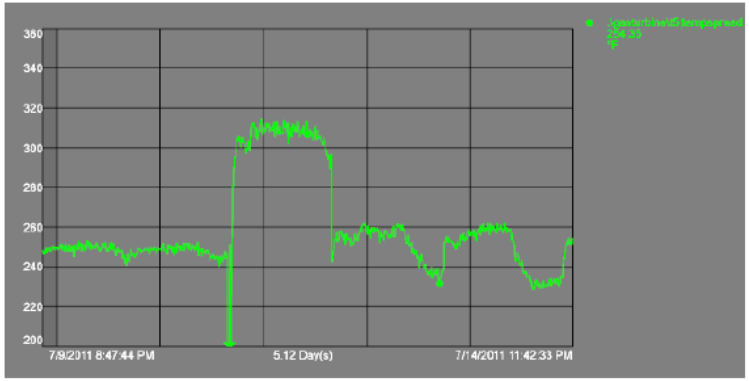


With PI WebParts, we can share the results with the entire corporation without the need to install software on each viewer's computer.

PI WebParts at Williams Midstream

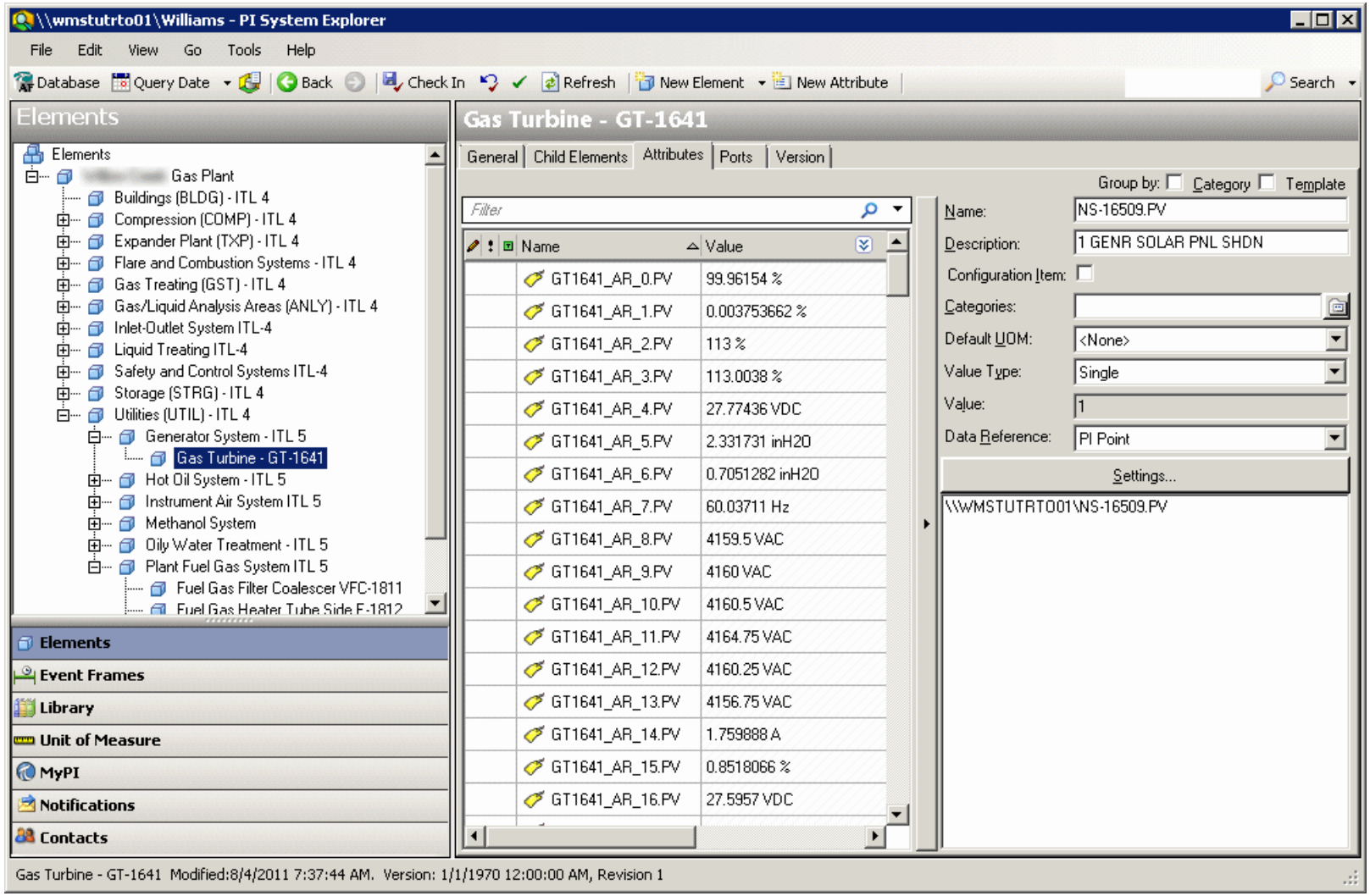






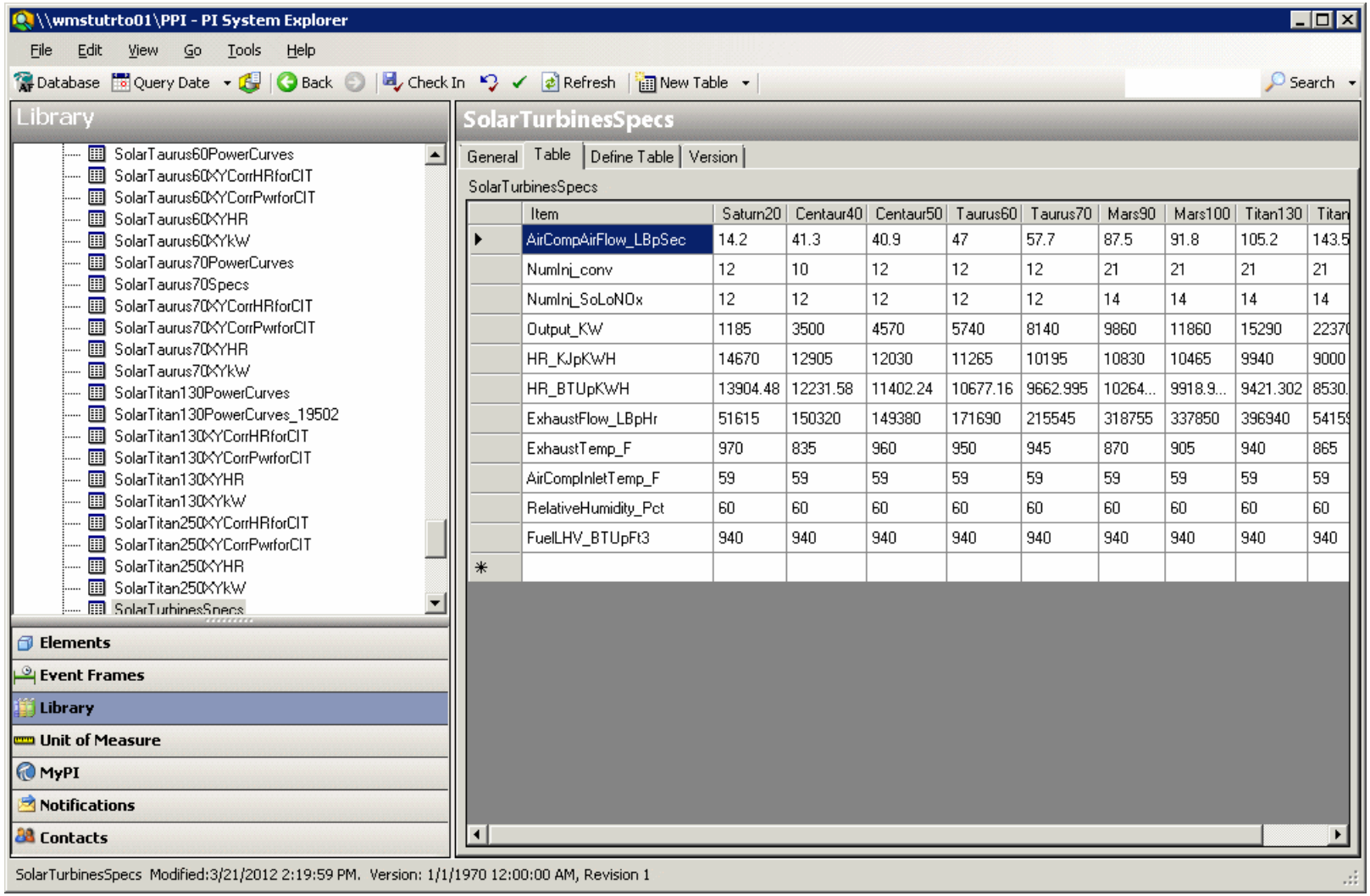
"Exhaust Temperature Profile" solution provided an immediate success story by displaying an anomaly with exhaust gas temperatures.

PI AF at Williams Midstream



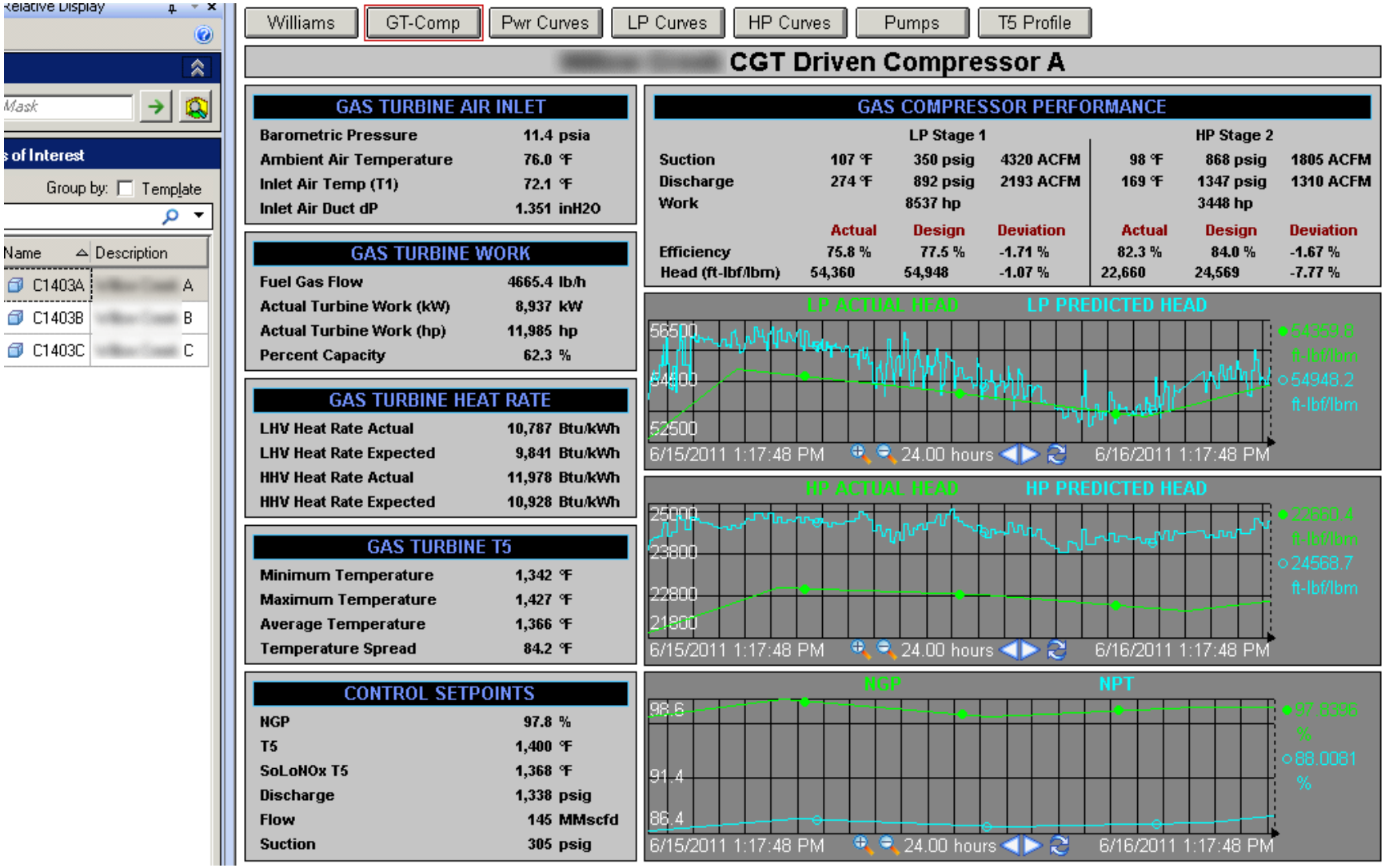
With PI AF, real time data is systematically organized.

PI AF at Williams Midstream



PI AF tables allow consistent use of centrally organized specifications which are needed in many engineering calculations.

PI ProcessBook at Williams Midstream



With PI ProcessBook's Element Relative feature, a single display provides visualizations for many assets.

ProcessPlugins

Your OSIsoft Technology Partner

Partner Organizations:

PII Process Innovations Inc.

OSIsoft.

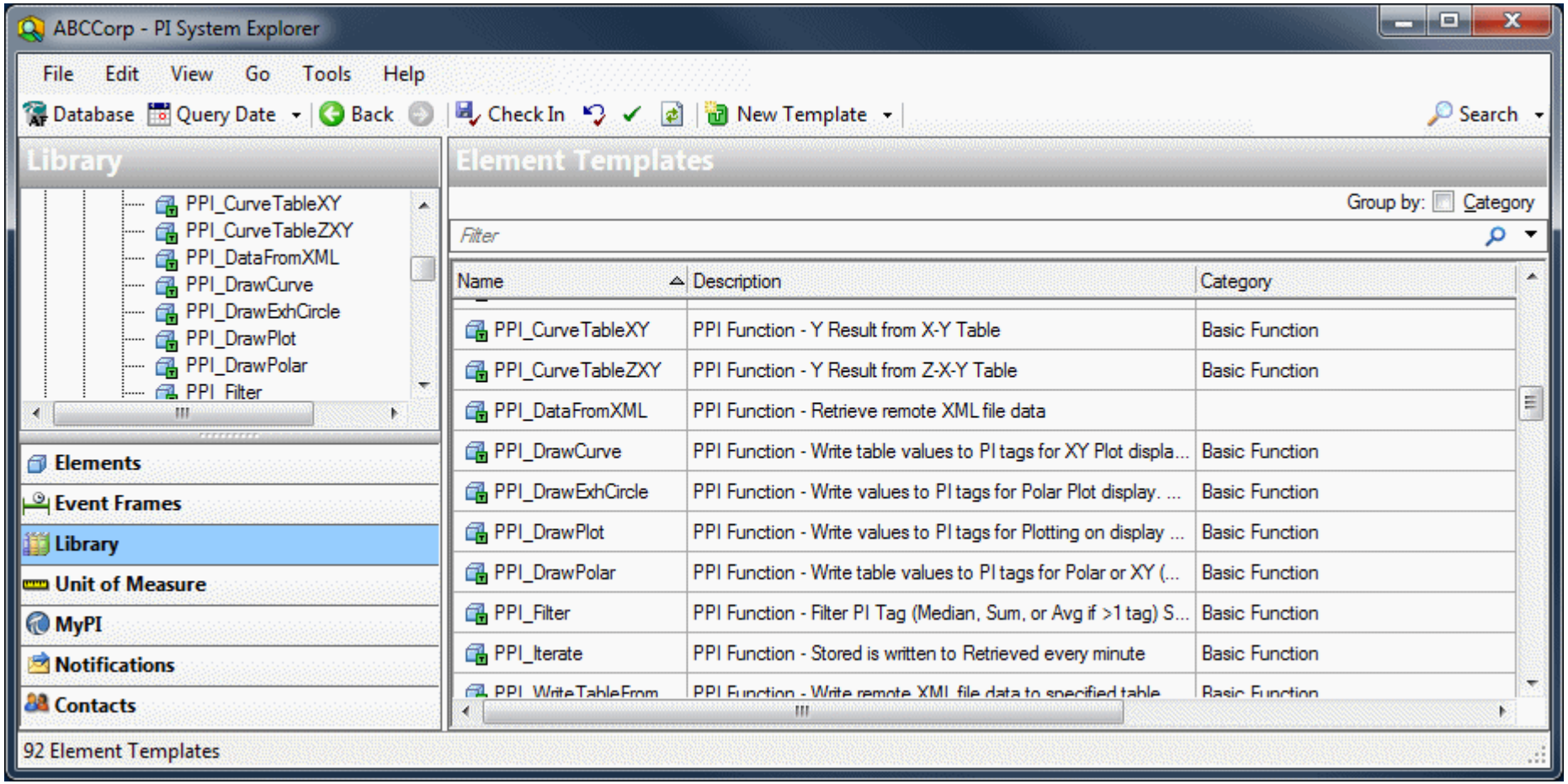
Process Plugins

- Process Innovations Inc. has been an OSIsoft partner for more than 8 years. The business is focused solely on adding value to the OSIsoft Infrastructure.
- Process Plugins, started in 2006, provides performance packages for a number of process industries.

"Asset Framework 2.x allows for a fully functional package residing entirely within the OSIsoft Asset Framework."

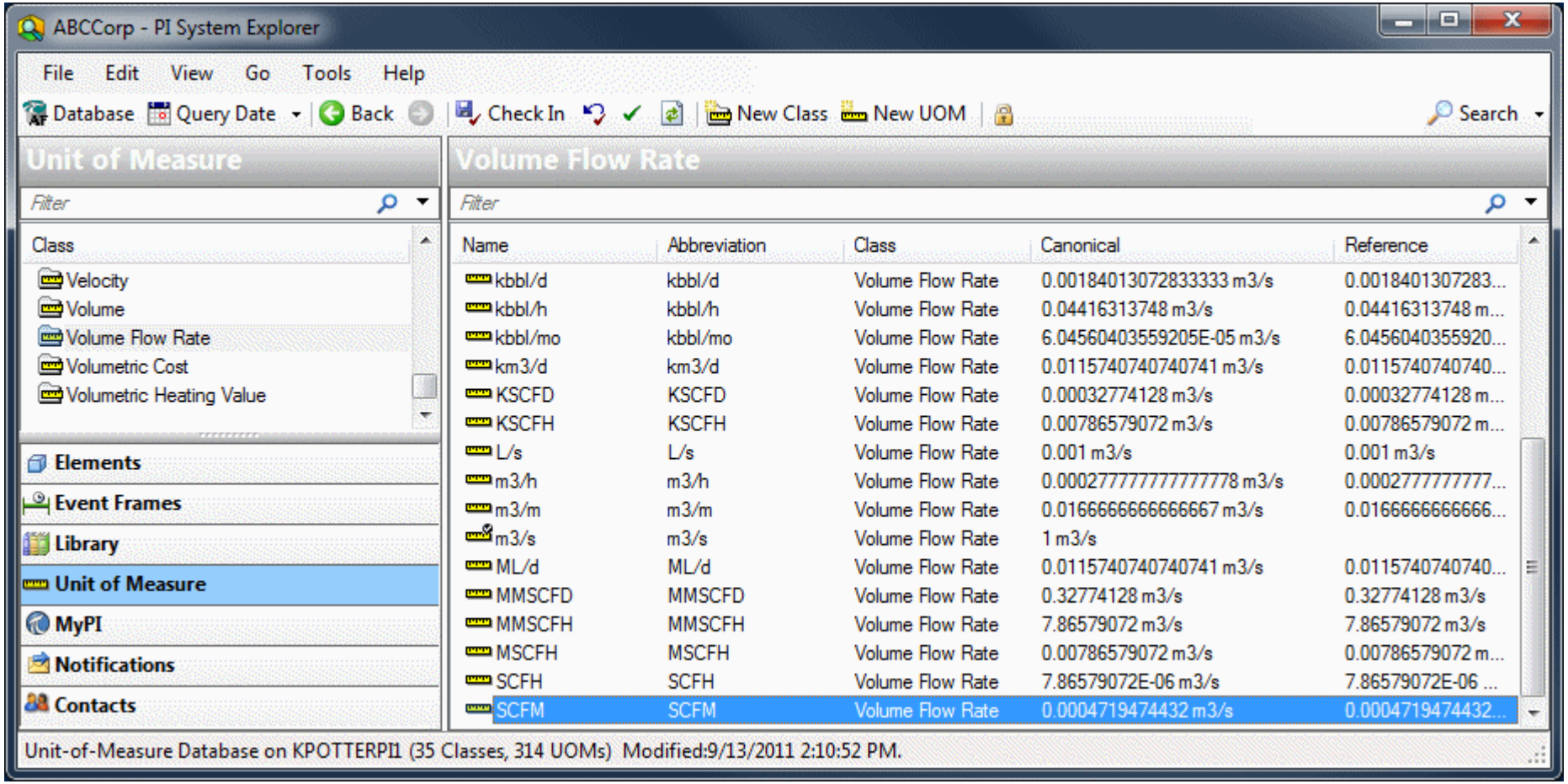
Process Plugins at Williams

Process Plugins at Williams Midstream



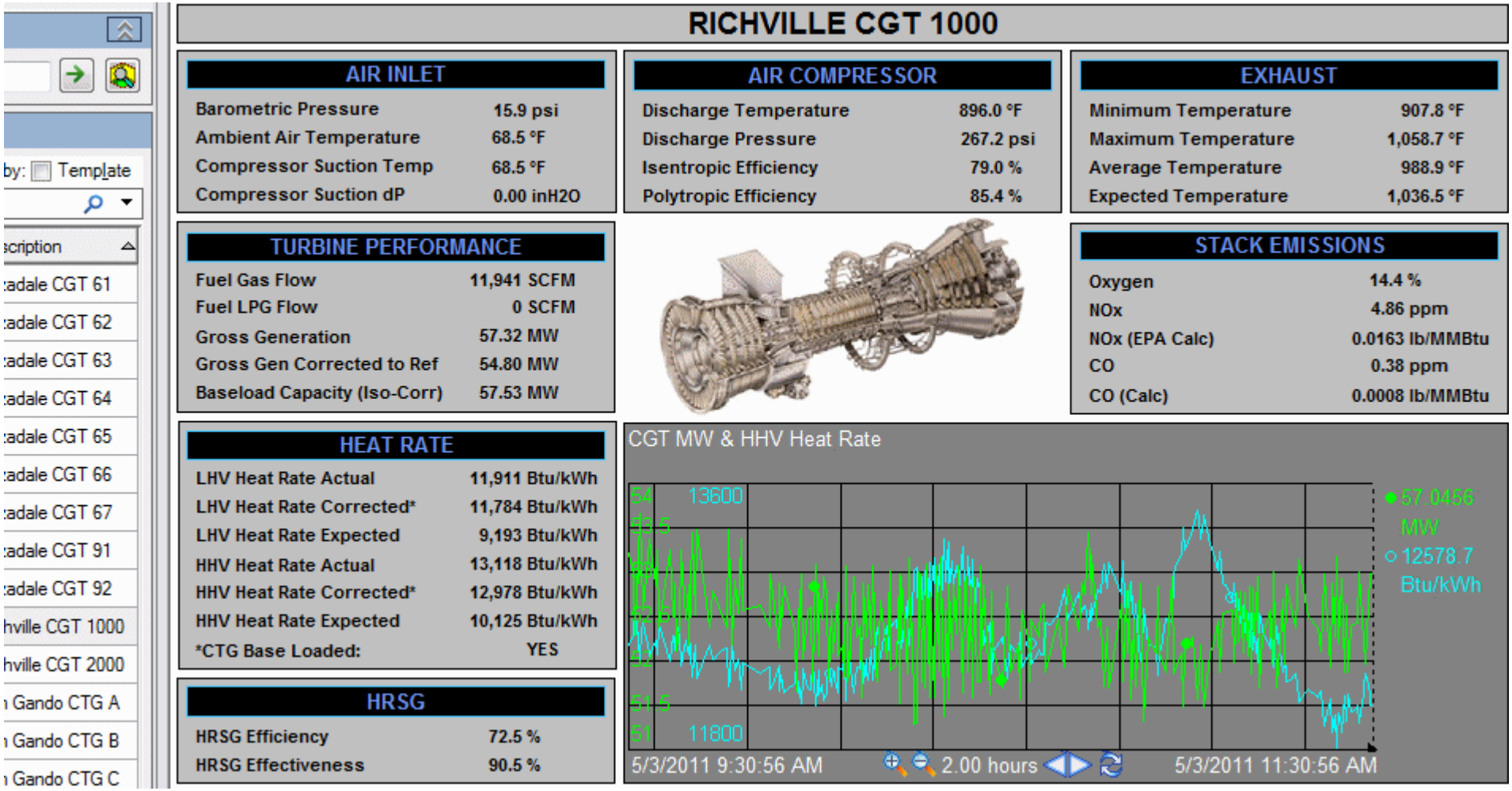
Process Plugins adds a vast array of Element Templates utilized by Williams Midstream, particularly in rendering real time performance curves.

Process Plugins at Williams Midstream



Process Plugins adds dozens of Units of Measure particularly useful in the utilities.

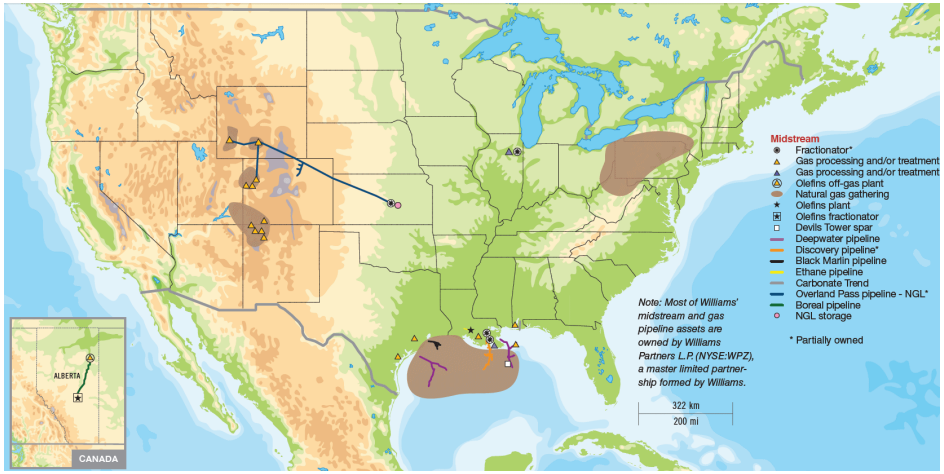
Process Plugins at Williams Midstream

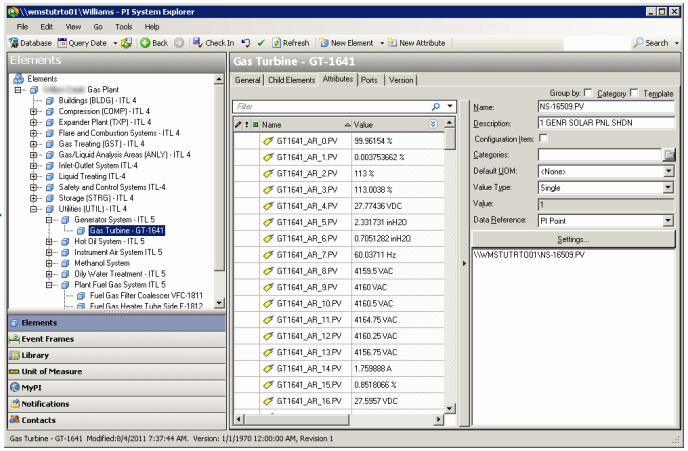


Process Plugins' expertise with OSIsoft products, and vast library of tools has rapidly added substantial value to Williams Midstream's enterprise system.

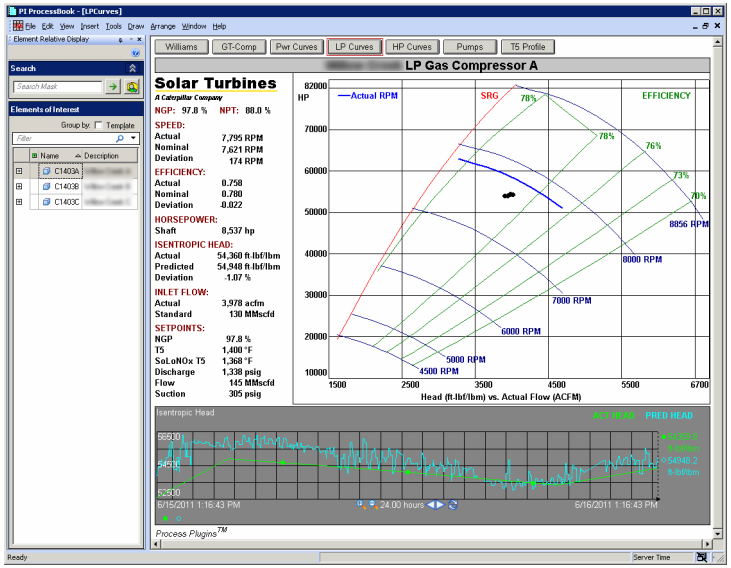
ProcessPlugins

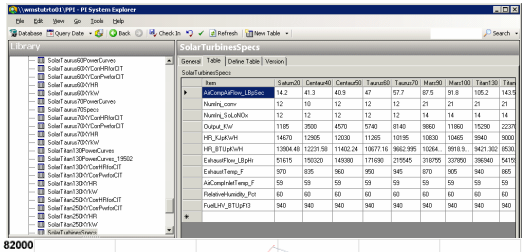
Demonstration

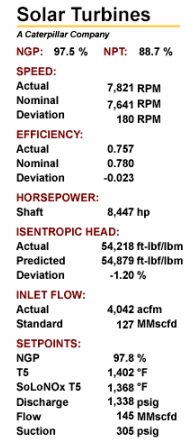


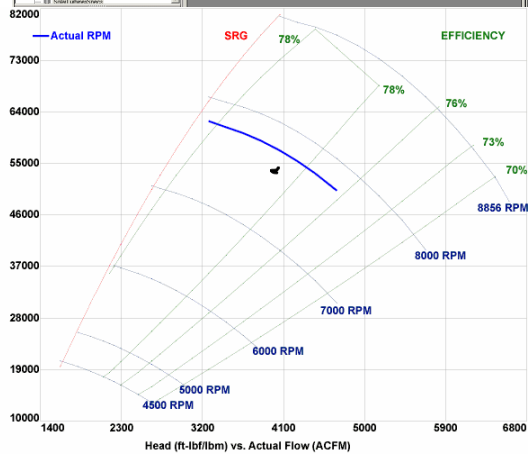


ProcessPlugins

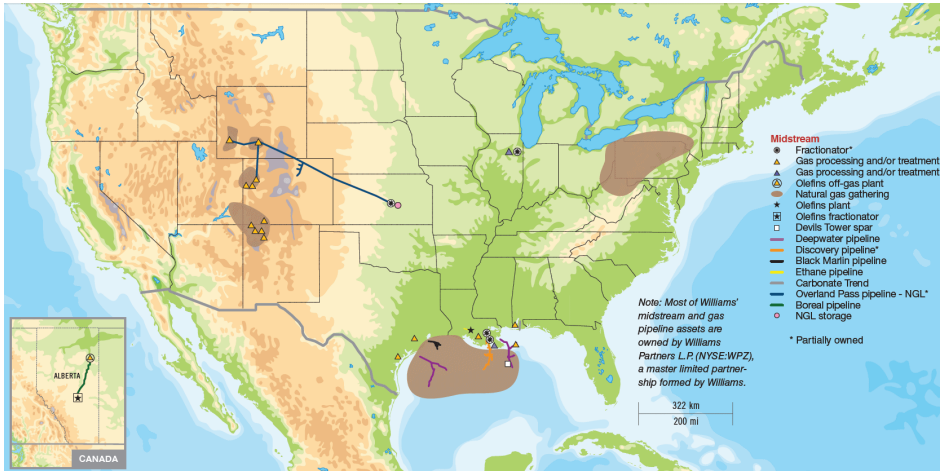


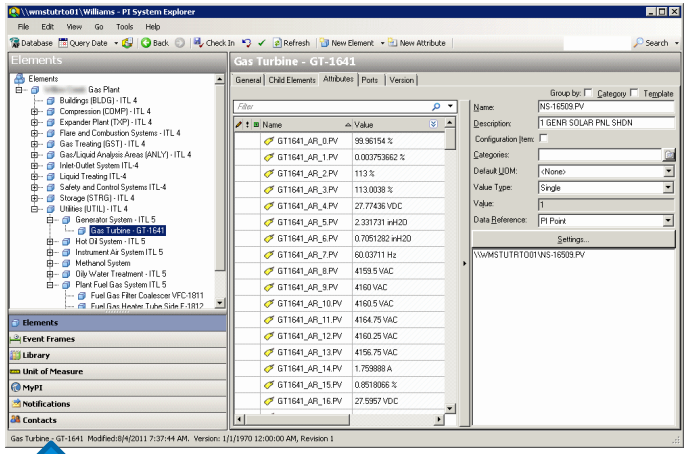




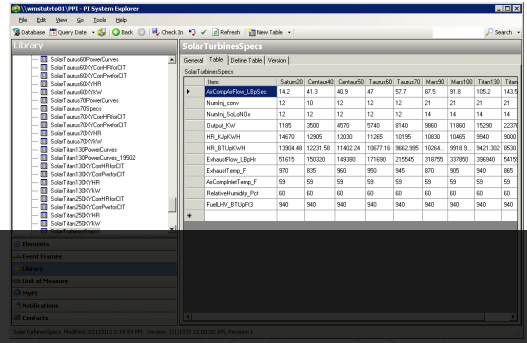


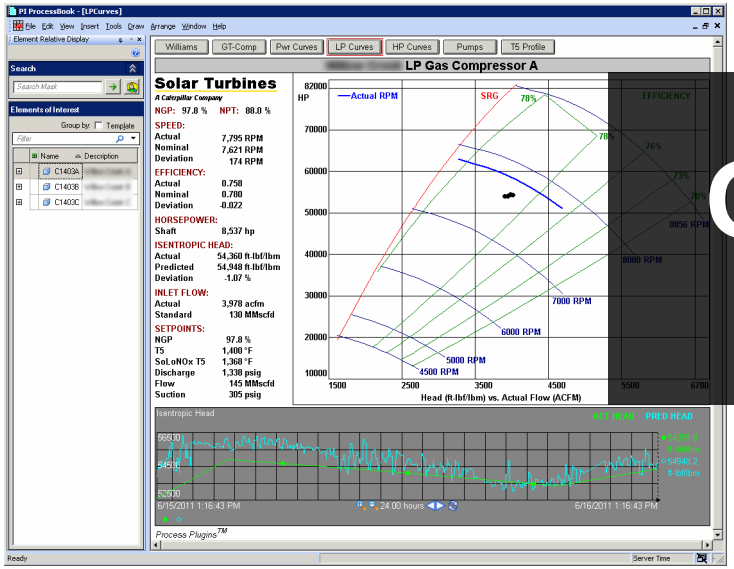
Process Plugins is adding immediate value to Williams' OSIsoft product suite.

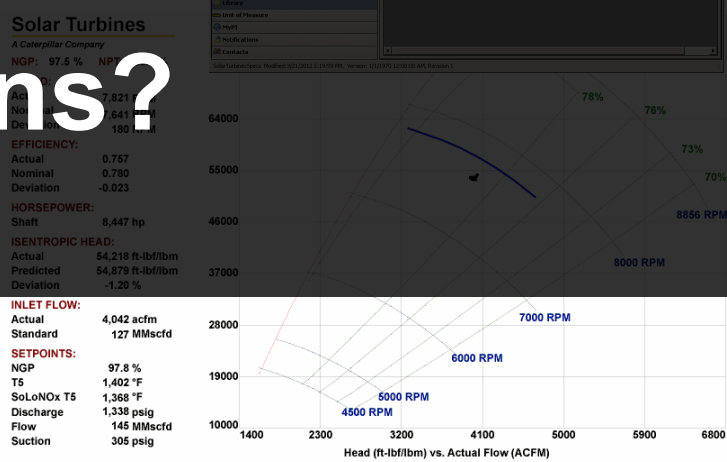




ProcessPlugins







Questions?

Summary

With hundreds of turbines, compressors and large pieces of equipment operated by Williams across the USA and Canada a system was needed to monitor the status of all of these assets:

- Utilization of the OSIsoft PI system was the first step in this process.
- Asset Framework and the Process Plugins solutions then provided continuous conditions monitoring.
- With Process Plugins and integration of PI Notifications, the combined solution now provides real time monitoring and notification of equipment status to Williams

"What we really want to emphasize is that now we have one platform for display of equipment performance readily accessible to everyone in the company, 24/7. It's available instantaneously and without the need of special analysis tools or special data mining tools. We save time and effort."

Contacts – Follow up

Would you want to use Process Plugins at your site

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For OSIsoft questions please contact your representative or

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Webinars

October 17 - Overall Equipment Effectiveness in the PI System Ecosystem - *recording available on-line*

November 7 - Process Calculations and Characterization embedded in PI Asset Framework

December 5 - KPIs, Data and Events On Any Mobile Device

More to follow – Working on the schedule for 2013

Thank you

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