Automated Downtime Tracking

Improving System Performance through Enhanced Asset Management

Presented by Rod Howard
Automated Downtime Tracking

The Problem

The Solution

- PI AF
- PI Event Frames
- PI OLEDB Enterprise, in conjunction with industry standard reporting systems

The Benefits

- Identify systemic problems that lead to frequent failures
- Correlate system failures with customer impacted volumes
- Reduce downtime
- Improve commercial management
- Track operational improvements in economic terms
About Williams

Natural gas gathering, processing, and transportation company founded in 1908

4,700 Employees

Transport 14% of U.S. natural gas consumption

10,000 miles of oil and gas gathering lines

Gas processing capacity of approximately 6.6 bcf/d

1,400 miles of NGL and olefin transportation pipelines
Downtime Events

Complex Gathering Systems
all the way back to the wellhead

Complex Analysis
Requirements

- Asset redundancy not an option
- Downtime is expensive
- Reliability tracking is key

Real-time Well Status Application powered by PI AF
PI Event Frames

1. PI Event Frames Generator
   Interface collects the downtime incidents

2. Automated and manual data can be associated with the event. Additional attributes in PI AF allow manual qualitative information to be added later.

3. Data analysis using PI OLEDB Enterprise as a data source
   - Excel for analysis and adhoc reporting
   - MS Powerview for KPIs
   - MS SSRS for scheduled static reports

The Tools
- PI Event Frames
- PI AF SDK
- PI OLEDB Enterprise
- Microsoft BI
Downtime Data Collection

Source Data

- PI System
- Trigger Tag

Event Frame Template

Event Metadata
- Related Operating Conditions
- Placeholders for manual data
- Dynamic PI Coresight Links

Collection

PI Event Frames Generator Interface (EFGENI)
Downtime Data Editing

- Custom Event Frame editor
  - PI AF View Control component (PI AF SDK)
  - Replaces PI System Explorer
- Why Edit?
  - Combine automated data with manual
  - Delete events that may be the result of instrument or communications failures
  - Add manual events that may not have been captured
Downtime Analysis and Reporting

- Use standardized reporting tools
- Scalable
- Common metrics across enterprise
- Merge data into other asset systems
**Benefits**

- Reduction in manual data gathering and reporting processes
- Improved accuracy and consistency
- Technology helping to drive standardization and formalization of the way we characterize downtime events
- Early identification of systemic reliability issues
Automated Downtime Tracking

*Improving System Performance through Enhanced Asset Management*

“Automating the downtime events gives our operators and technical staff more time to analyze the events versus spending their time collecting and inputting data.”

Mark Nealis
Williams Companies

### Business Challenge

- A large number of field assets operating under complex conditions
- Diverse operating units with no common systems for tracking and classifying downtime events
- Extensive manual data analysis and reporting mechanisms

### Solution

- PI Event Frames for automatically recording downtime events
- A light client tool using components from the PI System Explorer library for supplementing automated events with qualitative data in the field
- Integrated use of Microsoft BI for reporting

### Results and Benefits

- Pilot program being deployed in Northeast Operating Area
- Ability to better analyze and identify common causes of downtime incidents
- Better communication with customers regarding their volumes
Rod Howard
rod.howard@williams.com
Asset Performance and Benchmarking
Williams Companies