Turning **insight** into **action**.

OSIsoft. USERS CONFERENCE 2011

Routine Process Monitoring: Using PI WebParts to Build the Perfect Dashboard

Presented by **Joe Pluckebaum**
Eli Lilly & Company

Agenda

Lilly At-A-Glance

- Joe in context
- Corporate Vision for PI WebParts
  - Installed Base
  - Benchmarking
  - Routine Data Monitoring
- Examples and Benefits
  - Filling Operation
  - Water Distillation
  - Coating Operation
  - Fermentation

About Lilly

- Large Pharmaceutical Manufacturer
- Founded 1876 (135 year heritage)
- ~23 B$ Net Sales (2010)
- ~38,000 employees worldwide with ~ 7,500 in R&D
- Manufacturing plants located in 13 countries
- Clinical research conducted in more than 50 countries
- Research and development facilities located in 9 countries
- Products marketed in 143 countries
- www.lilly.com

Joe Pluckebaum in Context

- Tall, thin engineer type, founded in 1957
- 25+ years experience in automation
- Joined Lilly in 1997
- Platform experience OSIsoft PI System, DeltaV, A-B PLCs, etc.
- Manufacturing plant experiences - automotive component parts, water & waste water treatment, antibiotic fermentation
- OSIsoft product experience PI ProcessBook, PI DataLink, PI SMT, PI Server 3.x, PI WebParts, PI Reports
- Work conducted in more than 6 countries
- Favorite data quote :
  “Making decisions without data is just guessing”

Background – Our Vision for PI WebParts

- Installed Base
  - 13 Lilly Manufacturing Sites have PI Systems
  - 2 PI WebParts Servers (S95 Level 4 System)
  - PI ACE
- Benchmarking
  - Between Sites
  - External
- Routine Data Monitoring

Background - Internal Benchmarking

Replicate

- Between sites with similar processes
- Use concepts from other sites to create new displays

Forums to share successes

- Monthly – Regional Focus
- Quarterly – Corporate Focus

Background - External Benchmarking

- **On-Line Research:**
  - AMR Research
  - Gartner
  - Google (ZDNet, Blogs, etc)


PharmaManufacturing.com
THE DIGITAL RESOURCE OF PHARMACEUTICAL MANUFACTURING MAGAZINE

Ciurczak: Thoughts of the Future of Pharma

PAT will become mandatory, and other predictions.

BY EMIL CIURCZAK, CONTRIBUTING EDITOR

Considering how much in flux the pharmaceutical industry is at the moment, predicting the future can be tricky. Some trends seem more obvious than others; streamlined production


AMR Research

Publication Date: 2 October 2009 ID Number: G00180236

The Future of Work Meets Manufacturing 2.0 at Invensys

Simon F Jacobson

The future of work has been discussed to date in the context of enhancing productivity by modernizing the desktop through mash-ups and incorporation of Web 2.0, workflow,


In depth: Technology predictions will help you avoid future shock

by Auerbach Analysis | Aug 22, 2000 7:00:00 AM

TAGS: Auerbach Analysis

1 comment(s) JOIN THE DISCUSSION

E-MAIL SHARE SAVE PRINT WORTHWHILE? 53 VOTES

Takeaway: CIOs and other IT leaders should look to the future to win the information war being waged today. This article from Auerbach Publications looks at what's ahead in the IT world and how enterprise and employees must adapt to survive.

Background – External Benchmarking

- **Working Sessions**
  - Exercise in MI&CS Leadership Global Meeting
  - AMR Research Workshop in Boston
  - Cisco Discussions in Indy
  - Microsoft in Chicago
  - Microsoft in Redmond
- **Consultation with key partners**
  - Rockwell, OSIsoft
  - Brokered by Microsoft Manufacturing Consultant – Enrique Herrera

Background - Findings

- Future manufacturing operations will employ new technologies but will still rely on people
- “Right information in the hands of the Right People at the Right time” still holds true but it will expand to include “On Any Device”
- Productivity outside of the manufacturing plant walls will increase due to mobile devices, enhanced alert mechanisms and improved data visualizations on a multitude of applications.

Background - Findings

- Internal/External collaboration and language barriers will be reduced by technology
- Social media will become an expected norm for communication between people and between people and the equipment
- Virtual worlds /simulation environments will generate business benefits in areas ranging from training to modeling of production lines to facilitating global meetings, and data immersion

Business Value arises when technology….

- Increases efficiency (eliminates waste of time, material,& effort)
- Accelerates trajectory between “data acquisition” to “analysis” to “decision”
- Magnifies individual knowledge and expertise
- Improves the alignment of individual performance with the strategic/tactical goals.

Potential “Levers”

- Data Data Data Data (Available, Pervasive, and Comprehensive)
- Analysis, Analysis, Analysis, Analysis (Data is only valuable if it creates knowledge)
- Increasing power and availability of mobile devices
- Increasing power and flexibility of communication and collaboration tools.
- Tasks consolidated in “Personalized” context but prioritized in “Business” context. (Business Process Management and Workflow.)

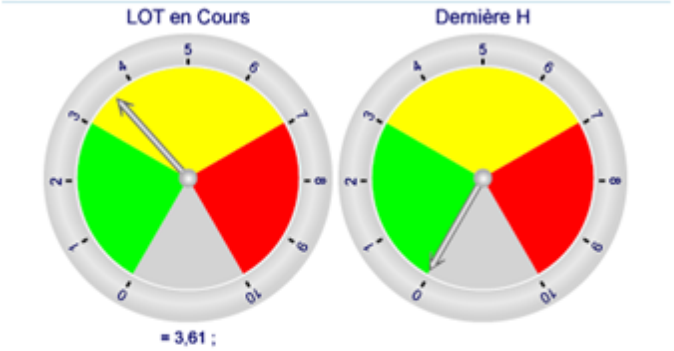
Routine Process Monitoring

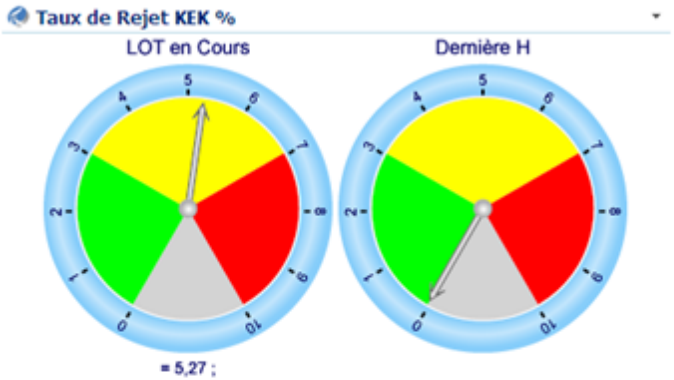
- Timely monitoring of standard/pre-defined trend plots of "key/important" parameters (timely = during or post-run)
- Timely review of process/product end-of-batch/cycle reports (including any alarms)
- Analysis of key batch-to-batch parameters (e.g. batch SPC)
- Review of multiple batch trends/overlays which could/should include evaluation against 'golden batch' profile limits.
- Equipment performance monitoring - cycle time, downtime monitoring/ analysis, condition-based maintenance

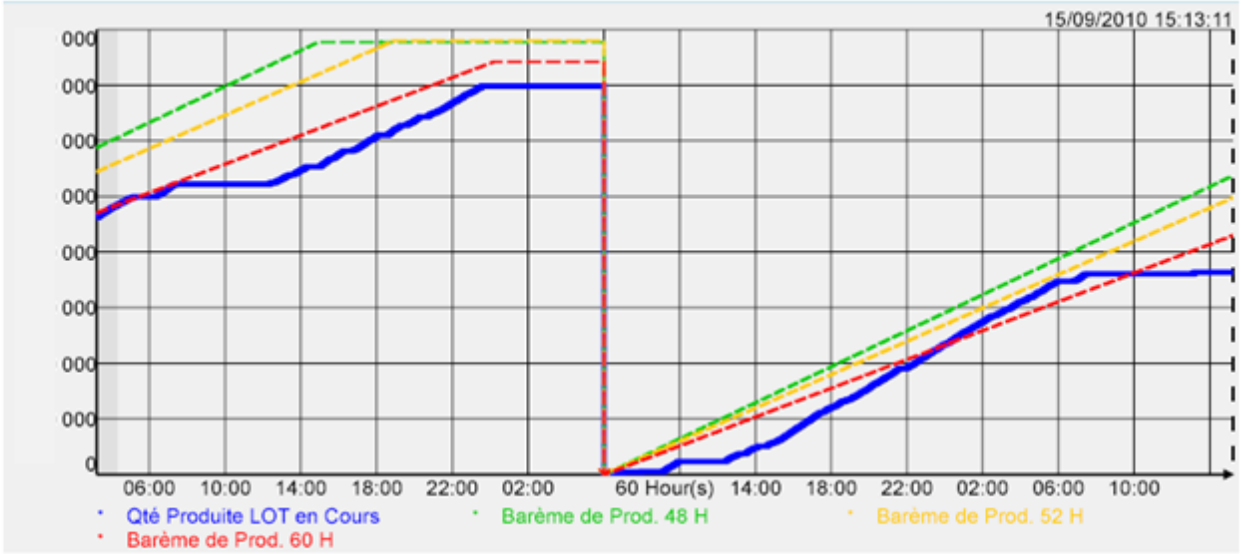
Business Objectives

- Increase effectiveness using Routine Process Monitoring
- Closely monitor and control the Manufacturing Process
- Anticipate problems
- Simplify and increase reliability

Solution –Filling Operation Dashboard







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119-DEF.POS.AIG.1er GROUPE | Def0119.REM8600A	4
188-CONTROLE ENTREE KEK | ddZSH9900D.MIR9900	3
226-POS.CARP.TROP BAS/HAUT | dZSL8618C_D.REM8600A	3

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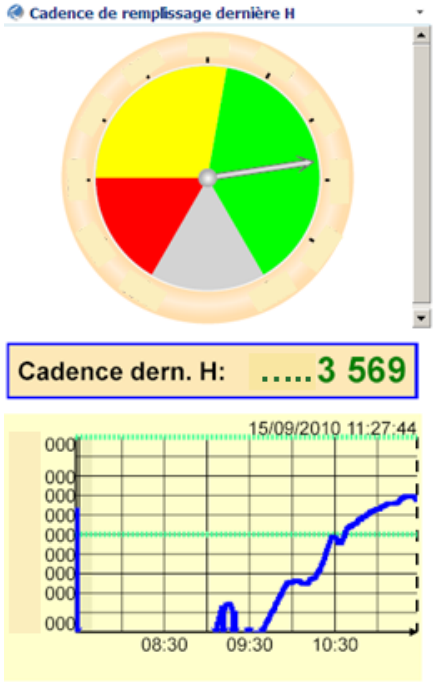
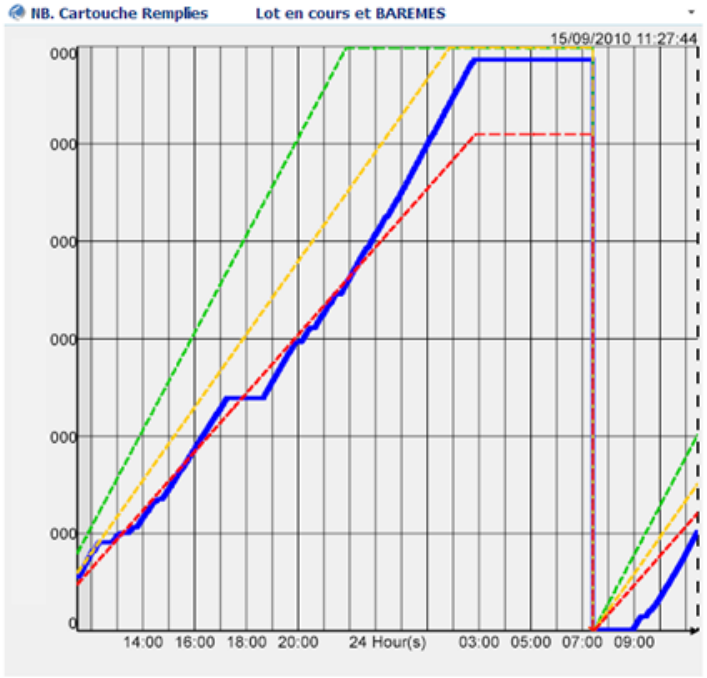
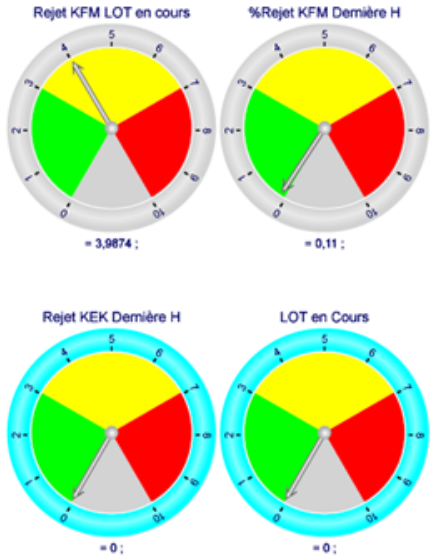
Maintenance Tech Dashboard







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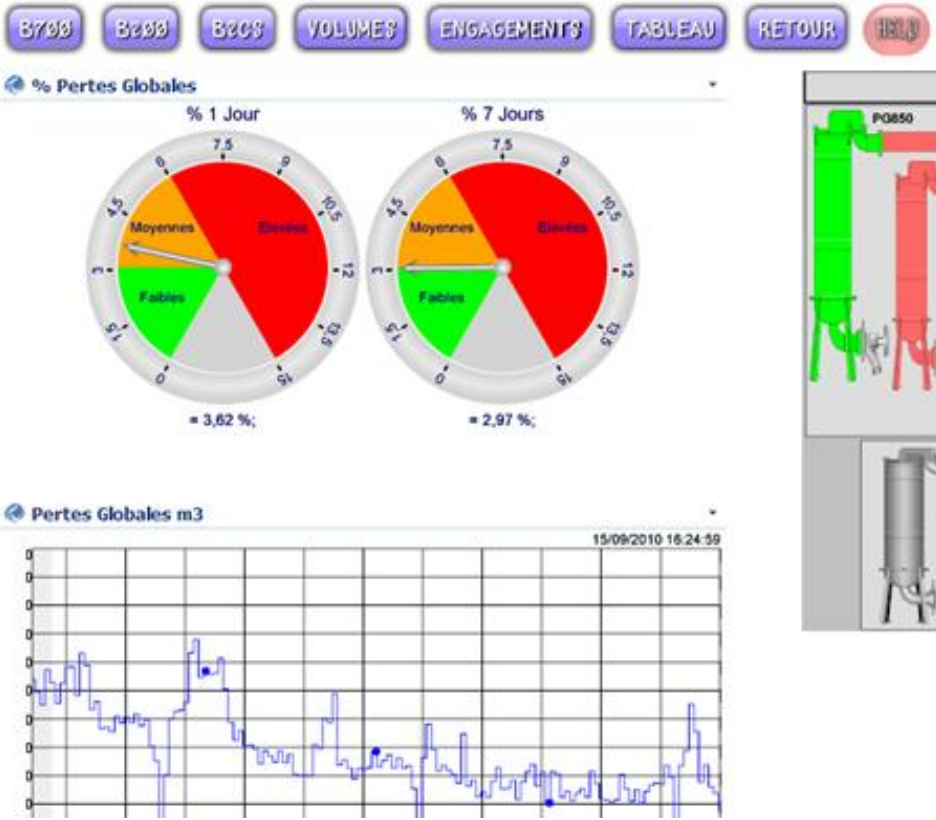
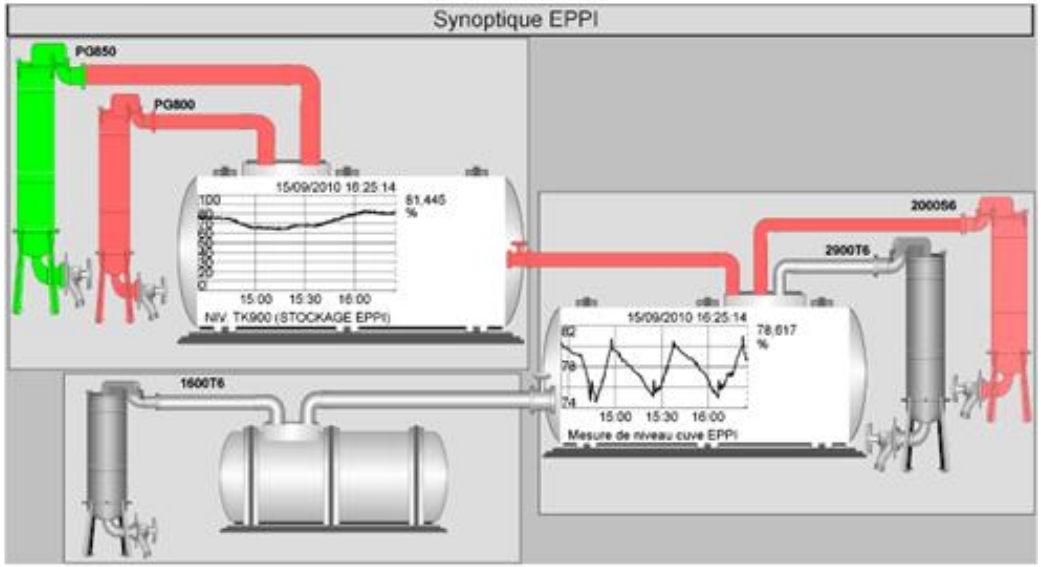
Benefits

- Site Productivity increase,
  However hard to quantify
- Users find it easy to browse for information
- Helps develop “data culture”
- Helps make decisions

Distilled Water Processes

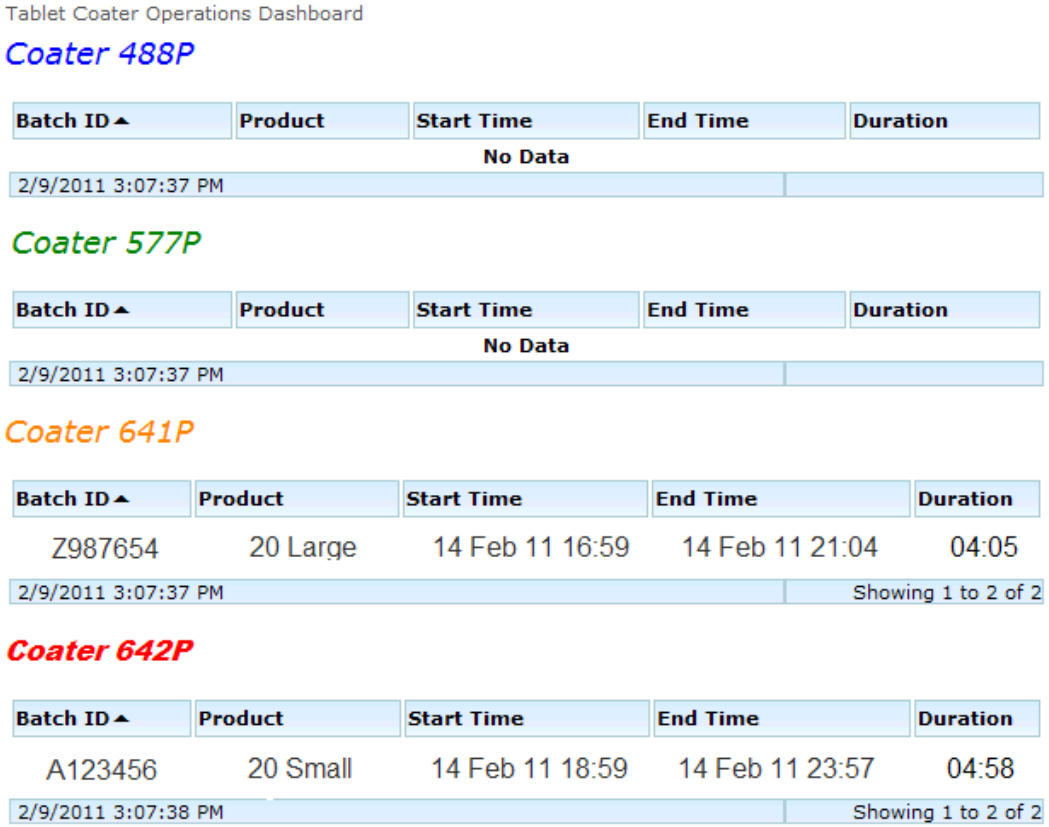




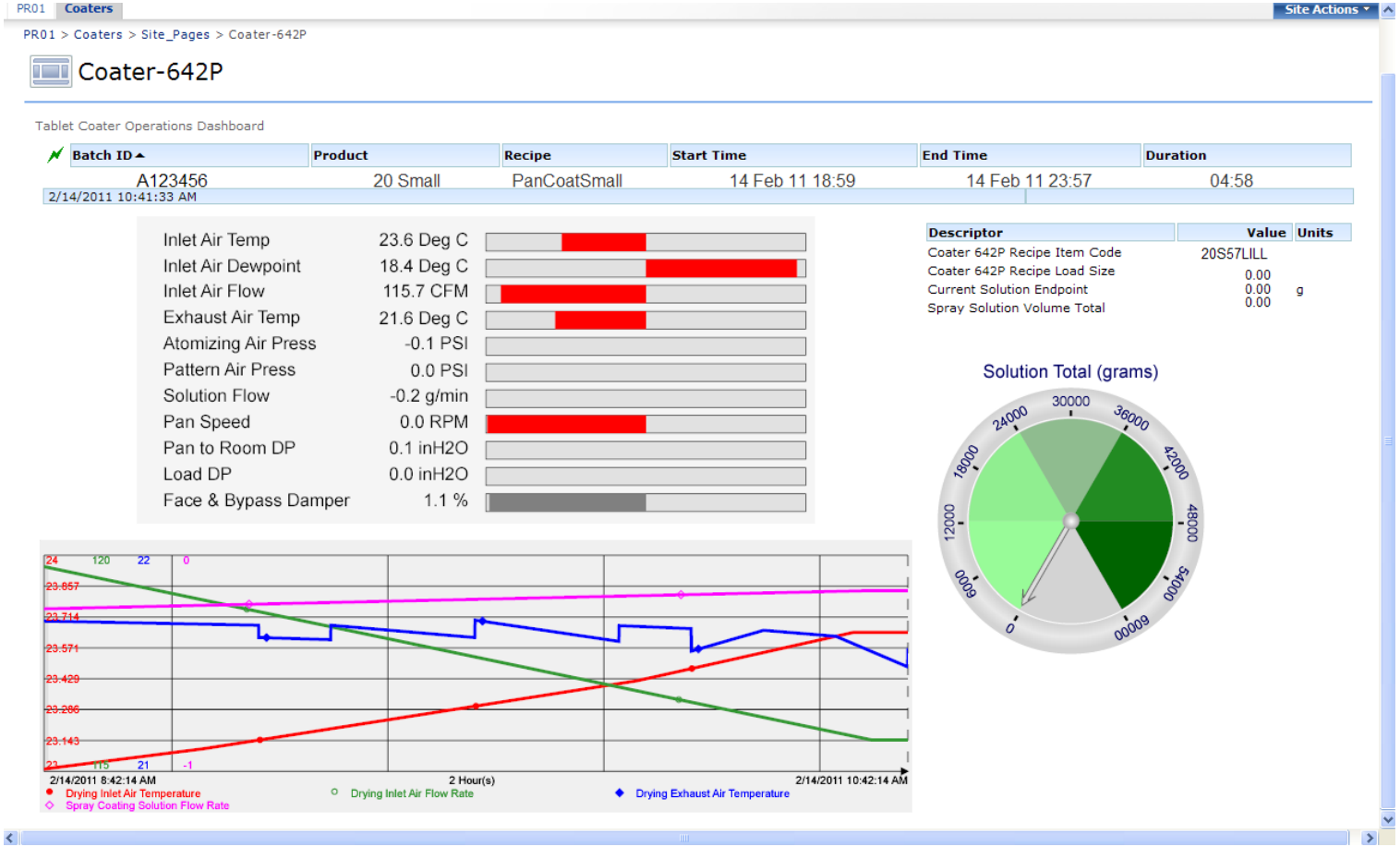
Benefits

- Significant decrease in WFI losses over 2 years (-70%)
- High Annual $$$,$$$ savings for a small investment
  - Natural Gas saved results in reduced CO_2 Emissions by 500 Tons/year
  - Electrical power reduced by 400MWH/year
  - City Water use reduced by 12 MGal/year
- PI ACE: Losses, equipment usage, production etc. are calculated in real time
- Monitoring is done Real-time and over 2 years

Tablet Coater Operations Dashboard



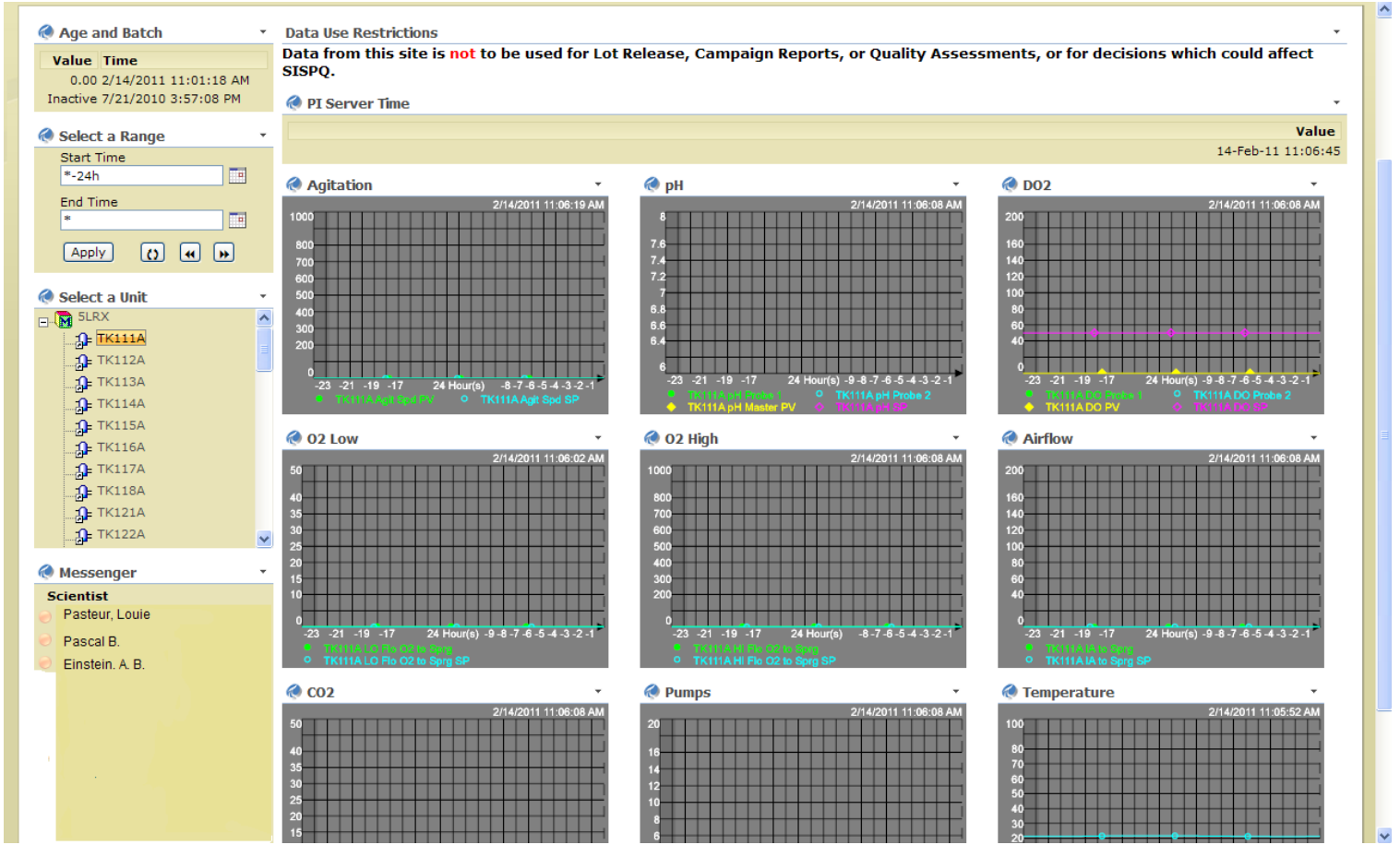
Tablet Coater Operations Dashboard



Benefits

- Site productivity increase,
  Again this is hard to quantify
- Less gowning to enter clean room to monitor machine
- Helps develop “data culture”
- Helps make decisions

BioTech Fermentation Development



Benefits

- Cost avoidance, no need to staff in off hours
  - Avoid adding 1-2 FTE per lab
- Remote access to data

Questions

- Contact Information:

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Thank you

Turning **insight** into **action**.