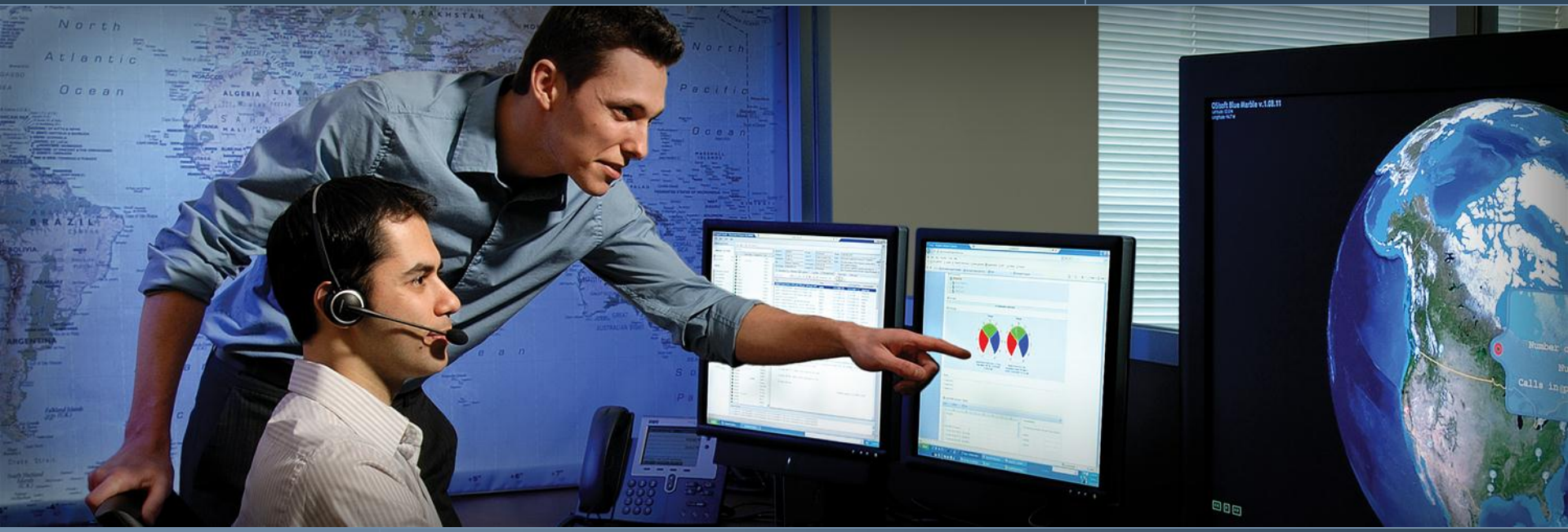
OSIsoft®

Regional Seminar Series



Value from PI Batch Integration

Robert Low
Systems Integrator
Lubrizol Corp

November 16, 2010

Empowering Business in Real Time.

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Regional Seminar Series

Business Value from PI Batch Integration

Robert Low

Systems Integrator

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Business Value from PI Batch Integration

The Challenge: Mining data has become burdensome yet highly valuable. PI Batch must be leveraged throughout the organization to find value in the data.

- *"In the past 4 years, Lubrizol has grown thru acquisition and new construction. We have recently used the EA to leverage a single Historian corporate wide. We now leverage PI Batch at most all locations to deliver data in a consistent manner."*

Customer Business Challenge	Solution	Customer Results / Benefits
• Provide the corporation with a standard for all operations data. • Reuse/cookie cutter implementation efforts to reduce cost or projects. • Improve quality, usage and effectiveness of these systems.	• Implement PI and SAP at all facilities. • Deliver Operations data on repeatable processes using PI Batch. • Batch data sources vary so use SMART connectors where available • PI ACE and BaGen are used in legacy systems	• Single Historian and Accounting system reduces support cost. • Delivery of data in single vehicle. • Cookie Cutter approach for rollout of sites • Support multiple requirements of Corporate versus Site Initiatives

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Business Value from PI Batch Integration

- The Lubrizol Corporation is an innovative specialty chemical company focused on improving the quality and performance of our customers' products in the global transportation, industrial and consumer markets. While we serve many different markets, similar technologies drive their growth. Our focus is on surface active chemistries, rheology modifiers, and polymer and film technologies. Our customers know and value our ability at solving their problems and our ability to provide them with differentiable performance claims that they use in marketing their products.
  - Chairman, President and Chief Executive Officer: James L. Hambrick
  - 2008 Revenues: $5.0 billion
  - Headquarters: Cleveland, Ohio USA
  - Number of Employees Worldwide: 6,800
- The Lubrizol Corporation is geographically diverse, with an extensive global manufacturing, supply chain, technical and commercial infrastructure. Lubrizol owns and operates manufacturing facilities in 18 countries, as well as sales and technical offices around the world.
- For additional information about The Lubrizol Corporation, visit our Web site at
  - www.lubrizol.com.

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Business Value from PI Batch Integration

- Lubrizol Additives (LZA)
  - The Lubrizol legacy was built upon the unprecedented pioneering of lubricant additives designed to improve the performance of fuels and lubricants for transportation and industry. Our engine oil additives offer an expansive range of applications, from cars to construction equipment, motorcycles to marine vessels. We also have a full range of gasoline, diesel and biofuel additives that can improve the performance of our customers' fuels. As the only additive company with a product line for all on- and off-road driveline applications, Lubrizol provides advanced technologies for use in transmission fluids, gear oil and farm tractor fluids. In addition, we offer performance additive packages and components for a wide range of industrial lubrication applications.

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Business Value from PI Batch Integration

- Lubrizol Advanced Materials (LZAM)
  - With an impressive history extending back to the 1870s (formerly BFGoodrich Performance Materials), Lubrizol Advanced Materials is a leading global producer of advanced specialty polymers, polymer-based additives and chemical additives.
  - Used in everyday consumer and industrial applications, our additives and ingredients can be found in everything you touch, from personal care products to pharmaceuticals, plastics technology to performance coatings. Businesses include: Estane® Engineered Polymers; Noveon® Consumer Specialties; Performance Coatings; and TempRite® Engineered Polymers

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Business Value from PI Batch Integration

- Corporate Structure
  - ABB Mod300, System 6 and 800xA
    - Oracle Based Batch Records (800xA)
    - OPC-DA
    - Chemflex Batch Tracking (System 6)
      - Text file interchange
  - RS Linx PLC Based sites
    - OPC-DA only
  - Legacy home grown DCS (DOW Mod)
    - Custom interfaces with no existing batch tracking

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Business Value from PI Batch Integration

- Emerson Delta V
  - Batch Historian configured with SQL Server
  - OSIsoft SMART connector provides interface
    - S88/S95 Support
    - Internationalization Support
      - » French
      - » German
      - » Chinese
    - Seamless Transfer of data
    - AF Structure filled in automatically
    - Real Time and historical recovery modes
  - Some sites did not purchase Batch Historian
  - OPC Alarm and Event Interface (OPCAE)

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Business Value from PI Batch Integration

- Legacy sites had little or no documentation on batch tracking
- No SQL or embedded data
- No support for String data (Batch ID or SAP PO)
- OPC Alarm/Event data needed (usually not included)
- Little or no documentation on batch logic

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Business Value from PI Batch Integration

- Challenges to Implementation
  - Why track “batches” or “Events”
  - Legacy project for non SMART connectors
  - Issues with logic batches
  - Transitions from PI BaGen based to SMART
  - Centralized support
  - Single Training Requirement
  - Yearly spend to remain unchanged (as much as possible)
  - Support site and corporate initiatives

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Business Value from PI Batch Integration

- Implementation
  - Decision was made standardized on OSIsoft PI Batch
  - Worked with the COE and Product Manager to set the path forward using OSIsoft/Microsoft solutions
  - Attempts were made to capture all Alarm and Event data and move to SQL Server in standard format
  - For ABB and other legacy systems, we chose to develop PI ACE code to drive AP (Active Points) tags for all batch

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Business Value from PI Batch Integration

- Identified interfaces required
  - PI OPC-HDA, DA and AE
  - SMART
  - Legacy and unsupported Interfaces/Operating Systems
  - Manual Entry Screens (Lab Data)
- Identified Corporate Resources
  - Project Mgr
  - Network Team
  - PI Team
  - COE (OSISoft)

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Business Value from PI Batch Integration

- Signed EA in 2007
- Software implemented:
  - PI Server 2010
  - PI Batch
  - PI Clients
    - PI ProcessBook 3.2, PI DataLink 4.1, PI BatchView 3.x
  - PI WebParts
  - Interfaces
    - OPC-DA, OPC-HDA, OPC-AE
    - Smart connectors
      - Emerson Delta V (SQL Server based)
      - ABB System 800xA (Oracle based)

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Business Value from PI Batch Integration

- Developed plan for duplicating existing batch tracking
  - PI ACE code to drive logic tags (AP tags for batch.ap, unit.ap sub.ap)
  - Developed Aliases for repeatable items like reactors/tanks
  - Pull historical batches from Chemflex sites using original interchange files
- Backfilled Historical batches from previous historian
- Turned on OSIsoft SMART connector at sites with Delta V Batch Historian
- Installed OPC-AE interfaces to capture alarm and events
  - PI String tags
  - PI ACE triggers to exports string tags to SQL Server tables
- Developed multiple client side tools to view data (see examples)
- Trained engineers to use batch based Reporting Tools

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Business Value from PI Batch Integration

Examples

- PI ProcessBook displays
  - Unit status
  - Raw Material Consumption
- Excel Reports
  - Unit report
  - Alias data tied to Operation/Phase time stamps
- Down Time tracking (.Net program with Excel Reporting)
- Emissions Monitoring via Batch records

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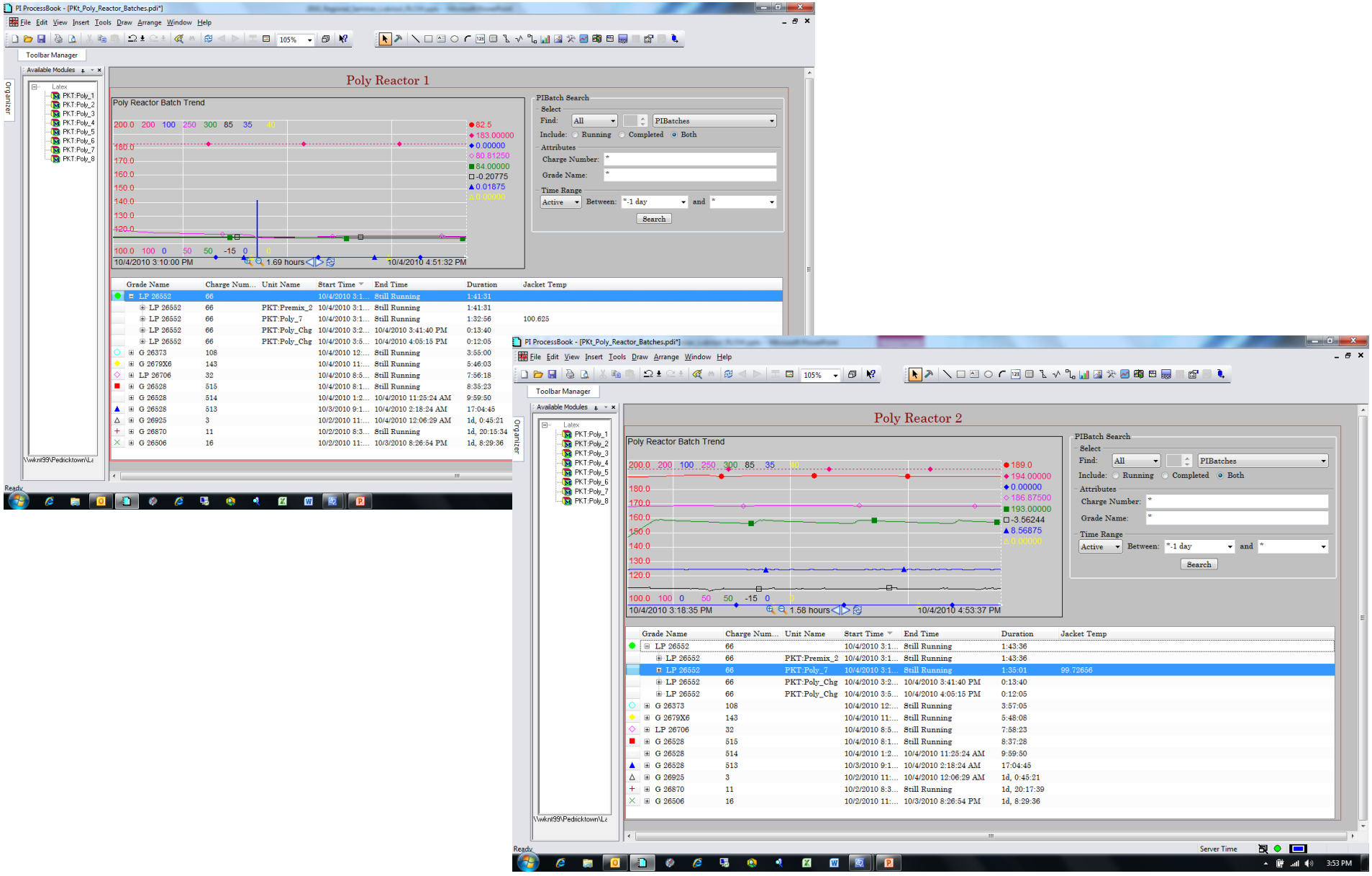
Business Value from PI Batch Integration



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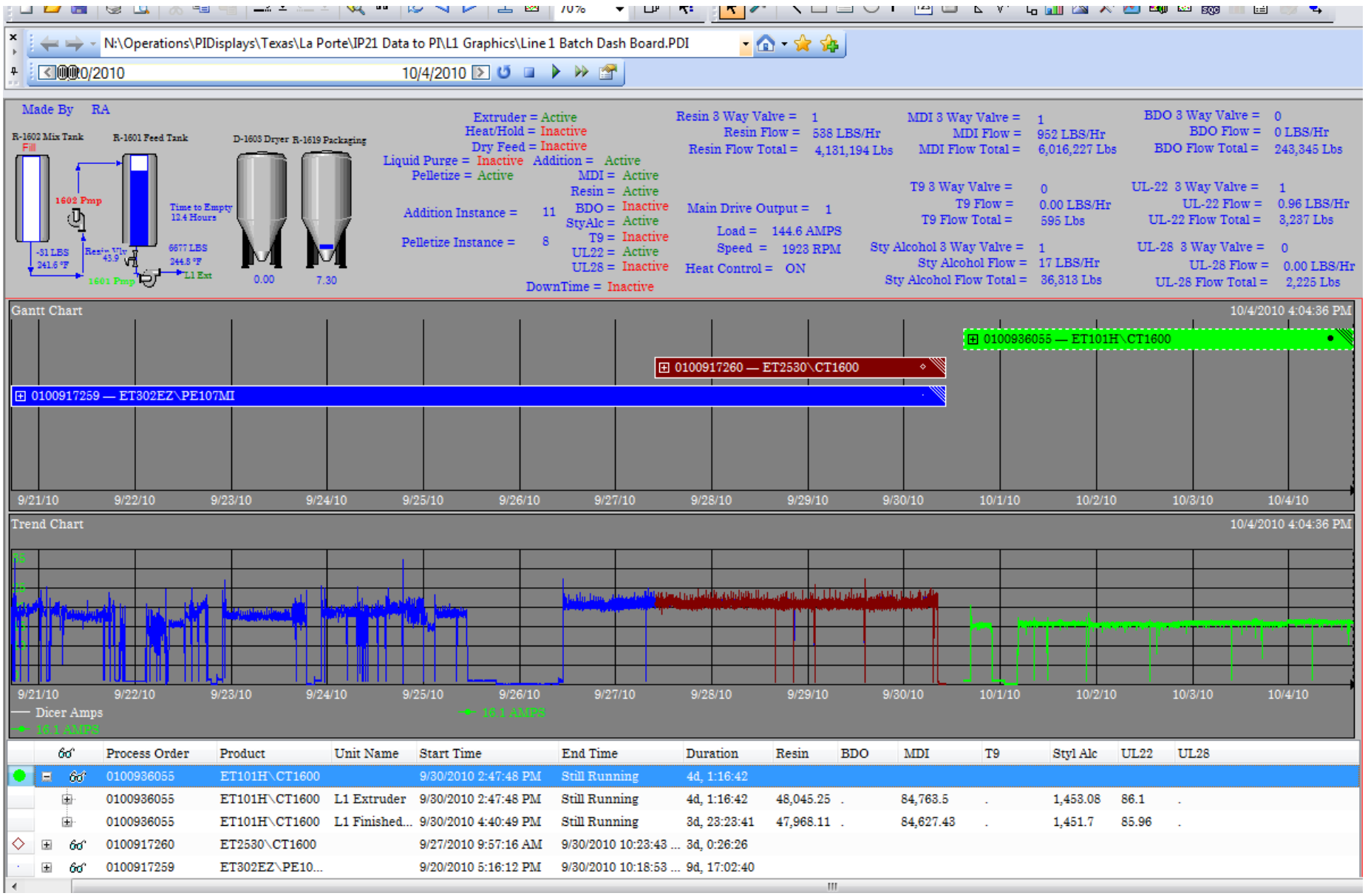

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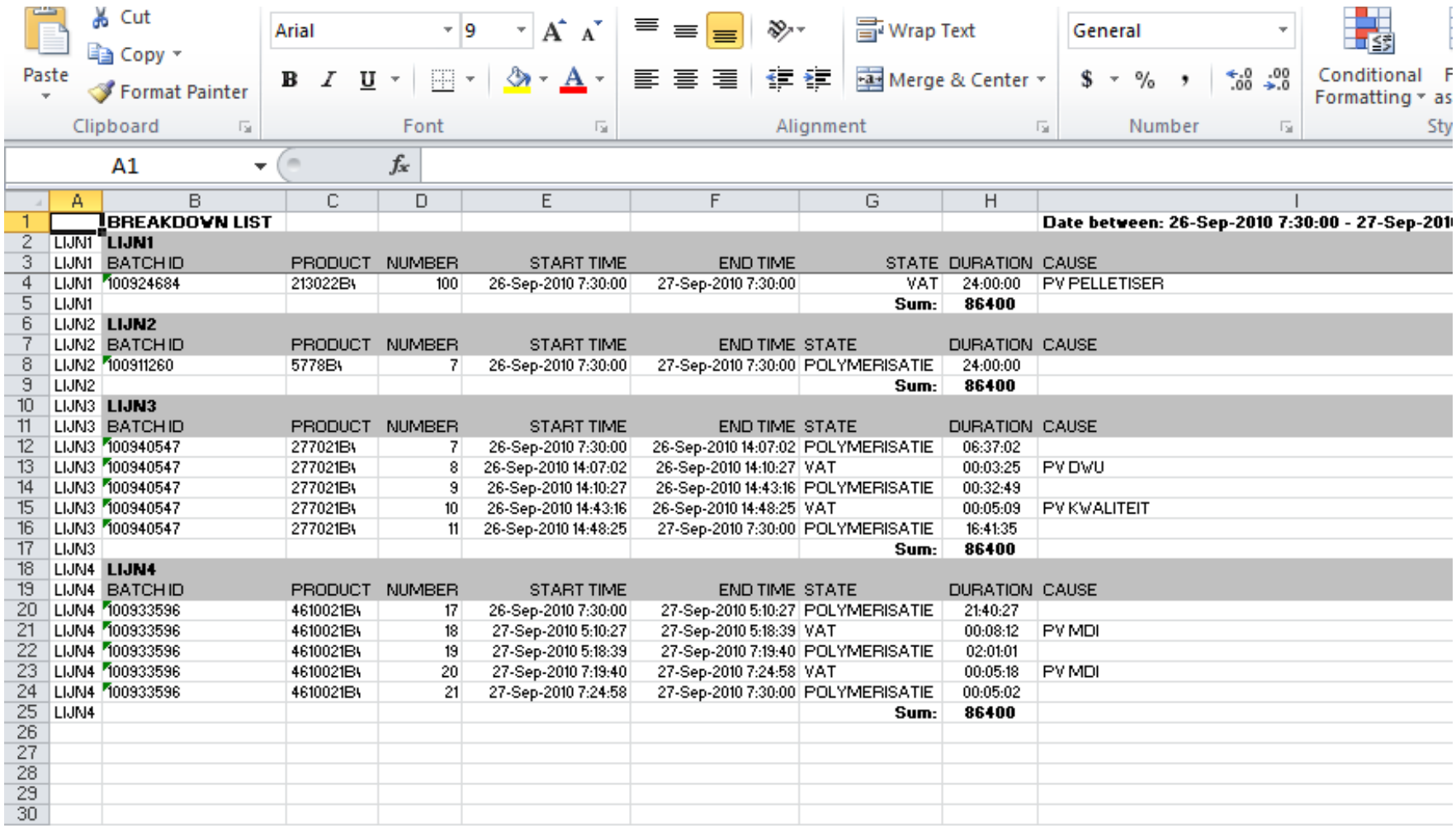

	A	B	C	D	E	F	G	H	I
1		**BREAKDOWN LIST**							**Date between: 26-Sep-2010 7:30:00 - 27-Sep-201**
2	LIJN1	**LIJN1**							
3	LIJN1	BATCH ID	PRODUCT	NUMBER	START TIME	END TIME	STATE	DURATION	CAUSE
4	LIJN1	100924684	213022B\	100	26-Sep-2010 7:30:00	27-Sep-2010 7:30:00	VAT	24:00:00	PV PELLETISER
5	LIJN1						**Sum:**	**86400**	
6	LIJN2	**LIJN2**							
7	LIJN2	BATCH ID	PRODUCT	NUMBER	START TIME	END TIME	STATE	DURATION	CAUSE
8	LIJN2	100911260	5778B\	7	26-Sep-2010 7:30:00	27-Sep-2010 7:30:00	POLYMERISATIE	24:00:00	
9	LIJN2						**Sum:**	**86400**	
10	LIJN3	**LIJN3**							
11	LIJN3	BATCH ID	PRODUCT	NUMBER	START TIME	END TIME	STATE	DURATION	CAUSE
12	LIJN3	100940547	277021B\	7	26-Sep-2010 7:30:00	26-Sep-2010 14:07:02	POLYMERISATIE	06:37:02	
13	LIJN3	100940547	277021B\	8	26-Sep-2010 14:07:02	26-Sep-2010 14:10:27	VAT	00:03:25	PV DWU
14	LIJN3	100940547	277021B\	9	26-Sep-2010 14:10:27	26-Sep-2010 14:43:16	POLYMERISATIE	00:32:49	
15	LIJN3	100940547	277021B\	10	26-Sep-2010 14:43:16	26-Sep-2010 14:48:25	VAT	00:05:09	PV KWALITEIT
16	LIJN3	100940547	277021B\	11	26-Sep-2010 14:48:25	27-Sep-2010 7:30:00	POLYMERISATIE	16:41:35	
17	LIJN3						**Sum:**	**86400**	
18	LIJN4	**LIJN4**							
19	LIJN4	BATCH ID	PRODUCT	NUMBER	START TIME	END TIME	STATE	DURATION	CAUSE
20	LIJN4	100933596	4610021B\	17	26-Sep-2010 7:30:00	27-Sep-2010 5:10:27	POLYMERISATIE	21:40:27	
21	LIJN4	100933596	4610021B\	18	27-Sep-2010 5:10:27	27-Sep-2010 5:18:39	VAT	00:08:12	PV MDI
22	LIJN4	100933596	4610021B\	19	27-Sep-2010 5:18:39	27-Sep-2010 7:19:40	POLYMERISATIE	02:01:01	
23	LIJN4	100933596	4610021B\	20	27-Sep-2010 7:19:40	27-Sep-2010 7:24:58	VAT	00:05:18	PV MDI
24	LIJN4	100933596	4610021B\	21	27-Sep-2010 7:24:58	27-Sep-2010 7:30:00	POLYMERISATIE	00:05:02	
25	LIJN4						**Sum:**	**86400**	
26									
27									
28									
29									
30									

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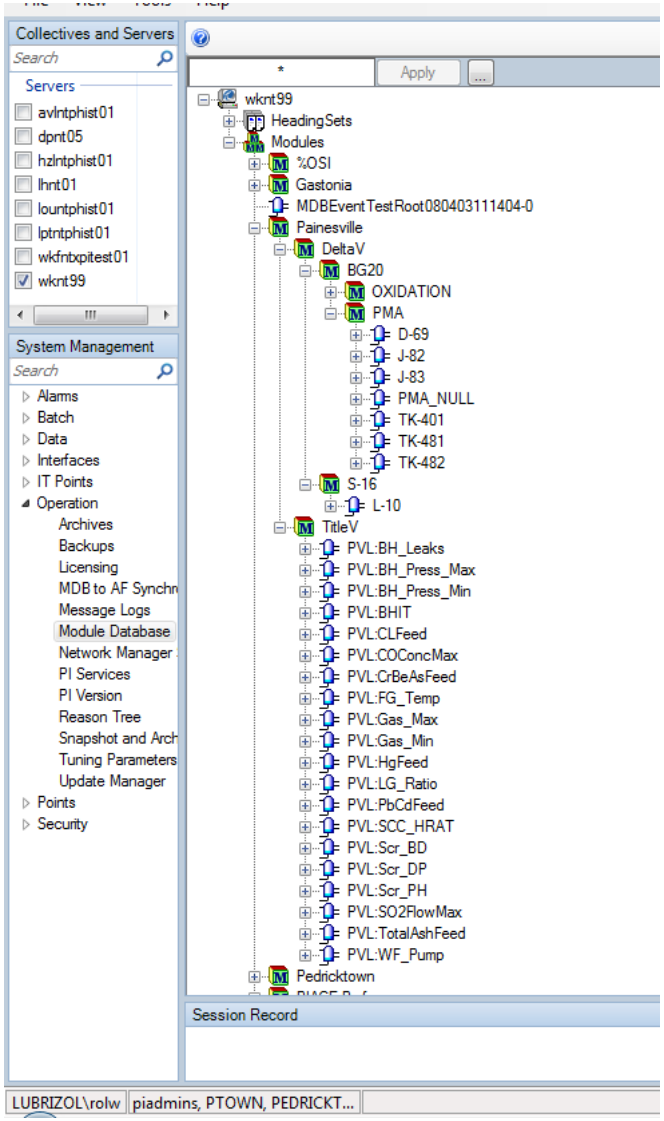

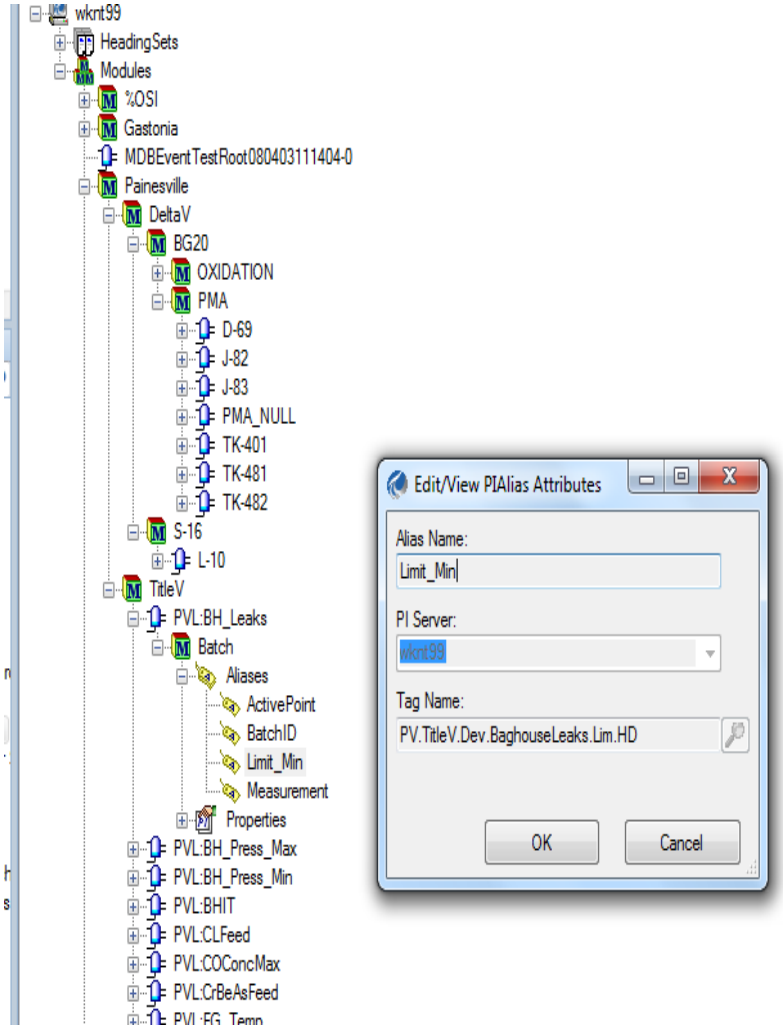

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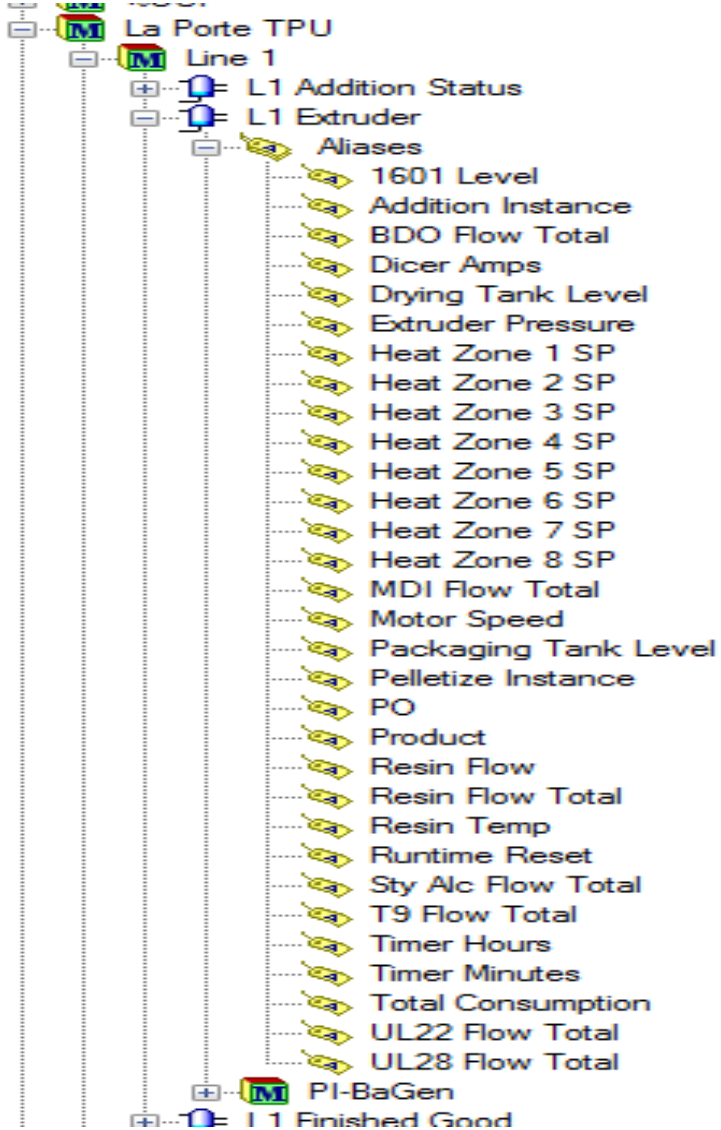

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Business Value from PI Batch Integration

New Ideas for PI Batch

- Moving to Event Frames when released
- Tracking more items with PI Batch records
- Show data when units running instead of showing all data
- Mining data via PI OLEDB Queries and PowerPivot with Excel 2010
- Single Excel File pulling data from PI System, SAP Biz Warehouse, other data (Weather station, Maintenance)

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Business Value from PI Batch Integration

Wrap Up

- Metrics for Success
  - Did we save any money or reduce cost?
  - Are we showing ROI?
  - Did we meet corporate and site objectives?
  - Can we determine the value of the EA?
  - Can we continue to meet/exceed or exceed requirements of the business?

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