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



Tips and Tricks for Manual Data Collection for the PI System

Presented by

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Agenda

- About Eastman Chemical
- Business Case
- System and User Challenges
- Reporting
- Benefits and Futures

Highly integrated, diverse businesses deliver significant value



Specialty Plastics



Coatings, Adhesives,
Specialty Polymers &
Inks

EASTMAN



Fibers

Global manufacturing (18 sites)

2010 sales \$5.8 billion

1993 Malcolm Baldrige Quality Award



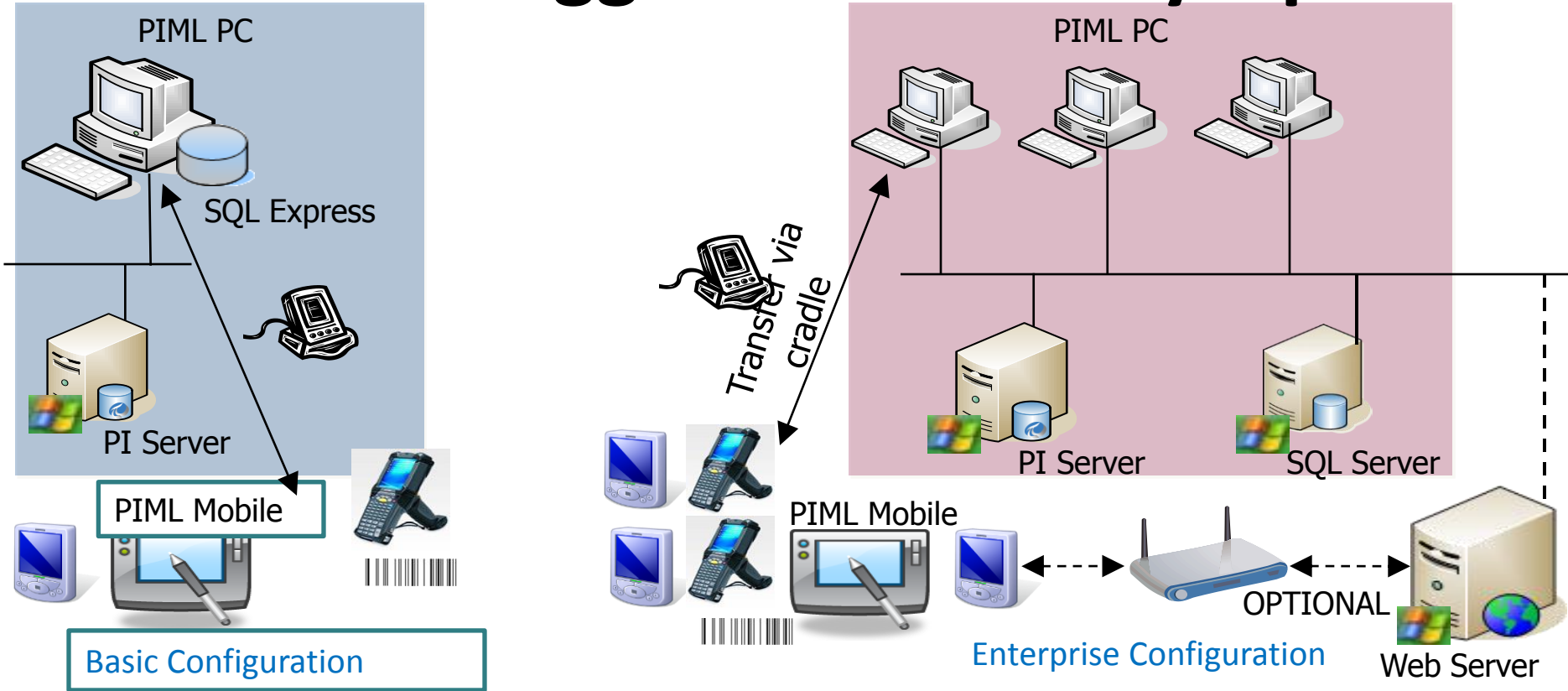
Performance Chemicals & Intermediates

Business Case

- Not all measurements wired to DCS
 - Plant inspections
 - Field gauges
 - Operator rounds
 - Title V Compliance and Environmental readings
 - Safety checks
- Past
 - Long time PI Manual Logger user (since 90s, and DOS days)
 - Windows XP, PI Manual Logger 1.x, Access DB (PAST)
- Migration project
 - New intrinsically safe devices in 2008
 - Windows 7, PI Manual Logger 2010 (2.x), SQL DB
 - PI Manual Logger Reporting



PI Manual Logger Connectivity Options



Migration tasks

- PI Manual Logger team handled the project start-up steps
 - **Installation instructions**
 - **Operator training**
 - **Migrate databases and settings to PI Manual Logger 2010**

Installation/Instructions/Migration Tool

PI-ML 2.X User Documentation

Installation and User Documentation Guide

Installation (choose eit

1. If using a HHT, foll
 - a. [PI-ML 2.X](#)
 - b. [PI-ML 2.X](#)
 - c. [PI-ML 2.X](#)
 - d. Installing l
 - i. W

ii. Windows Mobile 5 (Bartec) HHT

1. PI-ML Mobile Install:

Installing on first/initial HHT

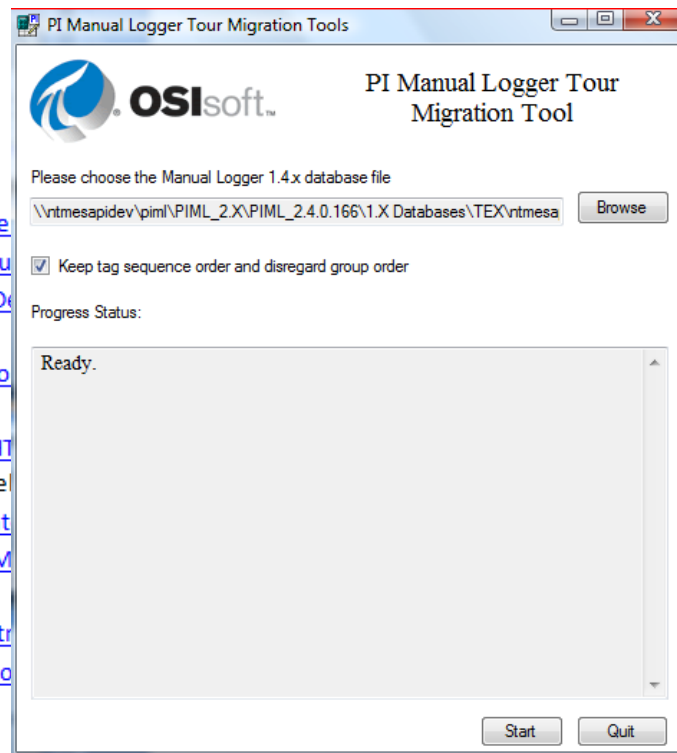
User

- [PI-ML 2.X - PI Manual Logger Use](#)
- [PI-ML 2.X - Client Users and Grou](#)
- [PI-ML 2.X - PI-ML Tour Options D](#)
- [PI-ML 2.X - How to Create View o](#)
- [PI-ML 2.X - Using the Device \(HHT](#)
- [PI-ML 2.X - Using Tour Run Maint](#)
- [PI-ML 2.X - Using the Windows M](#)
- [PI-ML 2.X - Using the Save Registr](#)
- [PI-ML 2.X - Setting up AutoSync](#)

2. [PI](#) [Ht](#)

2. If NOT using a HHT, follow

- a. [PI-ML 2.X - Installi](#)
- b. [PI-ML 2.X - Configi](#)



Key Personnel: Area PI System Coordinators

- PI System Coordinators are plant technicians who perform the configuration of departmental PI Systems:
 - PI System software installation on client PC
 - PI Security Management
 - Tour creation and modification
 - PI ProcessBook display and Excel spreadsheet management
 - Operator Training



Operator Training

- PI System Coordinators work with four crews (12hr shifts)
- Assign lead operators to train other operators



System Challenges

- Intrinsically Safe devices
- 2 US sites
 - Texas, Pennsylvania
- 3 overseas sites
 - Malaysia, Singapore, Netherlands
- 100 + Win7 desktops and laptops
- 26 PI Manual Logger 1.x databases conversion to PI Manual Logger 2010

Solution – What we use

- Bartec MC 9090
- Intermec 730 (being retired)
- Keep extra devices



Solution – Site Development

- Each PI Manual Logger Site – PI System Coordinator
 - PC and device software
 - Routes configuration and maintenance
- Smaller sites
 - 1 or 2 PI Manual Logger database
 - remote/phone support
- Largest site
 - 22 separate PI Manual Logger databases
 - On-site training for PI System Coordinators



By Physical Plant Site
By Department
By Control room layout

User Challenges

- Hand Held device cost
- Hand Held user interface changes
- Tag navigation
- Tag maintenance
- Collection scheduling during migration

Challenge – Handheld Purchase

- Intermec to Bartec expensive change, list price about \$8K
- Project ran for multiple years to allow for capital funds
- A total of 74 Bartec devices being used company wide & warranty of three years each

Challenge – Handheld User Interface

- Any user interface change is challenging
 - PI Manual Logger interface difference between 1.x to 2.x
 - Windows user interface changed from Intermecc to Bartec



Other Challenges

- Tag navigation on the mobile device
 - **OSIsoft has a PLI for this enhancement**
- Collection scheduling in PI Manual Logger 2010
 - **Eastman created a conversion template to convert to the new collection scheduling**

PI Manual Logger Mobile

PI Manual Logger 2:44

B-29 Title V Tour

ACID FEED RATE

1/22 POUNDS

3/3/11 2:00:00 PM

Zero/Span: 0..100

Low: High: Delta:
LoLo: HiHi:

Data Comment Group History L

Tag Go Value Time View Help

PI Manual Logger 2:47

B-29 Title V Tour

ACID FEED RATE

1/22 POUNDS

23

3/3

Zero

Low

LoLo

Go to Next

Go to Previous

Go to First

Go to Last

Go to Next Empty Tag

Scan a Barcode Ctrl+B

Add a comment

Data

Tag Go Value Time View Help

PI Manual Logger 2:48

B-29 Title V Tour

ACID FEED RATE

1/22 POUNDS

23

3/3

Zero

Low

LoLo

Use Previous Value

Use Previous Comment

Use Previous Value and Comment

Add Another Value

Set Group Status

Reverse digits

Restore/Clear Value

Feet-inch Conversion

Data

Tag Go Value Time View Help

100,000+ manual readings per day

26 sites (each site = one PI Manual Logger database)

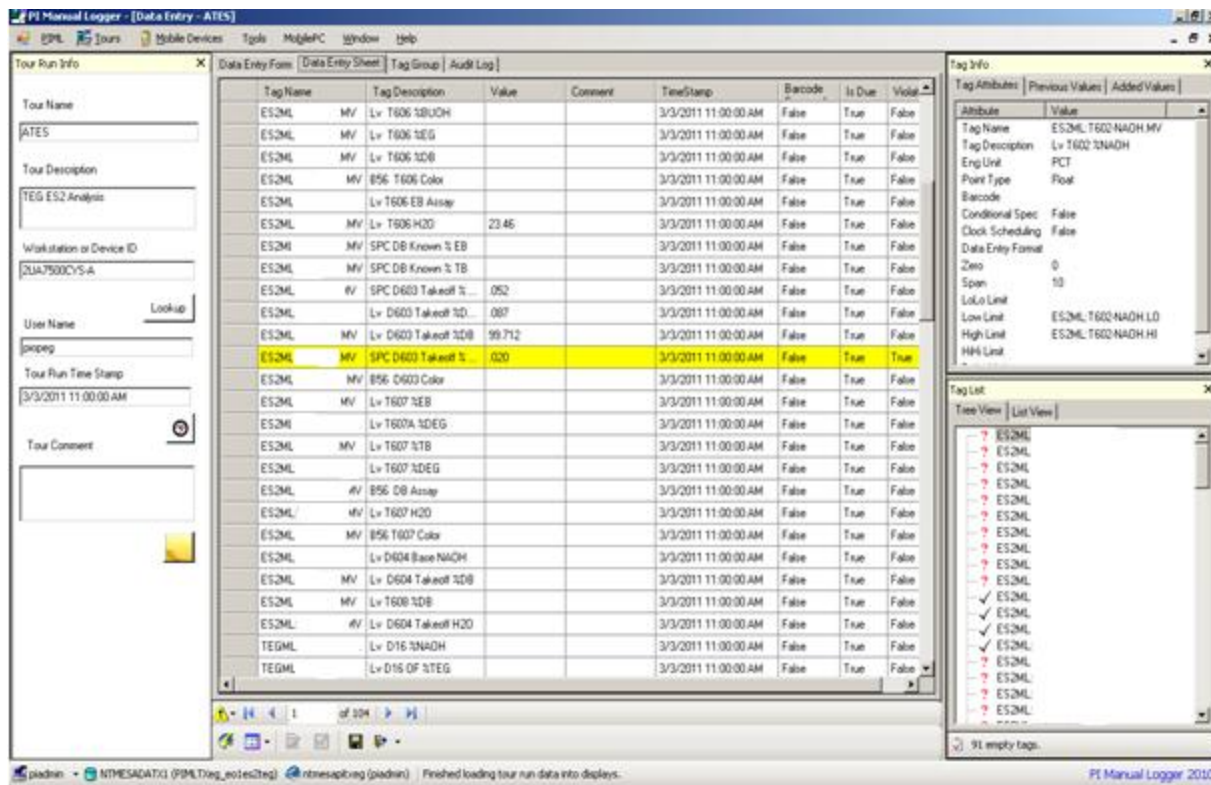
3 areas/site

500 points/area

About 3 times/day

100,000+ manually collected readings per day

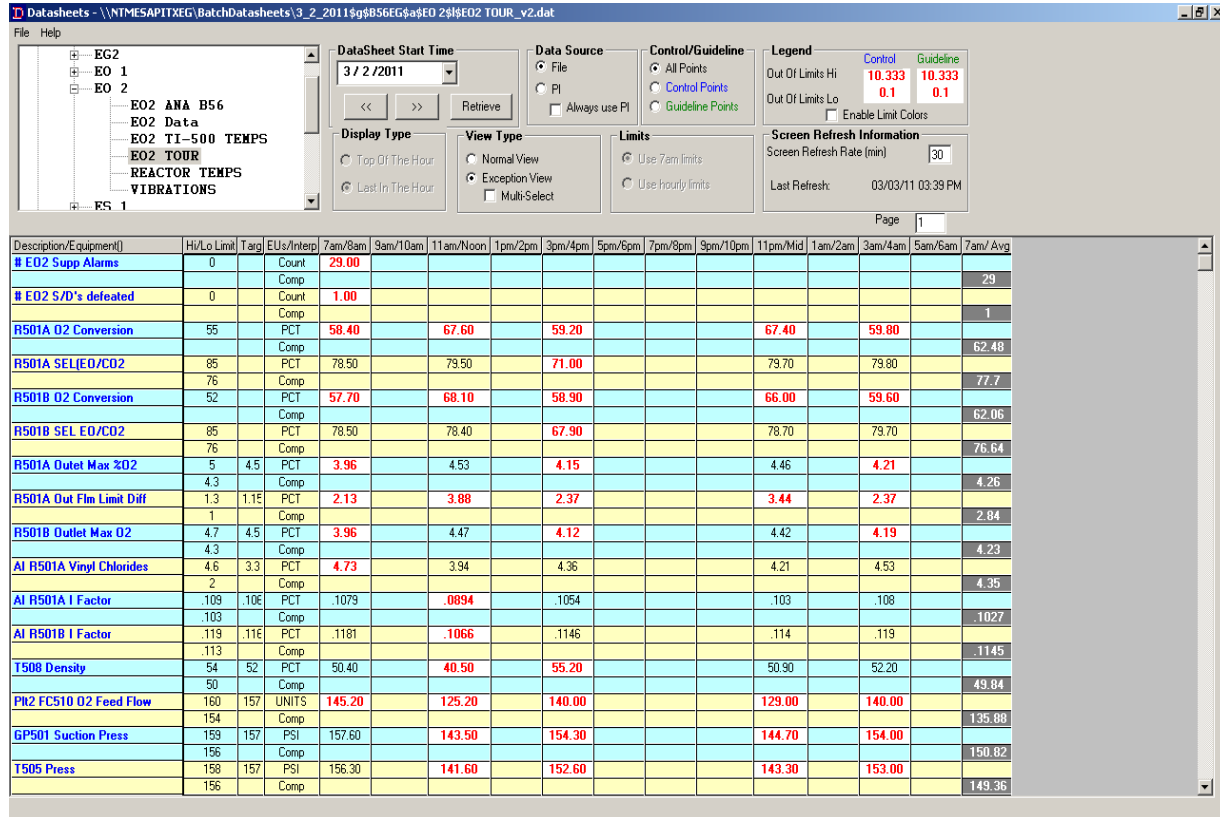
Reporting of PI Manual Logger Data



Reporting of PI Manual Logger Data



Reporting of PI Manual Logger Data



Reporting of PI Manual Logger Data

Client - Required Data Monitor Viewer

Required Data Monitor - PI Tag Viewer

Choose Tag Group

Select Tag Group

- All Groups
- PiloPI_interface
- Dumpster
- O2Letdown
- ES1_AVO
- Supersignoff
- EOEGDAILY
- TEGES_4HR_TITLEV
- EO2_4HR_TITLEV
- EO2_AVO

Retrieve Tags

Server Information

PI Server: NTMESAPITXEG

PIMS Server: NTMESADATX1

PIMS DB Name: PIMSTXEG

Group Tag Information

Group Name: All Groups

Total Tags: 59

Total Violations: 1

Total InActive: 15

Alarm Tag: No Alarm Tag For This Group

Help RDM Alarms Report

Exit

Group Tag View

☒ View All Tags
 ☐ View Tags In Violation
 ☐ View Inactive Tags

Continuous Monitoring

☐ Enable Monitoring

Tag List

Group	Tag Name	Alarm Status	Active Status	Last Rec Value	Last Rec Time
EO2_4HR_TITLEV	\\ntmesapitxeg.MV	Clear	Active	5.3	3/3/2011 11:00:00 AM
EO2_AVO	\\ntmesapitxeg.DV	Clear	Active	NO	3/3/2011 7:00:00 AM
EO2_AVO	\\ntmesapitxeg.MV	Clear	Active	0	3/3/2011 7:00:00 AM
EO2_AVO	\\ntmesapitxeg.MV	Alarm	Active	0	3/3/2011 11:00:00 AM
EO1_AVO	\\ntmesapitxeg.MV	Clear	Active	0	3/3/2011 7:00:00 AM
EO1_AVO	\\ntmesapitxeg.DV	Clear	Active	NO	3/3/2011 7:00:00 AM
EO1_12HR_TITLEV	\\ntmesapitxeg.MV	Clear	Active	26.0	3/3/2011 7:00:00 AM
EO1_12HR_TITLEV	\\ntmesapitxeg.MV	Clear	Active	9.386	3/3/2011 7:00:00 AM
EO2_12HR_TITLEV	\\ntmesapitxeg.MV	Clear	Active	9.9	3/3/2011 7:00:00 AM
RLink_Heartbeat	\\ntmesapitxeg.SV	Clear	Active	ALIVE & KICK	3/3/2011 2:30:00 PM
TK_161_pH	\\ntmesapitxeg.MV	Clear	Active	2.39	3/1/2011 7:00:00 PM

Reporting of PI Manual Logger Data

PIMS SPC Alarm Display

File Help

Alarm Citation Configuration

☒ Activate Automatic Citation Notification

Screen Refresh Rate (sec):

V 9.10.0

☒ Show Control Chart(s) ☐ Collapse Display

☒ Use Single Instance of PI ProcessBook

Last Refresh: 3/3/2011 3:41:26 PM

Filter

Priority

Type

New Citations

Time	RuleId	Cit.Id	Area	Strategy	Rule	Sort Date

Existing Citations

Time	RuleId	Cit.Id	Area	Strategy	Rule
3/3/2011 11:07:14 AM	37	82848	EG2	D-514 Takeoff % H2O	D-514 Takeoff % H2O < LCL
3/3/2011 11:07:14 AM	45	82847	EG2	D-516 Takeoff % TEG	D-516 Takeoff % TEG < LCL
3/3/2011 3:59:38 AM	25	82830	E02	R-501 Delta Flamm Limit - Inlet	R-501 Inlet Delta Flamm > UCL
3/3/2011 3:59:38 AM	24	82829	E02	R-501A&B % C2H4	R-501 Inlet % C2H4 < LCL
3/2/2011 11:30:16 PM	25	82819	E02	R-501 Delta Flamm Limit - Inlet	R-501 Inlet Delta Flamm > UCL
3/2/2011 11:30:16 PM	32	82818	E02	E0-2 Loop CO2	E0-2 Loop CO2 < LCL
3/2/2011 10:04:42 PM	307	82817	E02 Title V	Potential Title V Non Compliance	U-501 Glycols >6.5 %
3/2/2011 10:04:42 PM	285	82816	E02	U-501 Glycols >UCL	U-501 Glycols >UCL
3/2/2011 8:31:05 PM	350	82808	E02 Title V	E02 Required Data	E02 4hr. Required Data Missing
3/2/2011 8:10:52 PM	437	82804	E02	E0-2 Reactor Inlet N2 Plus AR	Reactor Inlet N2 Plus Ar Greater Than Upper
3/2/2011 6:08:22 PM	290	82803	E02 Title V	D-507 Ava Strm Usage	D-507 Strm Usage Low

Reporting of PI Manual Logger Data

PIMS Reports.xls [Read-Only] [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer Add-Ins Get Started PI

Clipboard Font Alignment Number Styles Cells Editing

CA:\Program Files\PIPC\PIMSRepo

A5 82855

Alarm History Report Time: 3/3/2011 3:42 PM

CitationID	Date/Time of Violation	Date/Time of Response	RuleID	Rule Description	StrategyID	Strategy Description	Cause Description
82855	3/3/2011	3/3/2011	5	R-1 I-factor >UCL	4	R1 I Factor	outside temp change
82854	3/3/2011	3/3/2011	88	D-20 Takeoff % DEG 8pt Run LOW	40	D-20 Takeoff % DEG	< LCL or 8pt Run LOW
82853	3/3/2011	3/3/2011	86	D-20 Takeoff % DEG < LCL	40	D-20 Takeoff % DEG	< LCL or 8pt Run LOW
82852	3/3/2011	3/3/2011	118	D-603 Takeoff % TB < LCL	50	D-603 Takeoff % TB	< LCL or 8pt Run LOW
82851	3/3/2011	3/3/2011	25	R-501 Inlet Delta Flamm > UCL	17	R-501 Delta Flamm Limit - Inlet	Other Cause
82850	3/3/2011	3/3/2011	307	U-501 Glycols >6.5 %	132	Potential Title V Non Compliance	Other Cause
82849	3/3/2011	3/3/2011	285	U-501 Glycols >UCL	120	U-501 Glycols >UCL	Result High due to D-512 mainten
82848	3/3/2011	3/3/2011	37	D-514 Takeoff % H2O < LCL	2	D-514 Takeoff % H2O	
82847	3/3/2011	3/3/2011	45	D-516 Takeoff % TEG < LCL	24	D-516 Takeoff % TEG	
82846	3/3/2011	3/3/2011	437	Reactor Inlet N2 Plus Ar Greater Than Upper Control	164	EO-2 Reactor Inlet N2 Plus AR	N2 Plus Ar Greater Than Upper C
82845	3/3/2011	3/3/2011	438	Reactor Inlet N2 Plus Ar Less Than Lower Control	164	EO-2 Reactor Inlet N2 Plus AR	N2 Plus Ar Less Than Lower Cont
82844	3/3/2011	3/3/2011	25	R-501 Inlet Delta Flamm > UCL	17	R-501 Delta Flamm Limit - Inlet	Other Cause
82843	3/3/2011	3/3/2011	90	D-20 Takeoff % TTG < LCL	41	D-20 Takeoff % TTG	< LCL or 8pt Run LOW
82842	3/3/2011	3/3/2011	94	D-19 Takeoff % TEG < LCL	42	D-19 Takeoff % TEG	No
82841	3/3/2011	3/3/2011	118	D-603 Takeoff % TB < LCL	50	D-603 Takeoff % TB	< LCL or 8pt Run LOW
82840	3/3/2011	3/3/2011	106	D-602 Takeoff % BuOH < LCL	47	D-602 Takeoff % BuOH	< LCL or 8pt Run LOW
82839	3/3/2011	3/3/2011	374	EO2 AVO Check Incomplete	132	Potential Title V Non Compliance	Notify Supervision of Potential Titl
82838	3/3/2011	3/3/2011	350	EO2 4hr. Required Data Missing	136	EO2 Required Data	Readings Sent Late
82837	3/3/2011	3/3/2011	414	U-1 Glycols > 7.5	151	U-1 Glycols >UCL	Result High due to D-512 mainten
82836	3/3/2011	3/3/2011	260	T-11A Nuclear Delta High	95	T-11A Nuclear Delta Level High	Other Problem
82835	3/3/2011	3/3/2011	49	D-516 Takeoff % EG < LCL	25	D-516 Takeoff % EG	< LCL or 8 pt run below target
82834	3/3/2011	3/3/2011	45	D-516 Takeoff % TEG < LCL	24	D-516 Takeoff % TEG	Other Cause
82833	3/3/2011	3/3/2011	75	D-516 Overflow % DEG > UCL	33	D-516 Overflow % DEG	Other Cause
82832	3/3/2011	3/3/2011	41	D-514 Takeoff % DEG < LCL	23	D-514 Takeoff % DEG	Other Cause
82831	3/3/2011	3/3/2011	450	D-514 Reflux Ratio NOT in Cascade	168	D-514 Reflux Ratio Mode Check	Other Cause
82830	3/3/2011	3/3/2011	25	R-501 Inlet Delta Flamm > UCL	17	R-501 Delta Flamm Limit - Inlet	
82829	3/3/2011	3/3/2011	24	R-501 Inlet % C2H4 < LCL	37	R-501 A&B % C2H4	

Settings Alarm History Report Citation One Pager Citation Criteria Report RDM Alarms Report Process Change f

Ready Calculate 100%

User Likes

- PI Manual Logger 2010 automatic upload
 - (AutoSync)
- Easy switching between multiple SQL servers
- Easy switching between PI Servers
- Tour Scheduling
- New PI Manual Logger Mobile Interface

Tangible Benefits

- Automatic upload to the PI System via docking station (AutoSync)
- Manually entered measurements combined w/DCS and other data for analysis
- Reporting - PI ProcessBook and Excel spreadsheets

Intangible Benefits

- Increasing productivity
- Plant inspections during PI Manual Logger routes promotes safety within the plant

Future Plans and Next Steps

- PI Manual Logger 2010 R2 beta testing
- Wireless and PI Manual Logger web services

Questions

- Contact Steve at csnunley@eastman.com
- Contact David at djohnstn@eastman.com



Thank you

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