

RtPM in an Integrated Pulp and Paper Mill

MeadWestvaco Corporation
Escanaba Michigan

Diane Bricco

Overview

- History of OSIsoft and MeadWestvaco Escanaba
- Our Current Installation
- PI/RtPM Tools
- How we Share Information
- Managing PI/RtPM
- Questions

Escanaba Pulp and Paper Company

- Founded in 1912
- Located in Michigan's Upper Peninsula
- 20 Tons Pulp Per Day
- 40 Employees
- 1958 - Escanaba Division of MEAD Corporation
- 2002 merge created MeadWestvaco

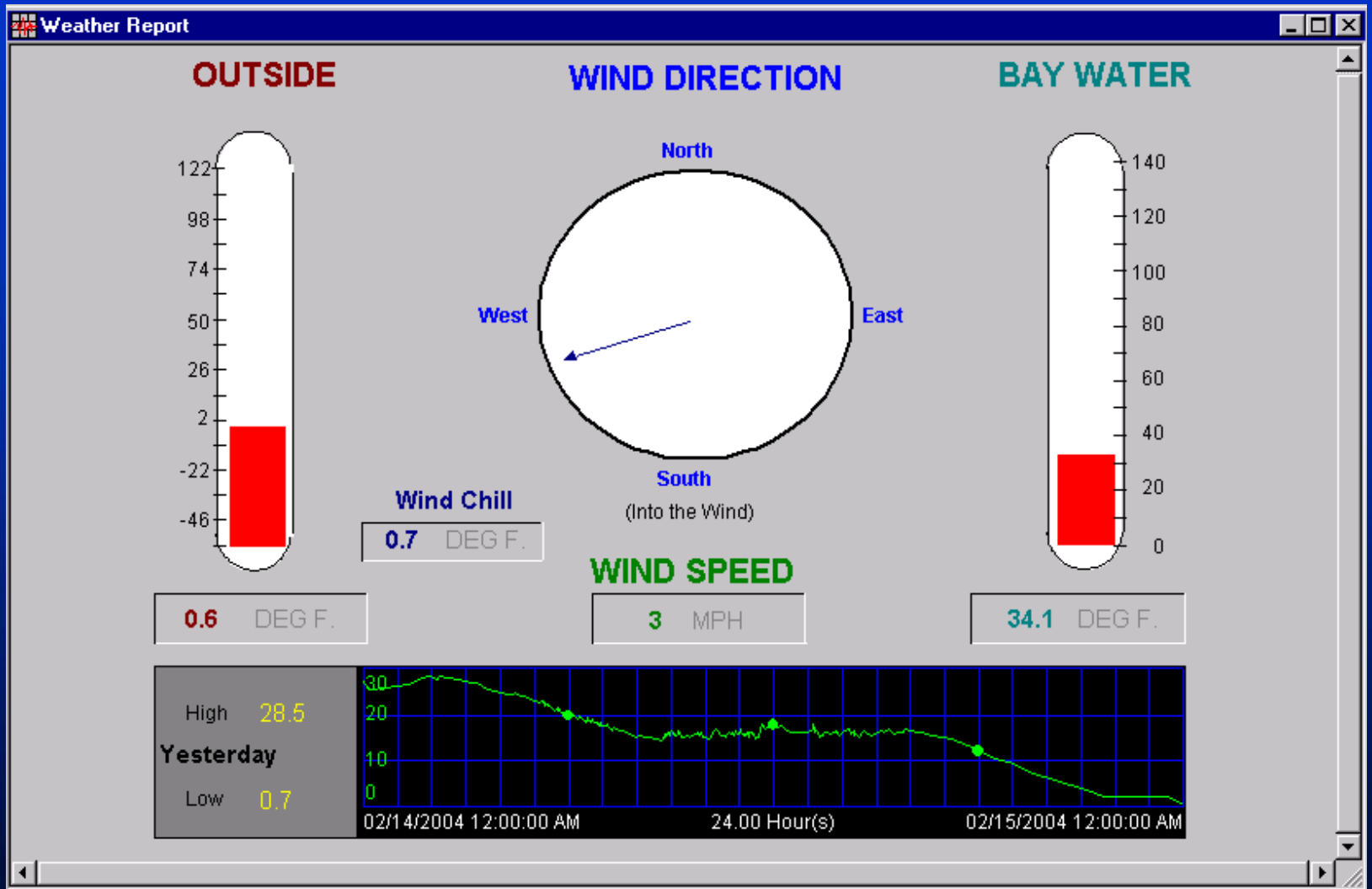
MeadWestvaco - Escanaba

- 1300 employees
- Average 1902 tons of Coated Paper / Day
- Kraft Mill
- Refiner Mechanical Pulp Mill
- 3 Paper Machines
- 667,000 acres of woodlands
- Plant/Distribute 1.5 million seedlings yearly



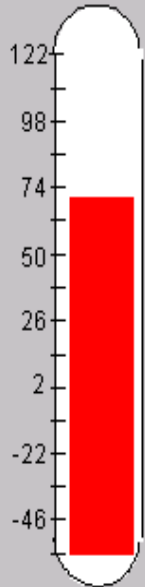






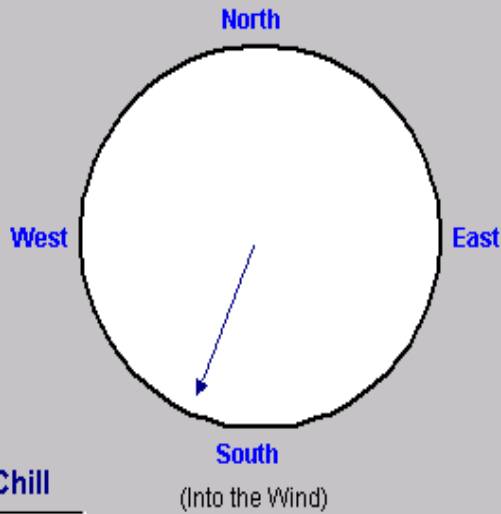


OUTSIDE



72.0 DEG F.

WIND DIRECTION



Wind Chill

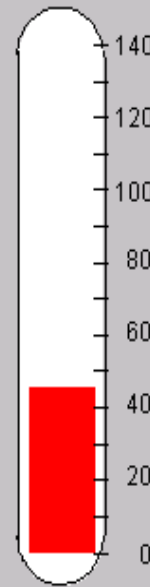
71.8 DEG F.

(Into the Wind)

WIND SPEED

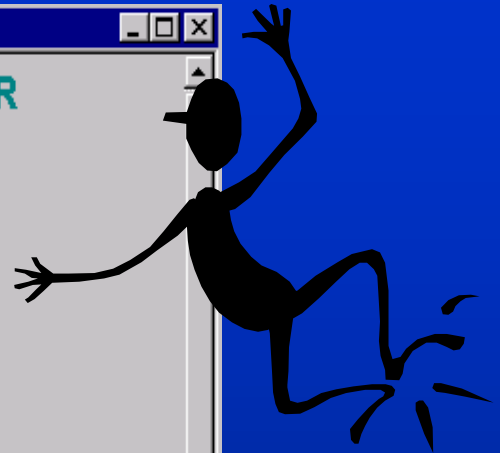
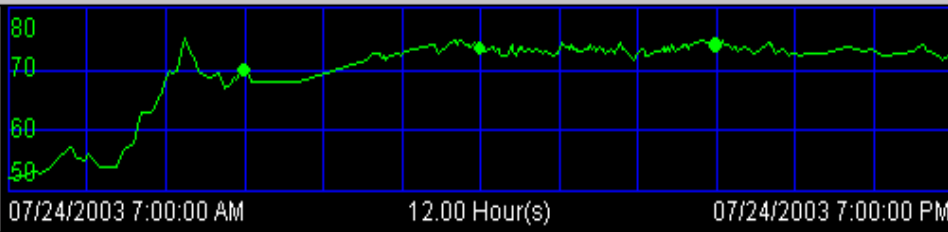
10 MPH

BAY WATER



46.6 DEG F.

High 75.1
Yesterday
Low 51.5





MeadWestvaco Technology

- ERP / SAP implemented in 2001
- Desktop/Server Standard Architectures
- Manufacturing and Execution Systems
 - Product Tracking
 - Quality Tracking
 - OSISoft's RtPM

OIL Systems, Inc.

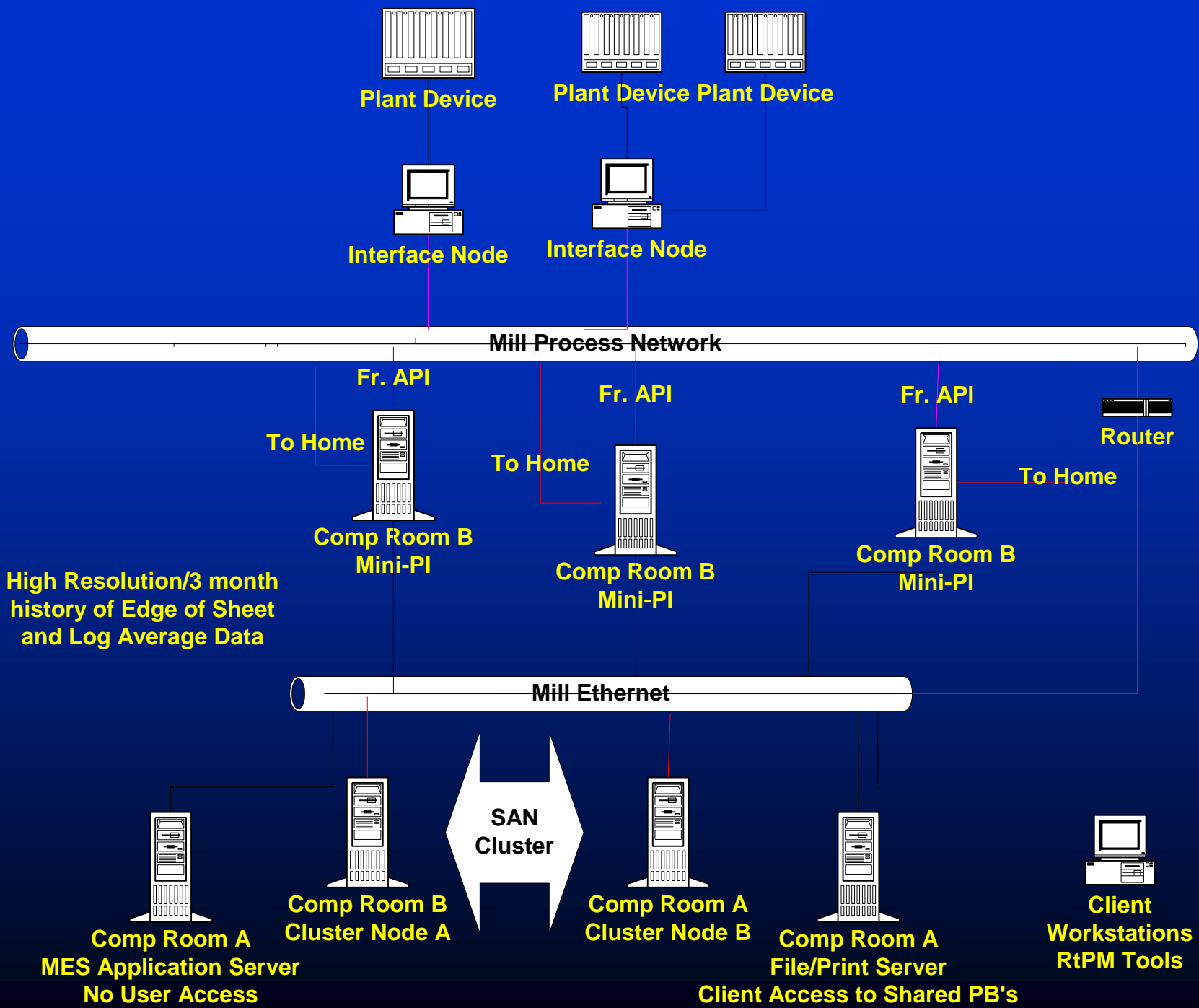
- System number 25 implemented in 1988
- One of the First P&P installation of PI
- Initial Platform - VAX/VMS
- VT340 Trend Viewer/Report Writer
- Extensive Training to all Levels
- Approximately 300 Users

OSI Software Inc.

- PI 1.x - 2.x
- 1 VAX/VMS Home Node
- 4 VAX/VMS PINet Nodes
- 3 VAX/VMS Mini-PI Nodes
- Interfaces to 10 different types of devices
 - OSI Software Provided or In-House

OSIsoft PI/RtPM

- PI 3.3
- Windows 2000 Clustered Home Node
- 3 Windows 2000 Mini-PI nodes
- 10 interface nodes
- 11 types of equipment interfaces
- 41 interface instances
- 100,000+ Points / 600+ Users



Plant Device

Plant Device Plant Device

Interface Node

Interface Node

Mill Process Network

Fr. API

Fr. API

Fr. API

To Home

To Home

To Home

Router

**Comp Room B
Mini-PI**

**Comp Room B
Mini-PI**

**Comp Room B
Mini-PI**

**High Resolution/3 month
history of Edge of Sheet
and Log Average Data**

Mill Ethernet

**SAN
Cluster**

**Comp Room A
MES Application Server
No User Access**

**Comp Room B
Cluster Node A**

**Comp Room A
Cluster Node B**

**Comp Room A
File/Print Server
Client Access to Shared PB's**

**Client
Workstations
RtPM Tools**

Standard Interfaces

- Allen Bradley OPC and RSLinx
- MxOpen
- ABB 1190 DIU and 1180 MicroLink
- FoxBoro I/A and ACCP
- Bale Scale
- Ulma Defect Detection
- PI-PerfMon/PI-IntStatus/PI-to-PI

Other

- C++
- Visual Basic
- Excel, DataLink & VBA
- 42 ACE modules / 136 Contexts

PI/RtPM Tools

- PI-ProcessBook / PI-DataLink
- PI-Control Monitor
- PI-Batch
- PI-Profile
- PI-SQC
- E-Mail Notification Manager (DevNet)
- PI-Module Data Base / PI-ACE

Process Book

- 600 + installations
 - Begin with one “Personal” ProcessBook
- Approximately 362 “Shared” ProcessBooks
 - Read/Write within an area
 - Read Only to other areas
- 1 “Master” ProcessBook
 - Protected from changes
 - Links to Shared Books

Process Book

- Not Just Trending
- Document and Application Launcher

Mead.piw

Safety & Health

- MeadWestvaco - Michigan Operation's Safety Policies
- Waste Disposal Policies
- Mouthpiece Respirator Brief Contacts
- E1 Slabbing Flow Chart
- E3 Slabbing Flow Chart
- E4 Slabbing Flow Chart
- Daily Crane Inspection Checklist
- PPE Catalog
- Construction Crew Job Guidelines
- Multiple-Lock Lockout Procedure Template
- Multiple-Lock Lockout Generic Pump Procedure Template
- Multiple-Lock Lockout Generic Fan Lockout Procedure Template
- Incident Investigation Reports
 - Incident Investigation Report (AIF)
 - Incident Investigation Report Form
 - Exposures to oils, fluids, wood, microorganisms (Maint. Areas)
 - 2004 Incident Investigation Reports
 - 2003 Incident Investigation Reports
 - 2002 Incident Investigation Reports
 - 2000-2001 Incident Investigation Reports
- Master Safety SSOP Processbook

New Open

Utilities
Proficiency Report
Mill General
Help
Safety & Health
EAP
PPRC
Training
Reports
TI Reports

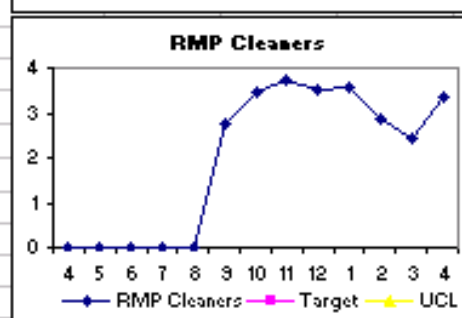
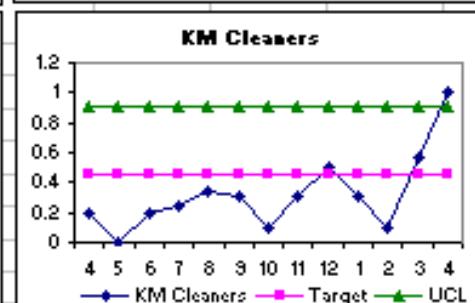
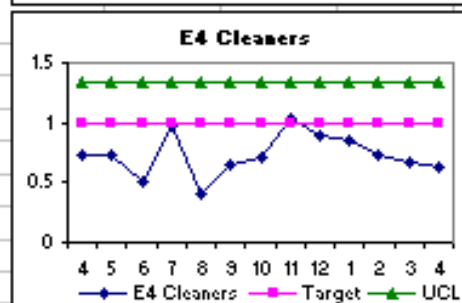
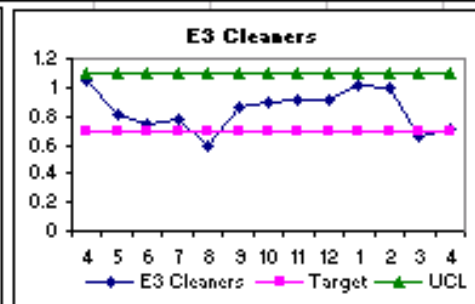
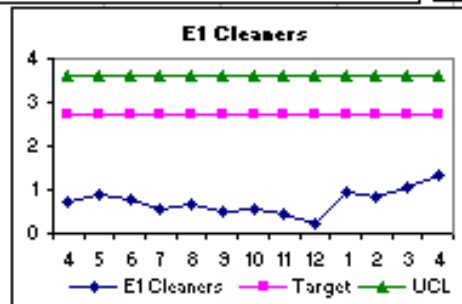
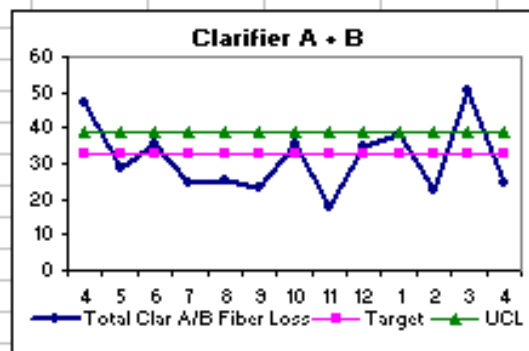
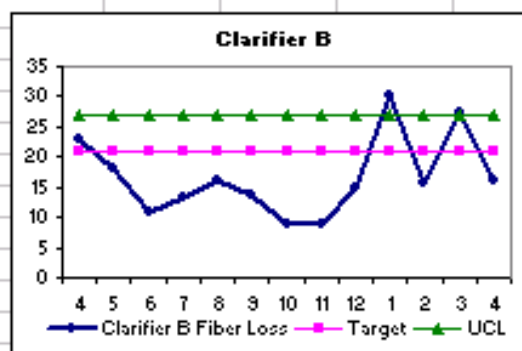
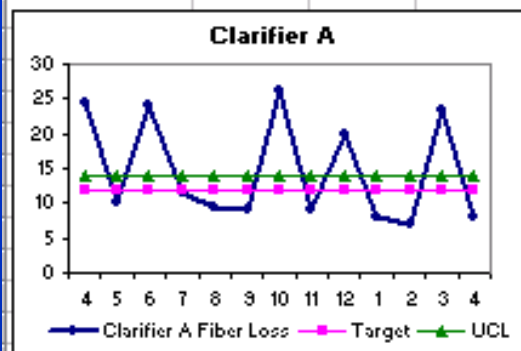
RW&S
21-SQC
Quality
Craft Mill
1 Mill
3 Mill
4 Mill
MP Mill

Airt Apps
Imon Tool
Red Books

DataLink

- Reporting and Analysis
- Purchasing Cycle Count
- Accounting Loss Analysis

Mill Fiber Loss



CRITICAL

Broke Chest Overflow Data

Chest	Past 12 Month		Period/Year	
	Totals		1	2004
	Overflow Time (min)	Est Tons Lost	Overflow Time (min)	Est Tons Lost
E1 Uncoated	1113.22	315.63	283.22	81.55
E1 Twilight	75.50	N/A	3.70	N/A
E3 Unctd RMP		N/A		N/A
E3 Unc Free (3brk)	0.00	0.00	0.00	0.00
E3 Unc Free (4brk)		0.00	N/A	0.00
Total	1188.72	315.63	286.92	81.55

Note: Only the Broke Chests that have historically experienced excessive fiber losses are shown. E4 Broke Chests pump to E3's and overflow in E3's when maximum capacity of both systems is reached, thus part of E3's losses can be attributed to E4.

Control Monitor

- 4 Access Databases
- 4 Calculation Engines
- Configuration performed by Process Engineers
- 586 Critical loops defined
- Visual Basic application e-mails daily reports

Control Monitor

PI Control Monitor has determined that the following control loops are not performing as well as they should:
Please see the Control Monitor Window in Process Book for more details

Name	Meas Tag	% On	Output	Stability	% Err	Units	Points
FLOW-RMP TO NO.1 BLEND	35-F2021.4T	100	5.4	90.61	9.8	O.D.T	59
FLOW-#1 HWD REFINER STOCK	35-F0904.4	100	30.1	80.54	5.6	GPM	50
LEVEL - #1 WHT WATER	32-L1500.4	8	62.4	100.00	15.4	FEET	77

Why Control Monitor

“A system is needed that will automatically notify us when a control loop is not performing as well as it should.”

“The ideal system should be easy to set up and maintain.”

Ray Chouinard - Process Control Engineer - MeadWestvaco

PI-Batch

- Bleach Plant Performance
- Combined with Module Database and ACE

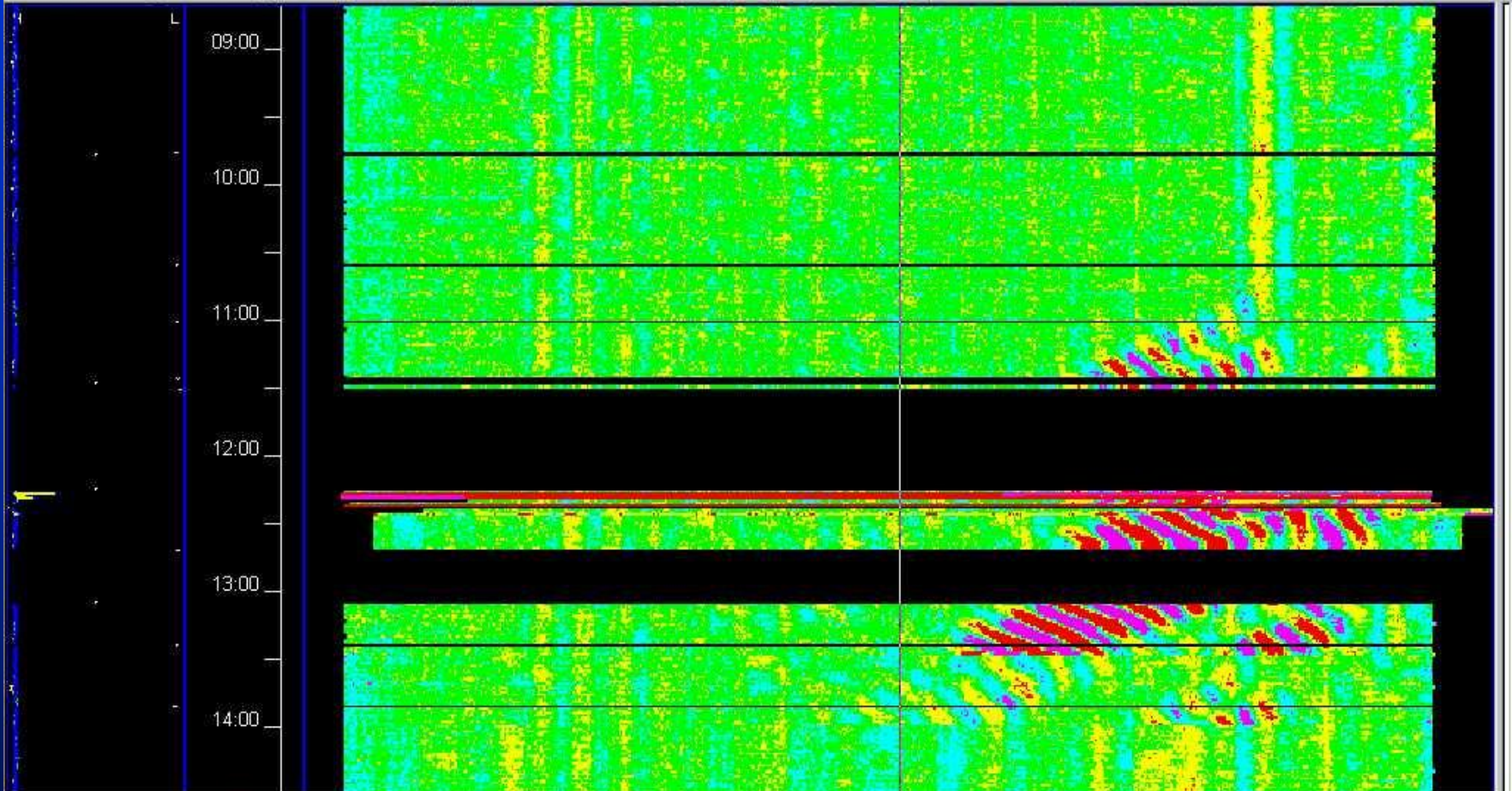
“2003 Cost Savings from Closely Monitoring
Chemical Variability and Usage Amounted
to 250,000”

Roger Tembruell - Technical Service Engineer - MeadWestvaco

PI-Profile

- Analyze Downstream Quality Problems
- Overlay Defects
- Trace Quality problems to Equipment

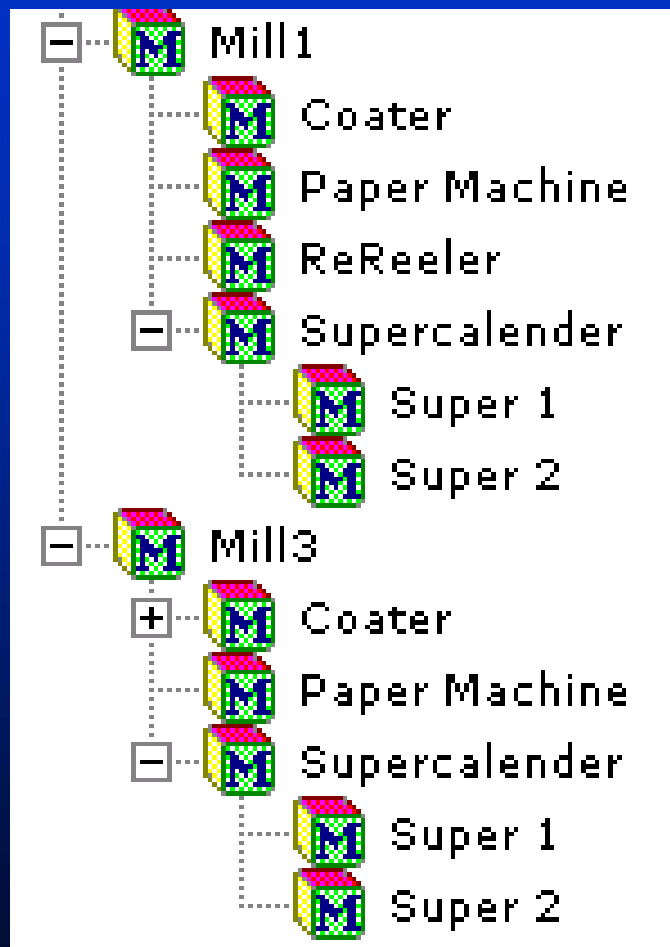
“Caliper profiles tend to degrade when the calender stack rolls are worn and need to be changed”



PI-ACE

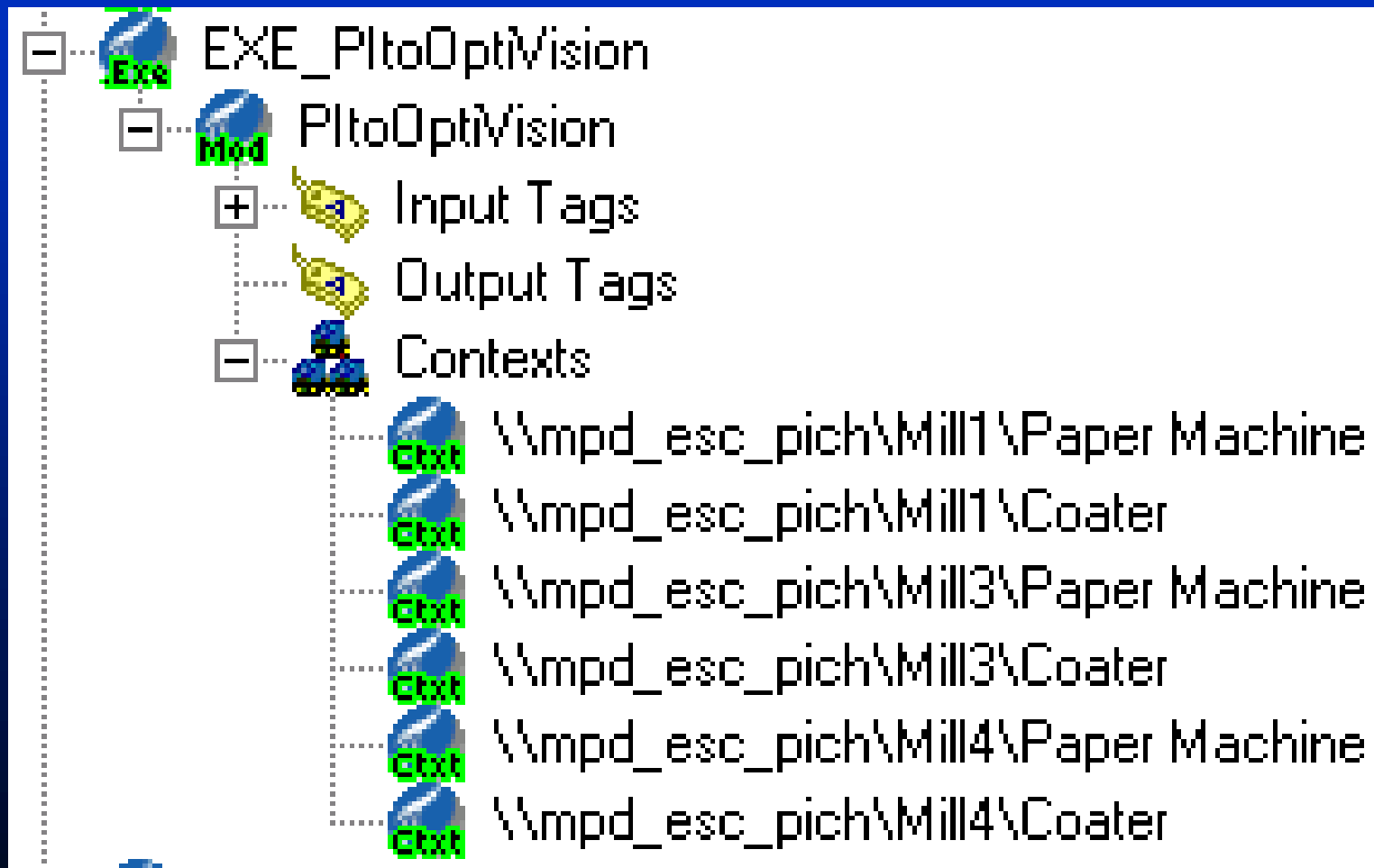
- Interface PI/RtPM and MES applications

ACE MES Interface



Sub-Modules		PI Aliases	PI Properties
PIAlias Name		Tag Name	
	SheetBreak	36-G23P.57	
	SheetBreakInt	C1-ST_BREAK	
	TotalLogs	C1-TLOGA	
	TotalFeet	C1-FTTOTA	
	Turnup	C1-REEL	
	LinealFeet	C1-LINFT	
	Production	C1-PROD	
	TotalProduction	C1-DPROD	
	crew	sh-mcrew	
	Deckle	C1-DECKLE	
	Speed	C1-SPEED	
	BasisWgt	C1-RBWAVG	
	ActTime	C1-LINFT	
	ActSpeed	C1-SPEED	

Write Once, Implement Many



Environmental Monitoring

- SSM
 - Identify Running Status
 - Startup/Shutdown/Running
 - Identify Venting Conditions
 - Store “Venting” Status back to PI
 - Display in ProcessBook

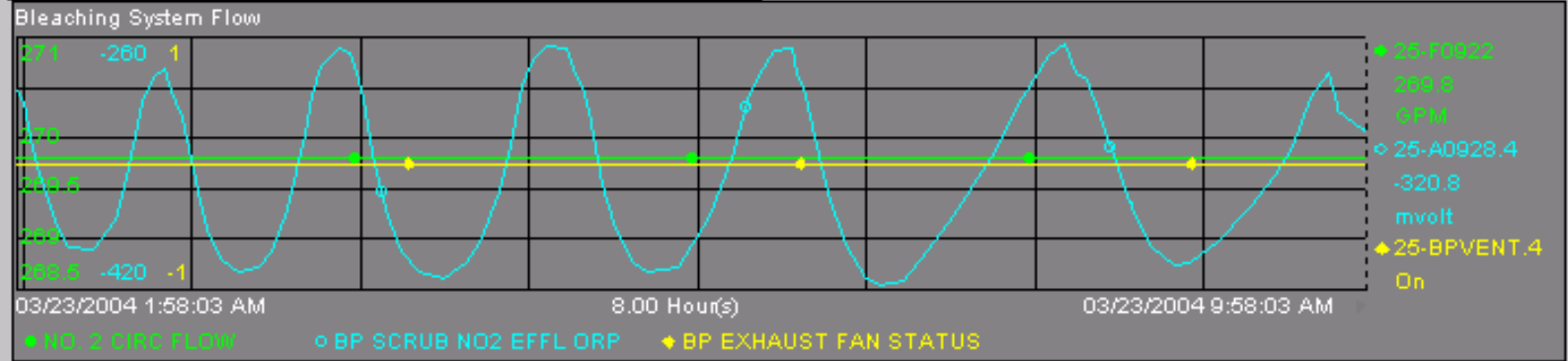
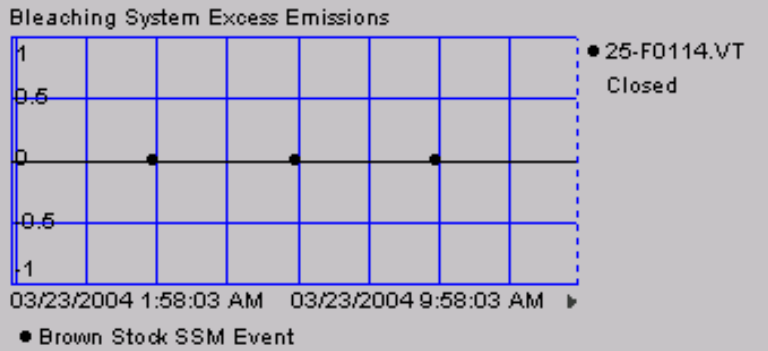
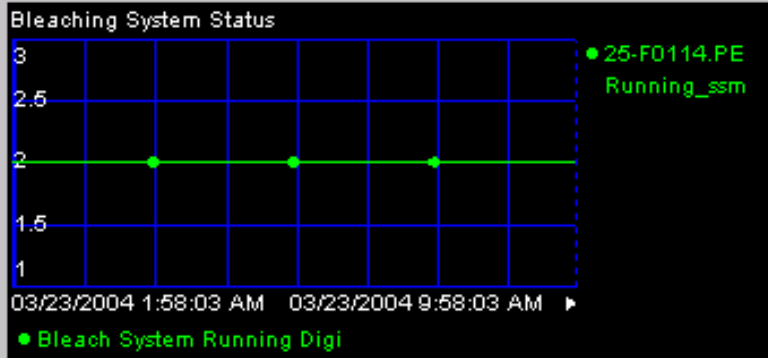
Bleaching System Cluster Rules Display



Red - Bleaching System Shutdown
 Yellow - Bleaching System Starting Up
 Green - Bleaching System Running

SSM Form

Cause Codes



Bleach SSM will occur if:

- #2 bleach plants scrubber ORP (25-A0928.4) > -106mV for a 15 minute average
- #2 bleach plants scrubber circ flow (25-F0922) < 207 gpm for a 15 minute average
- Scrubber Fan (25-bpvent.4) = OFF

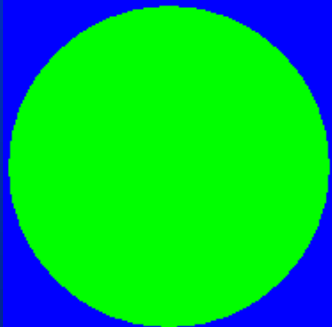
Information Sharing

- Cross Divisional Information Sharing
 - Corporate Research
 - Production Technology Integration
 - Corporate Engineering

Run

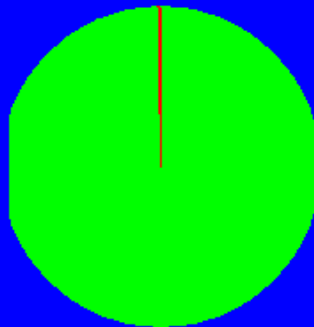
Escanaba/Luke Sheetbreak Overview

E1



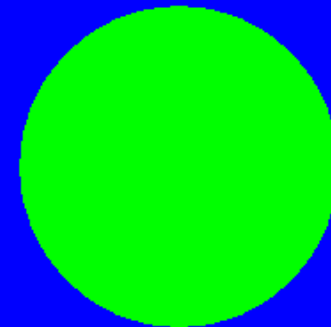
OK (100.00%)
sheetbreak (0.00%)

E3



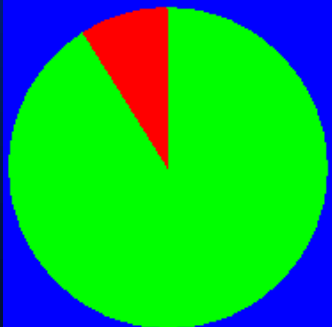
OK (99.83%)
sheetbreak (0.17%)

E4



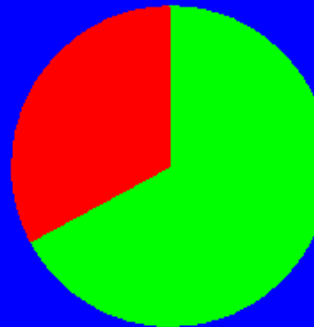
OK (100.00%)
sheetbreak (0.00%)

L7



RUNNING (91.06%)
BREAK (8.94%)

L8



RUNNING (66.98%)
BREAK (33.02%)

L9



RUNNING (98.43%)
BREAK (1.57%)

Managing PI/RtPM

- Interface Status Utility
- PI-PerfMon
- DevNet Applications
- Daily “Health Check”
- Standard Operating Procedures
- Average uptime is 99.9%

Interface Status

- Interface “FlatLine” Notification
- 1 tag / interface
- DevNet E-Mail Notification manager
 - Automatically e-mail/page when a tag is flat for a predefined period
- Minimize Down Time

Activate Deactivate Hide

Monitor

Set Connections

Configure Database

Time Stamp of Email	Email Description	Destination Email Address	Trigger Tag	Trigger Value
18-Mar-04 04:57:58 AM	Number 1 Paper Machine I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.5	Receiving Data
No email sent	Number 1 Paper Machine Log Number Tag reading	2224400@rangetele.com;	sy-badval.m1	System_State_0
14-Mar-04 09:03:39 AM	Number 1 Coater Log Number Tag reading BadValue	2224400@rangetele.com;	sy-badval.c1	System_State_0
12-Mar-04 08:56:49 PM	#8/#11 Boiler I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.3	Receiving Data
18-Mar-04 05:13:15 AM	#4 Color Building I/A Flatline	2224400@ragentele.com;	sy-st_fxaapi.4	Receiving Data
No email sent	#10 Boiler I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.6	Receiving Data
18-Mar-04 04:57:58 AM	#3 Color Building I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.7	Receiving Data
18-Mar-04 04:57:58 AM	Kraft Mill/Environmental I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.8	Receiving Data
18-Mar-04 05:13:16 AM	Pulp Dryer I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.9	Receiving Data
18-Mar-04 05:13:16 AM	Number 1 Coater I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.10	Receiving Data
18-Mar-04 04:57:58 AM	Outside Utilities I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.11	Receiving Data
No email sent	#4 Paper Machine I/A Flatline	2224400@rangetele.com;	sy-st_fxaapi.64	Receiving Data
No email sent	Number 3 Paper Machine Log number tag reading	2224400@rangetele.com;	sy-badval.m3	System_State_0
No email sent	Number 3 Coater BadValue Log Number tag reading	2224400@rangetele.com;	sy-badval.c3	System_State_0
No email sent	Number 4 Paper Machine Log Number tag reading	2224400@rangetele.com;	sy-badval.m4	System_State_0
17-Mar-04 12:58:33 PM	Number 4 Coater Log Number tag reading BadValue	2224400@rangetele.com;	sy-badval.c4	System_State_0
17-Mar-04 10:50:30 PM	#1 PM Sheetbreak	2229054@rangetele.com;	32-E3100E	OK
18-Mar-04 12:30:20 PM	#1 Coater Sheetbreak	2229054@rangetele.com;	36-G23P.57	OK
15-Mar-04 07:49:29 PM	#1 Pulp Dryer Sheetbreak	2228882@rangetele.com;	40-E2200D	sheetbreak
15-Mar-04 11:47:00 AM	#3 PM Sheetbreak	2227842@rangetele.com;	07-Q0433	OK
18-Mar-04 05:59:15 AM	#3 Coater Sheetbreak	2227846@rangetele.com;	27-Q150B	OK
18-Mar-04 11:48:21 AM	#4 Coater Sheetbreak	2227865@rangetele.com;	65-U0055	OK
18-Mar-04 12:15:51 PM	#4 PM Sheetbreak	2227865@rangetele.com;	64-U0055G	sheetbreak
No email sent	#4 Ulma I/O Timeout	2224400@rangetele.com;	m4-length	268695

Active

57 Grid Entries

57 Trigger Tags Found

Daily Health Check

PI Lost and Down Time Monitor

Foxboro I/A

Fox 4301 Fox 2901 Fox 1301 Fox 6601 Fox 3601 Fox 1101 Fox 3201 Fox 1501 Fox 0801 Fox 2501 Fox 4001 Fox 6401

Foxboro ACCP

Fox ACCP01 Fox ACCP02

Gauging

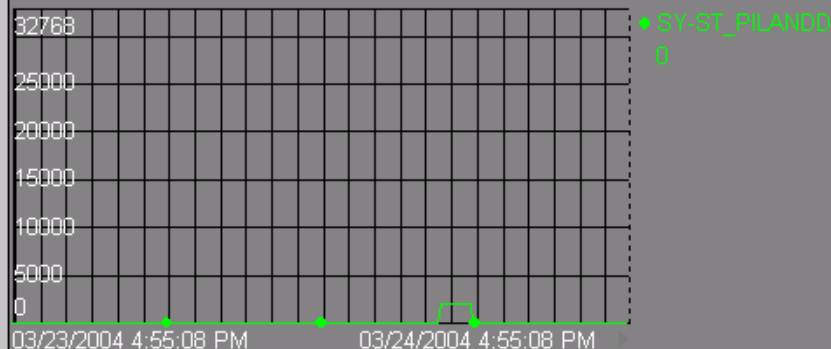
OMC1 abb OMC3 MX OMC4 MX PM1 abb PM3 MX PM4 abb SC41 abb SC42 abb OMC1 MX PM4 MX

Bale Wgt

PLC

OMC3 ab #3 Mill ab #4 Mill ab #1 Mill ab PLCrwy ab PLCWY ab PLCUtil ab

PI Lost and Down Status



Fault Value	Fault Name	Fault Value	Fault Name
1	SC41ABB	96	MPD_ESC_PI3
2	SC42ABB	128	OMC1ABB
3	SC4API	256	OMC1MX
4	NO4PMABB	384	OMC1API
8	OMC4MX	512	PM1ABB
16	NO4PMMX	896	MPD_ESC_PI1
24	OMC4API	1024	FOXACCP
31	MPD_ESC_PI4	2048	FOXIA
32	NO3PMMX	4096	PLC
64	OMC3MX	8192	MPD_ESC_PICH

Monthly Down Time Report

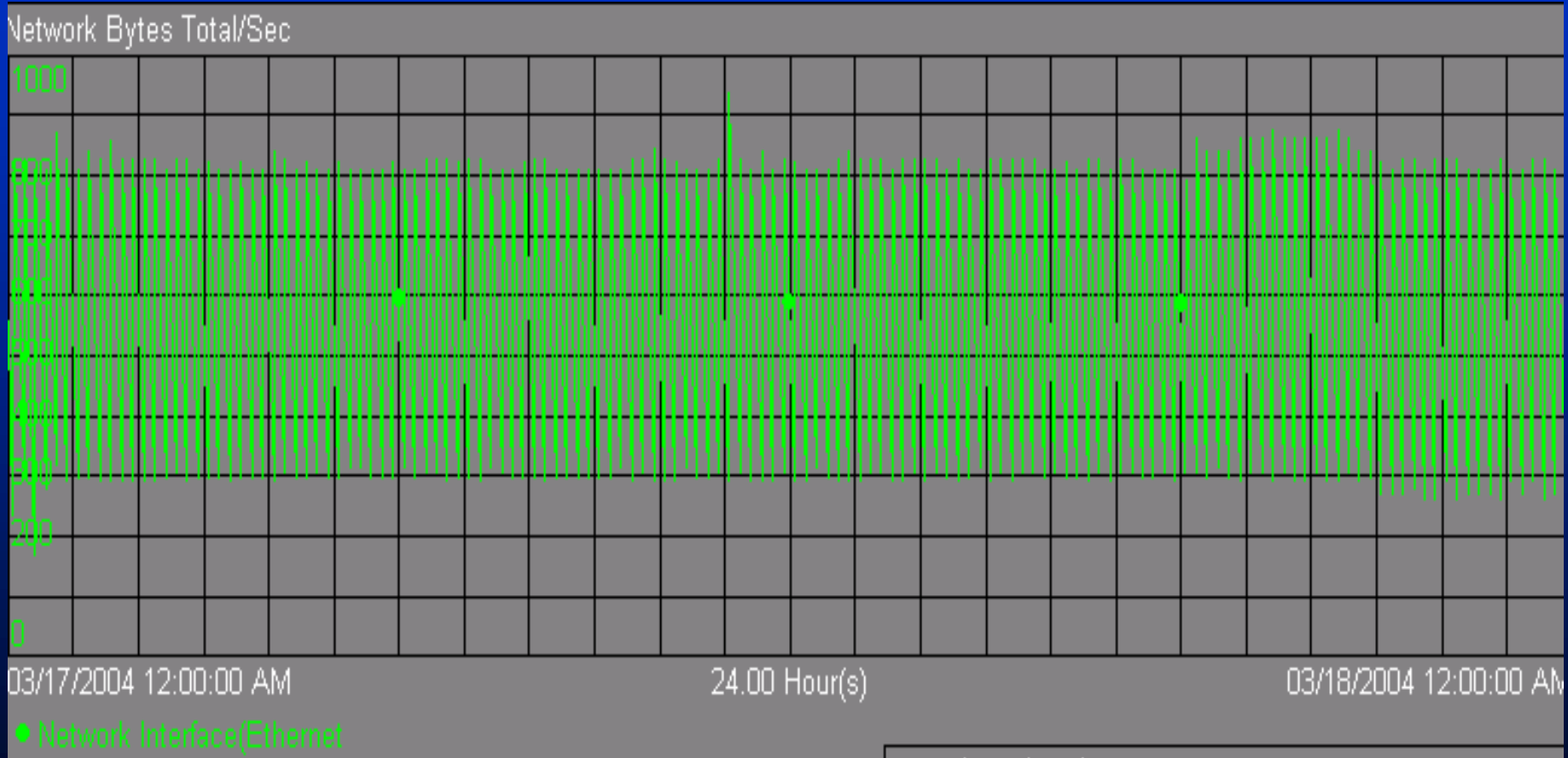
Proficy Downtime Sheet

PI Down Time Entry Sheet

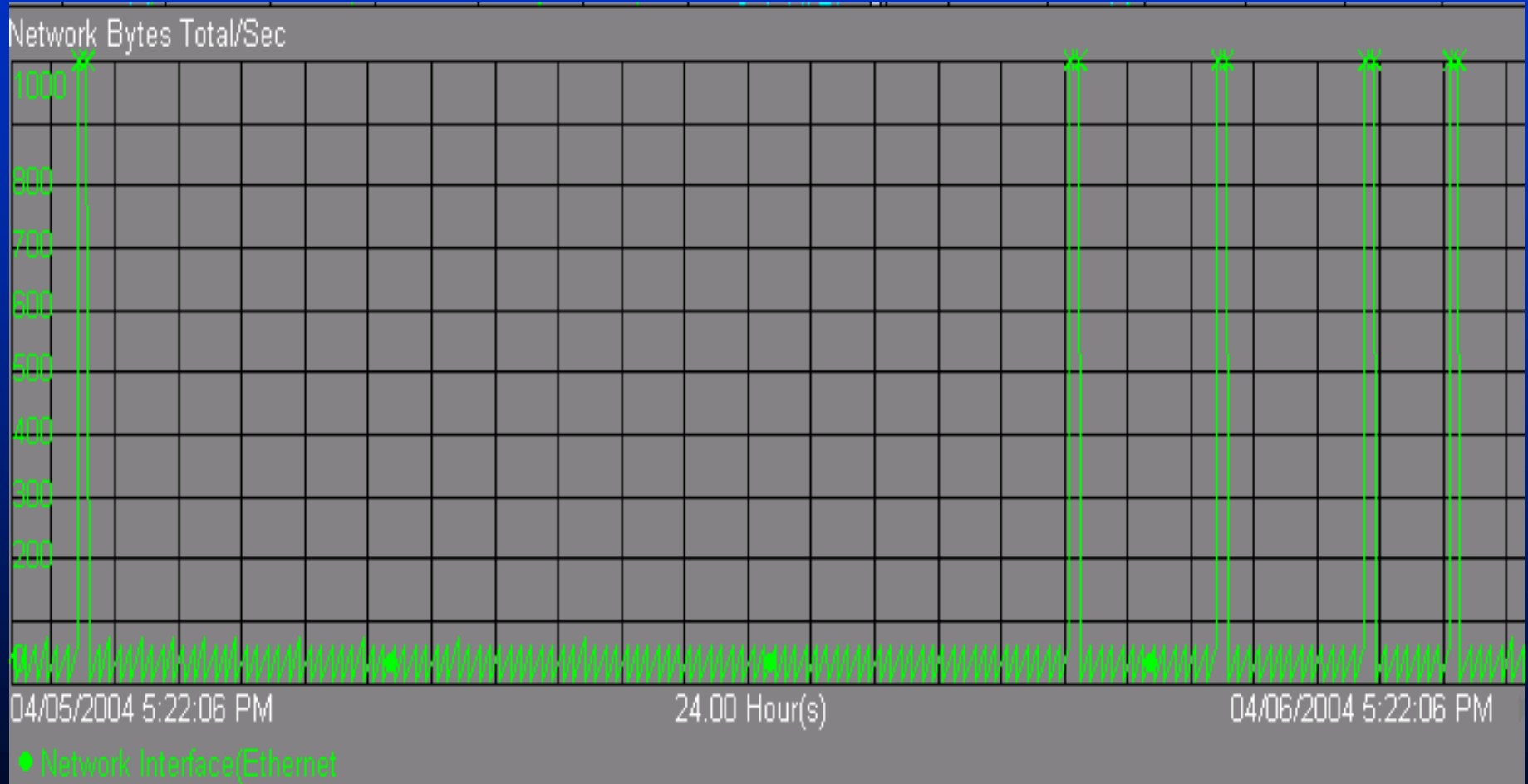
Performance Monitor

- Pinpoint “misbehaving” processes
- Gives an indication that something is happening before it gets out of hand

Performance Monitor - Before



Performance Monitor - After



Summary

- RtPM Provides the Common Linkage between Business Requirements and IT
- Provides Common tools to Support the Strategy behind our MES suite
- Answers the questions for Business Segments and provides linkage between process and business

Summary

- ACE Software combined with MDB enables portability
 - “Write Once - Implement Many” philosophy
- OSIssoft has Demonstrated commitment
 - Release upgrades and Dependable Support over our 16 year association

MeadWesvaco

Has

Traveled

Far

with

OSIsoft...



And Expect to Forge

into the
Future
with
OSIsoft
and
RtPM



Questions?

