

Regional Seminar Series Cincinnati

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What Ideas Can Do™



Appleton Smart Web Trimming Project

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October 7, 2009

Empowering Business in Real Time.

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Business Value – Appleton Smart Web Trimming Project

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The Challenge: Reduce customer complaints at three paper manufacturing locations

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What Ideas Can Do™

Consistent web stability when paper is being processed is a requirement for making a quality finished product regardless of the type of converting equipment used. Many tools are helpful in reducing web variation, but we need a concise way of identifying when specific paper is at risk for below benchmark performance.



Customer Business Challenge Solution Customer Results / Benefits Integrate high resolution QCS • Significant improvement in customer Provide winder operators with live process information about the satisfaction through reduction in scanner information with MES web quality of the web being trimmed cut selection program complaints • A quantum step improvement in · Give winder, paper machine and • Make a go/no-go determination for coater operators a prediction of each proposed roll before it is cut "runnability" of Appleton products how their product will perform for when converting • The system will have access to all customers data so cut pattern changes will Reduction in internal scrap through more precise selection of at-risk Turn complaints into internal scrap result in live updates to predicted and internal scrap into good product product for internal rejection results

Appleton Smart Web Trimming

Project

Appleton Plant - Wisconsin Roaring Spring Mill - Pennsylvania West Carrollton Mill - Ohio



Appleton West Carrollton Mill





Appleton West Carrollton Mill

> Total of 441 Employees at the Mill.

- > 337 Hourly and 100 Salary
- Hourly workforce represented by the United Steel Workers International Union (USW - Local 266).
- Shift employees work Southern Swing Schedule
- Recycle Plant (65% of the fiber supply for the Mill)
- Materials Prep (Coatings/Additives) / Receiving
- Three Paper Machines : No. 91, No. 92, & No. 93 (Average 600 tons/day)

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> Off Machine Coater : CM 95

PAPER MACHINES

	#91 Paper Machine	<u>#92 Paper Machine</u>	#93 Paper Machine
Trim	115 inches	162 inches	138 inches
Speed	1100	2700	2750
Tons/Day	90	250	225
Tons/year	32,000	90,000	82,000
Coater	Billblade	Billblade	Twin HSM / Flexo
Products	Lightweight CF Heavyweight CF Recover CF Carbonless Basestock	Lightweight CF Thermal Basestock Thermal Label Carbonless Basestock	Premium CB Recover CB Superior CB CFB





Appleton West Carrollton Mill

Water Supply / Treatment

- 100% of water supply comes from deep wells located onsite.
 - Roughly 7 million gallons fresh water produced daily.
 Water is softened prior to use.
- Wastewater treatment plant is located offsite. 100% conformance to NPDES discharge permit limits.
- Energy
 - A steam driven turbine generator provides about one third of the Mill's electrical power.
 - Two coal fired boilers provide steam for recycle plant and paper machine process.



PI System Footprint

- 6 Manufacturing Locations with PI Across the Company
- 3 Main PI Servers
- 1 Development Server
- 1 PI Application Foundation Server
- 3 PI ACE Servers
- 135,000 tags Company Wide
- 40 Interfaces
- 525 Users





Increase Customer Satisfaction Through Complaint Reduction

- We must make a major reduction in the number of customer complaints.
- Any significant reduction in total complaints must reduce Baggy Roll & Throw Length complaints.
- Reducing Baggy Roll & Throw Length complaints will require a new tool for the paper machine, winder and coater operators.



Top Customer Complaints Appleton West Carrollton Mill – All 3 Paper Machines



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Existing Tool – PI Profiler

When the <u>reel's</u> cross direction 2 sigma value is out of spec for moisture, weight or caliper, paper is scrapped based on an educated guess using PI Profiler (standard screen shown below)





Existing MES Winder Operator Screen

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The Solution – A New Tool

- Create program that will bring existing scanned paper web data into existing screens that the winder operators use to cut roll sets.
- Bring Basis Weight, Moisture and Caliper data in 600 cross machine data box form together with specification limits to tell winder operators exactly which rolls cannot be shipped.
- Data is live so a change in roll cut order can result in elimination of scrap by putting narrower rolls in areas of greatest variation in the web.

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New MES Winder Operator Dashboard

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Benefits

- The system now takes the guess work out of culling at risk product from good production allowing new operators to quickly do this task as well as experienced operators
- Initial episodes have shown potential to cut scrap significantly – representative case resulted in 1 ton lost instead of 8
- Roll 2 sigma values are archived for future comparison to complaint results



Other Significant Tools – Process Book

95 COATER's PROCESS BOOK - MAIN MENU

MACHINE STATUS

COATER SPEED Reel Width Making Master	233 fpm 0 Inch N/A	Reel Weight Reel Length	0 lbs 0 yard	Previous reel lenç Previous reel wei		Natural Gas Flows Under Range UMANAS 204.816
UNWINDER	COATER	CALEND	DER	OPTIREEL	AUX EQUIPMENT	

UNWINDER	COATER	CALENDER	OPTIREEL	AUX EQUIPMENT	
Unwinder Main Page	Coater Main Page	Main cal 95-1	····· Optireel Main Page	Pulper	WINDER RW195
Hydraulic unit	95-1 Run system	Cal 95-1 Trends	Hydraulic unit	Active Coat Supply	Scanner Data
Drive Signals	95-1 Dryers	Main cal 95-2	Recipe Main page	Basecoat supply	
Нер Мент	Air Dryer	Cal 95-2 - Trends	Totol Patel	Gas Meters Total	
Mahtenance	95-2 Curtain	Cal Hydraulics	Drive Main Page	Air system	
Alam Simmary	95-2 RS DG1	Sym Hydraulics	Treads	Area Simp with	
Alam History	95-2 RS DG2	Cal Temp Control	Help Mah Page	Mezzathe Fans	
Bue at His tory	95-2 Dryer	95-1 Calender Help	eeee Expert Mah Page	Cooling Mater	
	Hydraulic Units	95-2 Calender Help	Optiree itreids	C true History	
	Tension Graphs		Alarm Symmary	Fresh water supply	
	Web break Det		Alam History	40 Tox Citiler	
	Central Lib		Bue at History	PLC Diagnostics	
	Flowmeter Panels			Seal water pump	
	95-1 Vallet			Steam & Coud	
	Edge Sittler			Steam Flow meter	
	Pull roll web guide			Warm Water	
	Molmourment				
	Cirne History				



DCS Emulation Puts Window on Every



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Process Books in Use in All Areas



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Thank you

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