

# Paper, packaging & forest products

**Whiting PM 64 Kadant Johnson  
Dryer Management System  
Lake States TAPPI**

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# SE Whiting PM64 Dryer Management

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# SE Whiting PM64 Dryer Management

## Machine Background

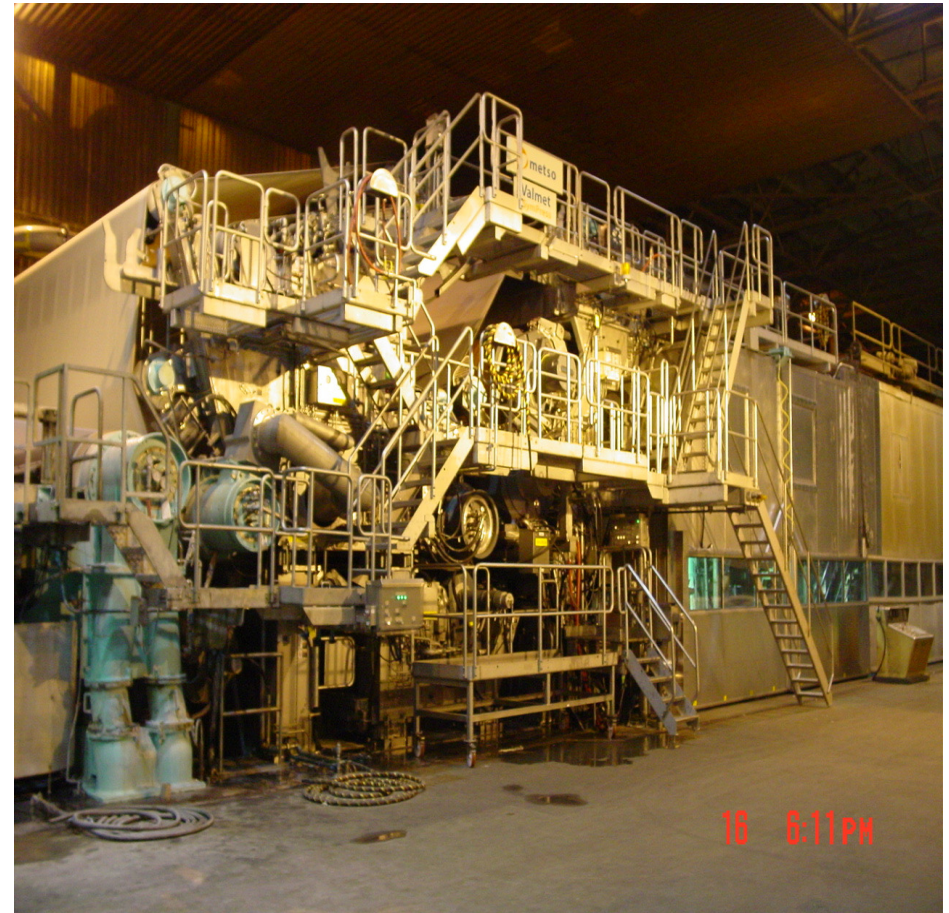
- 1979 Startup
- 224 inch trim
- 28-34 lb. basis weight
- 4200 fpm reel speed
- On-machine coated
- Web offset grades



# SE Whiting PM64 Dryer Management

## Machine Background

- 1991 Installed 4<sup>th</sup> press rebuild
- 1994 Installed Duoformer CFD
- 2005 Former and reel rebuild
- 2006 Press and main dryer rebuild



# SE Whiting PM64 Dryer Management

## Machine Background



- Four main dryer sections:
  - Two uniron sections
  - Two double tier sections
- Coater drying includes:
  - Electric IR
  - Air cap cylinder
  - Double tier dryers
- All section using stationary siphons.

# SE Whiting PM64 Dryer Management Project Description



- Dryer Management System Scope:
  - Purchased standard Kadant Johnson DMS package:
    - Automatic start/stop feature
    - Drying rate curves
    - Individual section moisture/let down control
  - Press moisture monitoring option also purchased.
  - Valve monitoring was not purchased.

# SE Whiting PM64 Dryer Management

## Project Description



- Project team included:
  - Kadant Johnson
  - Corporate engineering
  - Mill production and maintenance
  - Machine crew input
  - Wisconsin Focus on Energy

# SE Whiting PM64 Dryer Management System Benefits



- Dryer Management System Benefits:
  - Energy savings:
    - Reduced steam consumption
    - Reduced venting (blow through) to condensers
  - Productivity improvements:
    - Consistent dryer temperatures improve tail threading
    - Quicker cold machine startups
    - Reduce grade change transition time
  - Environmental savings from steam reduction
- Kadant Johnson justification spreadsheet extremely useful.

# SE Whiting PM64 Dryer Management

## Startup



- Successful September 2006
- Efficient, hands-on training instrumental in startup success.
- Good startup assistance and follow up response from Kadant Johnson.
- Minor communication issues with Measurex base gauge were quickly resolved.
- With time, machine crews learned to trust the automated system and worked with Kadant Johnson to optimize.

# SE Whiting PM64 Dryer Management

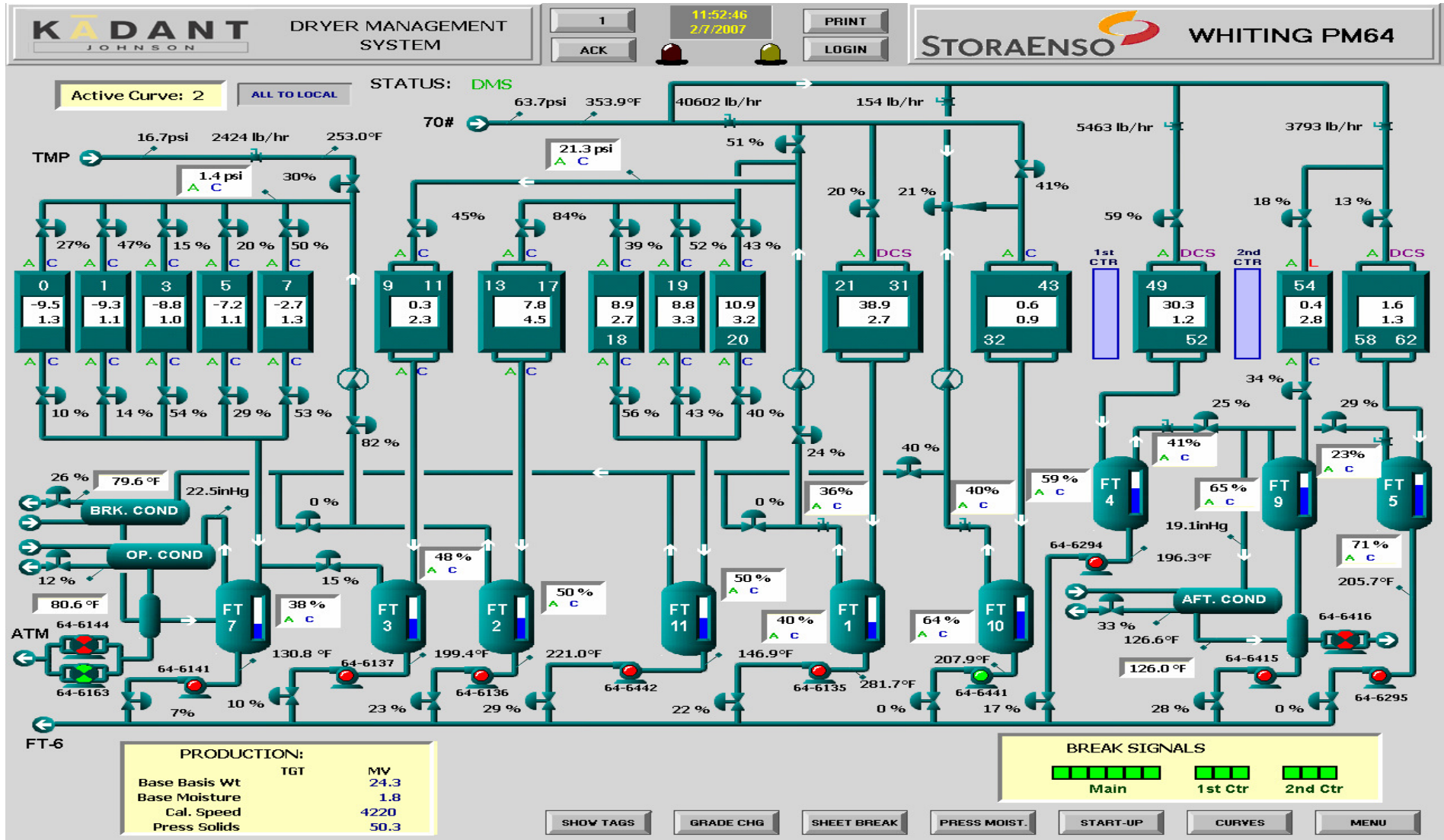
## Lessons Learned



- Positive:
  - An in-mill project “champion” is critical to startup success.
  - System installation pointed out other unknown process control issues.
  - Wisconsin Focus on Energy grant helped SE justify the project.
- Negative:
  - Make sure all operators attend the pre-startup training session.
  - Initial drying curves caused tailing issues through main dryers. Mill worked with Kadant Johnson to optimize tailing through all sections.

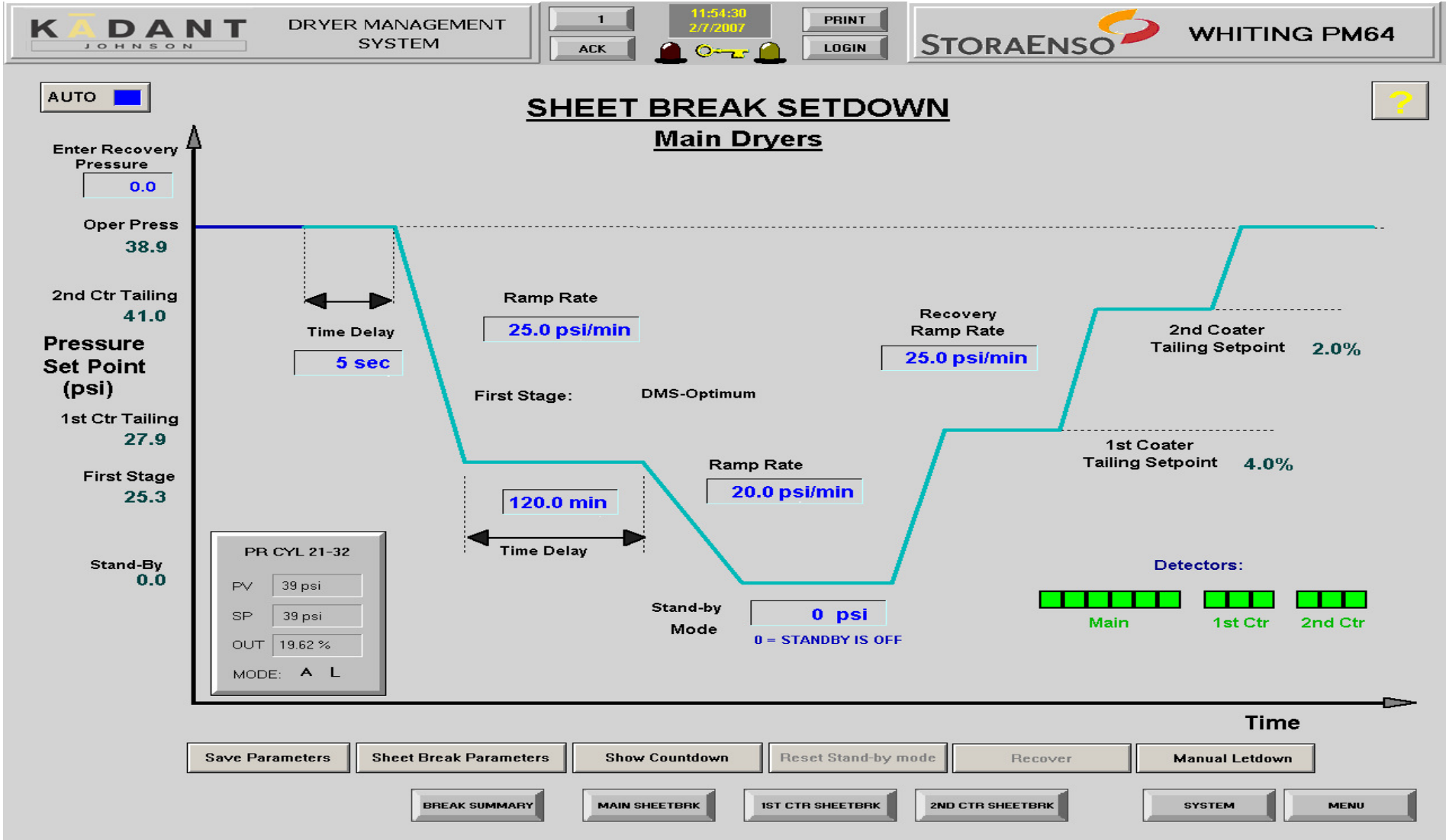
# SE Whiting PM64 Dryer Management

## Illustrative Pages



# SE Whiting PM64 Dryer Management

## Illustrative Pages



# SE Whiting PM64 Dryer Management Illustrative Pages



DRYER MANAGEMENT SYSTEM

1

11:55:53  
2/7/2007

ACK

PRINT

LOGIN

WHITING PM64

Display Segment:  
Main Dryers

Configuration:  
Section Count: 14  
Ref. Section: 11  
Ref. Value: 51

Curve Set:  
 Curve 1  
 Curve 2  
 Curve 3

Save Curve Set  
Copy Curve Set  
Display Table  
Recommend  
Recommend: 9  
MENU

Section	Setpoint psi
0	9.5
1	-9.2
3	-8.8
5	-7.2
7	-2.6
9-11	0.4
13-17	8.5
18	9.9
19	9.4
20	11.5
Dryers 21-31	40.5
Dryers 32-43	1.1
Hdr 0-7	1.8
Hdr 9-20	22.4