



JUMPSTART: SUPPORT FOR LEAN SIX SIGMA INITIATIVES

Presented by **Dominic St-Onge**
Daniel Tremblay



Agenda

- Presentation objectives
- Who is Fortress Specialty Cellulose?
- Fortress & PI System
- Fortress & Lean Six Sigma
- Jumpstart at Fortress; from objectives to results
- PI System at the heart of a “Lean mill”
- Conclusion



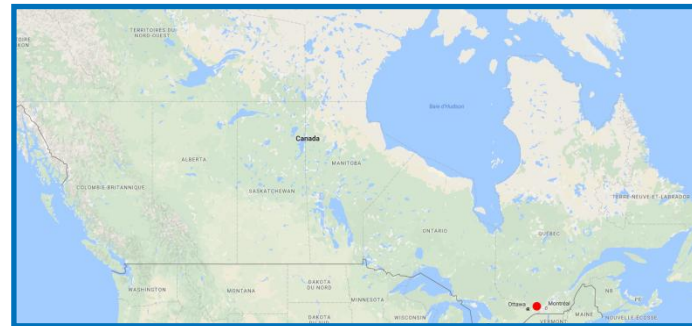
Presentation objectives

- Share a **simple, concrete example** of a Jumpstart, as part of a project to improve process efficiency
- Demonstrate how the PI System is **at the heart** of our Lean Six Sigma approach



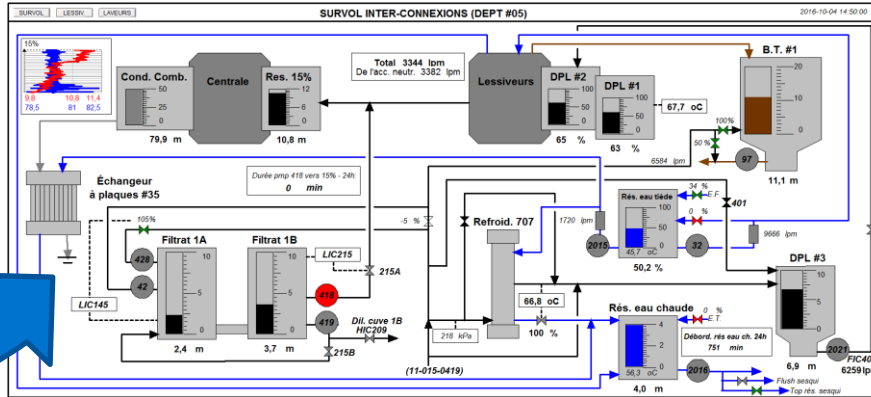
Who is Fortress Specialty Cellulose?

- 2009: **Mill closure** (Fraser)
 - *Kraft pulp production*
- 2010: **Mill revival** (Fortress Paper)
 - *Dissolving pulp production (textile)*
- 2011: **Mill conversion**
 - *New cooking department*
- 2012: **Cogeneration plant**
 - *Electrical production of 24 MW*
- Today: **Producing 170,000 T/yr dissolving pulp**



Fortress & PI System

To support the success of our mill conversion, PI System became the **foundation of data management**



Fortress & Lean Six Sigma

- **2015: LSS arrived at the mill!**
 - Culture change, belt training, DMAIC philosophy, ...
- **Six Sigma Foundations**
 - Identify & Eliminate waste on a continuous basis
 - Management based on data © *Différence*



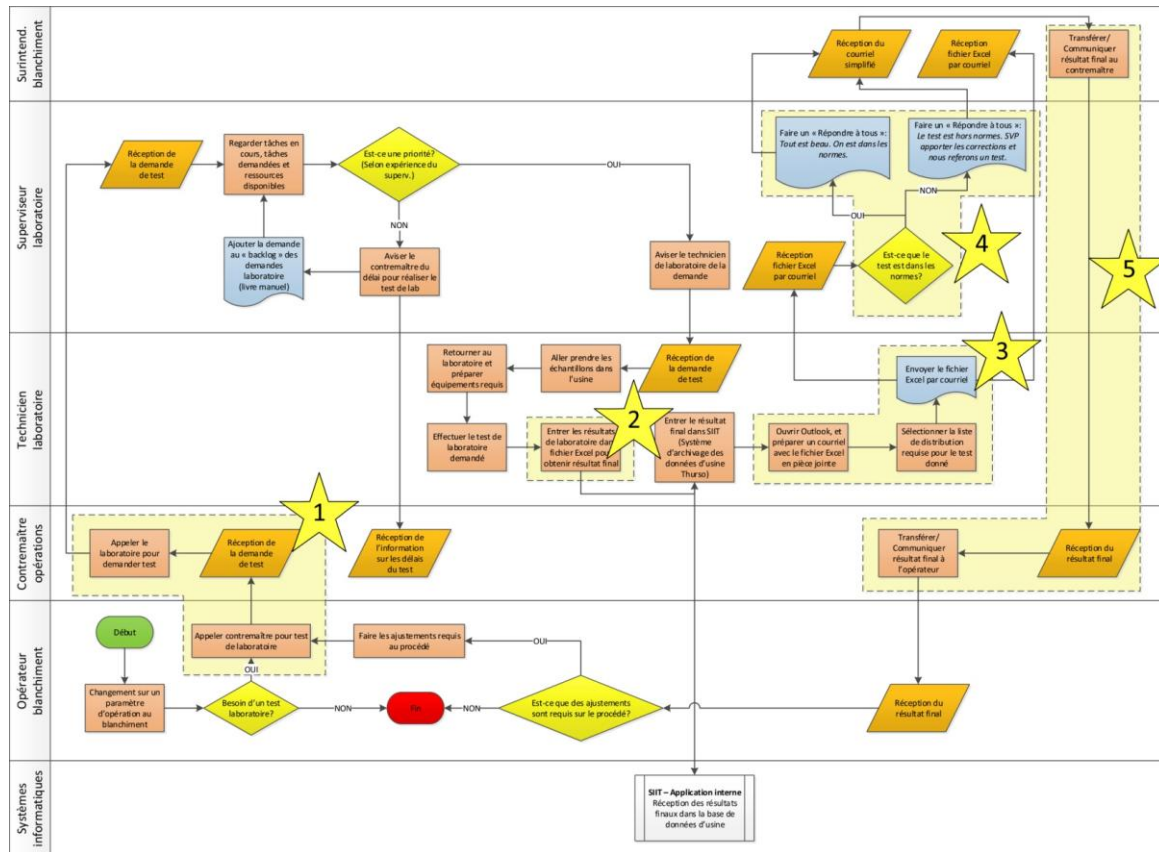
Jumpstart: The problem



- **Wastes** in lab testing processes
- **Real case: Gas scrubber tests**
 - *Test for environment improvement*
 - *Request made by the bleach plant operator*
 - *Tests done by lab technician*
 - *Results are communicated back to the operator*



Jumpstart: Process mapping



Our mapping confirmed that **the process could be improved!**



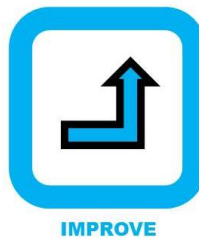
Jumpstart: Causes identification



1. High number of **resources involved** on the critical path
2. Many **manual activities**
3. Information **duplication**
4. Long **delays for decision** making



Jumpstart: Let's jump!

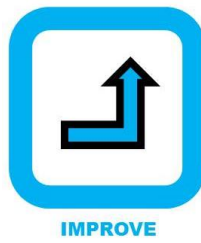


Solution:

1. Perform a Jumpstart to develop **Asset Framework (AF)**
2. Take advantage of **Notifications** to automate certain activities of our processes



Jumpstart: Be ready!



Preparation for an effective Jumpstart!

- Clear definition of **our opportunity** for improvement
- Validation of our **AF structure**
 - Used standard structure of our management system
- Definition of **AF elements**
 - Including calculation details if necessary
- Definition of **Notifications**
 - Including notification triggers & Distribution lists



Jumpstart: Notifications

De : pi_notification@fortresscell.com

À : St-Onge, Dominic (FSC)

Cc :

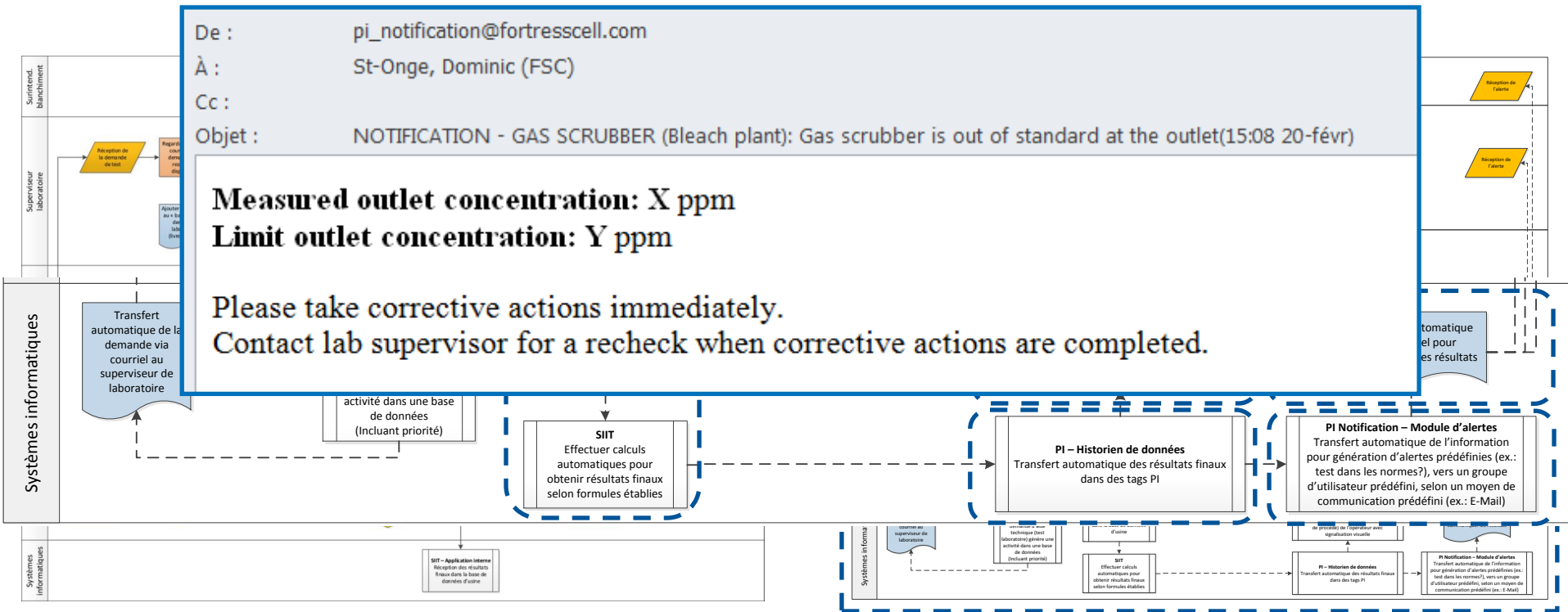
Objet : NOTIFICATION - GAS SCRUBBER (Bleach plant): Gas scrubber is out of standard at the outlet(15:08 20-févr)

Measured outlet concentration: X ppm

Limit outlet concentration: Y ppm

Please take corrective actions immediately.

Contact lab supervisor for a recheck when corrective actions are completed.



Jumpstart: The benefits



With the improved process:

- Reduced by **40%** the number of manual activities;
- Reduced communication delay, from 120 minutes to **less than 1 minute**;
- Ability to **reassign laboratory resources** to other tasks;
- Reduced **unnecessary E-Mails**;
- **Positive feedback** from employees



PI System at the heart of a “Lean” Mill

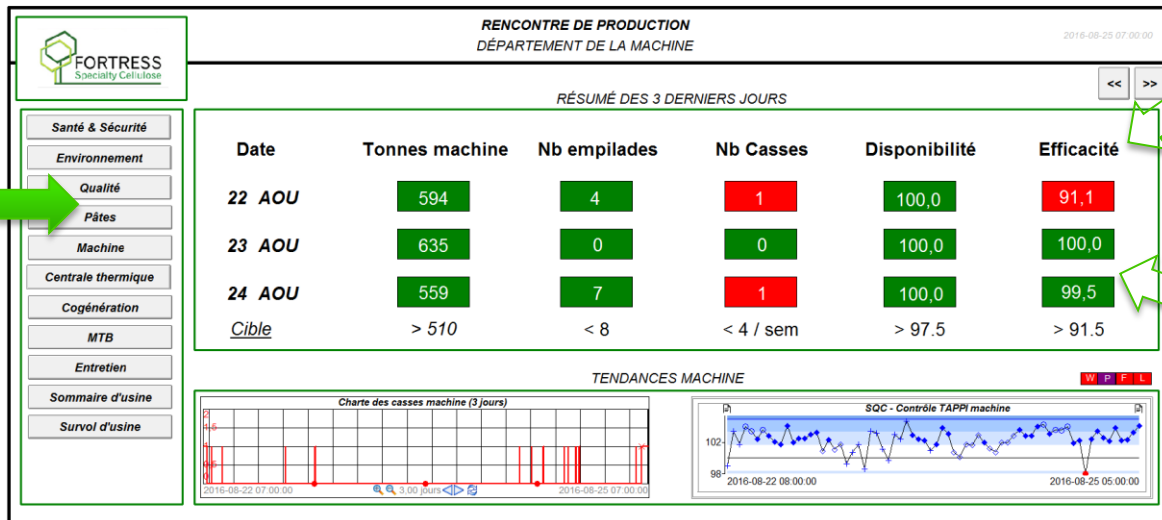
3 other examples of PI System :

	Meeting efficiency	Water hammer problem solving	Heat exchanger problem solving
Objective	Paperless meeting with better visual management	Reduce piping failure due to water hammer	Reduce number of mill shutdown to clean up fouled heat exchangers
PI System	PI ProcessBook	Notifications	PI SQC Chart

PI System at the heart of a “Lean” Mill

- Meeting visual management!

- Use PI ProcessBook in production meeting for better visual management, performance tracking and paperless benefits



Lost time reports data integrated to PI System

KPI visual management

PI System at the heart of a “Lean” Mill

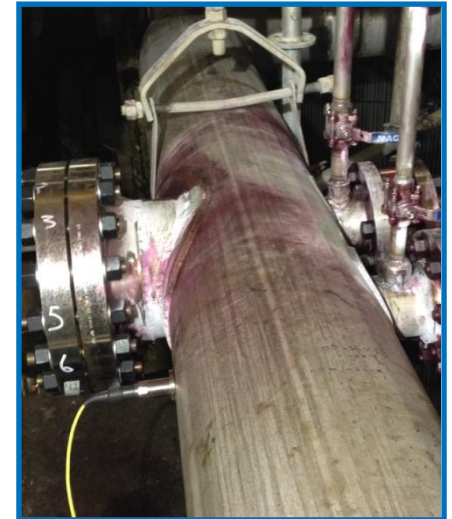
- Automated « Scorecard » with Notifications!
 - Problem solving on severe water hammers

De : pi_notification@fortresscell.com
À : St-Onge, Dominic (FSC)
Cc :
Objet : NOTIFICATION - Statistiques coups de bélier - DP (Dernier 24h - 6h à 6h)

Nombre de coups de bélier TOTAL:	2
<i>Note: Dans un coup de bélier TOTAL, il peut y avoir un coup de bélier sur plus d'un lessiveur en simultanée.</i>	
Nombre de coups de bélier L#1:	1
Nombre de coups de bélier L#2:	0
Nombre de coups de bélier L#3:	1
Nombre de coups de bélier L#4:	0
Somme coups de bélier individuels - L #1 à L#4	2
Nombre de coups de bélier hors alarme:	0
<i>Note: Les coups de bélier ne tiennent pas compte des valeurs "Unit Down" des vélocimètres.</i>	

**Daily and fast
identification of
equipments, digesters
and sequences at risk**

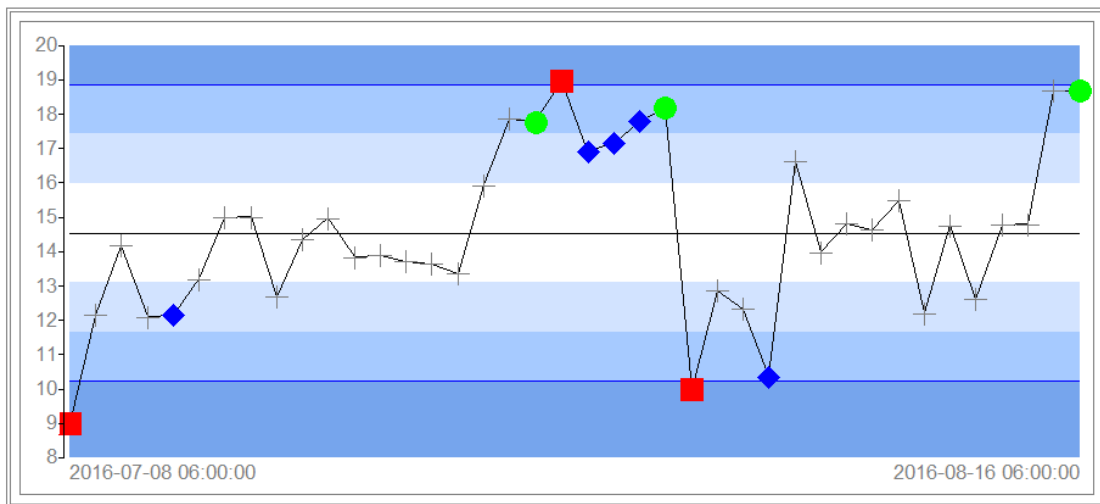
Overall project allowed
to **reduce water
hammers by 97%**



PI System at the heart of a “Lean” Mill



- KPI monitoring with control charts!
 - Problem solving on heat exchangers fouling, with monitoring of **live fouling index** (control plans)



Clear and statistical identification of deviation events, which promotes decision-making and pro-action in the control plan

Overall project allowed to eliminate **2 mill shutdowns per year** for heat exchangers cleaning

PI System and Lean Six Sigma

COMPANY and GOAL

Fortress Specialty Cellulose produces 170,000T/yr of dissolving pulp and wanted to reduce waste in its management processes



CHALLENGE

Opportunities across the plant to improve our processes, reduce waste and increase our performance

- The arrival of lean six sigma at the plant offered the methodology to approach the opportunities in a structured and rigorous way.
- FSC considered capitalizing on the potential of the PI System to support LSS.

SOLUTION

Use PI System Infrastructure in all phases of the DMAIC

- Realize a Jumpstart (3 days) with OSIssoft to define our AF structure, define our elements, analyzes and notifications.
- Continue the development of PI ProcessBook as a visual management tool.

RESULTS

Give the right **information** to the right **people** at the right **time** and in the right **way**

- Reduced activities without added value in management processes, improved monitoring of KPIs in control plans and more effective decision-making.

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Questions

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谢谢

Danke

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado