Association of Rotation Molders Annual Meeting

October, 2014

Presenter: Ron Funk

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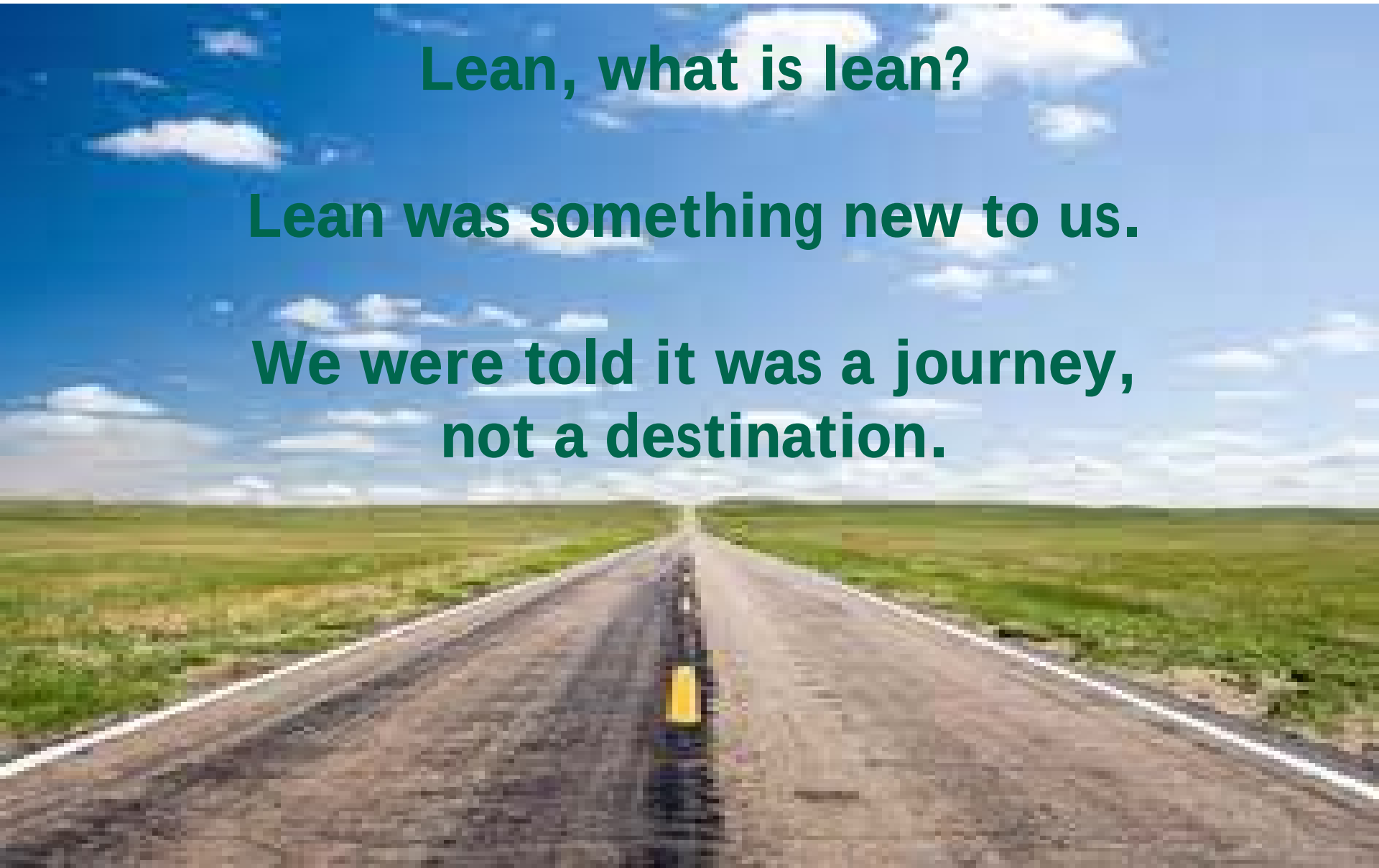
Presentation agenda:

- Short story of our Lean Journey to October 2014
- Explain one of our first lean projects in 2006
- Samples of some before and after projects completed since then
- Summary

Lean Journey – 2006 - 2014



Lean, what is lean?

Lean was something new to us.

We were told it was a journey, not a destination.

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Acrylon Plastics produces playground slides and playground elbows

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Even the Obama family supports Acrylon

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Early on we were very good at “batching” parts.

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›› 24 hours per day molding.
›› 8 hours per day trimming by hand.

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Producing parts all weekend without trimming created havoc on Monday morning.

›› Time for a “Kaizen Blitz”.

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›› Economical automation.

›› Implemented a “one piece flow” process.

›› Built shipping racks.

5S Plant Entrance

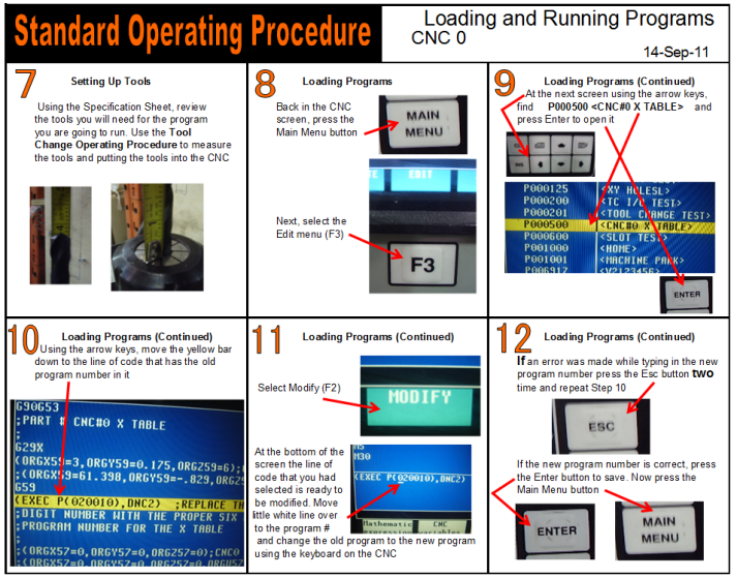
Before

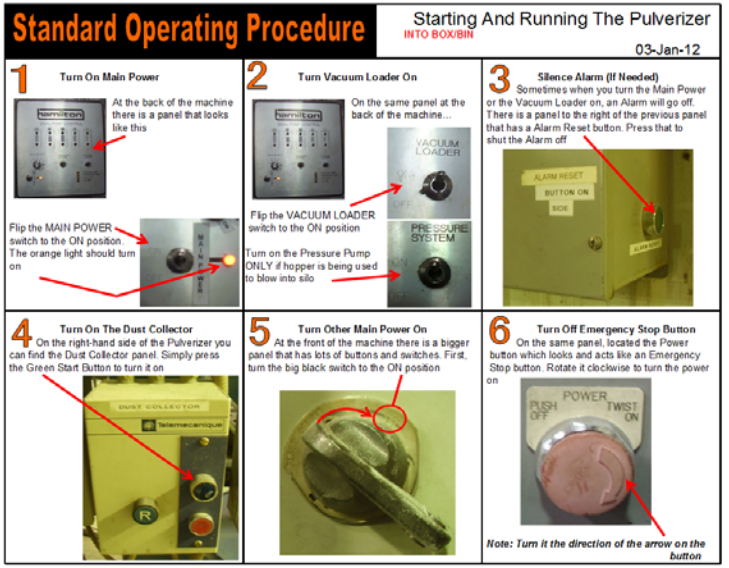
After

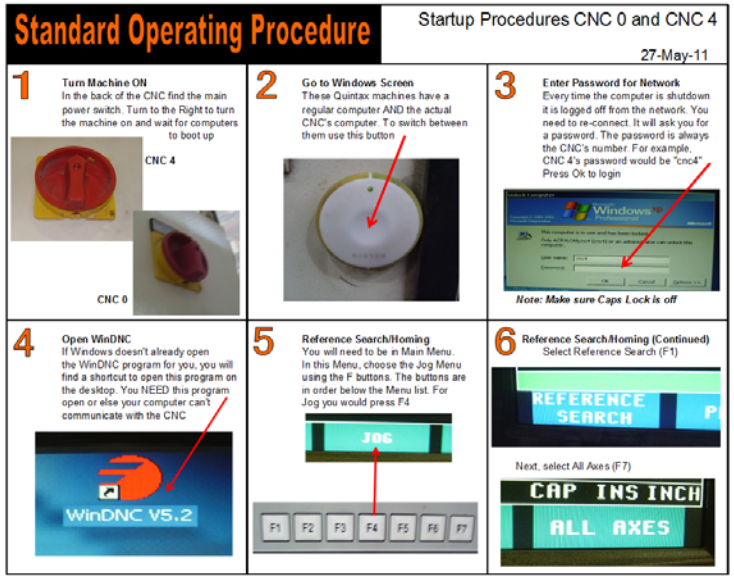
›› Employees enter with pride.

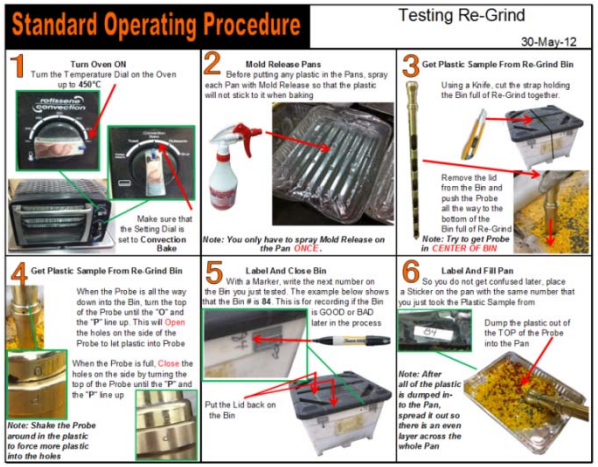
›› Customer’s first impression.

SOP (Standard Operating Procedures)









Assists us with language barriers.

Maintenance Shop Kaizen

Before

After

We gained 70% in usable floor space

5S on Production Equipment

- Everything has it’s place
- No extra tools - only what you need at point of use
- Provide all the tools required
- Angled shelving to accumulation of unwanted clutter

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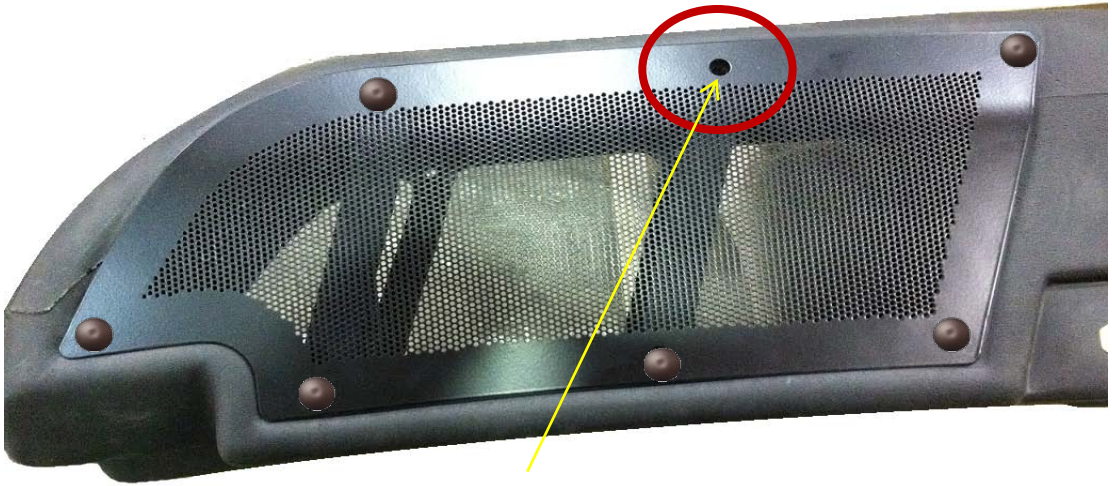
›› Recycled Broom Holders
›› 1 Piece flow for rotomolded parts using a roller system
›› Clean bright lights

Poka-Yoke – “Mistake proofing”

Problem: sending unassembled parts



(Missing Xmas tree clips)

Poka-Yoke – “Mistake proofing”

Solution: Use “Lean” problem solving tools

cnh pt#84541199

5 Whys

Feb. 19, 2013

Effect	Potential causes					Action
	1-Why	2-Why	3-Why	4-Why	5-Why	
Trimmed and Assembled parts put into the same box during assembly - left untrimmed part in box when shipped to customer.	When assembled box is full, but untrimmed is not - assembled parts are put into assembled box, until all are trimmed and assembled.	Saves time / convenience	By putting untrimmed and assembled parts into the same box, don't have to get another box. By getting another box you would have 3 instead of two boxes (space issues). By using two boxes only - avoid extra trips getting untrimmed box... Bring completed away.			Put untrimmed parts in plastic tubs only. Trimmed/assembled parts into paper Gaylord boxes only.
Shipped some untrimmed parts - bypassed CNC and assembly.	Bypassed trim, assembly and packaging to the warehouse.	No storage space inside.	To much W.I.P. In CNC area.	Could not keep up with trimming.	Priority of orders - Machine down, employees missing.	
CNC operator unfamiliar with trim and assembly procedure for this part.	1) Lack of work on CNC familiar to Operator. 2) People coming on to make up their 8 hrs.	Operator required, and they were available.	Lack of staff.	Increased workload - large orders.		Ensure all operators are properly trained for specific parts, when moved to a CNC where they are not familiar with the parts.
Not identified as untrimmed or completed.	No documented procedure.	Tribal knowledge.				Clear documented procedure (SOP), including training.

ACRYLON PLASTICS **A3 Template**

Title: RE: CNH SQP #2013000014294, #2013000014302
Date: Feb. 19-13
Team: Ron F, Richard U, Brad W, Franz O, Tracy J, Cornie H, Alex Z

Background:
Part# 84541199 (Dirty Air Duct).
Part(s) shipped to CNH, not trimmed / assembled.

(1) Clarify the Problem:
3 SQPs received (23 parts total), since Feb. 14, 2012.
Current 2 SQPs (8pcs total)
7,709 made (31pcs rej) since Feb. 1, 2012 to current.
Defect Rate: .4% (4,021 ppm)
- *All 329 completed parts (In-house,) were inspected – no issues found.*
- *SCSI- Supply Chain Services International, inspected CNH inventory (811 pcs)... no additional non-conforming parts were found to the original 8pcs.*

(2) Breakdown the Problem and Set Target:
Target, 500ppm

(3) Root Cause Analysis:
Results from 5 why process.
1) *Trimmed and Assembled parts put into the same box during assembly - left untrimmed part in box when shipped to customer.*
2) *Shipped entire box of untrimmed parts - bypassed CNC and assembly.*
3) *CNC operator unfamiliar with trim and assembly procedure for this part.*
4) *Not identified as untrimmed or completed.*

(4) a. Develop Solutions / Countermeasures:
Actions resulting from 5 why process:
1) *Put untrimmed parts in plastic tubs only. Trimmed/assembled parts into paper gaylord boxes only.*

(4) b. Implement Counter measures:
1) *Develop/modify (SOP) - molding to pckg. Mark F, Feb 22-13 (completed – see attached)*
2) *Train molding /CNC/ASSY/pcg/shipping personnel on new/modified (SOP). Richard U Feb 22-13 (completed – see attached)*
3) *Ensure all operators are trained for specific parts when moved to a CNC they are not familiar with. Richard U, On-going*

(5) Evaluate Results and Process:
Evaluate – Cornie H March 31-13
1) *Put untrimmed parts in plastic tubs only. Trimmed/assembled parts into paper gaylord boxes only.*

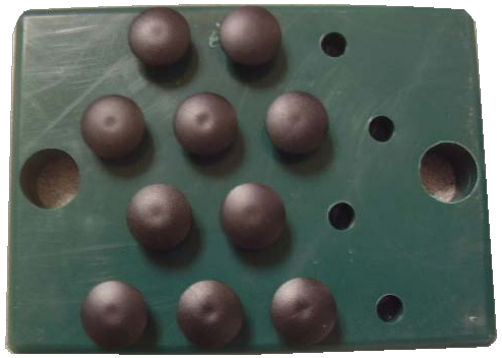
(6) Standardize Processes:
Made SOPs
Trained people

(7) Draw Conclusions (Hansei & Yokoten):
Poka-Yoke works on even simple things that you think people shouldn't forget

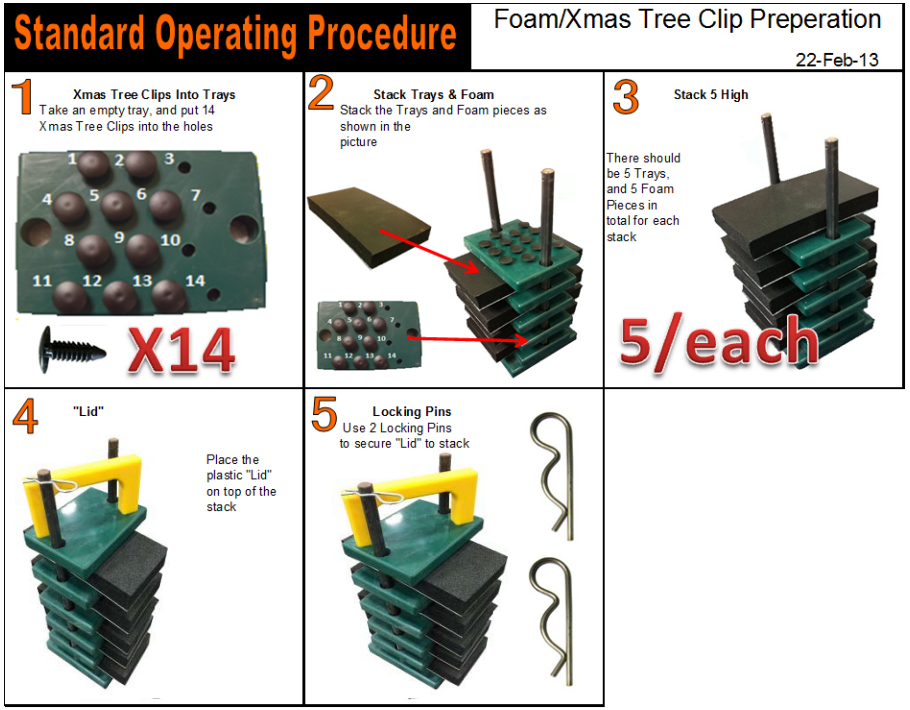
EMAILED
FEB 25 2013
FAXED

Poka-Yoke – “Mistake proofing”

Solution: Implement solutions



Trays for correct # of Xmas tree clips

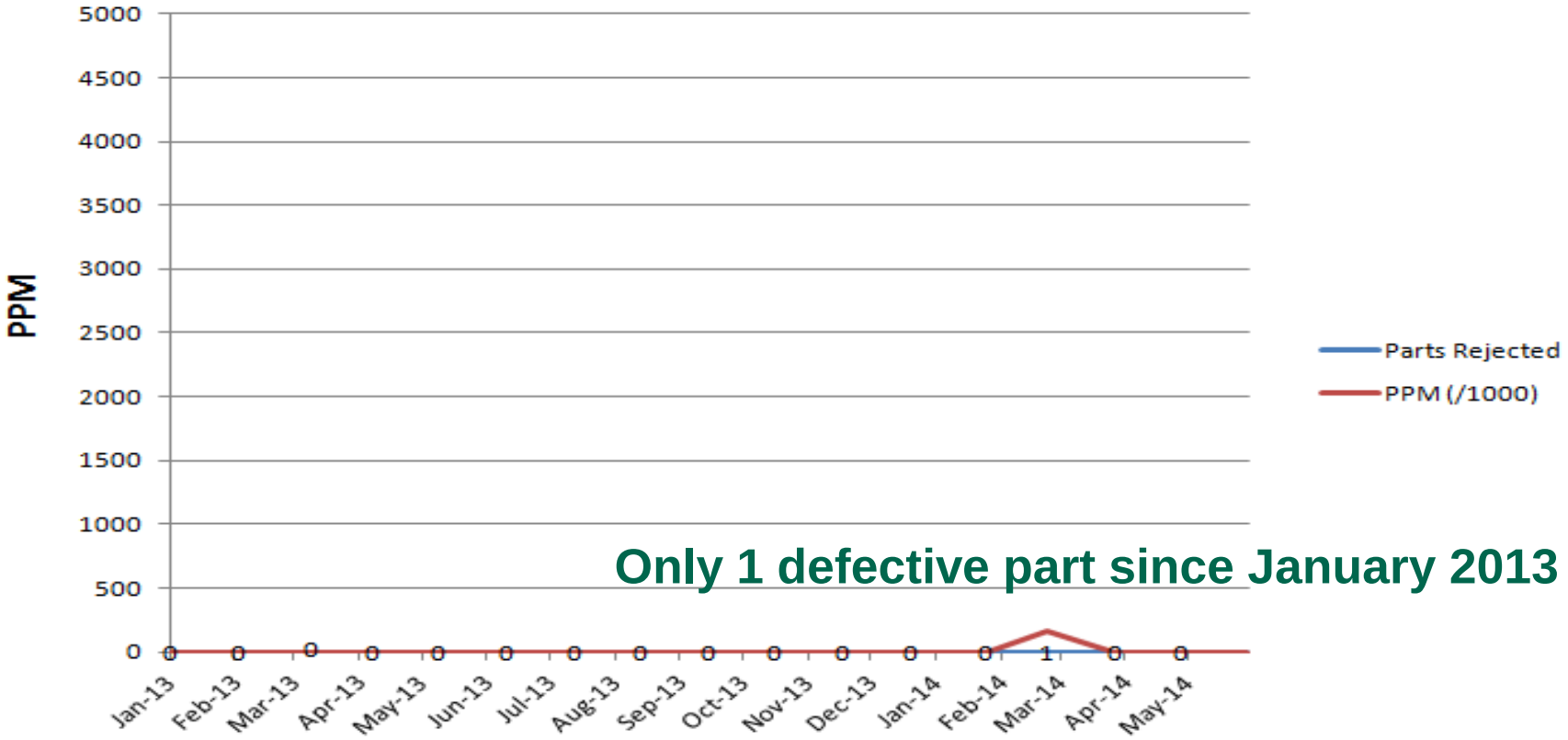


›› Build stands for trays

›› Create SOP and Train employees

Poka-Yoke – “Mistake proofing”

Results: Virtually eliminated defects since Poka-Yoke was implemented



Only 1 defective part since January 2013

Last updated May, 2014

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Presentation summary:

- 2006 we started to implement some “Lean” strategies.
- Today most Acrylon employees have a minimum of “Lean 101” training.
- Creating a “Lean” culture is important to us and a large part of our future success.

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Thank you for your time