



Let me Introduce Myself.

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CMRP, CRL, CPMM, Prosci Certified Change Management Practitioner

- •President Springfield Resources since 1980
- Past Director for International Projects, Life Cycle Engineering
- ·Past Director of Reliability Projects, Reliabilityweb.com
- •Over 35 years of global maintenance management and reliability consulting experience.
- Working with such global corporations as:

Alcoa, Toronto Airport, Newfoundland Hydro, GE, Iron Ore of Canada, US Steel, City of Edmonton, Syncrude, ARAMCO, Lockheed, SABIC, ADCO, BP, Exxon, BHP, Malawi Power, CISCO, General Motors, Mercedes Benz, Pepsi, Abbotts, US Coast Guard, US Army, US Navy...

Author of 21 books plus 2 collaborations and 200+ articles Trained 20,000 maintenance professionals in 550+ sessions in 42 countries

Favorite charity Kiva.org, micro lenders to small business world-wide

Books: http://www.MaintenancePublishing.com





Elements of Great Maintenance Management



















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DRIVING RELIABILITY THROUGH DAILY MAINTENANCE IMPROVEMENTS

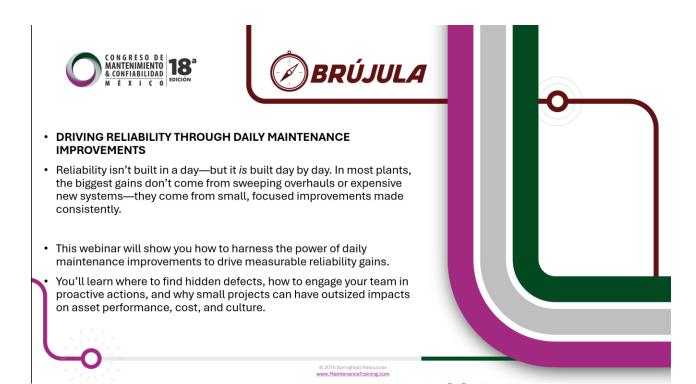
Reliability isn't built in a day—but it is built day by day. In most plants, the biggest gains don't come from sweeping overhauls or expensive new systems—they come from small, focused improvements made consistently.

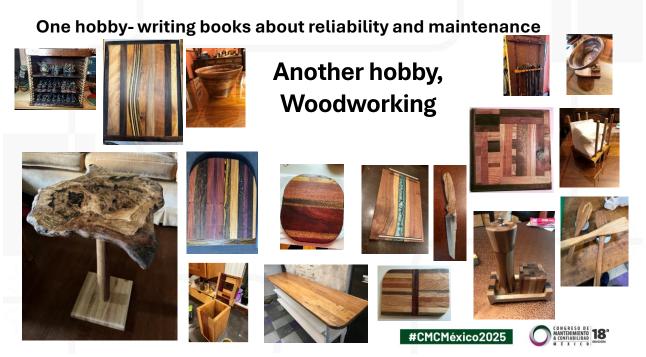
This webinar will show you how to harness the power of daily maintenance improvements to drive measurable reliability gains.

You'll learn where to find hidden defects, how to engage your team in proactive actions, and why small projects can have outsized impacts on asset performance, cost, and culture.

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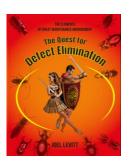




This short discussion is based on two works



And



A Comic book?

"Small Improvement Project is an activity that removes a problem, eliminates a defect, fixes damage, cleans up and organizes an area, makes work easier, reduces the need for maintenance, improves production, quality, or safety."

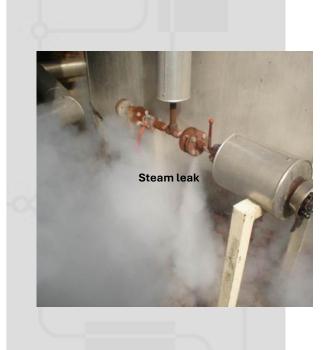
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Set-up

Execution

7



Topics for this event

- · What is a SIP
- · What is a defect?
- Where to look for SIPs?
- Why do this
- Why these actions transform organizations
- · Basic actions
- Choosing projects
- Rules for SIPs
- · Building your SIP team
- · Selling the idea



Why do we call them SIPs? To Sip is to drink a liquid in small amounts, usually less than a mouthful. This approach is precisely how we need to view improvement projects.

What is a Defect?

This is fundamental

A defect is anything that erodes value, reduces production, compromises HSE, or creates waste



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9

Projects come is all sizes and causes



Some are the result of temporary repairs



Some are the result of defective materials



Some are the result of bad raw materials



Some are the result of issues with craftsmanship





Why bother?

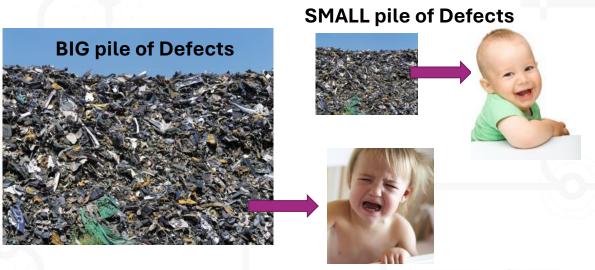
It eventually means less work for maintenance!

- · Better quality products
- Better yield from raw materials
- · Improved Uptime
- Higher reliability with fewer machine breakdowns.
- Longer equipment life
- Higher energy efficiency
- Have fun and develop new skills



11

HERE IS ALL YOU NEED TO KNOW





Example of a Quick SIP win: Ultrasound detection of compressed air leaks





3" Line Union, \$ 6356.00

1/2" Air Pistol, \$ 399.00





1" Hose Reel, \$ 1,589.00 1/2" Hose/ Shop Air, \$ 63.00

Leakage rates¹ (cfm) for different supply pressures and approximately equivalent orifice sizes									
Pressure (psig)	Orifice Diameter (inches)								
	1/64	1/32	1/16	1/8	1/4	3/8			
70	0.3	1.2	4.8	19.2	76.7	173			
80	0.33	1.3	5.4	21.4	85.7	193			

Pressure (psig)							
	1/64	1/32	1/16	1/8	1/4	3/8	
70	0.3	1.2	4.8	19.2	76.7	173	
80	0.33	1.3	5.4	21.4	85.7	193	
90	0.37	1.5	5.9	23.8	94.8	213	
100	0.41	1.6	6.5	26.0	104	234	
125	0.49	2.0	7.9	31.6	126	284	

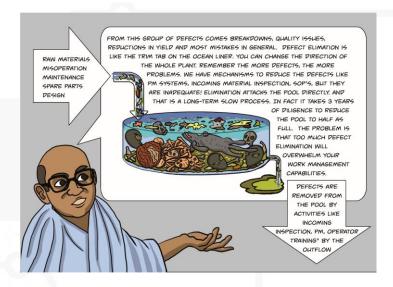
For well-rounded orifices, multiply the values by 0.97, and for a sharp-edged orifice, multiply the values by 0.61.

Courtesy of: U.S. Department of Energy, Dec. 2000 Tip #3

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Cesspool hanging over your head



- 1. You have a giant pool of things ready to poison your maintenance and operation.
- 2. Defects are flowing in faster than you are removing them.

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Focus on action, not planning

This is a situation where action is the goal. "Put equipment back into the plant better than new."

Book: Don't just fix it, improve it, Winston

Ledet



Action resides in the habits of your people.

They need the KNOW HOW: the ability, skills, and knowledge to perform new activities or to perform old activities in a new way.

They will also need: permission to make the changes, both tangible and intangible.

They need support!

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15

How does "Normalization of Deviance" impact us?

- Walk into your garage and you don't see the crap that is around.
- In your plant, you don't see disorder
- In your office, the debris, whatever it is, is invisible.



Colonel Mike Mullane NASA Astronaut spoke about the Normalization of Deviance and the Challenger accident

The NASA team accepted a lower standard of performance on the solid rocket booster O-rings until that lower standard became the "norm".

They had become so comfortable with seeing occasional O-ring damage and getting away with it, the original standard, in which ANY O-ring damage was defined as intolerable deviance, was marginalized.



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17

How do you manage a SIP program? Use the CMMS!

Couple of approaches-here is one:

- SIP is a new kind of work type or category
- SIP PM WO comes out at some frequency (your choice).
- SIP PM WO initiates the defect elimination process
- The SIP project is built, managed, executed and recorded in a new work category called SIP Execution.

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Manage your SIP micro-projects

- · Devote about 30-60 minutes a week
- Focus on the obvious ones that lend themselves to simple solutions
- · Set-up a CMMS work order category for SIP
- Save the work orders and add narrative for future presentations
- · Charge all labor, materials to work orders
- OK to be members of different teams and work on different defects
- · Be alert for too much SIP! 1%



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19

START HERE, RIGHT NOW:

There is a whole class of defects that do not need any fancy introduction!

DIYF: Defects that are In Your Face







DIYF-These- These are defects that are In Your Face Ouch!

- You ALL have DIFY!
- You trip over them
- · Get you dirty when you touch them
- Are eyesores
- Cover up what you are looking for
- · You must clean up after
- Are wasteful IN YOUR FACE!
- They are easy, easy, easy



Notice dirt everywhere. Notice missing Fire Extinguisher

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21

There are lots of places to look for opportunities for SIPs

Everywhere you can imagine; And in every activity you do.







Every activity of maintenance offers opportunities for SIPs

- Breakdowns
- Corrective work
- Maximo
- Work management
- Machine design
- Planning and scheduling
- PDM and PM

- Projects
- Purchasing
- RCA
- RCM
- Shutdowns
- Stores
- Supervision and Management







23

Brainstorm lists



- Disruptions (any kind)
- Parts Usage
- Repetitive Jobs
- Max Hours
- You can make tons of other lists!





Example TOP PART NUMBERS BY USAGE



- · Part usage points to defects in:
 - o Machine Design
 - Craftsmanship
 - Operation
 - o Raw Materials
- Part usage includes labor usage
- Parts takes up room and effort

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25

The Leap from a <u>list item</u> to a potential project you have to be:



- Creative
- Ability to make a mistake and learn
- Have Knowledge or know who does
- # Have some Time
- # Fun

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STOP- Don't get caught by unintended consequences!



When you do a SIP make darn sure 2 or 3 new ones don't spring up to replace them

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27

Great SIP projects follow some rules

- Projects always use action language.
- Eliminates the source of the problem
- Reduces waste
- Increases knowledge
- High Probability of Success
- · Least (no) money invested
- Tools and materials easily available.
- Doable within 90 days
- Shortest cycle for payback

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Go after Low Hanging Fruit first!





Remember the DIYF **Defects in your face**

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29

Starting and Execution

- Keep records
- Get help from vendors
- Stay honest
- Repeatability
- Measure
- Size



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Build your team slowly of people interested in SIP projects





Get some wins under your belt

THE TEAM TAKES ON SEVERAL MINOR PEFECTS AND HAS 600P RESULTS





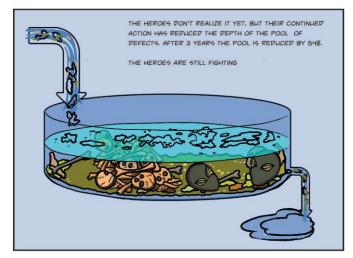






31

After a few years of SIPs, the cesspool of defects is significantly lower.



Fewer defects =

- Less maintenance work
- Better product
- · Lower downtime
- Better quality
- Happier employees
- More time for deeper problem investigations



Gradually, continue to build your team. Focus on your successes.

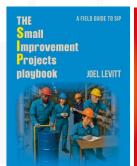


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33

Thank you very much for your attention.





Stay in touch, Joel D Levitt

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Instructor Joel Levitt, holding an eagle after a traditional dinner in Kyrgyzstan





