When supervisors talk about safety—accidents go down.



Make sure your supervisor has something important to say...

Larkin Safety Minute

world's best safety research

illustrated for supervisors' safety talks

January 2019

# Contents

	Supervisors Reduce Accidents	page 3
The state of the s	sample #1: Shift Handover	page 5-6
LES MAN TO SERVICE AND THE SER	sample #2: Lockout/Tagout	page 8-9
STATE OF LOCAL CONTROL	sample #3: Inexperienced Employees	page 11-12
and Mod National Section 1992.  And the Andread Section 1992.  And the Andread Section 1992.  And the Andread Section 1992.  Andread Sect	sample #4: New Risks Need New Plan	page 14-15
•	ense Includes Four Things arkin Safety Minute	page 17 page 18
	chind the Page Design	page 19
Fee: Monthl	y License <i>Larkin Safety Minute</i>	page 20
License Deta	ails: Larkin Safety Minute	page 21
The Larkins		page 22

 $cover photo \ credit: "Paving, Preparing, Training" \ Crew \ Members \ Gathering \ for Forklift \ Training, April \ 7, 2011. \ http://stripensealinc.blogspot.com/2011/04/paving-preparing-training, html$ 

# **Supervisors Reduce Accidents**

### When supervisors talk about safety—accidents go down.



r = -0.65

The correlation between supervisors' informal conversations about safety and serious accidents in eight Dutch chemical plants.

Sicco van As: "Communication and Industrial Accidents," SOM Research Report, University of Groningen, The Netherlands.

http://irs.ub.rug.nl/ppn/228120691.

Only 2% of employees will change their behavior based on anything they read.

70% of employees who change their behavior do so after a face-to-face conversation with their supervisor.

Rogers, E. M.: Diffusion of Innovations, New York, The Free Press, 1962.

Clampitt, Phillip G.: "Employee Perception of the Relationship Between Communication and Productivity: A Field Study," *The Journal of Business Communication*, vol. 30, no. 1, 1993,

http://postgradicm.wikispaces.com/file/view/Clampitt+P+&+Downs+C+%281003%29+%27 Employee+perceptions+of+the+relationship+between-communication+and+productivity%27.pdf



Compliance with written safety standards (PPE) climbed from 47% to 74% when supervisors personally asked for the compliance.

Wogalter, Michael S.; Vincent C. Conzola; Tonya L. Smith-Jackson: "Research-Based Guidelines for Warning Design and Evaluation," Applied Ergonomics, vol. 33, 2002, p. 219-230. http://www.who.int/fetc/guidelines/ArtElevenWogalterNine.pdf



When supervisors talk about safety, unsafe acts go down.

supervisors informal conversations about safety	unsafe material handling	r = -0.75
	unsafe electrical work	r = -0.81
	failing to use PPE	r = -0.86

Zohar, Dov and Gil Luria: "The Use of Supervisory Practices as Leverage to Improve Safety Behavior: A Cross-level Intervention Model," March 2003 http://www.sciencedirect.com/science/article/pii/S0022437503000781

# Sample #1 Shift Handover

World's best safety research

Illustrated for supervisors' safety talks

Test this sample with your supervisors



### Shift Handover

50% of all operating mistakes happen in the first 30 minutes after a handover.

#### Why?

Because the person coming on doesn't get the handover he or she needs.







Question: What is the most dangerous

topic discussed during a shift

handover?

Answer: Planned maintenance work that

runs across several shifts.

"Planned maintenance work" is the handover topic most likely to cause serious injury or death when not handed over carefully.



### **Best Shift Handovers**

Best Shift Handovers Use Two Types of Communication: Log Book + Face-to-Face Conversation

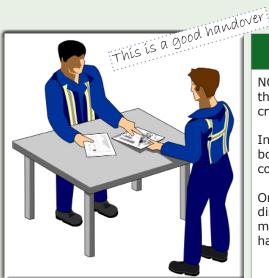
#### Log Book

NOT a blank book with handwritten notes.

Instead, best log books are visual.

#### The best use:

- areas maps
- checklists
- equipment icons
- diagrams of processes
- risks in color (highest to lowest)
- thumbnails of active work permits



#### Face-to-Face

NOT good enough to just leave the log book for the oncoming crew to read.

Instead, best handovers use log book together with a face-to-face conversation.

On average, face-to-face discussions clarify 3 serious misunderstandings during each handover.

Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

Dr TJ Larkin & Sandar Larkin

©Larkin Communication Consulting

Larkin@Larkin.Biz

page 1 of 2

### **Larkin Safety Minute - Shift Handover**



### Supporting Information

### Talking Points - Shift Handovers

Is this true for us:

"50% of mistakes happen in the first 30 minutes of a shift"?

Should we be worried about handing over "planned maintenance"? "Planned maintenance running across shifts is the most dangerous handover topic."

Research shows a blank handover book with only handwritten notes is not best practice.

Can we make a new handover book that is more visual:

- icons for equipment
- · thumbnails for open work permits
- · colors for risk levels

....with places for handwritten notes next to each visual

Do we use a handover book INSTEAD of a face-to-face conversation? Research shows you need both (log book + face-to-face). 3 big mistakes clarified in each face-to-face handover conversation

#### Fifty Percent of Operating Mistakes Happen in the First 30 Minutes on the Shift

#### Study details:

- air traffic controllers
- 3,222 controller errors between 1988 and 1994
- FAA's Operational Error/Deviation system database
- sponsored by U.S. FAA (Federal Aviation Administration) and NASA (National Aeronautics & Space Administration)

Rocco, Pamela S.: "The Role of Shift Work and Fatigue in Air Traffic Control Operational Errors and Incidents", January 1999.

www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA360730

#### **Biggest Handover Mistake: Planned Maintenance**

#### Study details:



- examined five serious accidents where handover problems were a
- contributing factor
   industries studied: offshore oil & nuclear power
- conclusion: "All incidents involved planned maintenance work."

Lardner, Ronny: "Effective Shift Handover - A Literature Review", Offshore Technology Report - OTO 96 003, U.K. Health & Safety Executive, Offshore Safety Division, June 1996.

http://www.hse.gov.uk/research/otopdf/1996/oto96003.pdf

#### Best Handovers Use Log Book + Face to Face

#### Study details:



- study of shift handovers during the MER Mission (Mars Exploration Rover)
- MER landed two robot rovers on Mars

Parke, Bonny and Andrew Mishkin: "Best Practices in Shift Handover Communication: Mars Exploration Rover Surface Operations", October 2005.

http://www.docstoc.com/docs/50919414/BEST-PRACTICES-IN-SHIFT-HANDOVER-COMMUNICATION-MARS-EXPLORATION-ROVER

#### **Three Misunderstandings Corrected During Face-to-Face Conversations**

#### Study details:

- nuclear reprocessing plant
- shift handovers by production supervisors
- handovers were tape recorded and observed • total of 16 taped handovers with face-to-face conversations plus log
- average of 2.66 misunderstandings clarified in each face-to-face turnover conversation

Lardner, Ronny: "Effective Shift Handover - A Literature Review", Offshore Technology Report - OTO 96 003, U.K. Health & Safety Executive, Offshore Safety Division, June 1996.

http://www.hse.gov.uk/research/otopdf/1996/oto96003.pdf

Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

Or TJ Larkin & Sandar Larkin

©Larkin Communication Consulting

Larkin@Larkin.Biz

page 2 of 2

# Sample #2 Lockout/Tagout

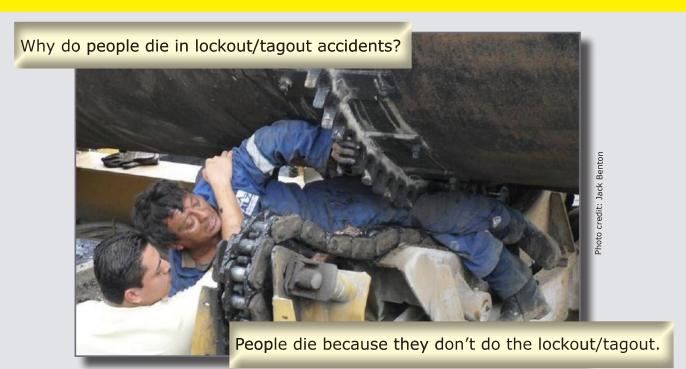
World's best safety research

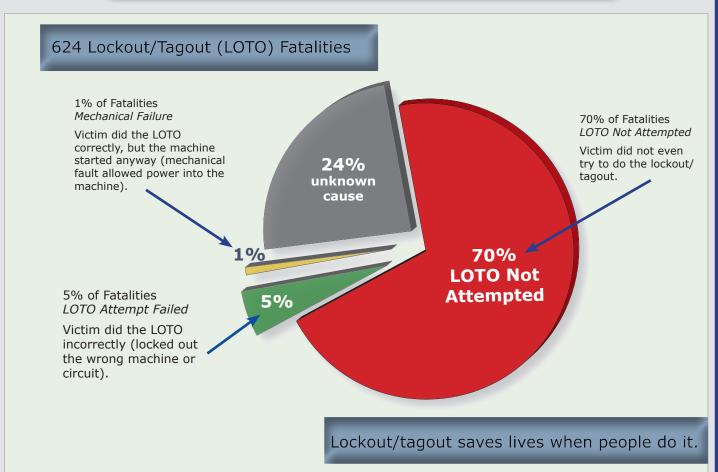
Illustrated for supervisors' safety talks

Test this sample with your supervisors

Front

# Lockout/Tagout





## Larkin Safety Minute - Lockout/Tagout



### **Supporting Information**

### Talking Points - Lockout/Tagout

Where are we NOT doing LOTO and eventually someone is going to get hurt?

Can we make our lockout/tagout procedures faster and easier?

When we see someone working without LOTO, do we say something?

- On average, employees "say something" only 40% of the time they see something unsafe.
- Are we more or less than this 40%?

The main point of this research:

- 70% of the people who die in lockout/tagout accidents
- did not even try to do the LOTO

LOTO may be a hassle, but it's better than this.







#### Photo Details

"Safety Photos of the Year: `Why Lock-Out, Tag-Out is Vitally Important'"  $% \begin{center} \be$ 

EHS Safety News America

Jack Benton

http://ehssafetynews.wordpress.com/?s=safety+photo&submit=Search

#### Study of Lockout/Tagout (LOTO) Fatalities

#### Study details:

- analysis of OSHA accident investigation reports
- studied only fatalities involving lockout/tagout
- 624 total LOTO fatalities
- U.S. manufacturing companies
- 1984 to 1997

Bulzacchelli, Maria T.; Jon S. Vernick, Gary S. Sorock, Daniel W. Webster, and Peter S.J. Lees: "Circumstances of Fatal Lockout/ Tagout-Related Injuries in Manufacturing," *Journal of Industrial Medicine*, vol. 51, 2008, p. 728-734.

http://onlinelibrary.wiley.com/doi/10.1002/ajim.20630/abstract

Why

We

Need

Supervisors'

Help....

Regulations

Are Not

Working

#### **Regulations Are Not Working**

In 1990, the U.S. Occupational Safety & Health Administration (OSHA) passed a Lockout/Tagout regulation.

Dr Bulzacchelli studied the rates of LOTO-related fatalities before the OSHA regulation was imposed and after the OSHA regulation was imposed.

The result? A very small increase in LOTO-related fatalities AFTER the OSHA regulation was imposed.

Dr Bulzacchelli concluded, "There is no evidence that the lockout/tagout standard decreased fatality rates...."

Bulzacchelli, Maria T.; Jon S. Vernick, Gary S. Sorock, Daniel W. Webster, and Peter S.J. Lees: "Effects of the Occupational Safety and Health Administration's Control of Hazardous Energy(Lockout/Tagout) Standard on Rates of Machinery-Related Fatal Occupational Injury," *Injury Prevention*, vol. 13, 2007, p. 334-338.

http://www.experts.scival.com/jhu/pubDetail.asp?t=pm&id=17916891&n=Daniel+Webster&u\_id=970

Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

Dr TJ Larkin & Sandar Larkin ©Larkin Communication Consulting Larkin@Larkin.Biz page 2 of 2

# Sample #3 Inexperienced Employees

World's best safety research

Illustrated for supervisors' safety talks

Test this sample with your supervisors



# **Inexperienced Employees**



# **Inexperienced Employee Twice as Likely to be Injured**

An inexperienced employee...

(less than one year experience at the company)

.....is almost twice as likely to be injured as someone with one year or more experience.

In this study, employees with less than one year of experience were only 7.6% of the workforce....

#### **BUT**

.....these inexperienced employees were 14% of all medical-treatment injuries.



Supervisors need to keep one eye on the inexperienced employee.



# Problem is Experience Not Age

The increased risk is NOT caused by age.

Older employees were just as likely to be injured as younger employees, if the older employee had less than one year of experience.

Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

## **Larkin Safety Minute - Inexperienced Employees**



### **Supporting Information**

### Talking Points - Inexperienced Employees

Do we have new people (less than one year experience) at our site?

- contractors or employees
- anyone at our site for the first time

Around 50% of fatalities involve employees with less than one year of experience.

Being older is no protection—older employees are just as likely to be injured as young employees IF they are new to the site.

People who have worked here a long time think the safest way to do things is obvious. It is NOT obvious.

To a new person it's not obvious at all.

Experienced employees need to watch anyone new to our site.

#### Metal Mining: Employees With Less Than One Year Experience are 56% of Fatalities

- study based on data from MSHA (U.S. government Mine Safety & Health Administration)
- fatalities in USA metal mining
- 56% of these fatalities were employees with less than one year of experience doing that particular task

Ross, Jamie: "Three Lessons from 2009 Mining Fatality Statistics," *Mining Man* (Blog) July 10, 2010.

http://www.miningman.com/Blog/July-2010/Three-Lessons-from-2009-Mining-Fatality-Statistics

#### Construction Workers in China: 50% of Injuries Happen in the First 10 Weeks an Employee is at the Site

#### Study details:

- 136 construction companies in Southern China
- 209 injuries
- 98 fatalities
- 47.5% of the combined injuries and fatalities happened to employees working at that construction site 10 weeks or less

Wang, Yousong; Yan Zhang; Sun Wah Poon; and Haiying Huang: "A Study of Construction Site Accidents," March 18, 2011.

cibworld.xs4all.nl/dl/publications/Publ274/WANG.DOC

#### **Study Details**

#### Study details:

- sample included 15,000 employees in USA coal mines
- sample included underground mines, open-cut mines, and coal processing plants
- injuries were those requiring medical attention
- employees with less than one year's experience at present company were 82% more likely to be injured
- Study is rare because while many other studies show increased injuries among inexperienced employees, these other studies do not show whether the higher accident rate happened because these injured employees were "inexperienced" or because they were typically "younger".
- This study had a large enough sample (15,000 employees) to include older employees who were also inexperienced.
- These older employees had the same accident rate as the younger employees if the older employees were inexperienced.
- researchers from U.S. Bureau of Mines

Butani, Shail J.: "Relative Risk Analysis of Injuries in Coal Mining by Age and Experience at Present Company," *Journal of Occupational Accidents*, vol. 10, 1988, p. 209-216

http://www.sciencedirect.com/science/article/pii/0376634988900144

Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

# Sample #4 New Risks Need New Plan

World's best safety research

Illustrated for supervisors' safety talks

Test this sample with your supervisors

# C'LOUX

## New Risks Need New Plan

Question: Why do military jets crash?

Answer: Pilots believe they can handle an unexpected risk

without changing the flight plan.



Your employees can handle unexpected risks. Right?

Just like this guy.

#### The Pattern for a Crash

- 1. Pilot takes off with an agreed flight plan.
- 2. Something unexpected happens:
  - bad weather
  - instrument failure
  - unanticipated aircraft traffic
- 3. Pilot decides he/she can handle this new risk without changing the original flight plan.
- 4. Pilot cannot adapt fast enough—plane crashes

54% of pilot decisions leading up to a crash or near-miss follow this pattern.

### **Lesson for Supervisors**

Employees are too confident about their ability to handle unplanned risks.

In this study, most pilots:

- saw the new risk
- understood the new risk
- but....believed they could manage it without any change to the existing plan

When significant unplanned risks appear:

- stop the work
- redo the plan—controlling the new risk
- restart the work with the new plan

Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

### Larkin Safety Minute - New Risks Need New Plan



### **Supporting Information**

### Talking Points - New Risks Need New Plan

Fighter pilots are very confident people—that's why they crash.

- They think they can handle an unexpected risk without changing the plan.
- They can't....
- 54% of pilot decisions just before a crash come from overconfidence.

Everyone has a plan today.

But what do we do when unexpected risks pop up?

- Do we keep going—confident we can handle the new risk with the old plan.
- Or, do we stop work and make a new plan.

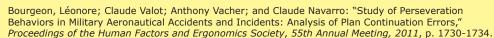
Don't let overconfidence get you or anyone else killed.

Stop and redo the plan.

#### Study of Military Aircraft Accidents/Incidents

#### Study details:

- military aircraft in the French Air Force (Armée de l'Air)
- analysis of 30 accident and incident investigations
- investigations published by the Bureau Enquêtes Accident Défense-air



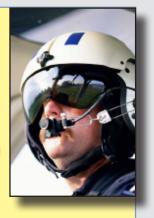
http://pro.sagepub.com/content/55/1/1730

#### **Most Pilots Saw and Understood the New Risk**

In the study of French Air Force aircraft accidents and incidents:

- 20% of the time—pilots stayed with the original flight plan because they did not notice the new risk.
- 26% of the time—pilots noticed the new risk, but did not really understand the consequences. They saw but misunderstood the risk.
- 54% of the time—pilots noticed the new risk, understood it's consequences, but believed they were skilled enough to handle the new risk without making any changes to the flight plan.

Source same as above.



### Photo Credit: Fighter Pilot Ejecting

#### Photo details:

ARMÉE DE L'AIR

- Lt Maryke Lynn
- Aeronautical Society of South Africa
- South African Air Force

http://www.af.mil.za/news/2006/031.htm



Complimentary - Anyone May Use This Larkin Safety Minute With Their Supervisors

# Background - Fee - Details

Monthly License Includes Four Things	page 17
Building a <i>Larkin Safety Minute</i>	page 18
Research Behind the Page Design	page 19
Fee: Monthly License Larkin Safety Minute	page 20
License Details: Larkin Safety Minute	page 21
The Larkins	page 22

# Monthly License Includes Four Things

### 1. Larkin Safety Minute



- · one each week
- 52 a year
- topics selected and illustrated for supervisors' safety talks

## 3. TJ Yearly Face-to-Face Meeting

(for those holding monthly licenses for 12 months)



#### TJ's presentation:

Communicating Safety (customized for your company)

- 1.5 hours
- see video samples (http://www.larkin.biz/videos.php)
- any size audience
- · only additional expense is travel

or

TJ's Face-to-Face meeting with:

- · leadership team
- · HSE professionals
- supervisors

### 2. TJ Quarterly Conference Phone Call



TJ will contact a person or group of your choice (4 times each year).

Discussing the past quarter's Larkin Safety Minute:

"Were topics relevant?"

"Easy to deliver?"

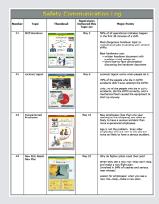
Getting your advice on future topics:

"Topics your supervisors want?"

"Topics your leaders want?"

Discussing any other safety communication issues.

# 4. Safety Communication Log



Safety Communication Log shows:

- · safety topics
- thumbnails
- · dates delivered by supervisors
- · major points delivered

Safety Communication Log can be emailed:

- · monthly
- quarterly
- yearly

Use for internal or external safety audits.

# Building a Larkin Safety Minute

1. We Study Safety Research—Looking for Results Relevant for Supervisors



2. Condense Results Into One Useful Conclusion



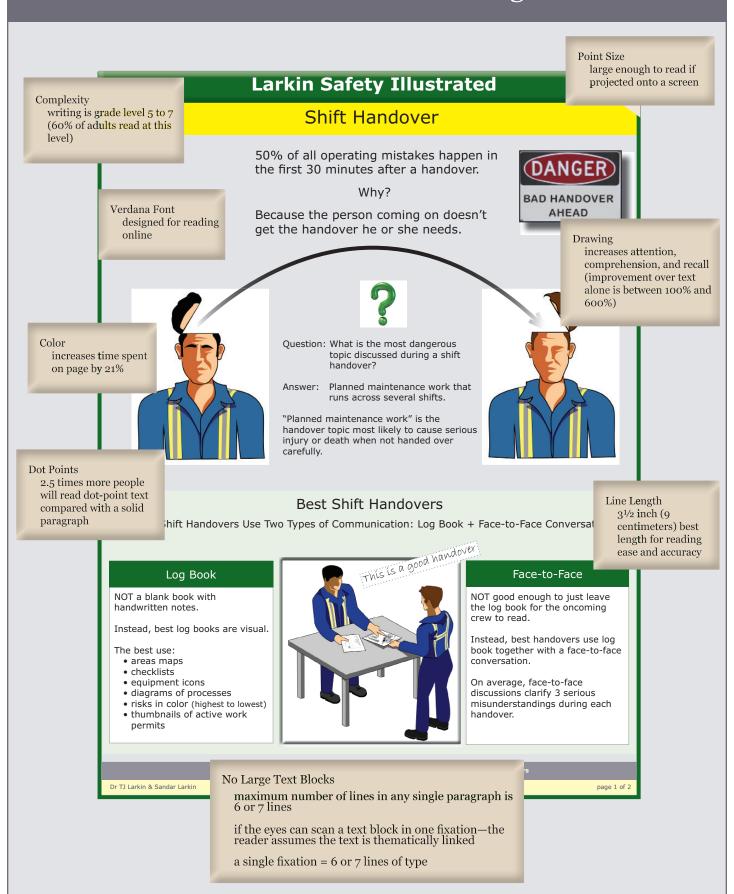
3. Illustrate the Conclusion In a Easy-to-Talk-About Design



4. Supporting Information and Talking Points on a Second Page



# Research Behind the Design



# Fee: Monthly License for Larkin Safety Minute

(see page 17 for details)

### 1. Larkin Safety Minute (one each week - 52 a year)









### 3. TJ Presentation or Face-to-Face Meeting

For those holding monthly licenses for 12 months. See page 17 for details.



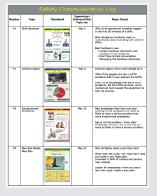
### 2. TJ Quarterly Conference Telephone Call

See page 17 for details.



### 4. Safety Communication Log

See page 17 for details.



## Monthly Licensing Fee Depends on the Number of Employees in Your Company or Business Unit

Number of Employees (employees = full time + part time + contractors)	Monthly Licensing Fee for This Many Employees
More than 100,000 employees	US\$8,000 a month
50,001 to 100,000 employees	US\$5,000 a month
25,001 to 50,000 employees	US\$2,500 a month
10,001 to 25,000 employees	US\$1,800 a month
5,001 to 10,000 employees	US\$1,500 a month
1,000 to 5,000 employees	US\$ 900 a month
Below 1,000 employees	US\$ 600 a month

# License Details: Larkin Safety Minute

#### One Larkin Safety Minute each week









Dr TJ Larkin quarterly conference phone call



See page 17 for details.

Dr TJ Larkin

Presentation or Face-to-Face Meeting

For those holding monthly licenses for 12 months.

See page 17 for details.



Safety Communication Log



See page 17 for details.

### License Details: Larkin Safety Minute

Larkin Safety Minute	One Larkin Safety Minute e-mailed to you each week (pdf).		
TJ Conference Phone Call	- Once each quarter - Up to one hour - any individual or group of your choice		
TJ Presentation or Face-to-Face Meeting	- one each year - for companies holding a license for 12 consecutive months - only additional expense is travel		
Safety Communication Log	- Records all your supervisor safety talk topics - Used for internal and external audits		
No Commitment	- No Contract - Cancel at Any Time		
License Fee Depends On	- All employees = full time + part time + contractors)		
Printed Restriction	For Exclusive Use Inside «Name of Your Company or Business Unit» (printed on each Larkin Safety Minute)		
Payment By	- Credit Card - Check - Direct Deposit		
How to Buy	E-mail us (Larkin@Larkin.Biz); and we will e-mail you an invoice.		
Emailing Your Employees	You give us a single contact (we email each Larkin Safety Minute to the contact you give us).		
Translating Larkin Safety Minute	- Portuguese - Spanish - French - Arabic Each language requested (in addition to English) requires an additional US\$800 each month.		

# The Larkins

### Helping Large Companies Improve Communication with Employees



Dr TJ Larkin & Sandar Larkin began Larkin Communication Consulting in 1985.

We improve communication for employees with an emphasis on better communication for frontline supervisors.



Sandar Larkin

Working with top	management at 1	more than 20 glo	bal companies,	including:

USA/Canada

ConocoPhillips

EXONMobil
Chemical

RioTinto

RioTinto

RioLinto

	Si ip	Silitori	industries infinited
(with	Book Sandar Larkin)	COMMUNICATING CHANGE WINNING EARTH OYEE RISINESS GLAZS TI LARKIN SANDAR LARKIN	Communicating Change: Winning Employee Support for New Business Goals (McGraw-Hill)
Harvard Business Review article (with Sandar Larkin)		Harard Business Review	"Reaching and Changing Frontline Employees"
Chemical Engine (with F	eering Progress Renato Prestes)	STEAM TURBINES	Use Scare Tactics to Communicate Major Incidents available as a free download from:  https://www.aiche.org/resources/publications/cep/2018/ august/use-scare-tactics-communicate-major-incidents
Commu	nicating Safety		Communicating Safety: By TJ Larkin & Sandar Larkin Free PDF Downloads — <u>www.Larkin.Biz</u>
Education, 13 has		1	gy (University of Oxford) cation (Michigan State University)
	Contact		Dr TJ Larkin & Sandar Larkin Larkin Communication Consulting 230 Park Avenue, 3rd Floor West, New York, NY 10169 1-212-860-2939 <u>www.Larkin.Biz</u> <u>Larkin@Larkin.Biz</u>

