Critical Safety Thinking

Beyond Swiss Cheese

and

Equilateral Triangles

Campbell River, BC, May 2019

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It’s 2019!

How does our Thinking on Traditional Safety Models need to change to keep up?
Critical Thinking on Traditional Safety Models in 2019 and Beyond

1969

1 Major Injury / Fatality
10 Minor Injury
30 Property Damage
600 Near Miss

1990

Major Consequences
Medical Aids
Other Recordable Injuries
Major Property Damage
First Aid and Minor Injuries
Minor Property Damage
Near Misses
Hazards

Unsafe Behaviors / Conditions
Critical Thinking on Traditional Safety Models in 2019 and Beyond

Focus on the Predictive, Proactive and Preventative

1) Assessment of the Safety System and Culture
2) Promote proactive reporting and predictive safety
3) Focus on the high potential events
1) Assessment of the Safety System and Culture

Ratios of Incidents to Proactive Reporting

- Poor Safety: 1/5
- Weak Proactive Reporting: 7/30
- Traditional Model of Successful: 10/600
- Pacesetter: < 2000

2019
2) Promote proactive reporting and predictive safety

1. Create a positive culture on proactive reporting
2. Teach workers how to identify near misses
3. Create a simple reporting system
4. More observations and interventions on at risk behaviours
5. Visible management support
6. Follow up and Action on identified items

Request Dave’s “How To” document for implementation of a near miss program
3) Focus on events with high potential

1. Develop a System for assessing potential (i.e. “Potential Hurt”)
2. Use a System for assessing integrity of the barriers (i.e. IRAT)

_ExxonMobil’s and Imperial Oil’s “Mining The Diamond”_
Swiss Cheese Barriers
Critical Thinking on Traditional Safety Models in 2019 and Beyond
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Safety Filters

Management Systems

Working Conditions

Human Behaviors

Incident!

Work on the job site
Critical Thinking on Traditional Safety Models in 2019 and Beyond

Safety Filters

Management Systems

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Work on the job site

Incident!
Critical Thinking on Traditional Safety Models in 2019 and Beyond

- Procedures
- Training
- Work Management
- Supervision
- Change Management

- Facilities
- Equipment
- Housekeeping
- Work Conditions
- Tools
- Hazards

- Following Procedures
- Applying Training
- Risk Tolerance
- Approaching and Intervening
Prevent Incidents by Proactively Identifying the ‘holes’

Audits and Assessments

Behaviour Observations

Inspections and Hazard ID
Critical Thinking on Traditional Safety Models in 2019 and Beyond

Using the Filters in Incident Investigation

Management System Causes:
________________________________________
________________________________________
________________________________________

Equipment & Conditions Causes:
________________________________________
________________________________________

Behavioural Causes:
________________________________________
________________________________________
Critical Thinking on Traditional Safety Models in 2019 and Beyond

One More Safety Model

Risk Tolerance - Understanding why people do what they do when it comes to risk
Risk Perception and Tolerance Model

1. **IDENTIFY the Hazard**
   - Do I See It?
   - The hazard is NOT RECOGNIZED

2. **PERCEIVE the Risk**
   - Do I Understand it?
   - The hazard is NOT UNDERSTOOD

3. **DECISION**
   - Do I Accept it?
   - The risk is ACCEPTED
   - The risk is Not Accepted

4. **EXPOSURE**
   - At Risk Behavior
   - Safe Behavior
Factors Influencing Risk Tolerance

- Over estimating physical capability and experience
- Familiarity with the Task (Complacency)
- Seriousness of the Outcome
- Voluntary Actions and Being in Control
Factors Influencing Risk Tolerance

- Personal Experience with an Outcome
- Confidence in Equipment, Protection and Rescue
- Cost of Non Compliance
- Potential Profit and Gain from Action
- Role Models Accepting Risk

Critical Thinking on Traditional Safety Models in 2019 and Beyond
The Incident Triangle:

1) Create a safety culture that focuses on Proactive and Predictive aspects of safety. **Expand the Base of the Triangle**

2) Use the Triangle as a **Touchstone of the Maturity** of the safety system.

3) Focus on the **High Potential** events.
The Safety Filters:

1) The work place is dynamic … *use a dynamic model*

2) Examine all three components … *Management Systems, Conditions, and Behaviours*

3) Use the Filters to demonstrate the need for *Assessments, Inspections and Observations*

4) Use the Filters to assist with *Investigations*
Risk Tolerance:

1) Move **beyond** just Hazard Recognition

2) Provide an understanding of **why** workers and groups of workers take risks.

3) Integrate the concepts of Risk Perception and **Risk Tolerance** into your Safety Management Systems
The Role of the Safety Professional:

1. **Understand** how these models apply to your workplace.

2. Use the models when **Communicating** with workers, supervisors and managers to promote the critical aspects of your safety systems.

3. Be a **Critical Thinker** on these and other aspects of safety to continue improving in **2019 and Beyond**
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