Pacific Safety

Risk Fundamentals

February 2018

Actsafe Event Safety Conference



Agenda



Regulatory Considerations
 Intro - Hazard and risk
 Risk Management Process
 Lessons Learned

Resources





Legal Requirements

Federal:

- 19.1 (1)....develop, implement and monitor a program for the prevention of hazards in the work place that is appropriate to the size of the work place and the nature of the hazards and that includes the following components:
 - an implementation plan; a)
 - a hazard identification and assessment b) methodology;
 - hazard identification and assessment; **C**)



Legal Requirements

British Columbia

- 115(1): ensure that the employers workers are made aware of <u>all known or reasonably</u> <u>foreseeable</u> health or safety hazards,
- 119(b): every owner of a workplace must give the employer or prime contractor the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace,

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Safety and Compliance

Safety

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The first steps to take in providing a safe place of work, is to identify hazards that are reasonably foreseeable within your workplace, and then assess their risk level, and apply appropriate controls to eliminate or lower the risk

Compliance and Due Diligence

This can help you not only provide a safer workplace, but can also demonstrate to any interested stakeholders that you have taken appropriate measures to comply with expectations

5



ALARA

*****As Low As Is Reasonably Achievable

So how far do you need to go to identify and address hazards?

Due Diligence: requires employers to take all reasonable precautions, to prevent injuries or accidents in the workplace.

Negligence: a duty of care is owed to employees and that has not been breached

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ALARA

Regs, Reasonable, and Live Events Motion Picture

"Whenever there's a hazard, if you're not able to meet the straightforward, easy requirements that we list in the regulations, or maybe there's a regulation that doesn't exist, we're still going to expect a risk analysis and hazard controls anytime a worker could be harmed,"

Lisa Houle, manager, industry and labour services at WorkSafeBC.





Industry Challenges

WSBC and Practical Solutions

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Guideline 11.2-6 Fall Protection During Stunt Work, discusses acceptable alternative controls to be used when the regulated fall protection procedures are not practicable during a planned fall. It specifies personal fall protection equipment that may be used when regulated equipment, such as a safety harness meeting CSA or ANSI standards, cannot be used. As the guideline explains, "in the actual conduct of a stunt, such a harness may be too bulky or involve points of attachment that interfere with the intended fall."





Hazard vs. Risk

Common Concepts

A hazard is a condition, activity, or substance that may cause harm.

Risk is the likelihood that a hazard will actually cause a degree of severity resulting in harm/loss

Uncommon Concept

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Safety risk tends to focus on loss, however risk can also lead to gain



Hazard Scenarios

Assessing where potential harm to workers may exist, is a more proactive form of hazard assessment, as opposed to responding to a hazard that has actually caused harm

Proactive Mana	agement	Reactive	e Management	
No Hazard				
Hazard exists or nay exist	Hazardous Scenario	Hazardous Inter	action	
No human exposure	-Hazard exists -Limited human	-Definite human	Hazard Realized	
Actual/potential azard controlled & eliminated	exposure -Some likelihood and severity of harm -No harm yet	exposure -Some degree of likelihood & severity of harm	-Humans exposed to hazard -Harm has	





Hazard Identification

Field level hazard assessment

Inspections

Tool box talks

Job demand/hazard analysis

Safe work method statements

Incident reviews

Other/s

*"We don't"

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Defining Risk

What is Risk?

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Merriam-Webster: Possibility of loss or injury

<u>CCOHS</u>: the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard

<u>CSA Z1002-12</u>: the combination of the likelihood of the occurrence of a harm and the severity of that harm.

ISO 31000:2009: The effect of uncertainty on objectives



Simple Risk



Severity x Likelihood = Risk

Risk is simply how likely a degree of harm/loss is to occur.

In people terms, what hazard exists that is likely to get someone hurt, and how badly are they likely to get hurt.

We navigate risk every day.





Complex Risk

Risk is variable and has many moving parts

We navigate risk every day.

Some risk is easily visible and navigable

Some risk is less obvious, and more difficult to identify

✤How do we better identify and manage risk?





Navigating Risk Daily

Most of us **operate a half ton or more piece of equipment** to get **to work**, social events, shopping.

> This equipment is an intricate tapestry of mechanical parts, flammable liquid, combustible materials, and is operated frequently and for prolonged duration, at high speeds, with catastrophic potential for severity of harm

We operate this equipment with thin barriers of glass to protect us, and **optional restraints**, while exposed to environmental and **external hazards** including other **drivers** who may **not be fit for purpose**.

Many of us trust that we'll be safe today, because we were yesterday.



Likelihood

Severity

Components Risk is a series of elements, or **Variables** which influence each risk to increase or decrease likelihood of occurrence and severity of consequence

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Risk



Assessing The Risk

BC 3,210,000 licensed drivers

BC	2012	2013	2014	2015	2016	5 yr avg BC	Crash Odds
Accidents	260,000	260,000	280,000	300,000	330,000	290,000	10%
Fatal	251	245	256	277	273	260	1%

Likelihood

- People: 2
- Frequency Exposure: Daily
- Duration Exposure: Low small percentage of daily activity

Severity

• Severity of exposure to hazard: High – Serious injury, LTI

Risk

• Risk Level: High



Likelihood Elements



Likelihood

Exposure What are the variables that will expose people to a hazard? *Occurrence of the Event*

What can cause the potential hazard to be realized and cause harm? Avoiding or Limiting Harm

How well can people identify, and avoid harm?

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Likelihood: Exposure

People Exposed More people creates greater likelihood of hazard harm being realized

Duration Exposed

Components of exposure

The longer people are exposed to a hazard the greater the potential harm Frequency Exposed

How often are people exposed to a hazard can increase the chance of harm Probability of Exposure

The mathematical odds, or chances of the hazard being realized

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Severity of Harm:

Degree of injury, illness, or damage to the physical or mental health of the worker





Consequence:

The outcome of a hazardous event.





Qualitative vs. Quantitative Assessment

Based on existing knowledge, complexity of **variables**, and anticipated inherent risk levels, a **risk assessment** may be **qualitative or quantitative**.







Risk Management Process - CULTURE



Multiple cultures can exist, creating diversity, synergy or conflict

Maturity of the organization

 Effective leadership/management

- Effective communication
- Organizational accountability
- Recruiting and hiring
- Knowledge and education
- Incident history
- Change Management

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Appetite and Tolerance



Risk Appetite

Amount of risk an organization will pursue or retain

Risk Tolerance

Willingness to retain after treatment to obtain objectives







A risk register is a tool used to identify, assess, and control hazards, in the workplace. It is a scalable, methodical means to provide a catalogue of hazards that are being managed.

- Inputs that provide background information on the hazard
- An inherent risk component looking at the likelihood and consequence at the moment with limited or current controls
- Controls, what controls are in place or recommended that can reduce the risk
- Residual risk component looking at the likelihood and consequence to assess risk levels remaining after controls are put in place



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Risk Register -Hierarchy of Controls

Controls are means by which to eliminate, or reduce hazard risks to as low as reasonably achievable.

- The risk level associated with the hazard
- The nature and scale of the hazard
- The effectiveness of the control
- Difficulty of implementation of the control
- Potential to create new hazards

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Risk Register – Hierarchy of Controls





Risk Register – Hierarchy of Controls

- Elimination is always the priority where possible
- Use of isolation, and engineering, along with admin and PPE is usually a balanced and effective use of controls
- Relying on a singular control requires thorough and effective use of the control, and may limit the reduction of risk
- Ineffective controls (PPE, Admin) are not advised, however if they are a last resort, should be layered and not considered as single control solutions





Risk Management Elements

ISO 31000:2009(E)



Figure 3 — Risk management process



Risk Register – Managing Residual Risk

Treat, Tolerate, Terminate, or Transfer

- Treat means you will look to further reduce the risk level, improving or introducing further controls
- Tolerate means you believe you have reduced the risk as low as is reasonably achievable
- Terminate means you have eliminated the risk as it is intolerable
- Transfer means you are sharing the risk of the hazard with a 3rd party, this may be a specialty contractor, insurance, etc.



Risk Register – Managing Residual Risk

TREAT

High Likelihood Low Consequence

Retention with risk controls to achieve/maintain ALARP

TOLERATE

Low Likelihood Low Consequence Full retention with monitoring

TERMINATE

High Likelihood High Consequence Avoidance and/or transfer

TRANSFER

Low Likelihood

High Consequence

Part retention with controls/ Part transfer

CONSEQUENCE





Risk Register – Hierarchy of Controls The a-ha moments...

- No incidents, so "controls are effective" is not accurate
- They have a number of controls, but they're not key influencers on likelihood or severity
- They had a qualitative understanding of risk, but a quantitative review results saw they underestimated the risk
- There is a control that is being used, but not effectively

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Practical- Lessons Learned

- Get people involved, the right people will add value, and safety is about people!!!
- Most clients don't have a thorough catalogue of hazards
- Risks aren't assessed formally, and may be under or overestimated
- Using a risk register can create more awareness, and focus on actual risk levels, and provide some due diligence defence
- Risk appetite and tolerance are uniquely part of culture
- Culture is critical, take time to assess and calibrate to the relevant safety cultures



Summary of Concepts

- Hazard & risk, severity & consequence, etc. are <u>not interchangeable</u> use the terms in context
- Risk has many variables that can be influenced (frequency, exposure, severity) use the right controls for the right effect
- Risk assessments can be qualitative or quantitative depending on requirements, consider the complexity, and level of risk
- Change management, don't do too much, too fast, and communicate the plan, and progress
- Risk management is a continual improvement process, you can't get it all the first time!



Hazard and Risk Resources

- CCOH <u>https://www.ccohs.ca/topics/hazards/</u>
- CSA Z1002-12 <u>http://shop.csa.ca/en/canada/occupational-health-and-safety-management/cancsa-z1002-12-r2017/invt/27032762012</u>
- ISO 31001 <u>http://shop.csa.ca/en/canada/introduction-to-iso-31000-risk-management/invt/500470272011</u>
- RIM <u>https://www.rims.org/resources/StandardsandPractices/Pages/default.aspx#</u>
- WSBC <u>https://www.worksafebc.com/en/health-safety/create-manage/managing-risk/assessing-risks</u>



Hazard and Risk Resources

CCOH Due Diligence- <u>http://www.ccohs.ca/oshanswers/legisl/diligence.htm</u>

WSBC and Regs in Performing Arts - <u>http://www.cos-mag.com/personal-process-</u> <u>safety/35299-ohs-in-the-spotlight-in-entertainment-industry/</u>

WSBC Performing Arts Guidance - <u>https://www.worksafebc.com/en/health-</u> <u>safety/industries/arts-entertainment</u>



For more information or slide summary

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