

Risk Assessments; A Simplified Approach

November 4, 2011

Introduction

- Wells Fargo Insurance Services
 - ◆ Insurance Brokerage and Risk Management Services
 - ◆ 5th largest broker in the world, largest bank owned
 - ◆ 200+ offices, 5,800 employees, \$15.5 B risk premium

What is Risk?

- RISK = LIKELIHOOD X CONSEQUENCES
- Likelihood is defined as the number of times a hazardous event can occur over time period
- Consequences are the likely results of the event.
- Example: Driving a Car

Risk Assessment: Driving a Car

■ Hazards

- ◆ Texting while driving
- ◆ Speeding
- ◆ Following too closely
- ◆ Not signaling and suddenly changing lane
- ◆ People crossing the road,
- ◆ Passing through red lights and stop signs
- ◆ Improper maintenance
- ◆ Inclement Weather
- ◆ Time of Day

■ Consequences

- ◆ Minor damage
- ◆ Minor Injury
- ◆ Major damage to property
- ◆ Major Injury to Driver, Passenger and/or pedestrians
- ◆ Death

Unsafe Acts and Conditions

Hazard



Incident



Injury

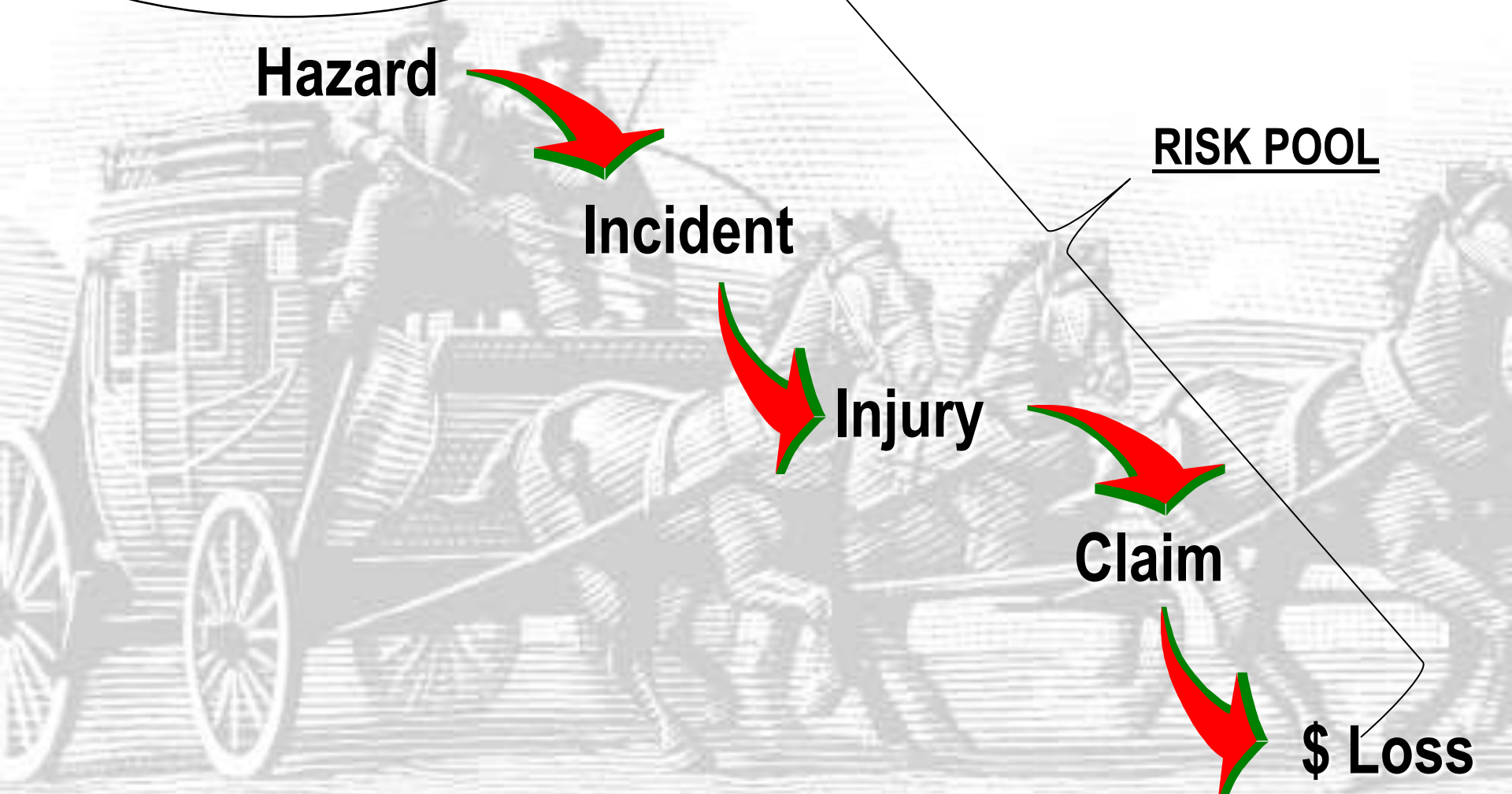


Claim

RISK POOL

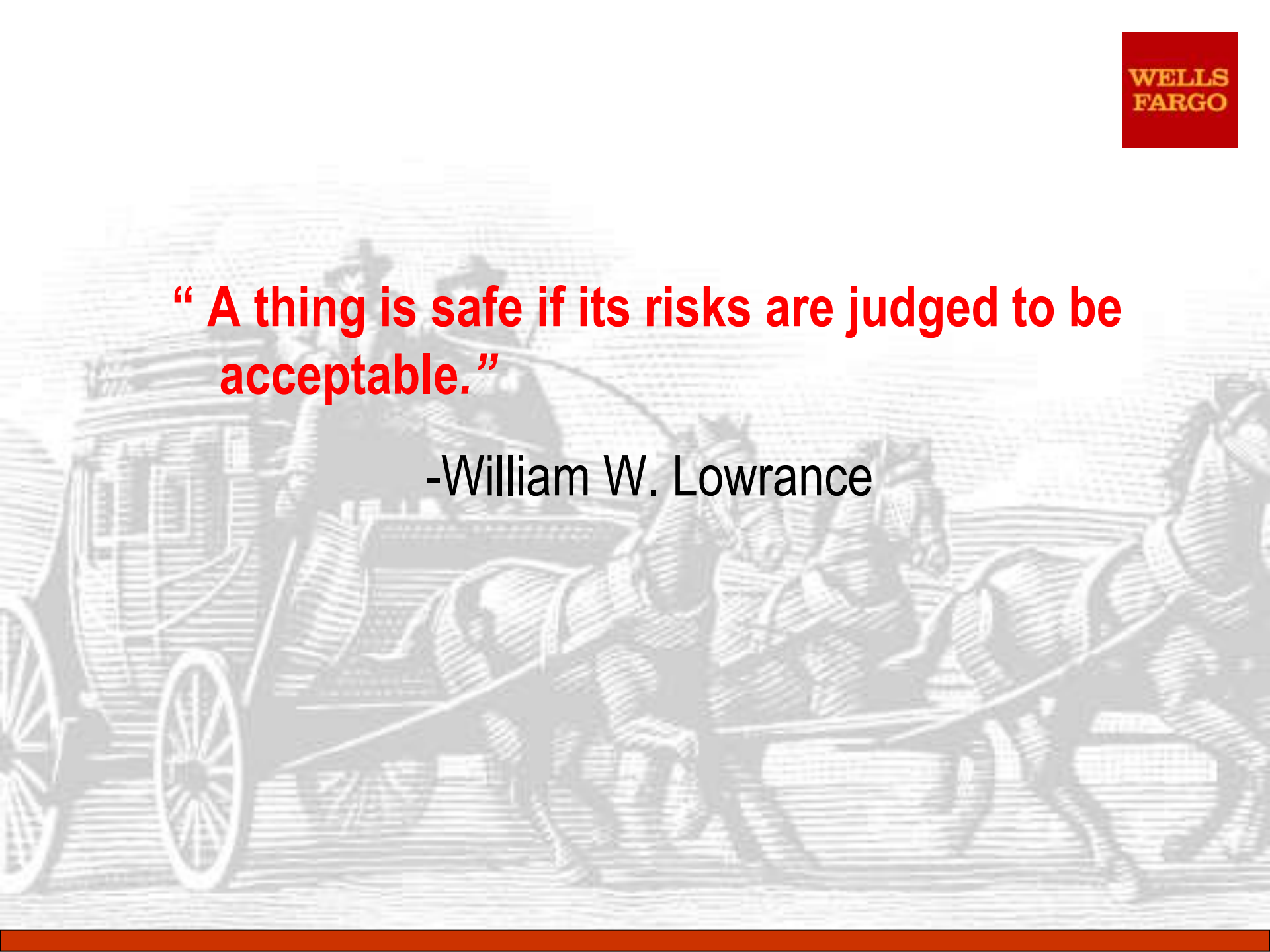


\$ Loss



“ A thing is safe if its risks are judged to be acceptable.”

-William W. Lowrance



What is a Risk Assessment?

- It's a process where you:
 - ◆ ID hazards
 - ◆ Analyze and evaluate the risk associated with the hazard
 - ◆ Determine appropriate controls or eliminate the hazard

Risk Assessment- Methodology

- Where to start?
 - ◆ “40,000 foot” view
 - ◆ Areas of high historical losses
 - ◆ New Equipment or Process Redesign
 - ◆ Raw Material Changes

Risk Assessment- Who Should Take Part?

- Manager/Supervisor
- Engineering
- Quality
- R + D
- Safety
- Operators
- Maintenance
- Consultant (shameless plug!)

Risk Assessment- Process

- Select task, system or process to be analyzed.
- Identify the hazards
- Define possible failure modes that result in exposure to hazards and the realization of the potential harm. Ask, “How could an undesirable event happen for a task and each associated hazard?”
- Estimate the frequency and duration of exposure to the hazard.
- Determine the likelihood of the occurrence of a hazardous event. This is usually subjective.
- Assess the severity of injury/illness.
- Define the level of risk using a risk assessment matrix, risk ranking or scoring system.
- Determine if the level of risk is acceptable or unacceptable
- Hazard risks can then be listed and ranked.
- Issues prioritized considering the level of risk, potential for system improvements, compliance with standards and regulations, feasibility and business consequences.
- Prioritize action plan based on highest ranked risks

Risk Matrix Samples

	1	2	3	4	5
Frequency	Exposure to the hazard exists less than once per shift	Exposure to the hazard exists greater or equal to once per shift	Exposure to the hazard exists greater than once per hour	Exposure to the hazard exists more than once per 5 minutes	Exposure to the hazard exists at all times
Likelihood	Very Slight	Slight	Possible	Probable	Multiple / Certain
Severity	Injuries are likely to involve first aid only with no lost time from work	Injuries are likely to involve medical treatment but no lost time from work	Injuries are likely to involve medical treatment and lost time from work but with full recovery	Injuries are likely to involve medical treatment, lost time from work, and some permanent impairment	Injuries are likely to involve death or permanent disability

Risk Matrix Samples

(ANSI/AIHA Z10-2005)

		Severity of Injury or Illness Consequence & Remedial Action			
		CATASTROPHIC Death or permanent total disability	CRITICAL Disability in excess of three months	MARGINAL Minor injury, lost workday accident	NEGLIGIBLE First aid or minor medical treatment
Likelihood of Occurrence or Exposure For selected unit of time or activity	FREQUENT Likely to occur repeatedly	HIGH Operation not permissible	HIGH Operation not permissible	SERIOUS High priority remedial action	MEDIUM Take remedial action at appropriate time
	PROBABLE Likely to occur several times	HIGH Operation not permissible	HIGH Operation not permissible	SERIOUS High priority remedial action	MEDIUM Take remedial action at appropriate time
	OCCASIONAL Likely to occur sometime	HIGH Operation not permissible	SERIOUS High priority remedial action	MEDIUM Take remedial action at appropriate time	LOW Risk acceptable: remedial action discretionary
	REMOTE Not likely to occur	SERIOUS High priority remedial action	MEDIUM Take remedial action at appropriate time	MEDIUM Take remedial action at appropriate time	LOW Risk acceptable: remedial action discretionary
	IMPROBABLE Very unlikely; may assume exposure will not happen	MEDIUM Take remedial action at appropriate time	LOW Risk acceptable: remedial action discretionary	LOW Risk acceptable: remedial action discretionary	LOW Risk acceptable: remedial action discretionary

Risk Matrix Samples

Note. Adapted from "Risk Management Within the E&P Industry," by International Association of Oil and Gas Producers.



SH&E RISK DECISION MATRIX

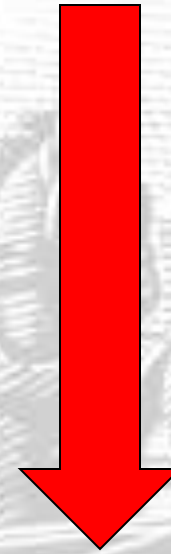
Rating		Consequences				Likelihood			
		Severity				Likelihood			
		People	Environment	Assets	Reputation	1	2	3	4
						Remote	Unlikely	Likely	Frequent
						Has occurred in E&P Industry	Has occurred in company	Has occurred several times/year in company	Has occurred several times/year in asset area
1	Minimal	Slight injury or health effects (including first-aid cases) not affecting work performance or causing disability.	Minor environmental damage; effects confined to lease.	Negligible production loss; production and/or equipment loss < \$100k.	Localized concerns; no media attention; minimal public impact.	1	2	3	4
2	Moderate	Medical aid injury; restricted work; evacuation of jobsite.	Moderate environmental damage; widespread impacts to land, water, air.	Short-term (< 1 week) facility/equipment outage; production and equipment loss >\$100k.	Company-wide attention; brief local area attention; regulatory action resulting in administrative response.	2	4	6	8
3	Serious	Lost time injury; short term health impact; evacuation of facility and surrounding area.	Severe but reversible or short-term environmental damage; widespread impacts to land, water, air.	One week facility/equipment outage; production and equipment loss >\$1M.	Prolonged local area attention; brief operating region attention; regulatory action resulting in fines or punitive action.	3	6	9	12
4	Major	Fatality; multiple injuries; long-term health impact; permanent disability; evacuation of facility and community.	Severe irreversible or long-term environmental damage; widespread impacts to sensitive environments and/or major water bodies and/or air.	One month or more facility/equipment outage; production and equipment loss >\$10M.	Widespread concerns with extensive adverse media coverage; prolonged operating region attention; action resulting in legal prosecution or suspension of operations.	4	8	12	16

RISK LEVEL=>	SERIOUS Stop activities unless risk controls have been implemented and the risk is reduced to a lower level.	HIGH Implement extensive risk reducing measures.	MODERATE Implement risk mitigation measures.	LOW Manage for continuous improvement.
APPROVAL TO PROCEED =>	Asset Team Manager	Operations Manager	Superintendent	Supervisor

Hierarchy of Controls

- Elimination
- Substitution of less hazardous materials, processes, operations or equipment
- Engineering controls
- Warnings
- Administrative controls
- PPE

Most Effective



Least Effective

Prioritizing Action Plans

- At this point, we've identified hazards, risk ranked them, determined what risk is acceptable and what is not acceptable...
- Consider:
 - ◆ “What can we do/changes that we can make today, this month, this quarter, this year, next year, in 5 years?”
- Must be integrated into business activity, reviewed aggressively and managed frequently.
- **PEOPLE > ENVIRONMENT > PROPERTY**

Points to Consider

- Every activity, process, task, system has risk, so by definition, can be quantified and prioritized.
- Apply a system for risk ranking that is appropriate for what you're assessing.
- No one has more factual information about risk than the people who interact with it each day.
- Risk Assessments, as an integrated practice, will shrink the risk pool, reduce the likelihood and severity of loss, and save your organization \$\$\$\$.

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Questions/ Comments



THANK YOU