



A Risk-Based Approach to Manage Catastrophes

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Agenda

1 Black Swan Event

Learn about Black Swan event and Catastrophic risk

2 Systematic Application of Risk Management

Systematic application of risk management practices to managing catastrophes

3 Impact of Regulatory Framework to Catastrophes

Introduce Prescriptive Approach and Risk-based Approach

4 React to Catastrophes

Preparedness in reacting to catastrophes

Black Swan Event

- ▶ What is a Black Swan event?
 - ▶ A catastrophe can strike without warning.
 - ▶ Never considered or thought to be impossible. Proven to be possible and real by its sudden appearance.
- ▶ Three Characteristics:
 - ▶ Rarity
 - ▶ Extreme impact
 - ▶ Retrospective (though not prospective) predictability
- ▶ The combination of low predictability and large impact makes the Black Swan a great puzzle.

Black Swan Event

- ▶ Black Swan Examples:
 - ▶ 911
 - ▶ Recent /ongoing global credit crisis
 - ▶ 2010 BP Oil Spill

- ▶ The yet unknown, large, unexpected event neither conceived nor articulated is likely to rock the business the most
 - ▶ Leading risk practices are the only real preventive measure
 - ▶ Help *expect the unexpected*

A performance and risk-based framework – systematically applying risk management practices



Regulation Framework - Risk-based Approach

- ▶ Companies need to demonstrate to the regulator that appropriate risk management systems are in place
- ▶ Regulations are seen in relation to the specific risks faced by the company
- ▶ Companies are required to:
 - ▶ Systematically identify risks
 - ▶ Reduce risks to internally defined acceptance levels
 - ▶ Control risks
 - ▶ Safety and contingency measures must be commensurate with the risk
 - ▶ Use the identified risks as the basis for prioritizing decisions
 - ▶ Risk picture must be subject to regular updates

- ▶ **International community has adopted risk-based approaches for energy production**

Regulation Framework - Prescriptive Approach

- ▶ Based on laws and regulations
- ▶ Set specific demands for structures, technical equipment and operations
- ▶ Regulatory authorities specify the requirements and monitor compliance

- ▶ **US regulations - primarily prescriptive**

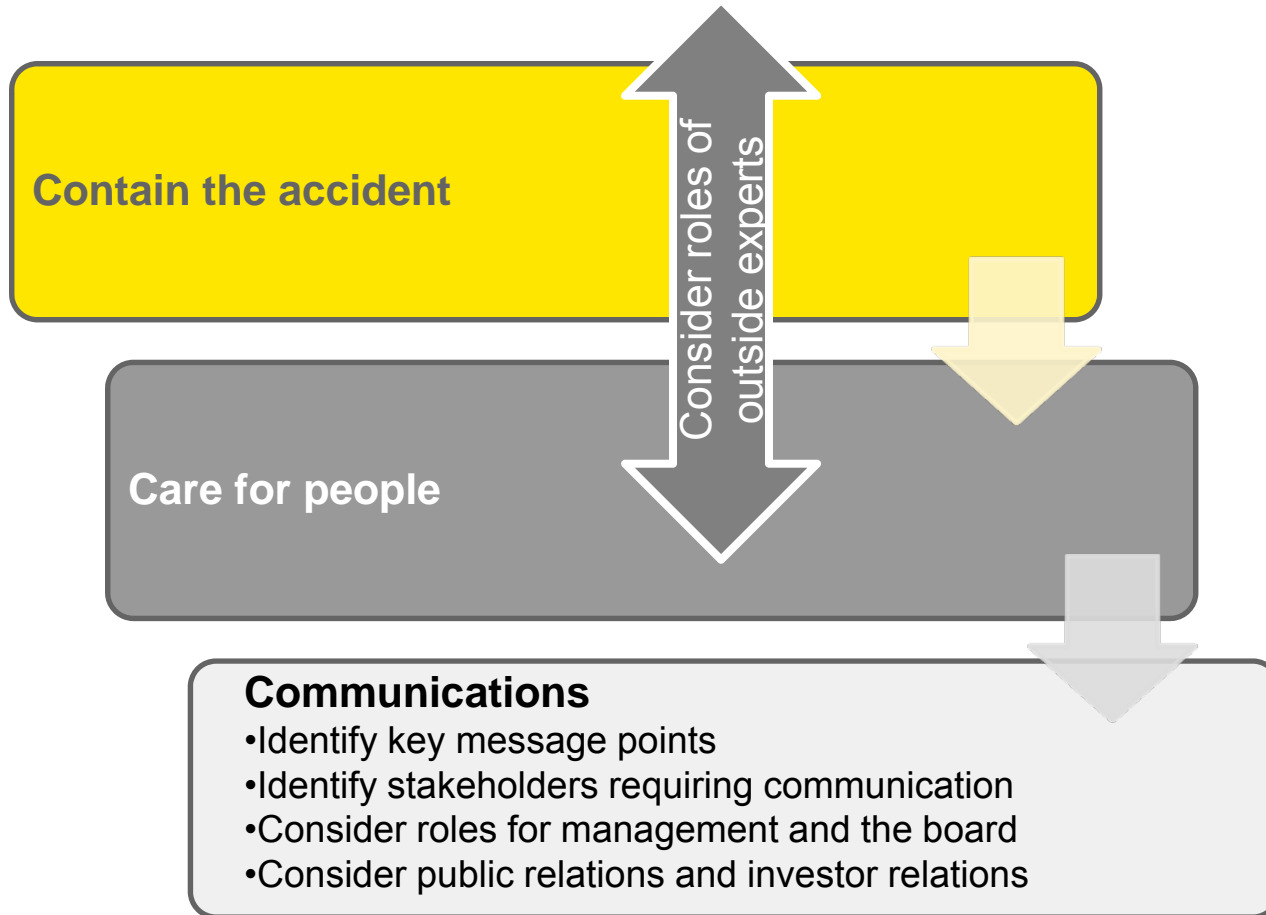
“... prescriptive approach has often turned out to encourage a passive attitude among the companies. They wait for the regulator to inspect, identify errors or deficiencies and explain how these are to be corrected. As a result, the authorities become, in some sense, a guarantor that safety in the industry is adequate and take on a responsibility which should actually rest with the companies.”

Petroleum Safety Authority (Norway)

Benefits of going beyond prescriptive regulatory compliance

Deliver incremental value	<ul style="list-style-type: none">▶ Provides clarity on roles and responsibilities and expectations between the various partners▶ Contributes to the oversight and ongoing assessment of the partners' most strategic initiatives▶ Reinforces the tactics of a risk management culture
Minimize downside risk	<ul style="list-style-type: none">▶ Comprehensive risk assessment performed to identify key risks – with regular updates▶ Identifies risks and assists in determining boundaries and tolerances▶ Common risk management process aligns partners
Deliver cost savings	<ul style="list-style-type: none">▶ Risk mitigation and barriers focused on high impact risks▶ Tangible losses and future loss exposure (e.g., business interruption, lost work days, internal and external investigation costs, fines, penalties and judgments)

Focus on prevention, but be prepared to react



- ▶ Plans should be ready to execute with accountability and ownership assigned and completion timeframes
- ▶ Detailed contingency plans enable improved accident response

“The ancient Romans had a tradition: whenever one of their engineers constructed an arch, as the capstone was hoisted into place, the engineer assumed accountability for his work in the most profound way possible: he stood under the arch.”

-- Michael Armstrong



Thank You