

APPEA HSR Forum

Industry Health and Safety Performance and decision-making

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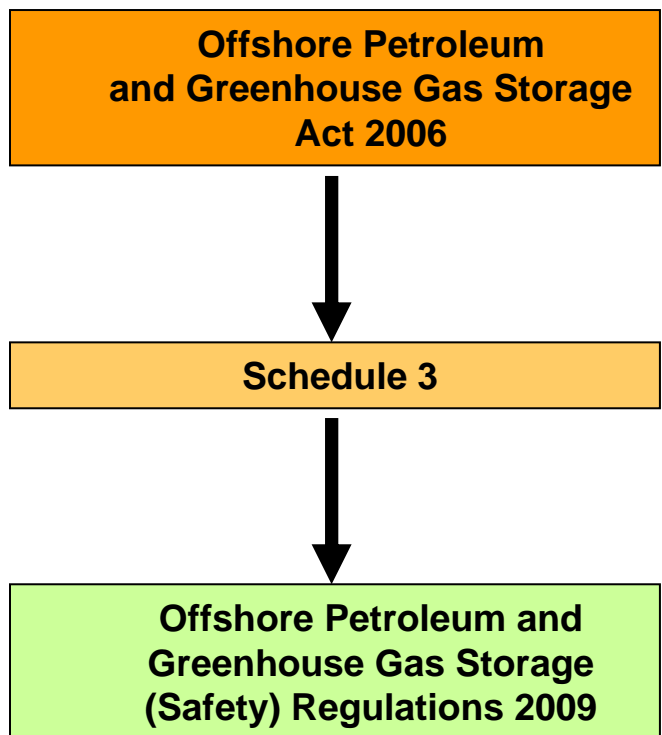
NOPSA's functions



Australian offshore OHS laws:

- Schedule 3 to the Offshore Petroleum and Greenhouse Gas Storage Act (OPGGSA)
- Offshore Petroleum (Safety) Regulations 2009

Available at
www.comlaw.gov.au



What does the regulator do?

Challenge the operator

- Safety Case Assessments - targeted
- Facility Inspections - sampled
- Incident Investigation - depending on severity
- Enforcement - verbal / written and prosecutions

Independent oversight

- Facility health and safety risks are properly controlled by operators of facilities through securing compliance with OHS law

Facilities

Facility Group	Jan-June 2010
Platforms	56
Normally attended	28
Not normally attended	28
FPSOs	14
MODUs	13
Vessels	11
Pipelines	70
TOTAL:	164

INDUSTRY

33 Operators
164 Facilities

2009-10 activities

NOPSA

33 OHS Inspectors
20 Support staff

180 Assessments

180 Assessments

366 Incidents

94 Inspections

38 Accidents

328 Dangerous Occurrences

6 Major Investigations
93 Minor Investigations
267 Incident reviews

28 Enforcement actions

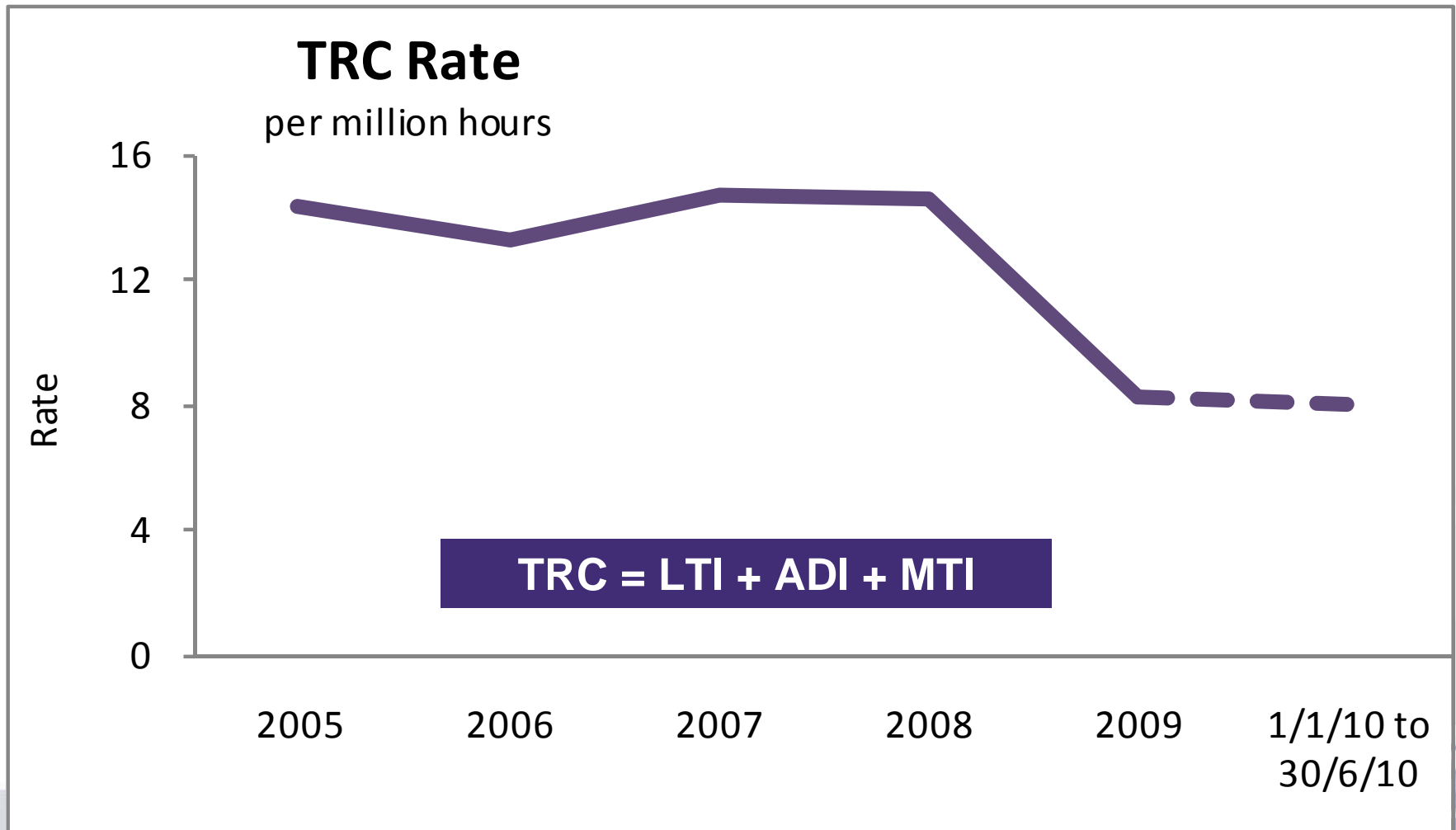
Montara



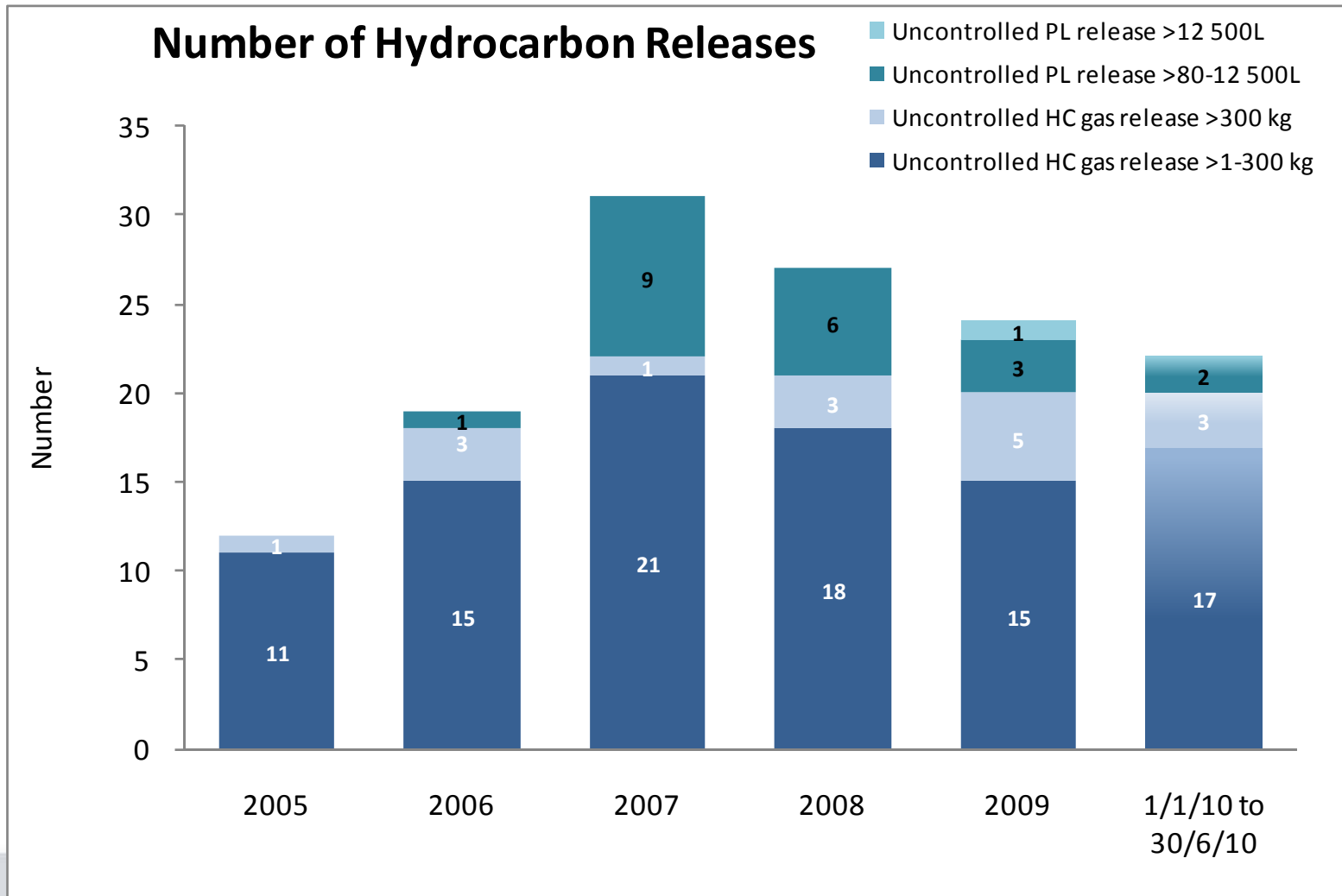
Montara Incident - Uncontrolled hydrocarbon release - 21 August 2009

- Failure of well integrity:
 - Inadequate barriers
 - Primary cementing
 - Management System issues: Risk Assessment, Communications, Records Management, management oversight
 - Titleholder - Drilling Contractor Interface
- NOPSA has investigated for a potential contravention of OHS laws by the operators
- NOPSA has referred a brief of evidence to the CDPP

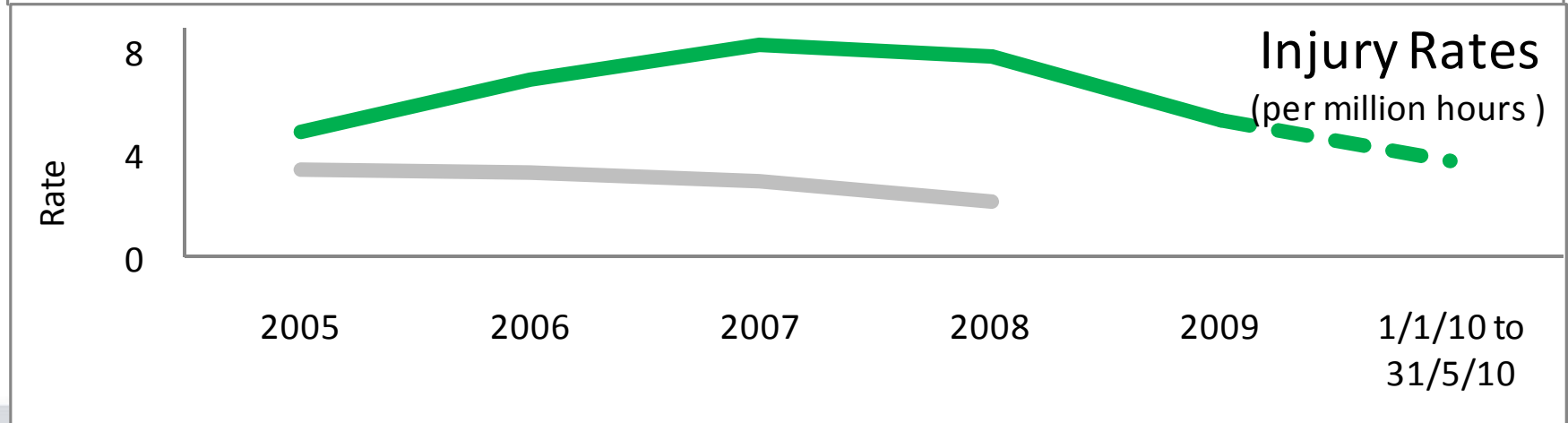
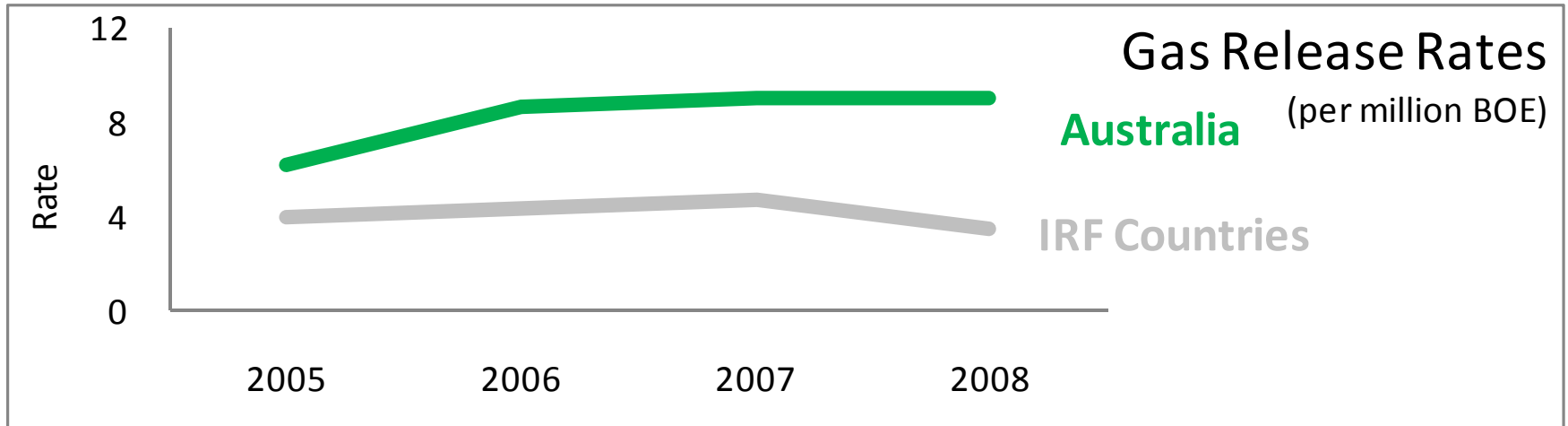
Australian Offshore Injury Rate



Hydrocarbon Releases



International Comparison



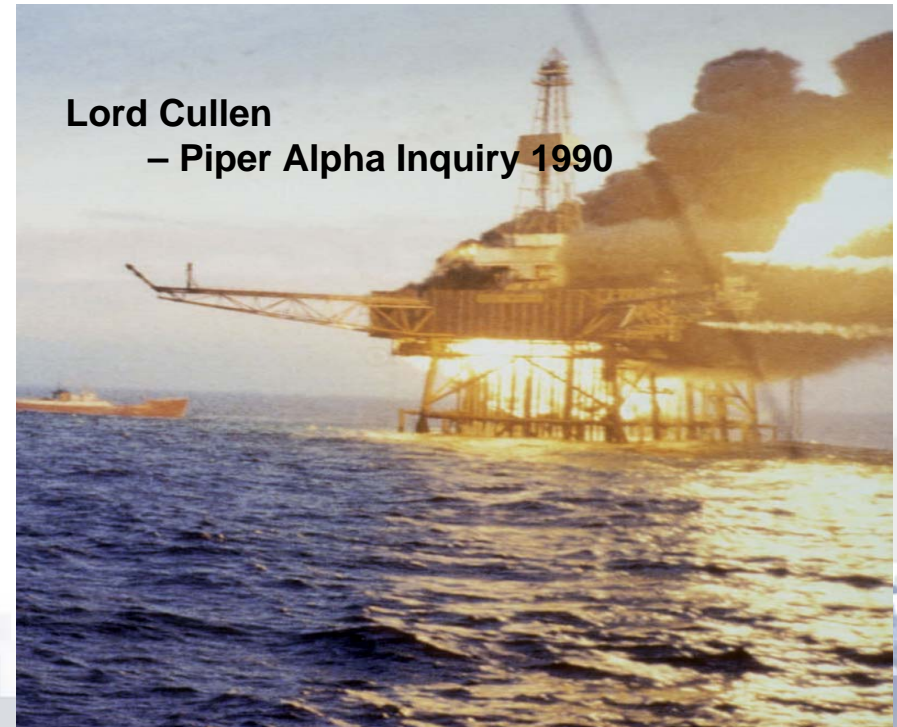
Incident Root Causes

2005	2006	2007	2008	2009	1/1/10 to 30/6/10
Procedures - Not Followed	Preventive Maintenance	Preventive Maintenance	Preventive Maintenance	Procedures - Not Followed	Procedures - Not Followed
Preventive Maintenance	Mgmt System - SPAC	Design Specs	Procedures - Not Followed	Design Specs	Design Specs
Design Specs	Procedures - Not Followed	Procedures - Not Followed	Design Specs	Preventive Maintenance	Preventive Maintenance

MAE Prevention



“it is essential to create a corporate atmosphere or culture, in which safety is understood to be and is accepted as, the number one priority”



BP Texas City Refinery 2005



- **People can forget to be afraid**
- **Maintain vigilance and operating discipline**

NOPSA Promotion Process Safety Culture

1. Survey of senior management

- Onshore Process Safety Leadership Principles

2. Survey of workforce

- Offshore Process Safety Culture



Workforce Survey Context

- Process safety awareness
- Shared at 2009 HSR Forum
- Safety culture perceptions
- Industry benchmarks used
- Responses confidential
- Small number of responses
- 9 surveys

Benchmarking

TOPIC AREA	No. Facilities BELOW benchmark
Supervisory Involvement	3
Worker Professionalism/Empowerment	3
Reporting	4
Safety Values/Commitment	3
Procedures and Equipment	2
Training	5
	n = 8

Opportunities for Improvement

TOPIC AREA	Most common issues scoring in the bottom ten survey question responses
Safety Values / Commitment	Pressure to work overtime - loyalty to work unit
Reporting	Hazard identification, control and reporting training not adequate
Safety Values / Commitment	Process safety programmes don't have adequate funding
Training	Contractors don't receive adequate training to do their job safely
Professionalism / Empowerment	Workers don't actively participate in incident investigations

Safety Promotion and Advice by NOPSA

Safety Case Guidance Notes



Learning from history



“The past seldom obliges by revealing to us when wildness will break out in the future.”

Against the Gods, the Remarkable Story of Risk, P Bernstein 1996

Learning from history

War, depressions,
stock-market booms and crashes,
and ethnic massacres come and go.....

But they always seem to arrive as surprises.



Learning from history

After the fact, when we study what happened.....

- the source of the wildness appears to be so obvious
- it's hard to understand how people on the scene were oblivious to what lay in wait for them.



Consider this scenario...

- The quality of a cement job is uncertain and you are faced with either:
 - a) a loss of 4 days rig time
 - b) a small chance of a loss of well integrity sometime in the future.



Pause for thought !

What would you do?

Making decisions, taking risks ...

- Decisions involving losses – we are risk-takers
- **Experiment** – you have a choice between:
 1. 100% chance of losing \$3000
 2. 80% chance of losing \$4000 and 20% chance of breaking even
expectation of loss = \$3200
- 92% of subjects chose the second option with the greater expectation of loss!

The risky choice !



Think again

Going back to the cement job

- If the quality of the cement job is uncertain and you are faced with a loss of 4 days rig time, compared with a small chance of a loss of well integrity sometime in the future...

What would you do?

Lets try again

Job: change filter elements in filter vessel with leaking isolation valve.

How many times do you think you can get away with this?

99% of the time?

Option 1:

Simply change out the filter elements.

With an experienced crew you can do this quickly and they just need to ensure no sources of ignition are present.

Time to change-out: 30 minutes.

Option 2:

Fix the core problem of the leaking valves.

Time to repair: Several days.

What would you do?

Lets try another question?

Job: If you are asked to perform a quick man-riding job in the derrick that will take <2 minutes, and nobody was watching, would you:

Option 1: Just jump in the man-riding harness and go?

Option 2: Carry out a JSA, spend 15 minutes setting up an inertia reel secondary fall protection device. Carry out all the pre-job safety checks then perform the job following the approved man-riding procedures?

Individual decisions – safety culture at every level

"It is easy to point the finger at the management and assume that a culture of cutting corners started at the top, and was motivated by money. It's worth remembering that the same culture can also originate at the bottom, driven by a desire to get things done. The task of management is to know this and insist it is done properly".

Trevor Kletz, The Chemical Engineer, August 2010

Black Swan event

1. Outlier – doesn't happen very often
2. Extreme impact
3. After the event, it is explicable and predictable

Vulnerability + decision risk = black swan

If you reach a step that doesn't meet
the required conditions,
or where circumstances have changed.....

Pause and Reflect

So, what can you do?

Understand

- Specific hazards of materials
- Safe-handling responsibilities
- Specific hazards of operations

Understand your role in process safety activities

- Hazards analysis
- Management of change
- Incident reporting and investigation
- Maintenance & testing
- Following safe work practices

Maintain operating discipline and vigilance

Thank you

And ...don't forget your HSR
handbook!