International Regulators' Forum
Global Offshore Safety

Montara Blowout

What went wrong? What are the lessons for industry and regulators?

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Chief Executive Officer
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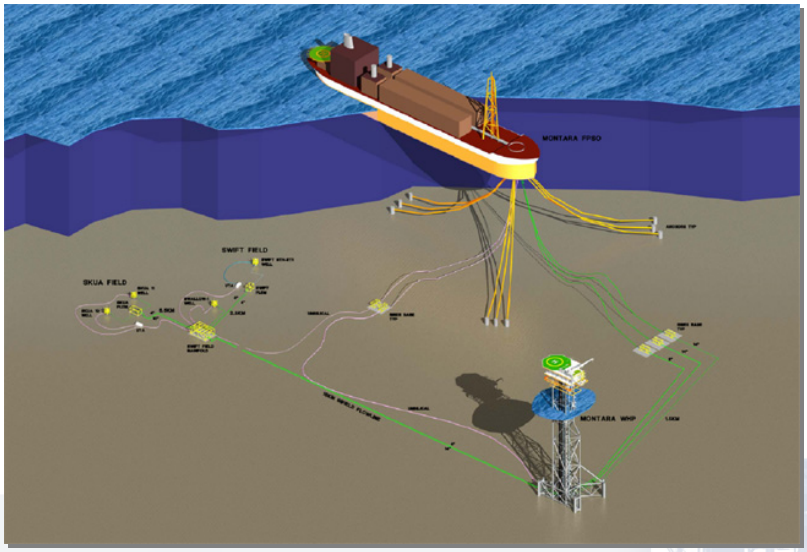
Outline

- Background
  - Montara
  - Regulatory Arrangements
- What happened?
- Why ?
- Implications for:
  - Industry
  - Governments & Regulators
  - Australian Regulators
- Forward steps …

Montara Development concept



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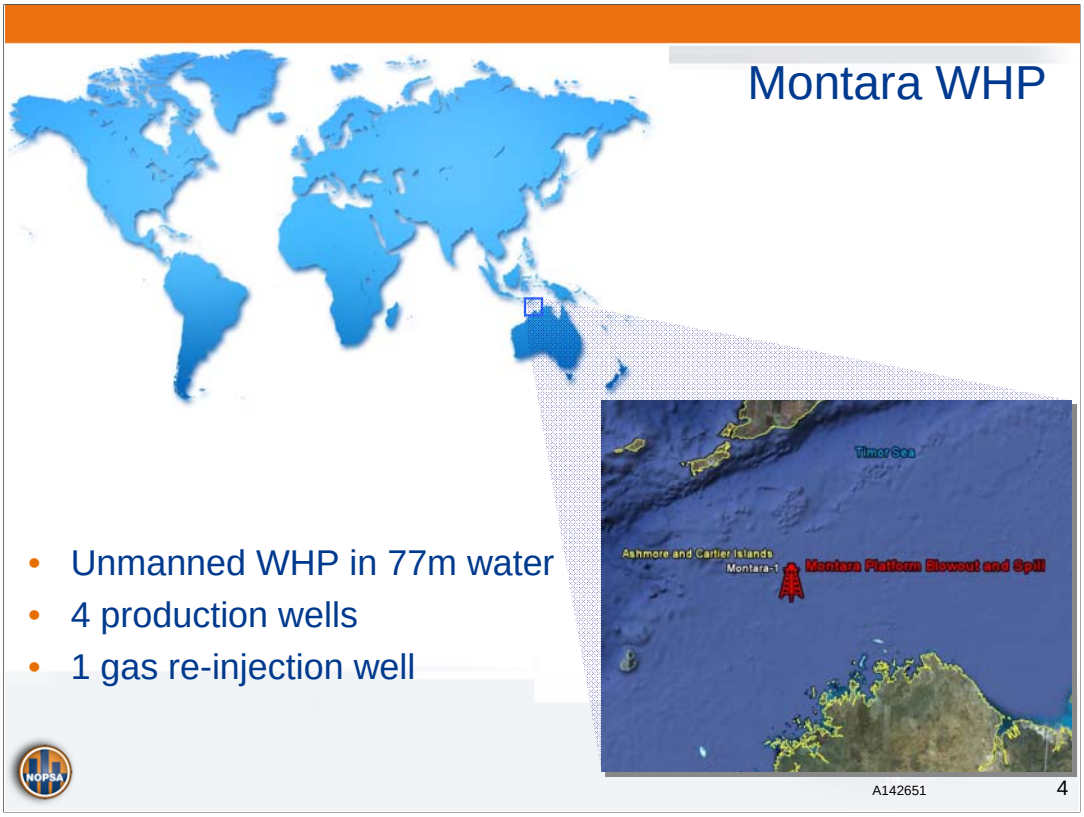
MONTARA DEVELOPMENT PROJECT

The Montara development project is located in the Timor Sea approx 650 km west of Darwin.

PTTEP owns and operates 100 per cent of the Montara Development Project, which comprises the Montara (AC/L7), Skua and Swift/Swallow (AC/L8) oil fields.

The development plan for the Montara Development Project involves nine producing wells, four in the Montara field; two in the Skua field and three in the Swift/Swallow field.

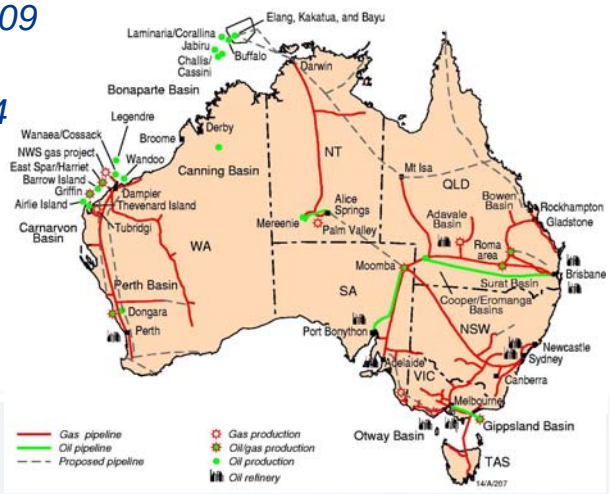
First production from the Montara project was targeted for the fourth quarter of 2009. Oil reserves from the four fields that comprise the Montara Development Project are approximately 37 million barrels. (PTTEP Fact Sheet)



The field is located in about 77m of water. The initial phase was to be production from an unmanned wellhead platform (WHP) from oil-producing wells, to a FPSO facility. There will also be a gas re-injection well from the WHP.

Regulatory Arrangements

- Commonwealth Waters
- *Offshore Petroleum & Greenhouse Gas Storage Act 2006 (OPGGSA)*
- *OPGGSA Safety Regs 2009*
  - NOPSA administer
- *Mgt of Well Ops Reg 2004*
  - DA's Administer



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OHS of the facilities
OPGGSA 2006
P(SL)(MoSOF) Regs 1996
Safety Case
NOPSA

Well Integrity
OPGGSA 2006
P(SL)(MoWO) Regulations 2004
WOMP
NT DA

Sequence of Events – Q1-2 2009
(Initial Drilling)

January:	Drilling activities commenced on H1
March:	H1 well drilled to TD 3,796m
6 March:	NT DoR approved PTTEPAA's application for stage 1 suspension of H1 by installing a PCCC on the $9^{5/8}$" casing (no of cement plug)
7 March:	$9^{5/8}$" casing cemented, (casing shoe in reservoir 3m above oil water contact)
	4000psi pressure - on release 16.5bbl fluid returned – pumped back & pressure maintained whilst WOC
13 March:	NT DoR approved PTTEPAA's application for stage 2 suspension of H1 by installing a PCCC on the $13^{3/8}$" casing (no of cement plug).
	Only $9^{5/8}$" PCCC & trash cap installed
21 April:	Rig skidded to H4 well & departed field

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November 2008: NT DA approved PTTEPAA batch drilling of three development wells (further two wells later approved)

Sequence of Events – Q3-4 2009
(Tie-back and completion)

19 August:	West Atlas returned to Montara WHP to tie back casing strings to platform & complete wells
20 August:	Derrick over H1 well, trash cap removed @ 6am No $13^{3/8}$" PCCC installed – corrosion@ MLS (mud line suspension) threads – cleaning required
11.30	$9^{5/8}$" PCCC removed & $13^{3/8}$" threads cleaned
18:00	Derrick skidded to G1 well
24:00	Derrick skidded to H4 well
21 August:	
05:30	40-60 bbls fluid observed coming from H1 well, gas alarms triggered & emergency procedures activated
05:55	All clear given
06:15	Decision to skid Derrick back to H1 well to set mechanical plug
07:23	Well kicked again, oil & gas column blew against underside of cantilever, emergency response procedures activated

Subsequent events

- All 69 crew evacuated from West Atlas by lifeboat - no injuries
- Construction vessel Java Constructor, initially lying alongside the West Atlas, departed - no damage to vessel or injury to personnel
- NOPSA issued prohibition notices preventing personnel from being placed at the facilities
- PTTEPAA commenced planning to bring well under control
- Control of the spill response handed to AMSA under the National Plan
- PTTEPAA responsible for well control activities
- NT DoR regulate design & execution of relief well
- NOPSA regulate OHS activities on West Triton, West Atlas, Montara WHP through series of safety case revisions

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Java Constructor

Java Constructor (JC) was located 25 metres from Montara WHP and West Atlas Drill Rig with a POB of 174

Operating under a Hot Work Permit from West Atlas.

0727 Dead Man Anchor disconnected.

0740 Java Constructor relocated 500m from West Atlas on anchors, out with exclusion zone.

0806 West Atlas abandoned, life boats launched.

0850 Life boats recovered to anchor handlers

0950 Transfer of crew to JC. POB becomes 236

1250 JC surrounded by hydrocarbons, change of surface currents

1516 JC clear of hazardous area.

NOPSA issued the operator with five Improvement Notices and requested a revision to the facility safety case due to a number of issues including:

•Java Constructor Safety Case did not anticipate operating in the vicinity of an uncontrolled hydrocarbon release.

•Emergency documentation and training were therefore inadequate.

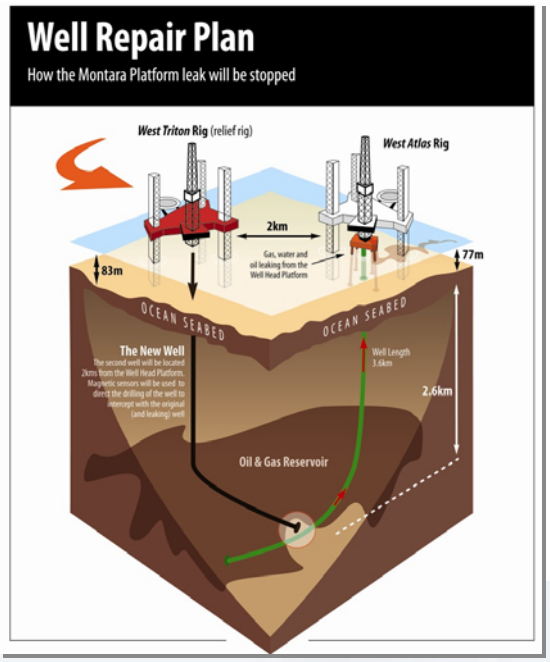
•Muster stations were outside only – should have had inside alternative.

•Poor and irregular briefing of crew.

•Training of supervisors in communications

Well Control Activities

- PTTEPAA concluded ‘surface well capping’ entailed unacceptable risk to personnel (independent of NOPSA prohibition notices)
- 14 September: West Triton commenced relief well drilling
- 6 October: 1st attempt to intersect H1 well
- 1 November: 5th attempt intersected H1 well, 1.3sg mud pumping commenced, hydrocarbon flow reduced, insufficient mud, seawater pumping commenced
- 1 November - 12.10pm: Fire broke out on WHP
- 3 November: 3,400 bbl 1.6sg mud pumped – hydrocarbon flow stopped, fire extinguished



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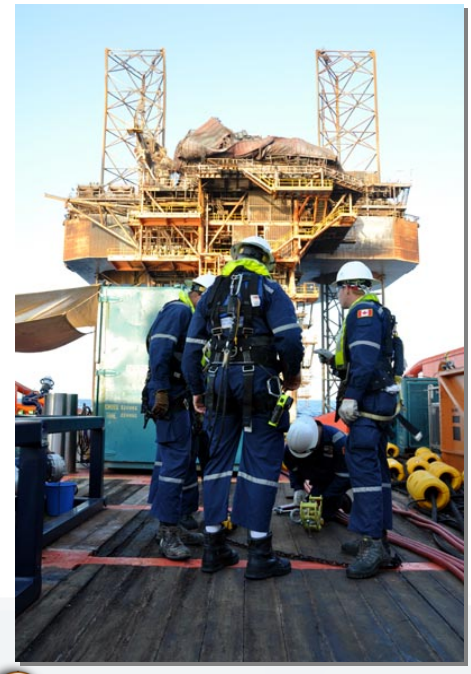
Source upstream on line



Response – Well Salvage – West Atlas

- November 2009:
  - Personnel board West Atlas
  - Personnel board WHP
  - 320 bbl cement pumped via relief well into H1 well
  - Packer set in H1 well, pressure test not completed
  - plugging activities completed
- Sep-Oct 2010:
  - Salvage commenced with Jascon 25

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Well control boarding team making checks – (www.offshore-technology.com)

22 November 2009 Personnel board West Atlas

23 Personnel board WHP

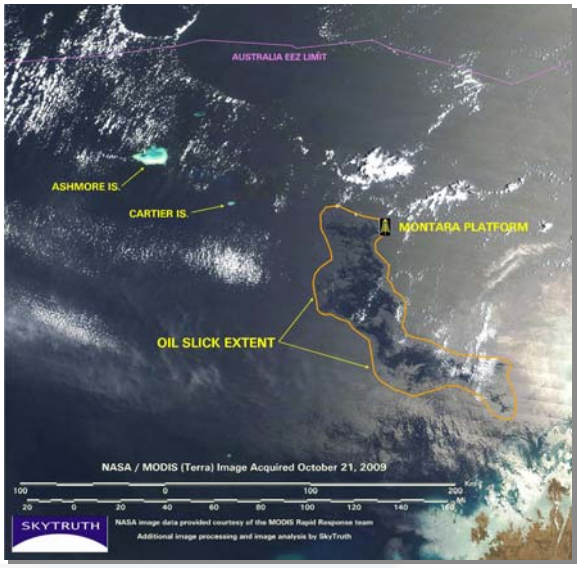
27 November: 320 bbl cement pumped via relief well into H1 well

30 November: Packer set in H1 well, pressure test not completed

13 January 2010: plugging activities completed

Sep-Oct 2010: Salvage commenced with Jascon 25

Response – oil spill



- National Plan activated
- 21 August – 3 December: AMSA led response
- Objective – protection of environmentally sensitive areas
- 184,000 l dispersant used
- 844,000 l oily water collected, (493,000 l was oil or oil emulsion) over 35 days
- Shore clean up plans not required

The Aftermath

- NOPSA investigation – brief of evidence to DPP regarding prosecution
- Montara Commission of Inquiry
- Resources Energy & Tourism investigation - possible breaches of Petroleum law
- Review of National Plan for Prevention of Oil Pollution at sea
- Consideration of production licence sanction options.

This is an important series of pictures, the one on the left is taken from the Java Constructor which was anchored alongside the Montara WHP when the blowout first occurred. The safety case and the day to day planning of construction and other activities on the Java did not contemplate the vessel being located alongside live hydrocarbon activities. You can see a hardhat in the foreground of that picture and the gas / condensate release from the platform.

We are extremely fortunate that there were not fatalities or serious injuries.

Incident Causes …1

Well Integrity

=

Pressure Containment

=

Barriers

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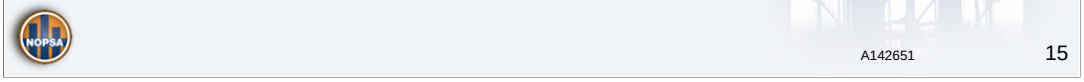
The blowout was the result of systemic failures by the operator to properly manage the integrity of the well as a whole.

Incident Causes…2..

- 9 5/8 casing was not properly cemented
- Secondary barriers (PCCCs) of dubious integrity were deliberately removed
- Hydrostatic head of fluid in the well was not a well barrier



Incident Causes…3

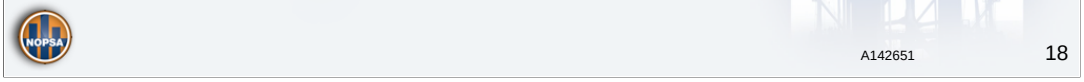
- Inadequate technical assurance
- Integrity risks in setting 9 5/8 production casing in reservoir (with open 13 3/8 casing shoe and MLS configuration) not addressed
  - initial design
  - well suspension planning
- 9 5/8 cement programme calculations not verified

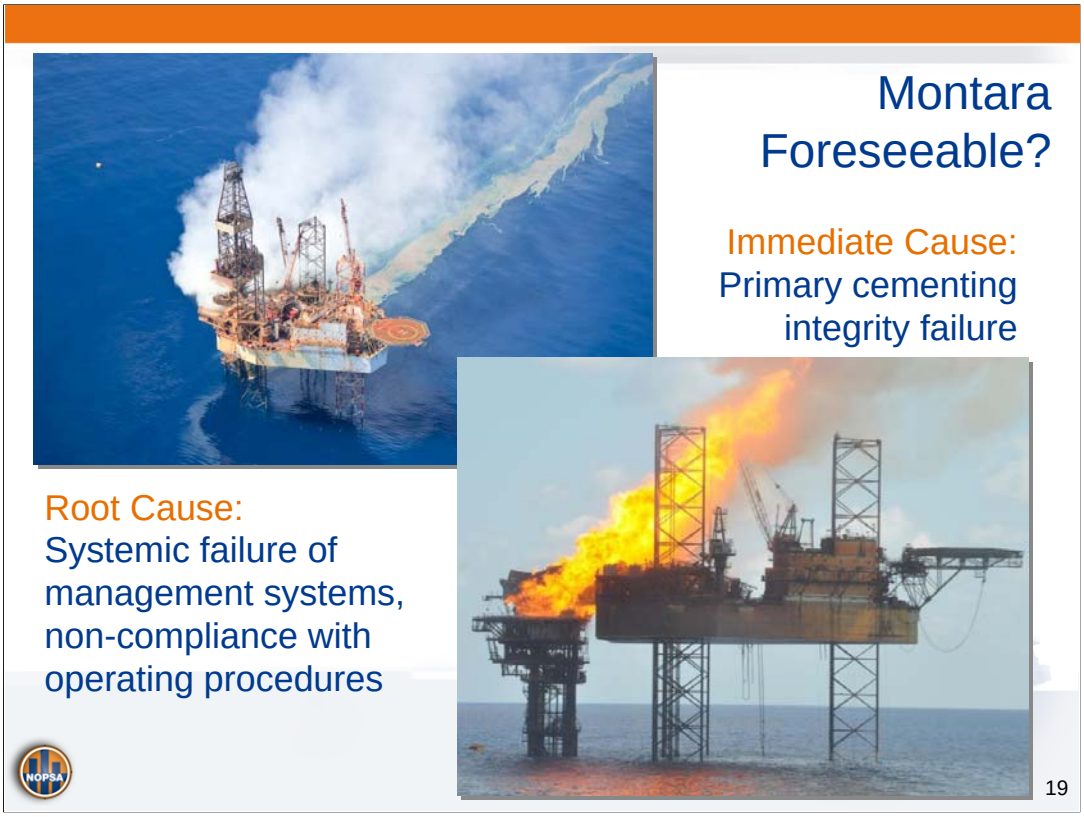
Incident Causes …4

- Inadequate technical assurance
- Testing / performance criteria for well integrity critical elements not:
  - defined
  - implemented
  - monitored
- Undesirable outcomes and consequences not contemplated

Incident Causes …5

- Inadequate management assurance
- Inadequate management of change
- Incompetent personnel, staff and contractors
- Inadequate audit, review and governance processes





As for Montara,

We await the public release of the COI report in the near future.

NOPSA lodged a brief of evidence with the Commonwealth Director of Public Prosecutions in June. CDPP are working through their processes to determine how best to approach any potential prosecution.

There is a lot of information available on the public record, from this we can conclude that

•The immediate cause was a poor cement job and failure of the float valves

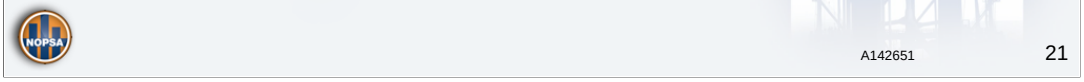
•The root cause was a systemic failure of management systems and non-compliance with operating procedures. The standards processes and procedures seem to have been in place but not adhered to for some reason.

Implications for industry

- Media spotlight
- Loss of reputation & community trust
- Insurance and liability
- Cost increases
- Can smaller companies and minor partners pay and survive?
- Which entity is in charge and ultimately responsible for safety?

More implications for industry

- Minimum standards vs best practice
- What is “good oilfield practice” anyway?
- Where does ALARP fit ?
- Is the focus on the right things?
  - drilling
  - water depth
  - containment
  - Me too ….
    - containment systems
    - regulations



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Minimum standards vs best practice

What is “good oilfield practice” anyway? Who determines what is good?

Where does ALARP fit in?

Is the focus on the right things?

- deepwater drilling vs drilling vs high hazard activities
- well depth / pressure vs water depth
- containment vs prevention - US$1billion buys a lot of “stop & think”

Me too – if a containment system is needed for the GoM …

Implications for Government and Regulators

- Independence - safety regulator
- Performance based vs prescriptive requirements or both?
- Quality of staff / challenge / inspection / training
- Threshold requirements for license holders ?
  - Financial
  - Technical capability
  - Track Record

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Independence of safety regulator

Performance based vs prescriptive requirements or both?

Quality of staff / challenge / inspection / training

Threshold requirements for license holders ?

- Financial
- Technical capability
- Track Record

Implications for Government and Regulators (2)

- Cursory assessment / approvals - no compliance monitoring
- Insufficient resources (critical mass)
- Lacking competence
- “Too comfortable” relationship with operator (regulatory capture)
- Tension - safety and environmental objectives
- Some level of contingency relief well planning.

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Cursory assessment and approvals practices with no compliance monitoring

Insufficient resources (+ critical mass issue)

Lacking competence

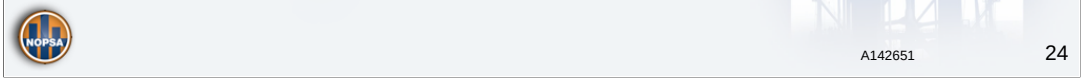
“Too comfortable” relationship with operator (regulatory capture)

Tension between safety and environmental objectives

Legislate a requirement for some level of contingency relief well planning.

Implications for Australian Regulators

- Jurisdictional demarcation - well safety and integrity
- Inconsistent regulatory approach - disparate State Agency regulations and practices
- Potential conflicts of interest - well integrity, resource management, industry development and safety regulation



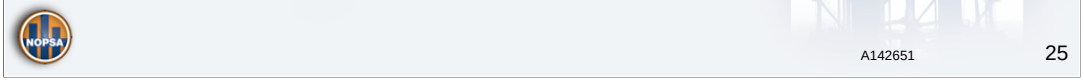
Jurisdictional demarcation obstructs integrated regulation of wells safety and integrity

Inconsistent regulatory approach arising from disparate State Agency regulations and practices

Current framework encompasses potential conflicts of interest arising between well integrity, resource management, industry development and safety regulation

Specific Challenges for NOPSA in emergency scenario

- NOPSA's functions - no collaborative decision-making with operator, no means to direct operator
- Relevant Minister has powers to direct an operator to act
- Revisions to safety case used to assure safety of recovery activities – not ideal
- Co-ordination of government agencies and operator-government interaction



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NOPSA's currently legislated functions do not provide for collaborative decision-making of any sort with an operator, or any means to direct an operator to follow any particular course of action

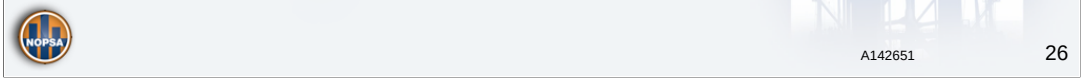
Relevant Minister has powers to direct an operator to act under Petroleum Act (OPGGSA)

Revisions to safety case used to assure safety of recovery activities – not ideal

Potential for more effective co-ordination of government agencies and operator-government interaction

Forward steps … Australia

- Single national regulator of well integrity & safety
- Objective-based regime, - ensure operator and regulator focus on well integrity critical elements, esp. barriers
- Competency requirements regarding operators' personnel



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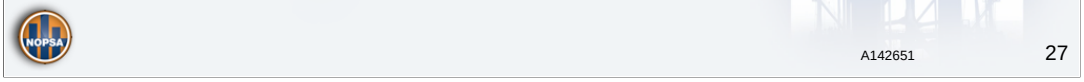
Creation of single national regulator of well integrity & safety

Within objective-based regime, introduction of regulatory amendments to ensure operator and regulator focus on well integrity critical elements, esp. barriers

Review of legislated well control / well integrity related competency requirements regarding operators' personnel

Forward Steps … Australia (2)

- Regulator or emergency combative agency to “direct” operator
- Regulator to advise / engage operator without compromise of independence - expertise
- Permissioning document - operator’s plan to recover control in an emergency
- Central co-ordinating emergency combative agency/role - central communications



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Regulatory mechanism for regulator or emergency combative agency (rather than Minister) to “direct” operator

Mechanisms for regulator to advise / engage operator without compromise of regulatory objectivity and independence and ensure necessary expertise applied to the situation

Regulatory mechanism to provide for a defined permissioning document detailing an operator’s immediate action plan to recover control in an emergency ensuring that all necessary expertise is brought to bear

Creation of ad-hoc central co-ordinating emergency combative agency/role incorporating central communications

Five questions for us all to think about …

- Why does the safety performance of the offshore industry seem to be deteriorating?
- Are the underlying causes specific to particular activities (drilling) or facilities (drill rigs) or operators … or are they fundamental to the industry?
- How well do we learn from the lessons of the past?
- Why predominantly focus on the safety culture of people at facilities – what about the culture of those who design facilities and allocate budgets to construct and maintain them?

How are we going to work together to lift industry performance so we regain trust and community confidence?

And most importantly ……