AOGCC Hearing

September 15, 2011

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future regulator?

Disclaimer

This presentation includes forward-looking statements and projections, made in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. The company has made every reasonable effort to ensure that the information and assumptions on which these statements and projections are based are current, reasonable, and complete. However, a variety of factors could cause actual results to differ materially from the projections, anticipated results or other expectations expressed in this presentation, including, without limitation, changes in commodity prices for oil, natural gas, and power; general economic and weather conditions in geographic regionsmarkets served by this Corporation and its affiliates, or where operations of the company and its affiliates are located; the uncertainties associated with governmental regulation; the uncertainties associated with regulatory proceedings, appeals from regulatory proceedings, and any related litigation; political and currency risks associated with international operations of the company and its affiliates; inability to realize anticipated synergies and cost savings associated with mergers and acquisitions or restructurings on a timely basis; difficulty in integration of the operations of previously acquired companies; competition; the successful implementation of the Balance Sheet Enhancement Program and the Strategic Repositioning Plan; and other factors described in the company's (and its affiliates') Securities and Exchange Commission filings. While the company makes these statements and projections in good faith, neither the company nor its management can guarantee that anticipated future results will be achieved. Reference should be made to those filings for additional important factors that may tosaffect actual results. The company assumes no obligation to publicly update or revise any forward-looking statements made herein or any other forward-looking statements made by the Company, whether as a result of new information, future events, orwise. Osk rs of sa ho mhy

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Santa Barbara - 1969

Can’t Happen Again!

Montara Blowout – 21 August 2009

Can’t Happen Here!

Macondo Blowout – 20 April 2010

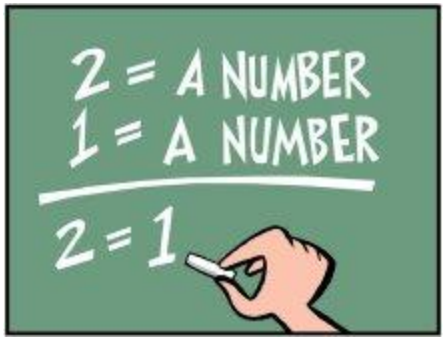
Can’t Happen to Me!

Accidents happen for a reason; they are not mere matters of chance.

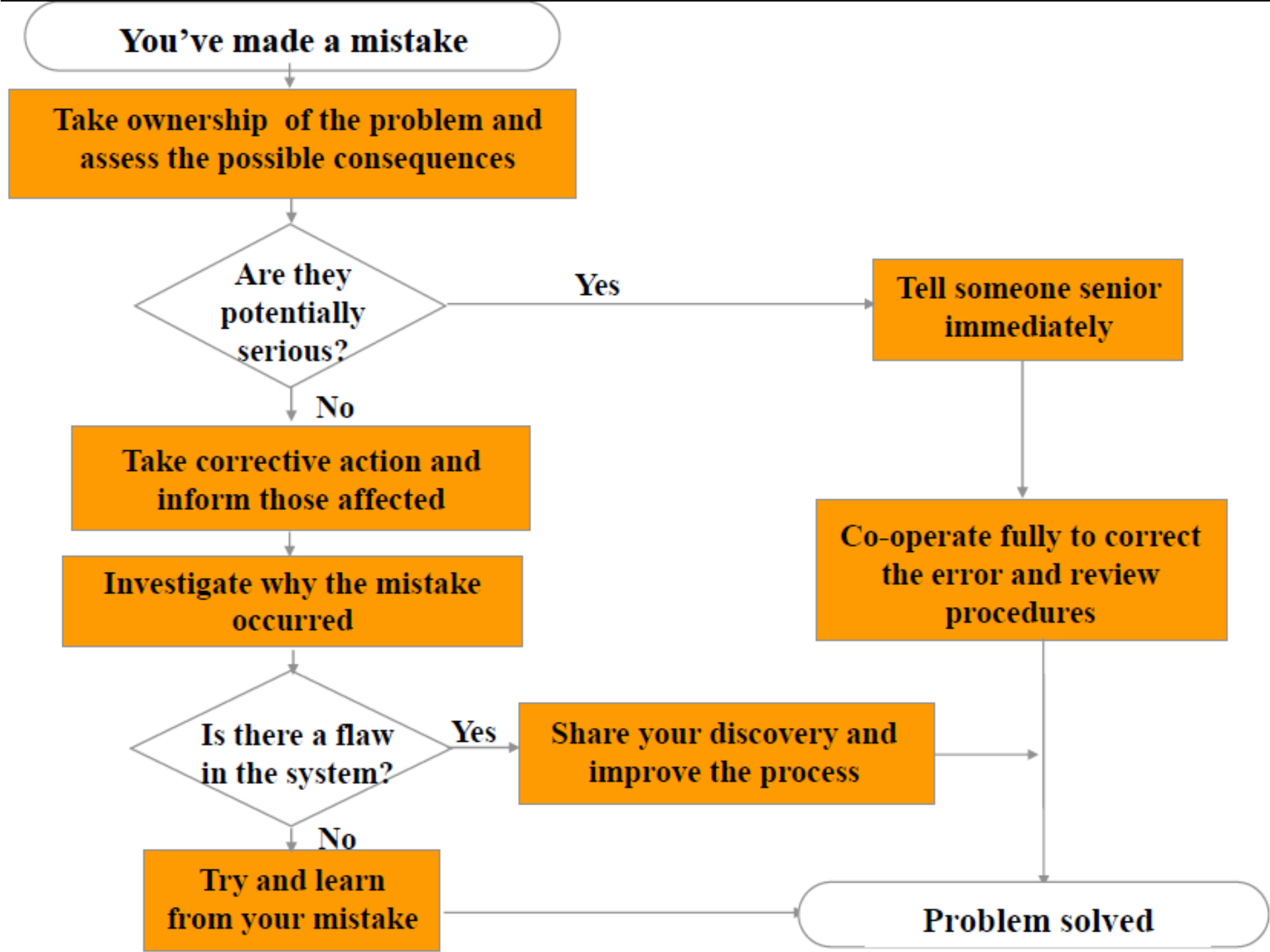
It should be easier for rival companies to share information on near-misses and more serious incidents. "There's a bit of an embarrassment factor there - nobody wants to share their dirty laundry.“

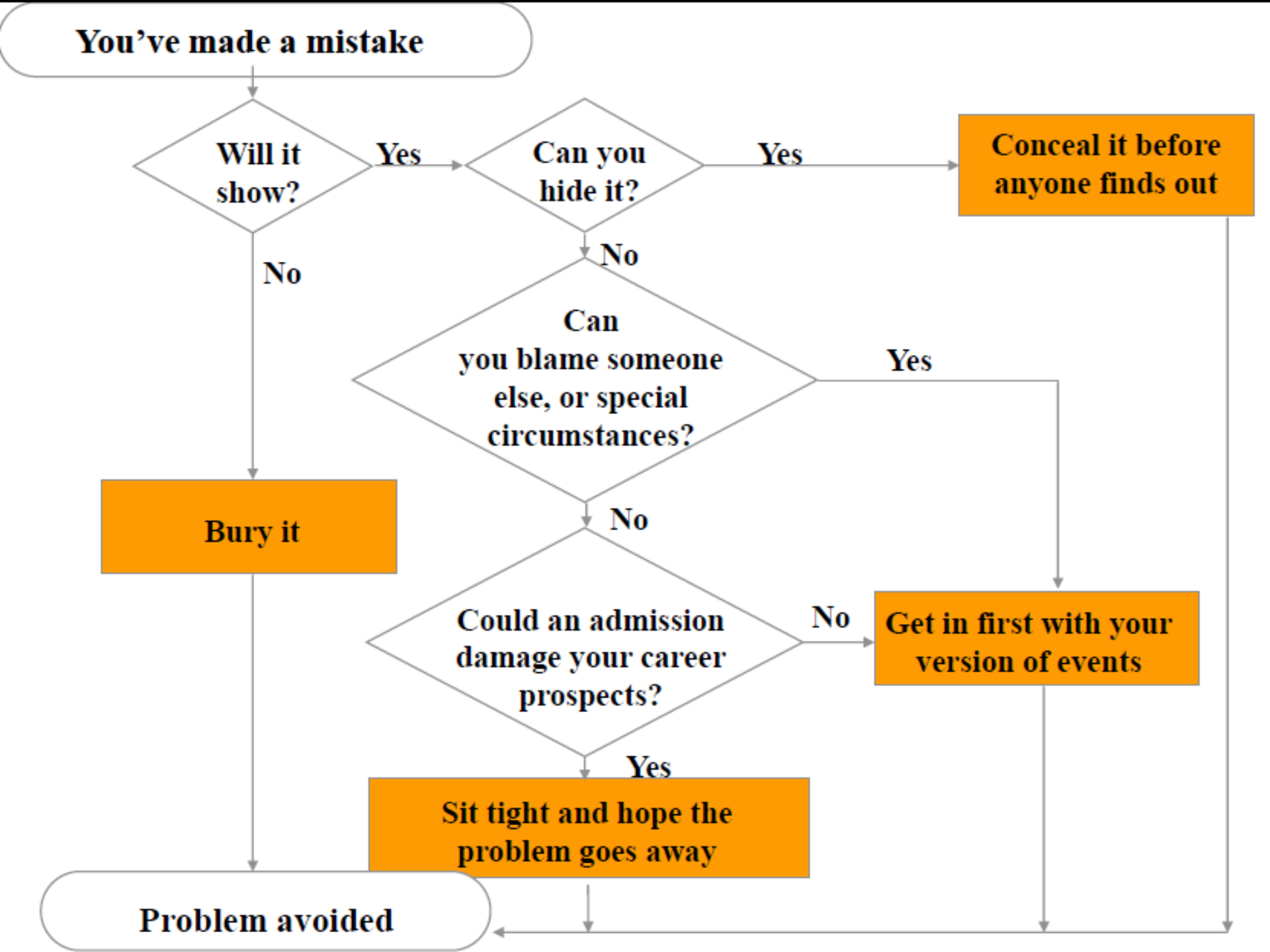
Peter Coleman, Woodside Petroleum

Macondo Rush to Judgment

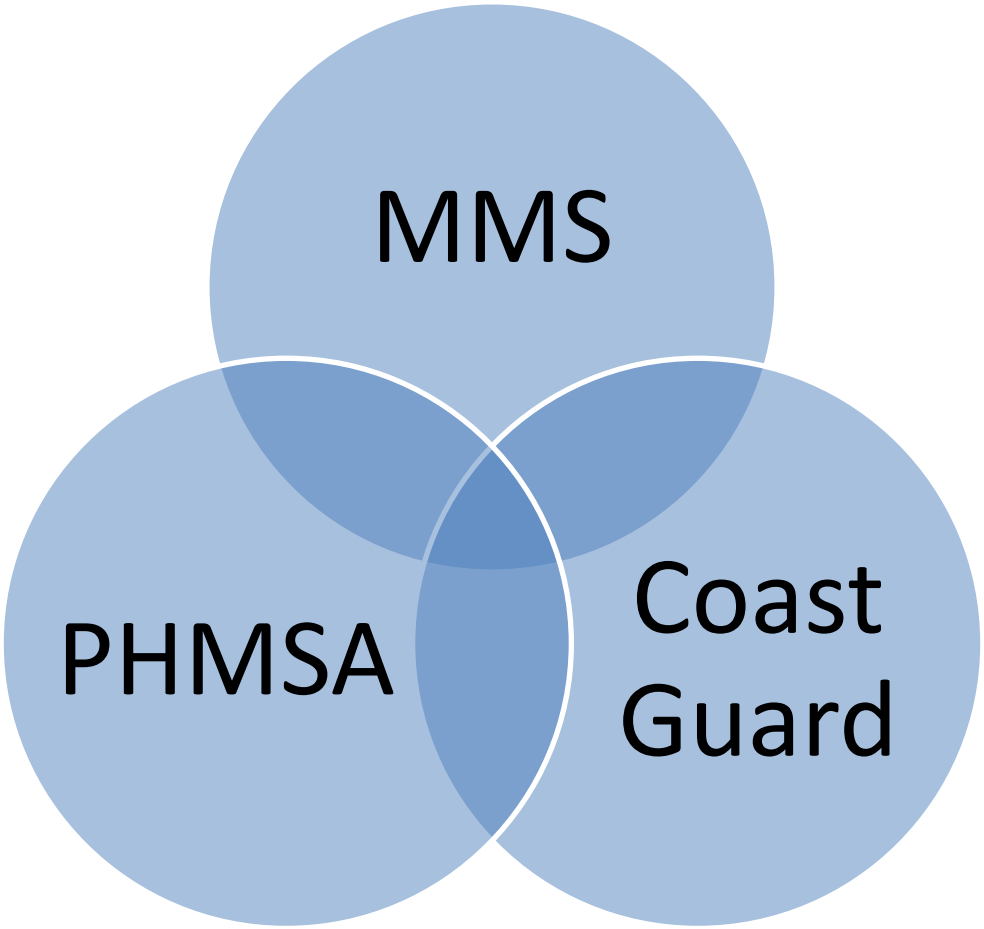


- Long string vs. liner/tieback
- Centralizers
- Flow up annulus
- Acoustic backups
- Deepwater operations are riskier
- Reckless industry
- Corrupt and incompetent regulator


You've made a mistake
Take ownership of the problem and assess the possible consequences
Are they potentially serious?
Yes
Tell someone senior immediately
No
Take corrective action and inform those affected
Co-operate fully to correct the error and review procedures
Investigate why the mistake occurred
Is there a flaw in the system?
Yes
Share your discovery and improve the process
No
Try and learn from your mistake
Problem solved


You've made a mistake
Will it show?
Yes
Can you hide it?
Yes
Conceal it before anyone finds out
No
No
Can you blame someone else, or special circumstances?
Yes
Bury it
No
Could an admission damage your career prospects?
No
Get in first with your version of events
Yes
Sit tight and hope the problem goes away
Problem avoided

Regulatory complexity is a risk factor!

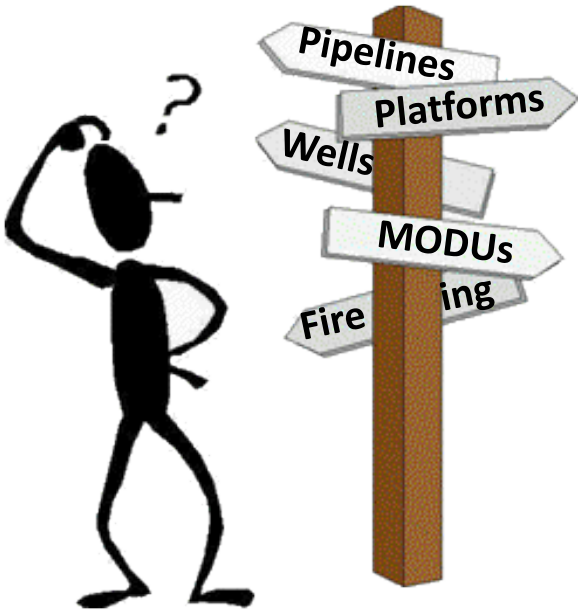


Others:

EPA
ACOE
FWS
NOAA
USGS
NRC
FAA
States (CZMA)
DOD
NPS

"Simplicity is the ultimate sophistication" - Leonardo da Vinci

Regulatory Complexity



- Gaps, Overlap, Conflict, Confusion
- Inefficiency, Cost, Accountability

MMS – CG MOA for floating facilities

MMS – gas detection
CG – fire detection

MMS – ESD for MMS regulated systems
CG – ESD for CG regulated systems

DP systems:
MMS - shut-in and disconnect criteria
CG - all other criteria

Issues in the CG version of the "Joint" DWH report that involve BOEMRE

- failure to divert the flow
- failure to activate the Emergency Disconnect Sequence (EDS) in a timely manner, inability to otherwise release the riser and drive or drift-off
- electrical classifications
- location and vulnerability of equipment
- gas detection system settings and performance
- backup power systems
- fire and blast protection
- safety management system/safety case for the Deepwater Horizon
- BOP recertification pursuant to API RP 53,
- dual command structure and differences between the Master and OIM
- operator and contractor training programs
- incident reporting practices
- government, operator, contractor, flag state, and certification agency inspections

Varanus Island, Western Australia, June 2008

Which regulator had oversight responsibility?

"The biggest change was nevertheless that the NPD became solely responsible for developing regulations and supervising safety and the working environment for the petroleum industry on the NCS.

This move primarily reflected the Kielland commission's recommendations, which strongly emphasized the need to improve coordination of regulatory agencies by reducing their number."

http://www.ptil.no/news/from-prescription-to-performance-in-petroleum-supervision-article6696-79.html?lang=en_US

Regulatory regimes function most effectively when a single entity has broad safety and pollution prevention responsibility. Core responsibilities and objectives must be clearly identified. Gaps, overlap, and confusion are not in the interest of safety or regulatory efficiency.

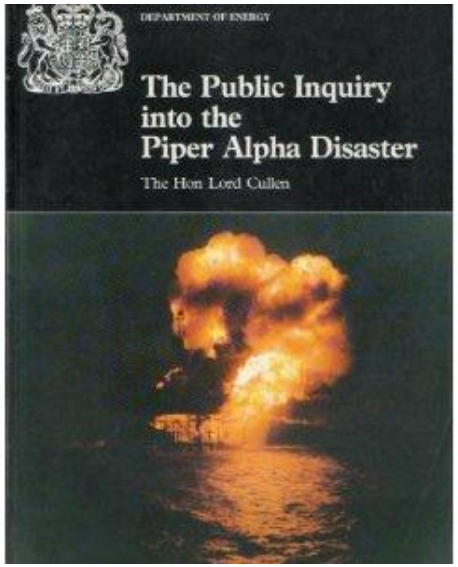
International Regulators Offshore Safety Conference, Vancouver, October 2010

International Regulators' Forum
GLOBAL OFFSHORE SAFETY

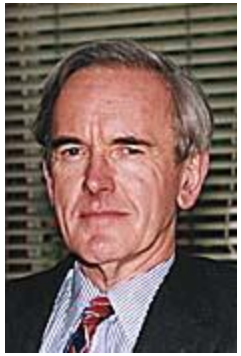
Piper Alpha – 1988

How do we regulate most effectively?

Cullen said SMS should describe:



- The safety objectives
- The system by which those objectives were to be achieved
- The performance standards to be met, and
- The means by which adherence to those standards was to be monitored

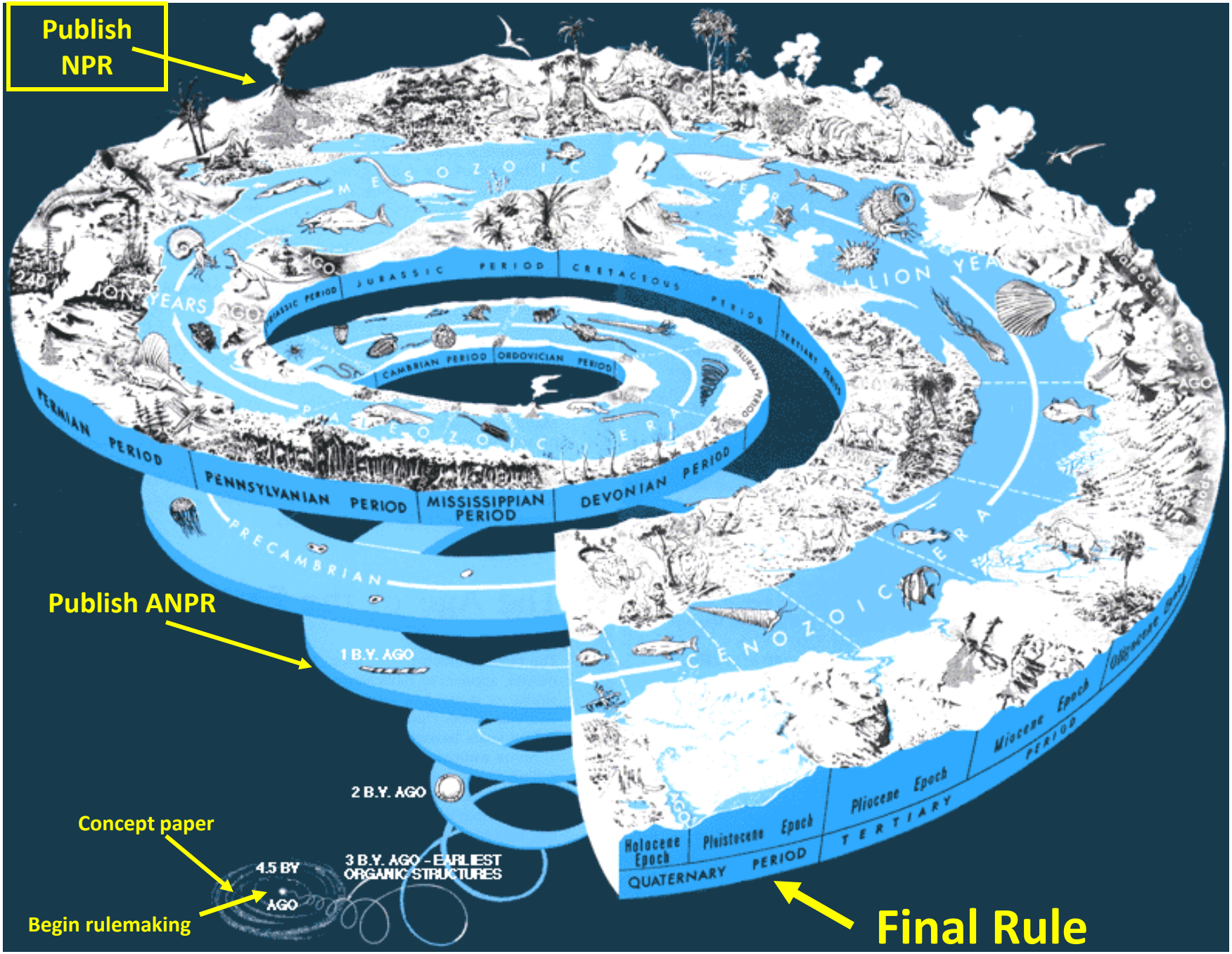


MMS OCS Regulatory Program

- Prescriptive rules
- Standards
- Plans/permits
- Inspection and enforcement
- Accident investigation
- Training
- Research
- Recognition programs
- Annual Performance Reviews
- Information sharing
- **Safety Management**

Does Command and Control Regulation Work?

- Slow to respond
- Labor intensive
- Regulations will always lag
- Gaps can never be eliminated
- Blurs lines of authority; who is accountable?
- Contradicts safety management principles
- Good for poor operators, bad for safety leaders


Publish NPR
Publish ANPR
Concept paper
Begin rulemaking
Final Rule
MESOZOIC ERA
PALEOZOIC ERA
CENOZOIC ERA
PRECAMBRIAN
JURASSIC PERIOD
CRETACEOUS PERIOD
TRIASSIC PERIOD
CAMBRIAN PERIOD
ORDOVICIAN PERIOD
SILURIAN PERIOD
DEVONIAN PERIOD
MISSISSIPPIAN PERIOD
PENNSYLVANIAN PERIOD
PERMIAN PERIOD
240 MILLION YEARS AGO
1 B.Y. AGO
2 B.Y. AGO
3 B.Y. AGO – EARLIEST ORGANIC STRUCTURES
4.5 BY AGO
Holocene Epoch
Pleistocene Epoch
Pliocene Epoch
Miocene Epoch
Oligocene Epoch
QUATERNARY PERIOD
TERTIARY PERIOD

PSA does NOT:

- Assume the operator's responsibility for selecting solutions and measures
- Accept tasks that are industry's responsibility
- Request documentation except that which is necessary for case processing, follow-up, or monitoring

PETROLEUMSTILSYNET
PETROLEUM SAFETY AUTHORITY NORWAY

Keys to Successful Regulation

1. **Know why you are regulating**
   a. Define objectives
   b. Stay focused
2. **Establish accountability**
   a. Operator
   b. Contractors
   c. Regulators
3. **Monitor performance; insist on excellence**
4. **Identify risks and evaluate mitigations**
5. **Stimulate innovation and improvement**

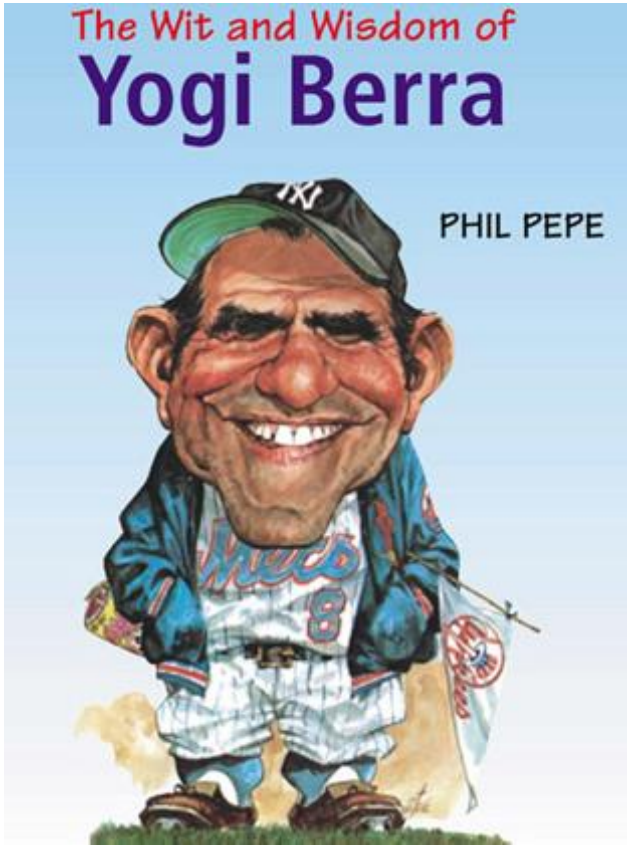
6. Hire good people and help them succeed

a. Quality regulators are more important than quality regulations
b. Distractions are dangerous
c. Communication is not capture
d. Effectiveness requires efficiency
e. Study successes and failures in Alaska and around the world

7. Regulate don't operate

a. Make the operators perform; don't perform for them.
b. Review, challenge, and verify. Don't design.
c. Put your resources where the risks are.
d. Make the problem owner propose solutions.
e. Create an environment for innovation and achievement; insist on excellence.
f. Investigate incidents and make sure all parties are aware of the lessons learned.

8. Set Targets; Monitor Performance



"If you don't know where you're going, you'll end up somewhere else."

Collect and verify accident information

- Casualties
- Fires
- Spills
- Damage

Reporting requirements must be highly prescriptive

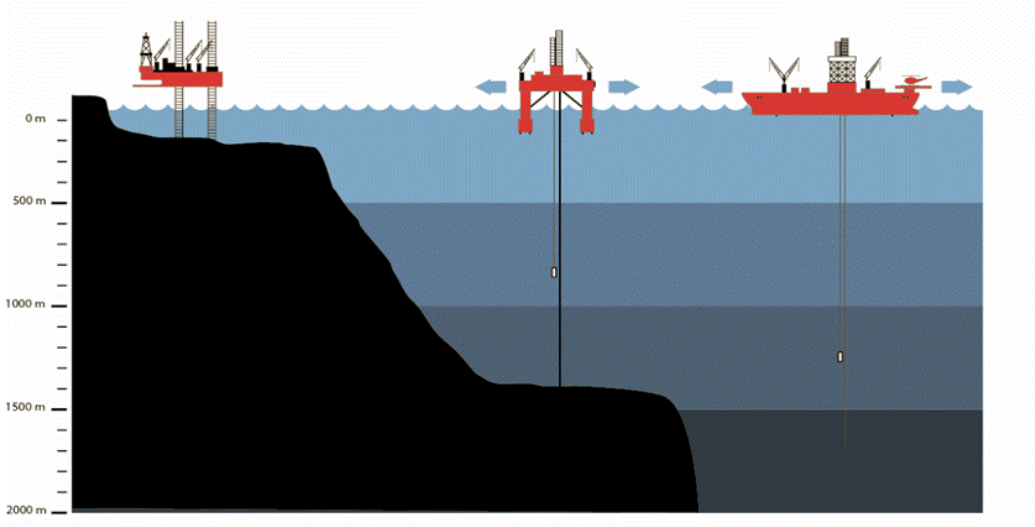
Leading Indicators?

- Failure to detect drilling fluid loss or gain, gas influx
- Barrier failures
  - Casing
  - Cement
  - BOPE
- BOP pressure test failures – critical components
- Well integrity issues on producing wells
- Gas releases
- Training (time, effectiveness measures)
- Worker, company, and regulator surveys

Arctic Blowout Risk Study?

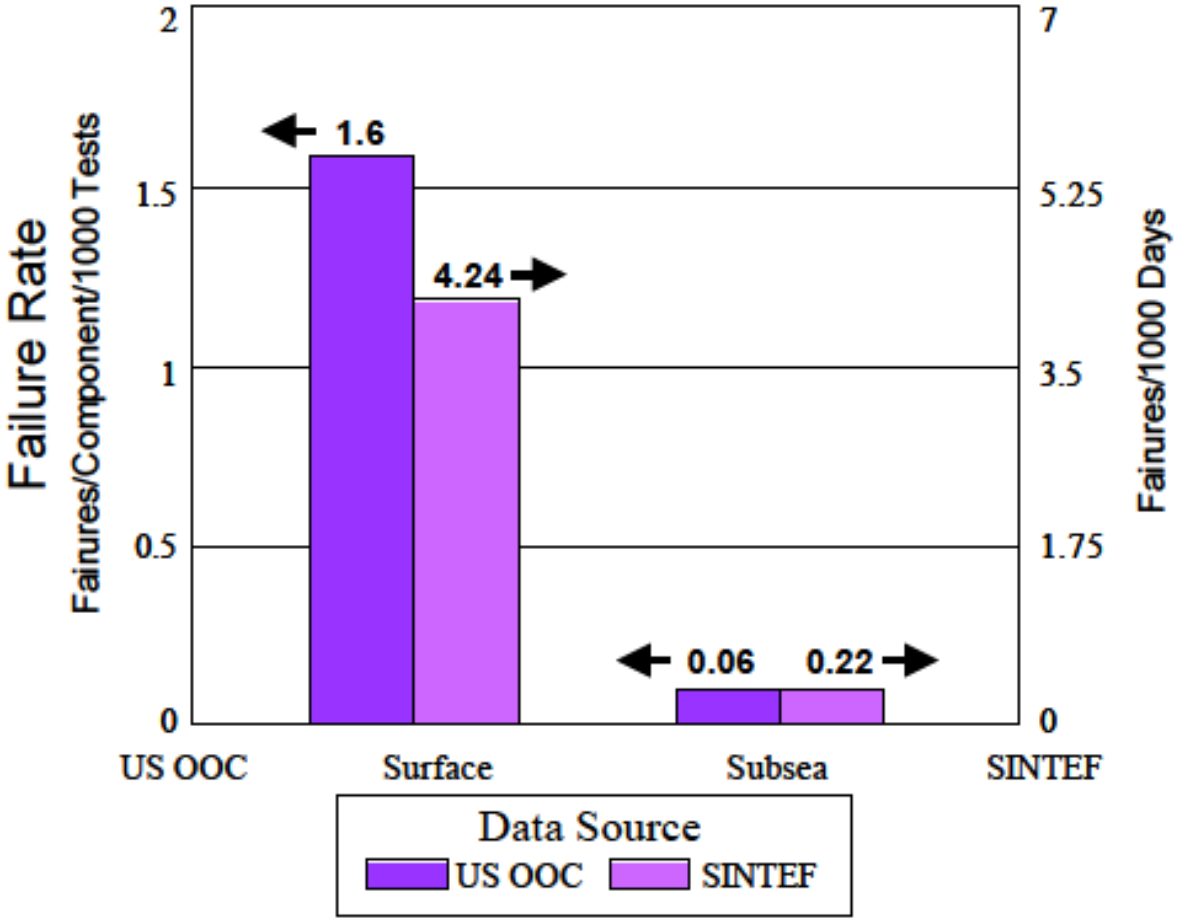
Is Deepwater (Arctic) Drilling Riskier?

- Lower blowout rate in deepwater (and Arctic?)
- Deepwater (and Arctic?) BOPs are more reliable
- Access to wellhead and BOP (Arctic plus)
- Intervention is safer with the wellhead on the seafloor (Arctic minus)
- No long riser (Arctic plus)
- Must have well integrity in any water depth



Critical Failure Comparison

Offshore Surface and Subsea BOP Stacks



Data from US Offshore Operators Committee and
SINTEF Failure rates Calculated on different bases

Arctic Well Control

- Blowout rates are area and well specific
  - Geology
  - Type of well
  - Well potential and gas/liquid composition
- BOP test records provide useful failure rates
- Historic well control data
- Intervention options
- Barriers

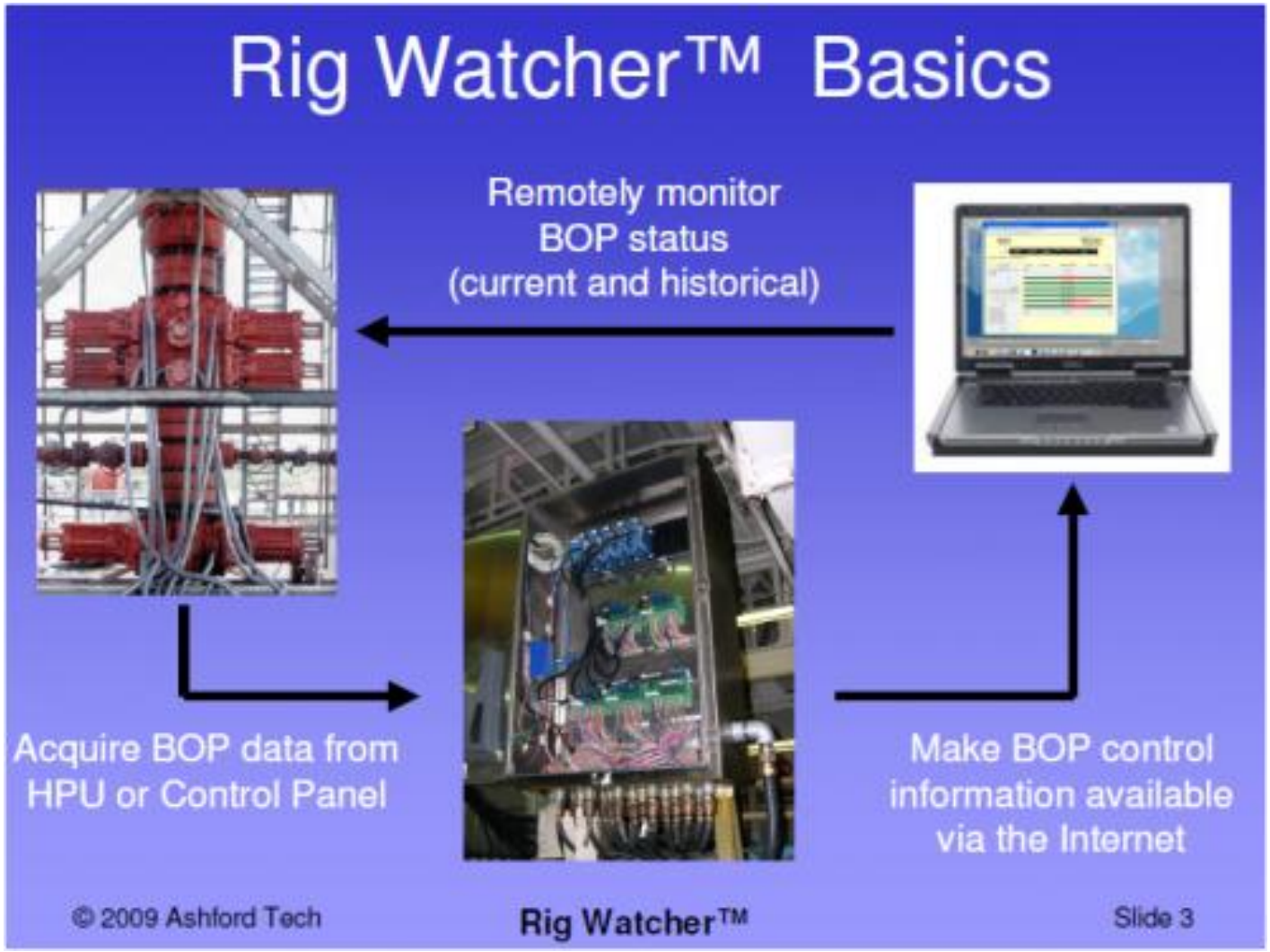
BOPE Comments

- Program-based BOP design is good
- AOGCC pressure test frequency is good
- Shear ram requirement for surface stack?
  http://www.boemre.gov/federalregister/PDFs/BlindSheaRamTablesExhibit_5.pdf
- Need national/intl standards for evaluating ram capabilities

BOPE Comments (2)

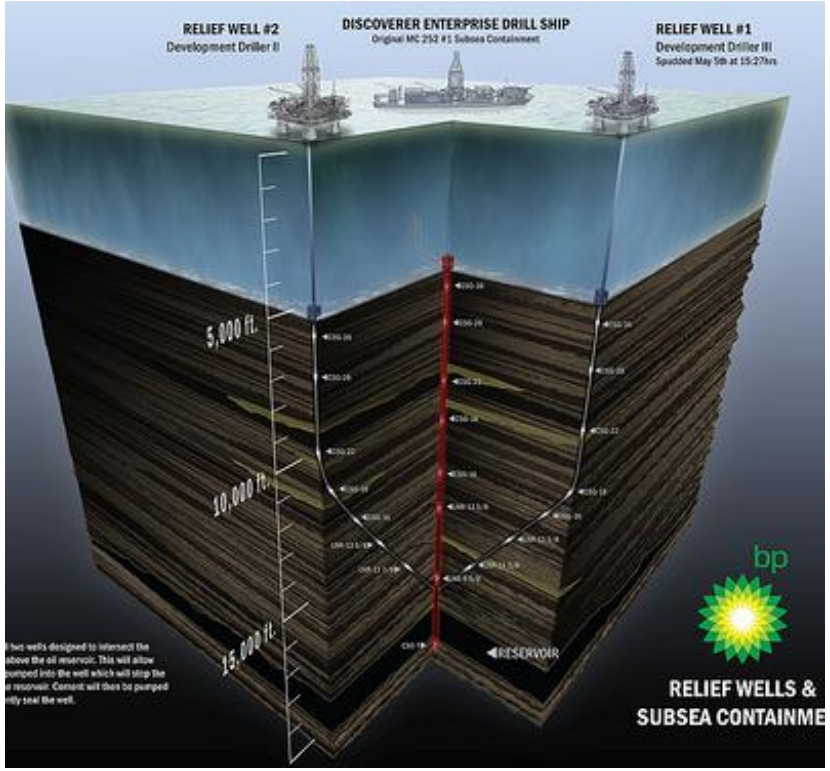
- Failure inventory reporting system
- Clarify inspection and maintenance issues (RP 53, “should” vs. “must”)
- Operator vs. drilling contractor responsibilities
- 3rd party certification – pros and cons
- Witnessing BOP tests – more is not necessarily better

Real Time BOP Monitoring

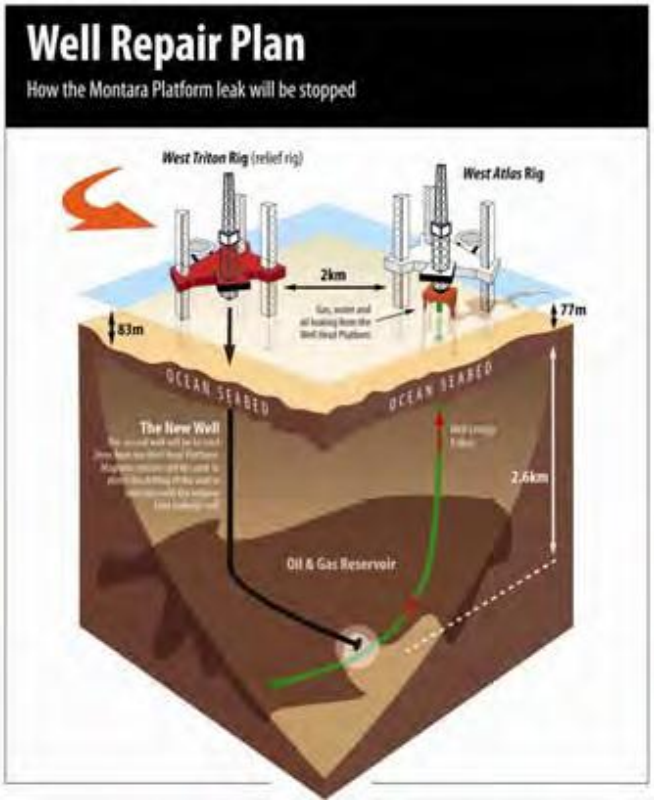


Other Well Control Comments

- Negative pressure test
- Team and rig/program based well control training
- Solubility of gas in oil-based mud
- Casing/cementing requirements – well specific is best



Macondo



Montara

Relief Wells

- Macondo was not killed by a relief well
- Montara: no surface kill option
- Concurrent relief well requirement would increase safety and environmental risks
- Relief well plan is recommended

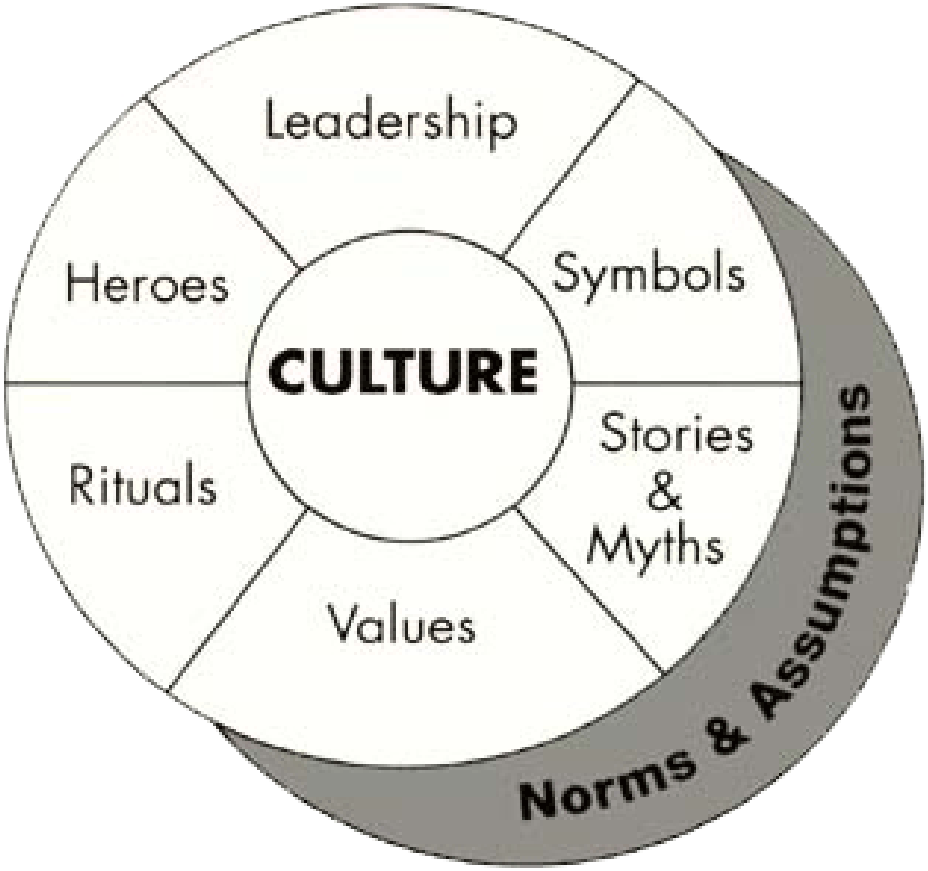
Other issues

- Bypassing/silencing detection and alarm systems
- Appropriate use of standards
- Division of regulatory responsibilities
- Production measurement
- Alaskan incident data
- Participation in international incident data system
- Safety system performance information – bar coding

Sample of Missing Intl Accident Reports

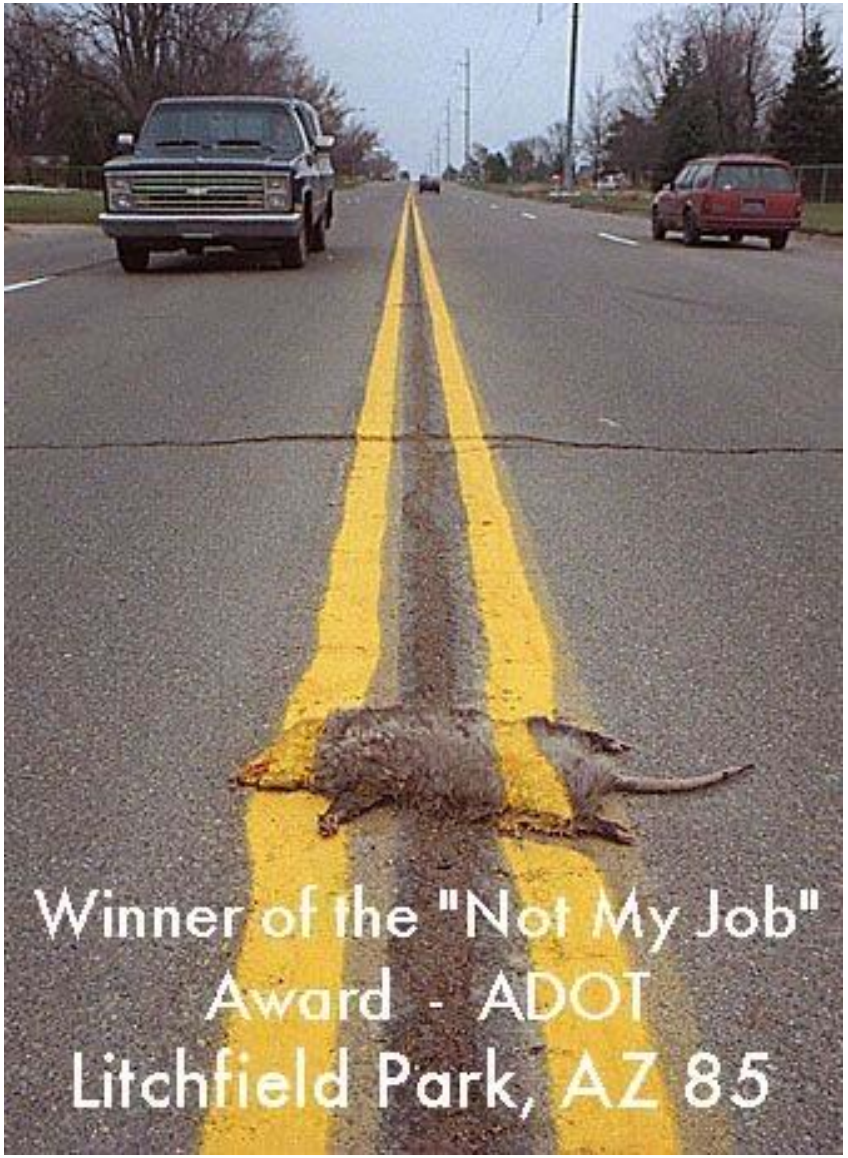
- Russell Peterson – US - May 2008
- Aban Pearl - Venezuela - May 2010
- Jack Ryan – Nigeria - August 2010
- Bayou St. Denis – US - August 2010

We're all in this together



Culture can be good or bad

Not My Job Awards



Spit
Happens