

EXPERTISE THAT EXTENDS FROM LAND TO SEA.



Panel Discussion

**Bureau of Ocean Energy Management,
Regulation and Enforcement**

13 September, 2010

Lafayette, Louisiana

**Wild
WellControl**

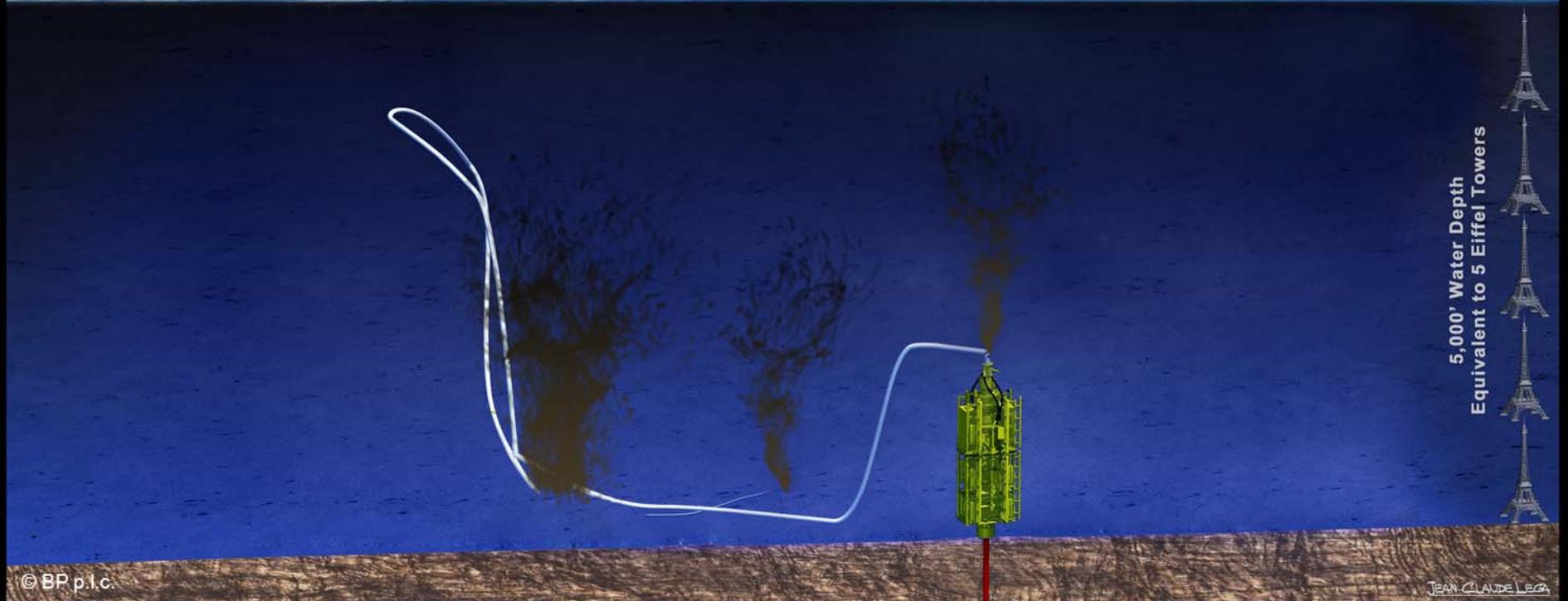
April 22



Subsea Support Vessel

Construction Vessel

Subsea Support Vessel



5,000' Water Depth
Equivalent to 5 Eiffel Towers

© BP p.l.c.

JEAN CLAUDE LECA

Subsea Dispersant Injection System

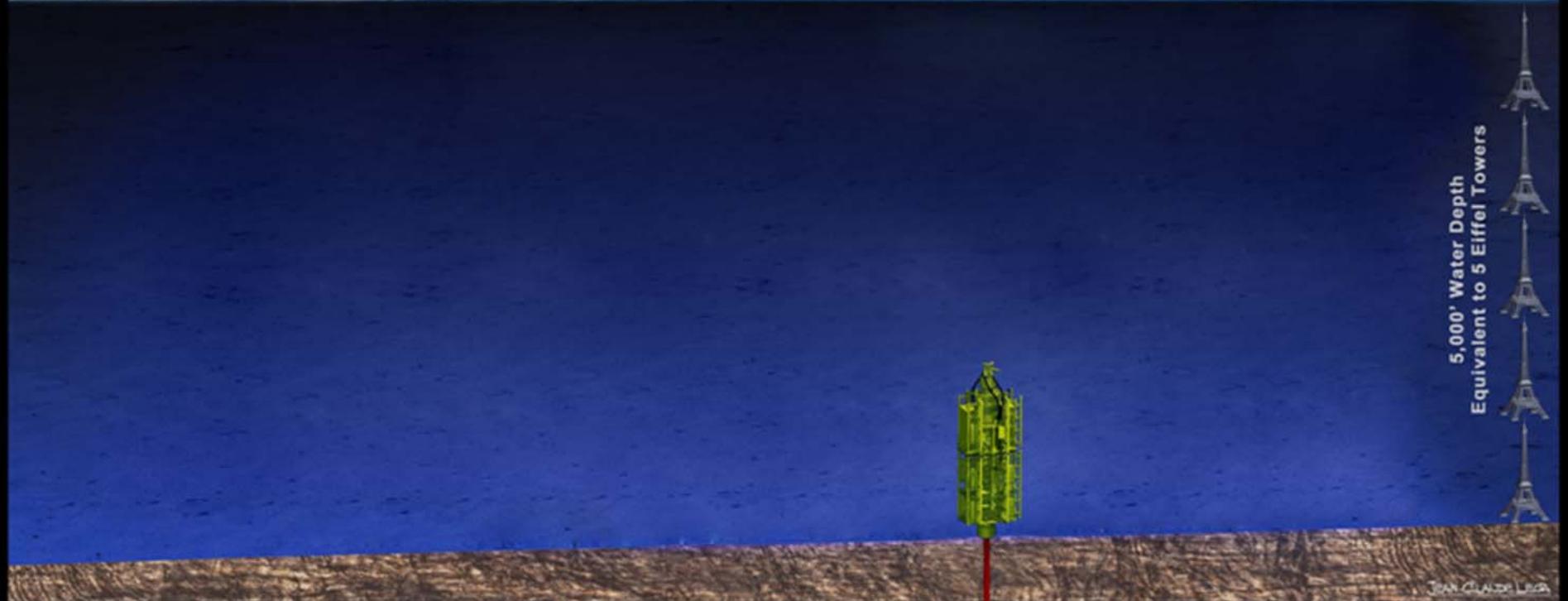
July 15



Subsea Support Vessel

Construction Vessel

Subsea Support Vessel



5,000' Water Depth
Equivalent to 5 Eiffel Towers

Subsea Dispersant Injection System

JOHN GUNDEL/LEICA

Improvised Attempts to Contain the Macondo Well

April 22

ROV made unsuccessful attempts to seal off well by closing the BOPs rams until May 5

May 8

100 ton containment dome was lowered. However, formation of hydrates made the dome buoyant and uncontrollable.

May 16

Riser Insertion Tube Tool (RITT) was installed, providing limited containment.

May 26

A multiple-week construction effort resulted in a long distance hookup operation for a "Top Kill" operation using a heavy drilling mud – it failed.

June 3

Top Hat #4 installed on top of the Lower Marine Riser Package. Collection of hydrocarbons begins to Discoverer Enterprise.

June 11

Recovery of hydrocarbons through a choke line to a semisubmersible platform reduces flow into the Gulf.

July 12

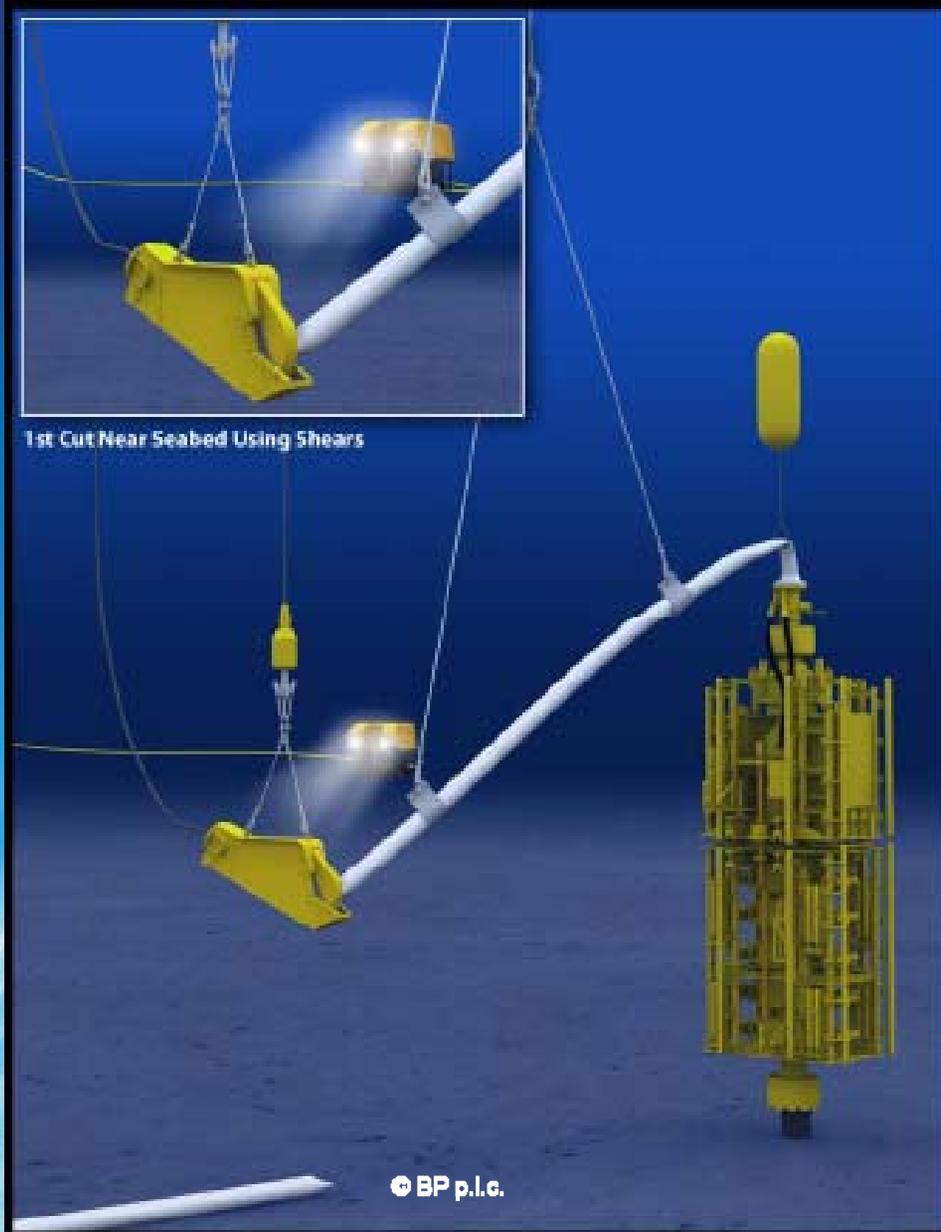
Containment cap is lowered on the ruptured well, stopping the flow of oil into the water. BP is attempting a "static kill" before the relief wells are complete.

'Fast Tracked' R&D

- Prototyping, Testing in Shop and Field
- Multiple concepts, in parallel



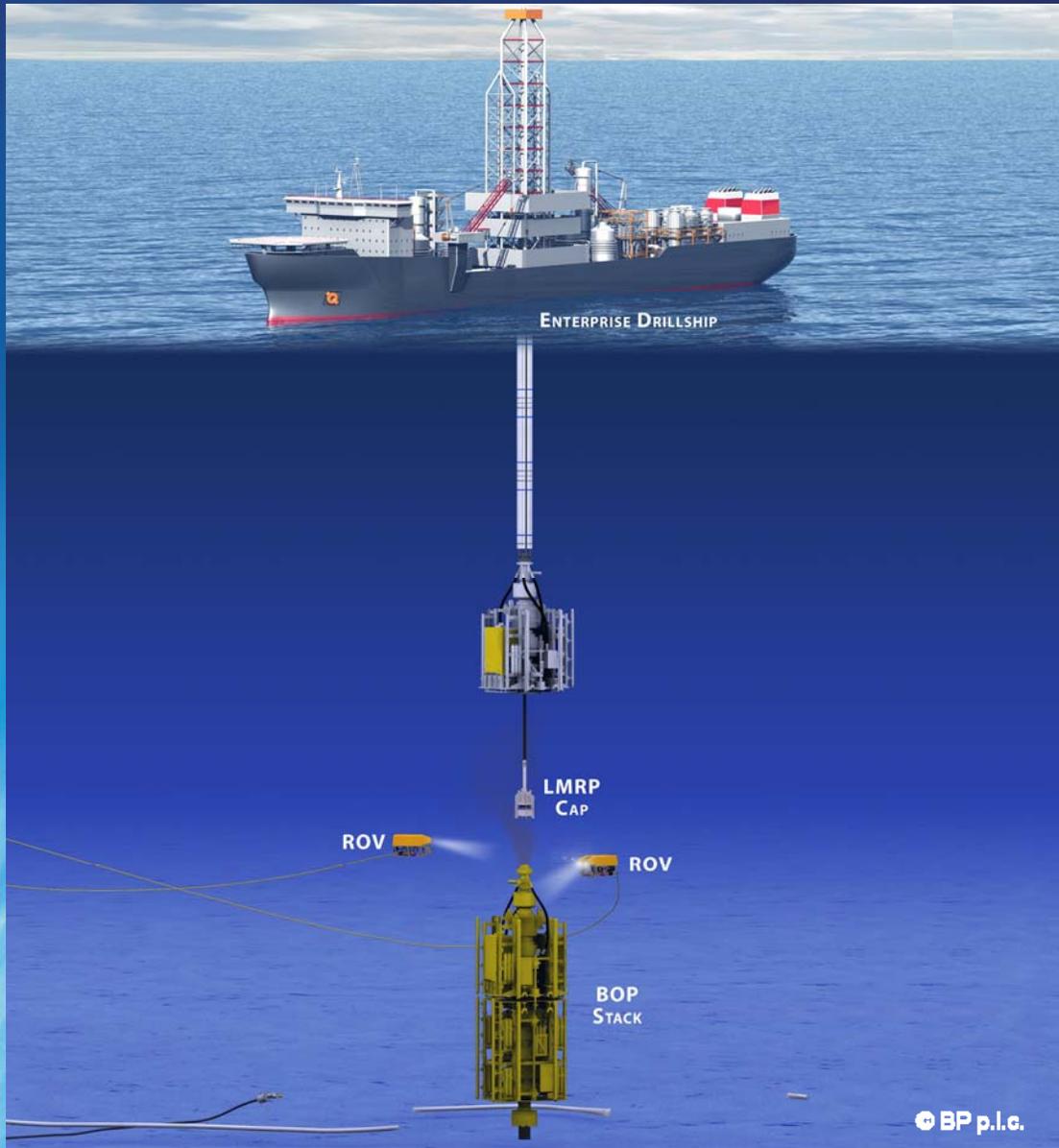
Debris Removal



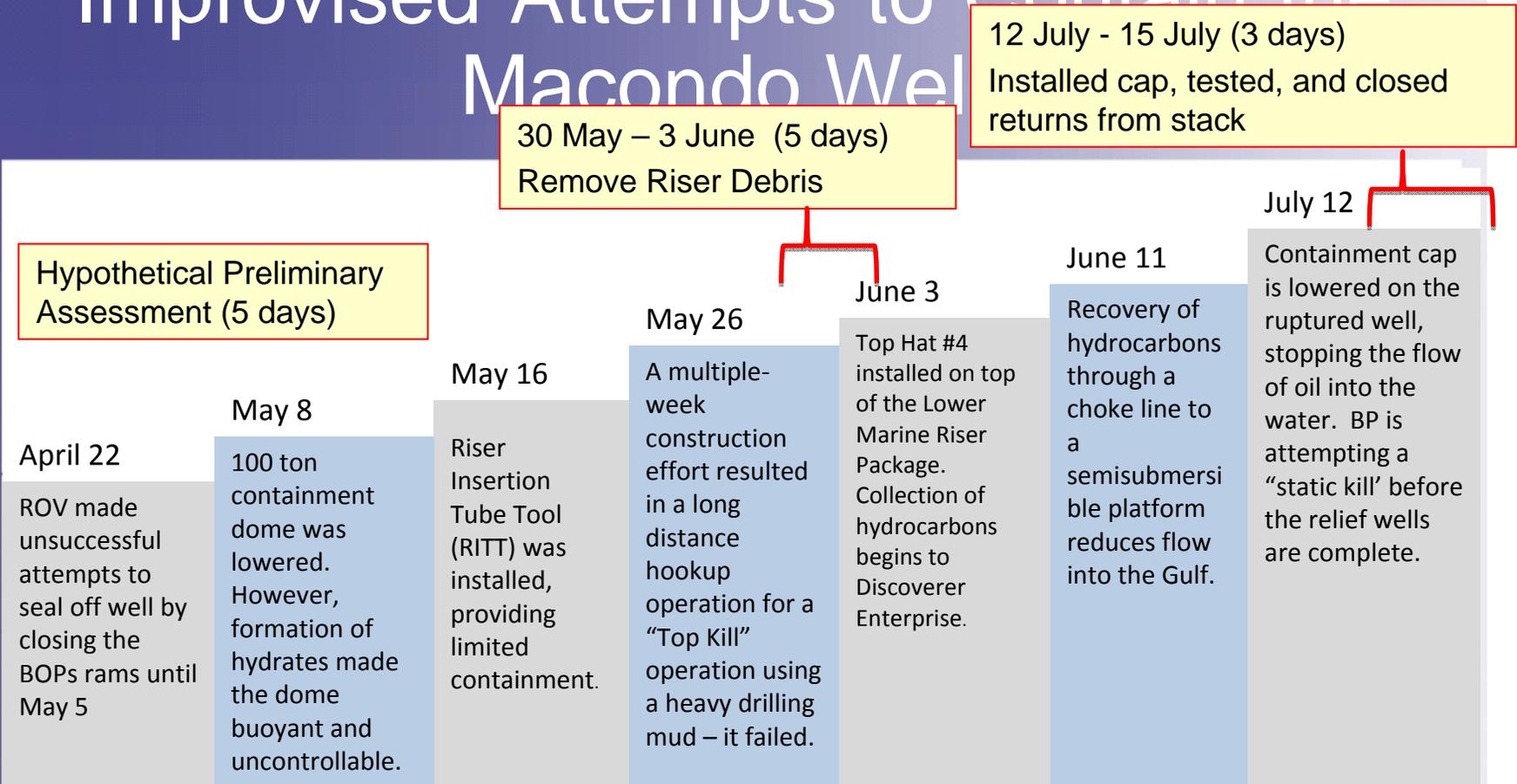
- 5 Days

Install LMRP / Capping Stack

- 3 Days



Improvised Attempts to Contain the Macondo Well



Conclusion

- Containment on a 'Future Macondo'
 - Accomplished within 1-3 weeks
 - Assured Shoe, and Wellhead Seal Integrity - critical

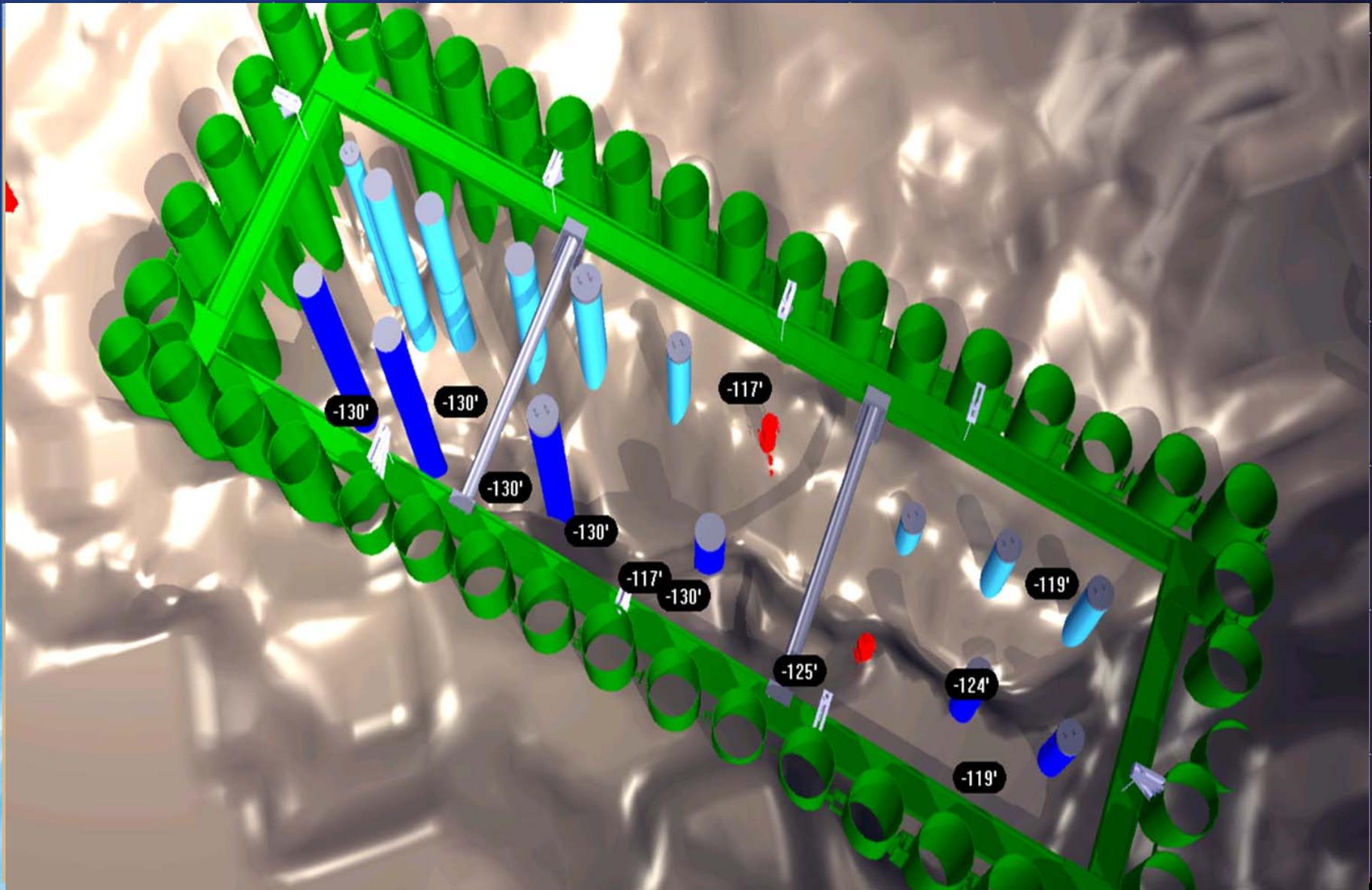
Response times for 2 Basic Failure Modes – With, or Without Vertical Access

		Casing Integrity Assured	
		Re-heading Required	Existing Head can be latched
Vertical Access Available?		8 days (total) re-head and stem flow*	3 days stem flow*
Restore Vertical Access	15 -30 days to excavate, re-head, and stem flow		

As demonstrated (*Macondo)

Shallow water experience

Excavation - Cofferdam





- Well Intervention and Re-heading...
< 500' WD



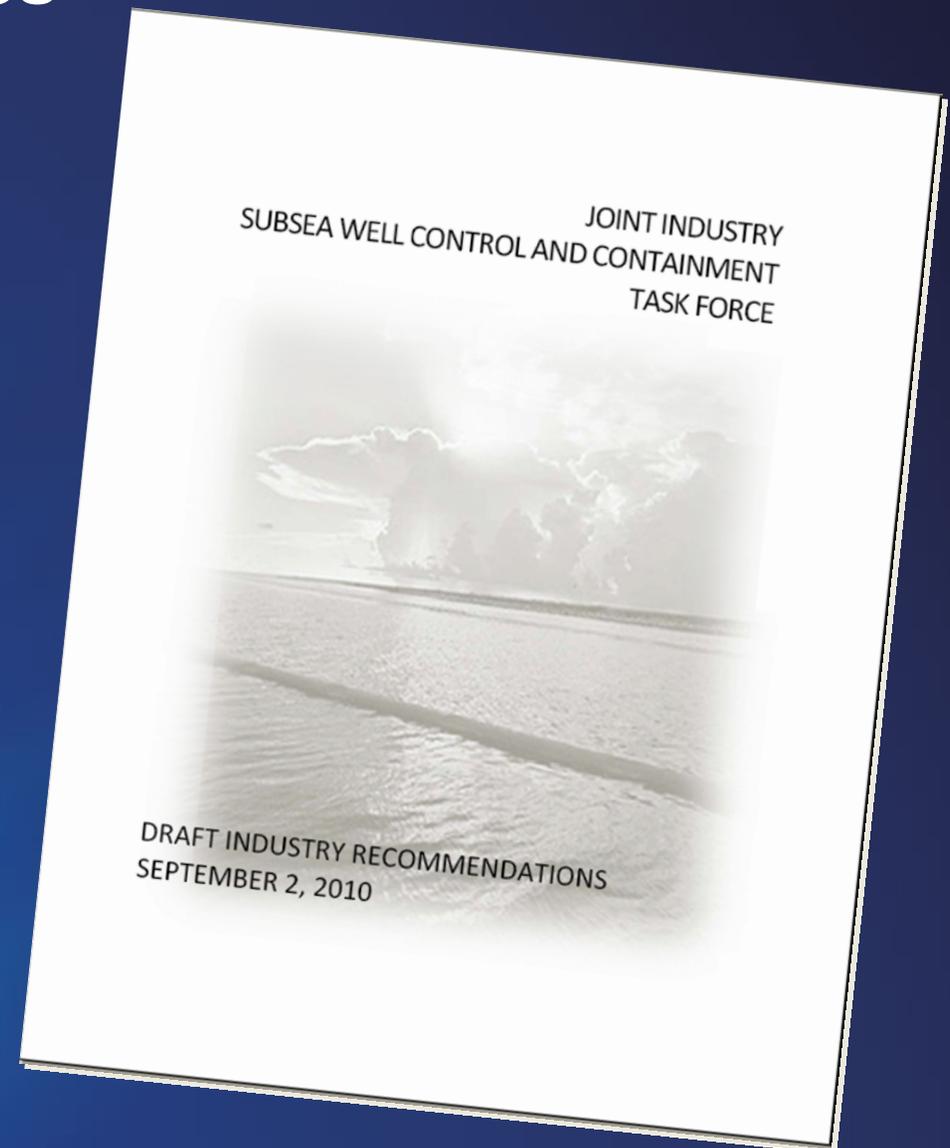
FRESH CUT OF E-5

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Joint Industry Task Forces

- Subsea Well Control and Containment
- Oil Spill Prevention and Response



Recommendation

- Support JITF efforts
- Drills and Exercises
 - Demonstrate Response Capabilities
 - Test Unified Command

Further

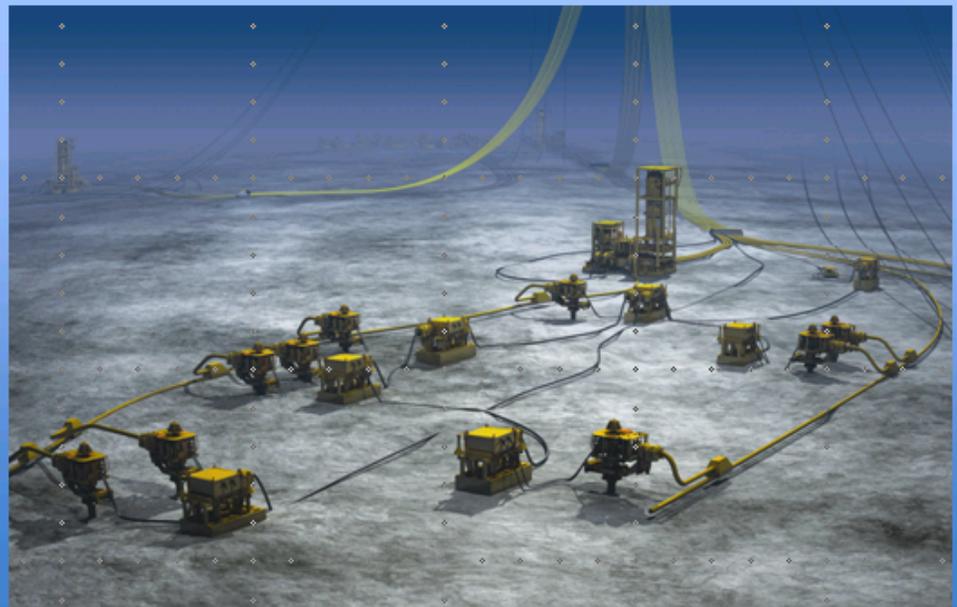


Shallow water – land

- Most severe offshore blowouts - 'cased hole'
 - Production Operations
 - Higher incidence rate
 - Higher vulnerability

Deepwater

- Higher flow rates = higher consequence
- Inspection, maintenance and replacement is expensive
 - Out of sight.... Out of mind?



Observations

- Operator vigilance and discipline - critical
- Regulatory / API support?
 - Bonding requirements?
 - Standards development?
 - Monitor Standards adherence?
 - Failure reporting / Root cause analysis?

The End – Thank you

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