

EXPERTISE THAT EXTENDS FROM LAND TO SEA.



Panel Discussion

# Bureau of Ocean Energy Management, Regulation and Enforcement

13 September, 2010

Lafayette, Louisiana

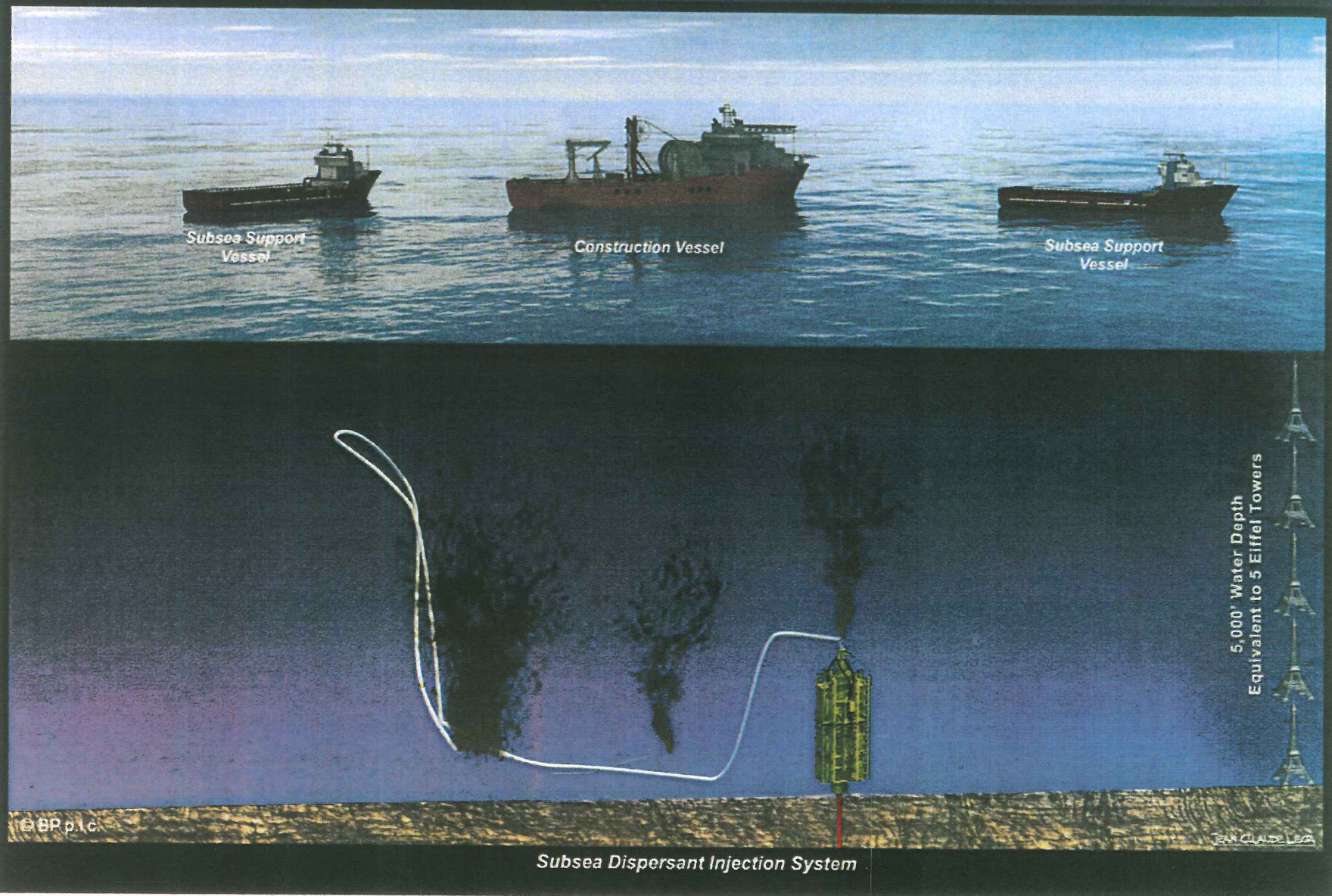
Wild  
WellControl

EXHIBIT NO. 2402

Sutton



April 22





July 15



Subsea Support  
Vessel

Construction Vessel

Subsea Support  
Vessel



5,000' Water Depth  
Equivalent to 5 Eiffel Towers

Subsea Dispersant Injection System





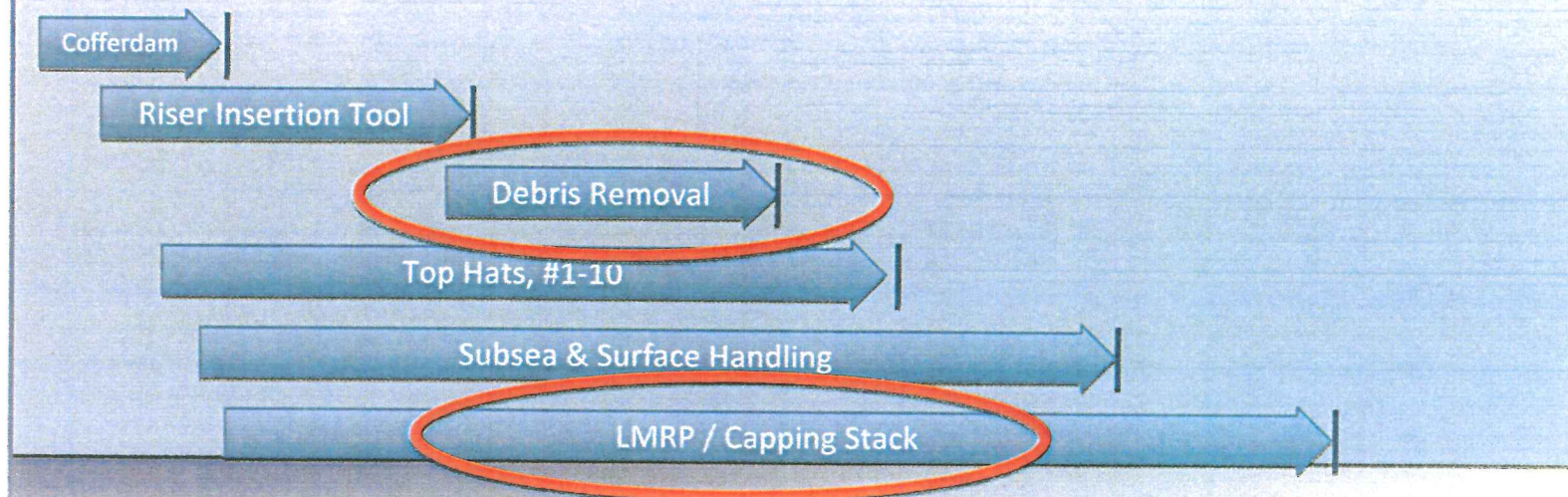
# Improvised Attempts to Contain the Macondo Well

<b>April 22</b> ROV made unsuccessful attempts to seal off well by closing the BOPs rams until May 5	<b>May 8</b> 100 ton containment dome was lowered. However, formation of hydrates made the dome buoyant and uncontrollable.	<b>May 16</b> Riser Insertion Tube Tool (RITT) was installed, providing limited containment.	<b>May 26</b> A multiple-week construction effort resulted in a long distance hookup operation for a "Top Kill" operation using a heavy drilling mud – it failed.	<b>June 3</b> Top Hat #4 installed on top of the Lower Marine Riser Package. Collection of hydrocarbons begins to Discoverer Enterprise.	<b>June 11</b> Recovery of hydrocarbons through a choke line to a semisubmersible platform reduces flow into the Gulf.	<b>July 12</b> 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.
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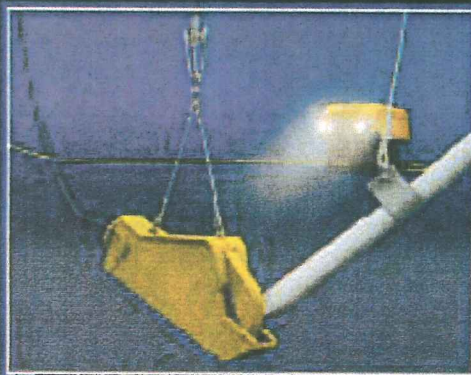
## 'Fast Tracked' R&D

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

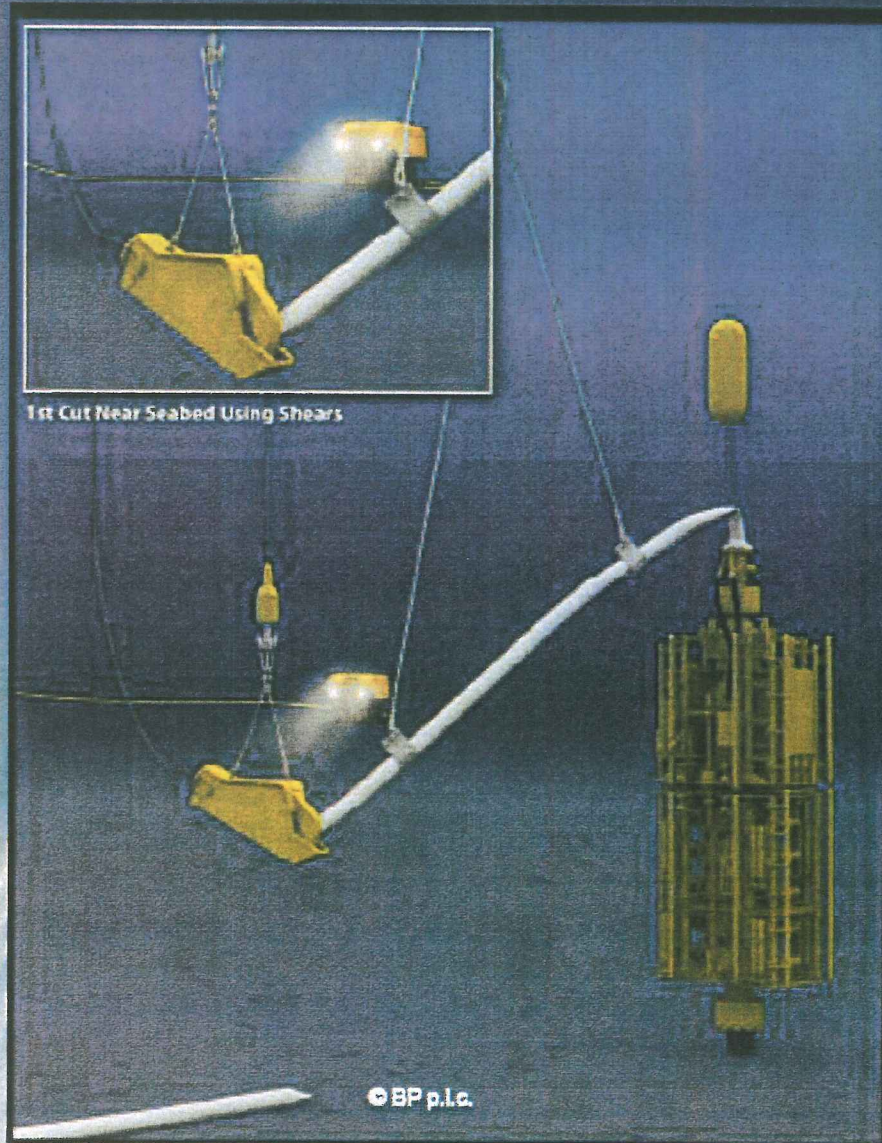




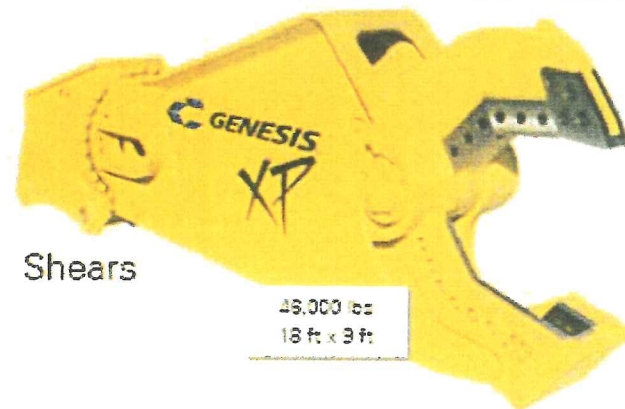
# Debris Removal



1st Cut Near Seabed Using Shears



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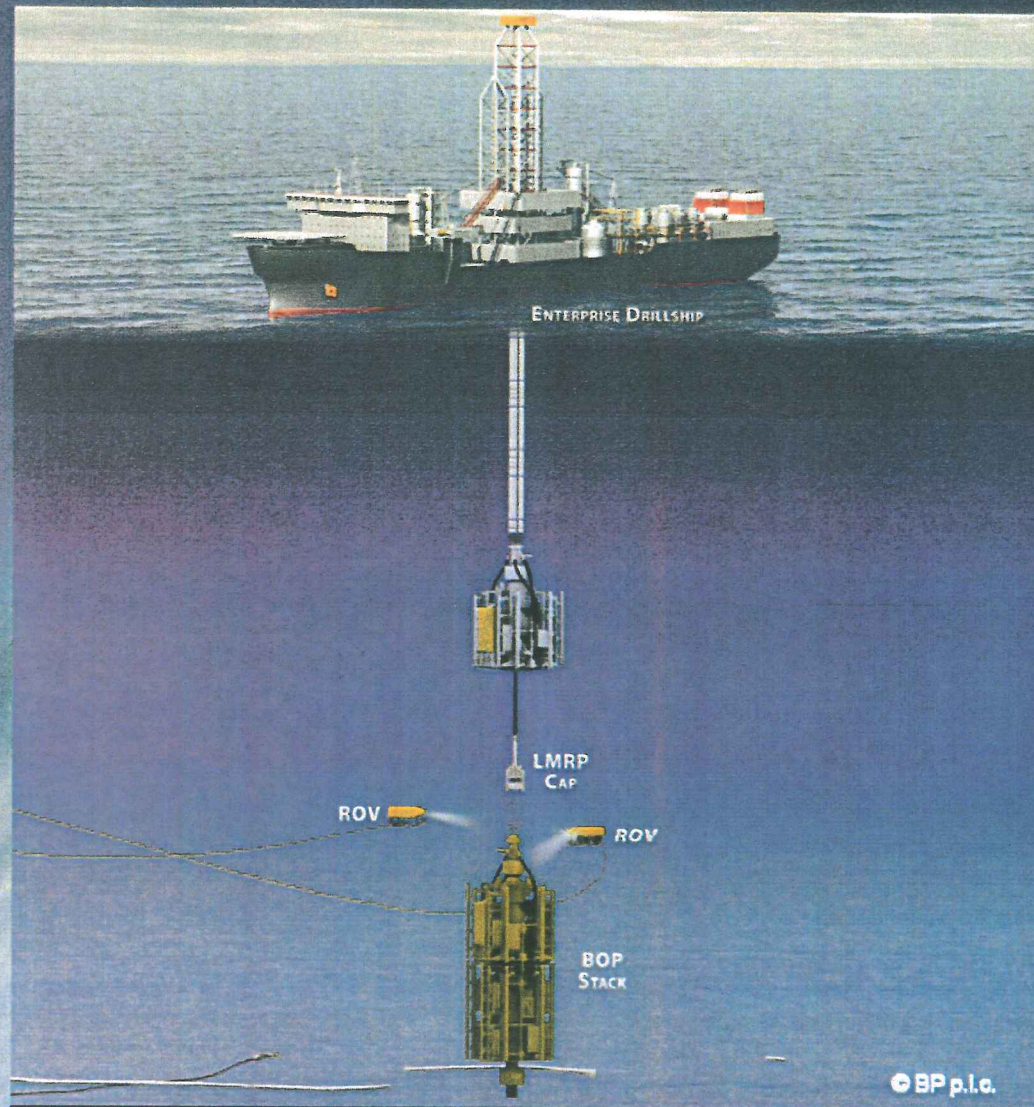


- 5 Days



# Install LMRP / Capping Stack

- 3 Days



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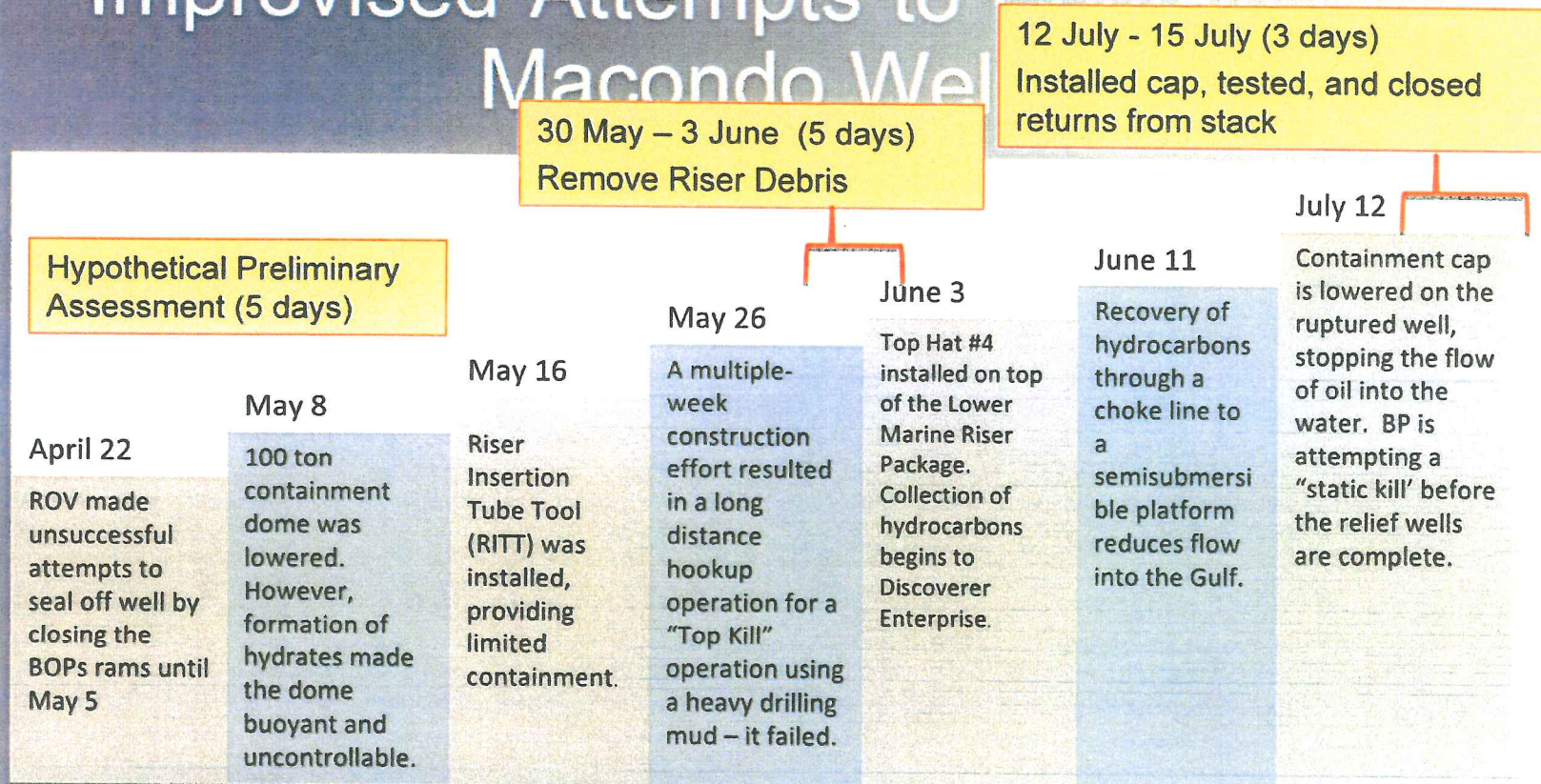
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# Improvised Attempts to Contain the Macondo Well





## 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

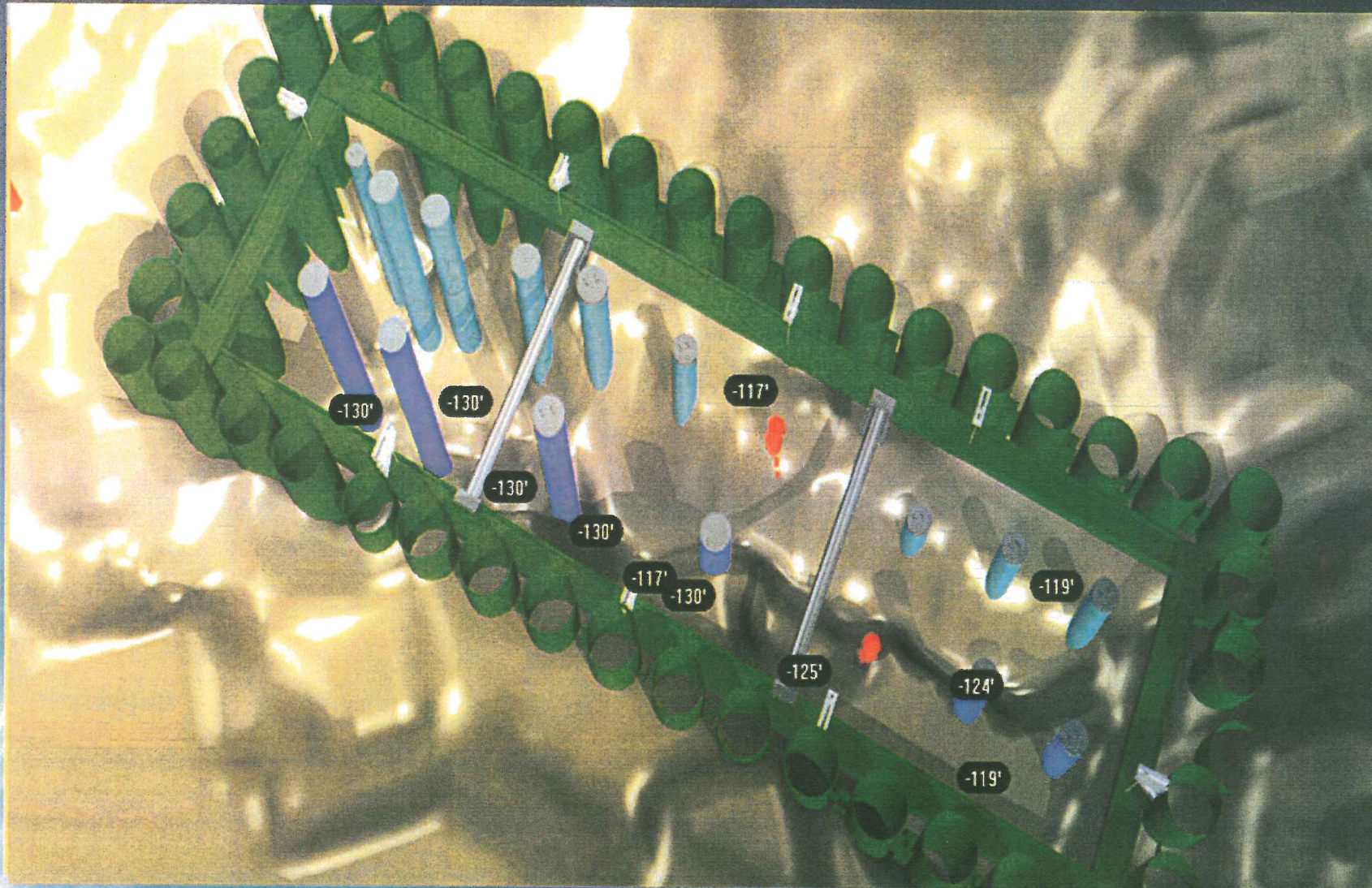
	Casing Integrity Assured	
	Re-heading Required	Existing Head can be latched
Vertical Access Available?	8 days (total) re-head and stem flow*	3 days stem flow*
Restore Vertical Access	15 -30 days to excavate, re-head, and stem flow	

As demonstrated (\*Macondo)

Shallow water experience



# Excavation - Cofferdam



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



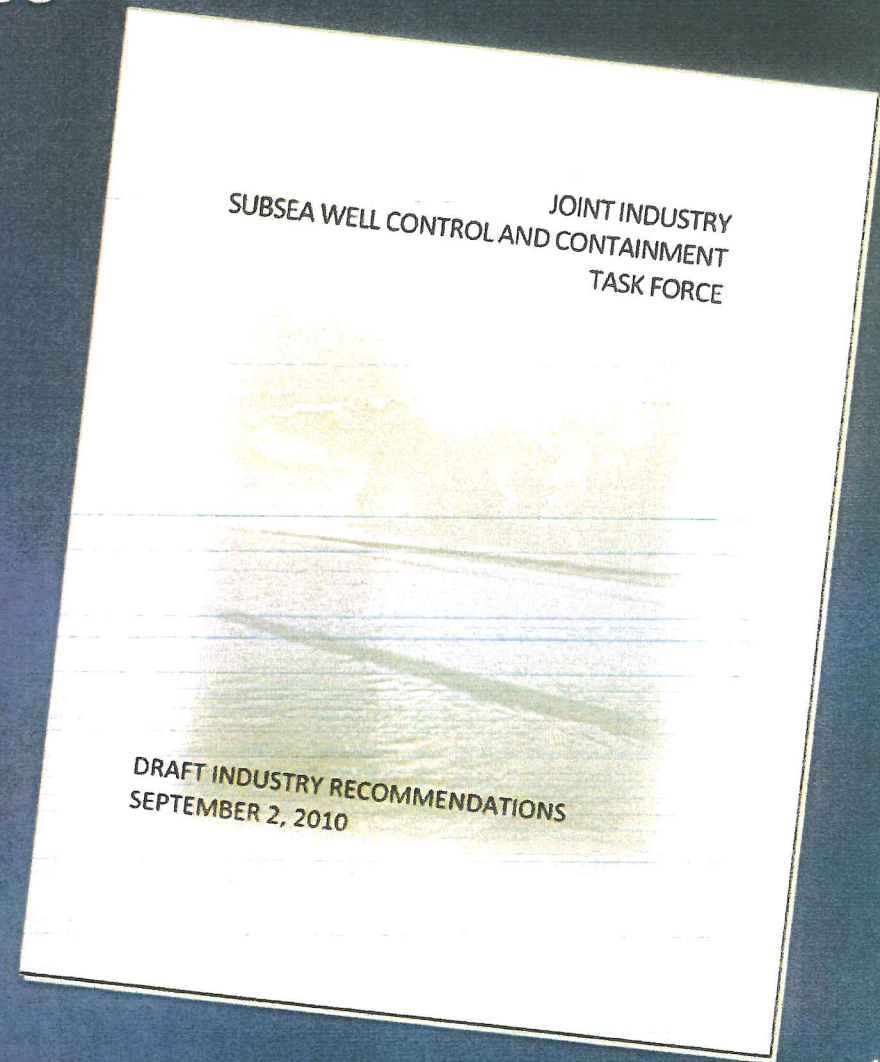
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# Joint Industry Task Forces

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



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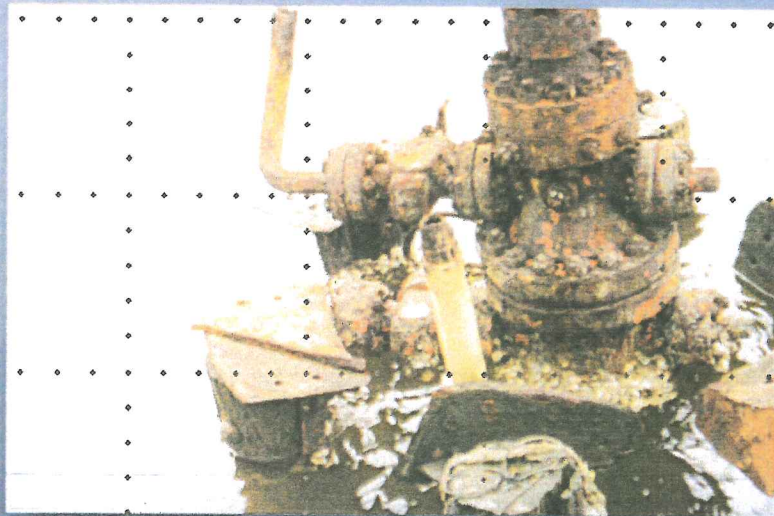


## Recommendation

- 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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