

Advancing Global Deepwater Capabilities



National Ocean Industries Association Annual Conference – April 15, 2011

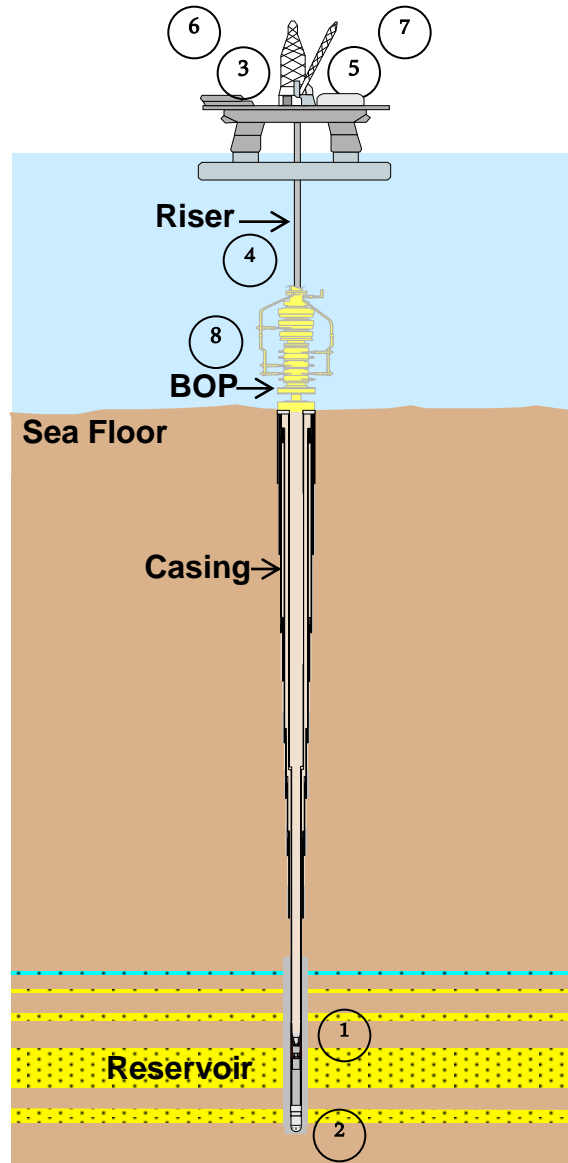


BP's Commitment

Going forward, we are

- **Determined to accelerate and further develop the capabilities and practices** that enhance safety in our company and the deepwater industry
- **Committed to sharing our learnings globally** so an accident of this magnitude never happens again





Well integrity was not established or failed

- ① Annulus cement barrier did not isolate hydrocarbons
- ② Shoe track barriers did not isolate hydrocarbons

Hydrocarbons entered the well undetected and well control was lost

- ③ Negative pressure test was accepted although well integrity had not been established
- ④ Influx was not recognized until hydrocarbons were in riser
- ⑤ Well control response actions failed to regain control of well

Hydrocarbons ignited on the *Deepwater Horizon*

- ⑥ Diversion to mud gas separator resulted in gas venting onto rig
- ⑦ Fire and gas system did not prevent hydrocarbon ignition

Blowout preventer did not seal the well

- ⑧ Blowout preventer (BOP) emergency mode did not seal well

BP's Experience from the Accident and Numerous Investigations Inform Our Learnings



Learnings from DWH incident
and response



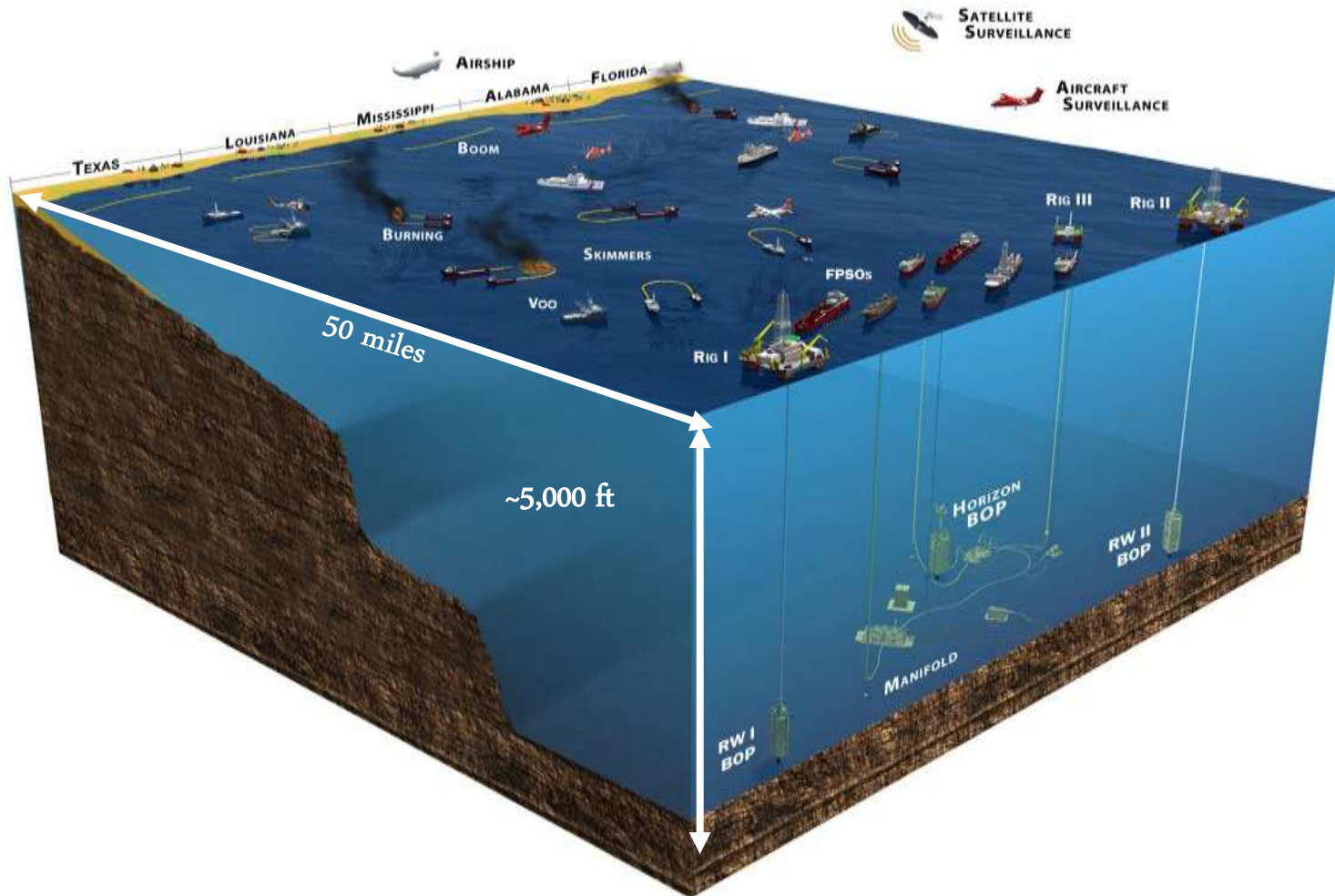
Lessons Learned

- BP internal investigation
- Presidential Commission

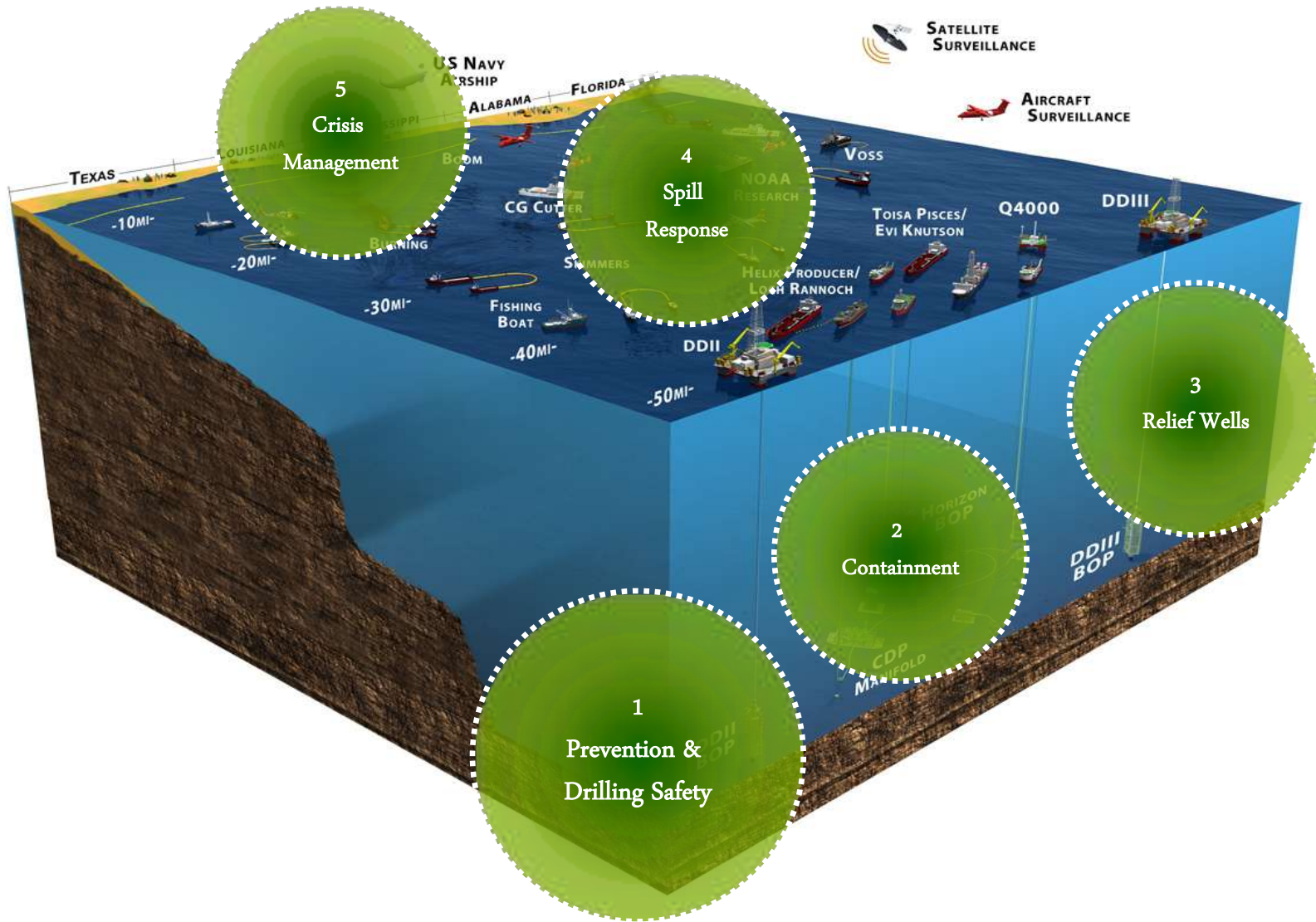
- DWH Joint Investigation (BOEM & USCG)
- US Chemical Safety Board
- National Academy of Engineering
- Montara Commission
- European Commission on Offshore Safety
- API Task Forces



Unprecedented Scale of Response in Challenging Conditions

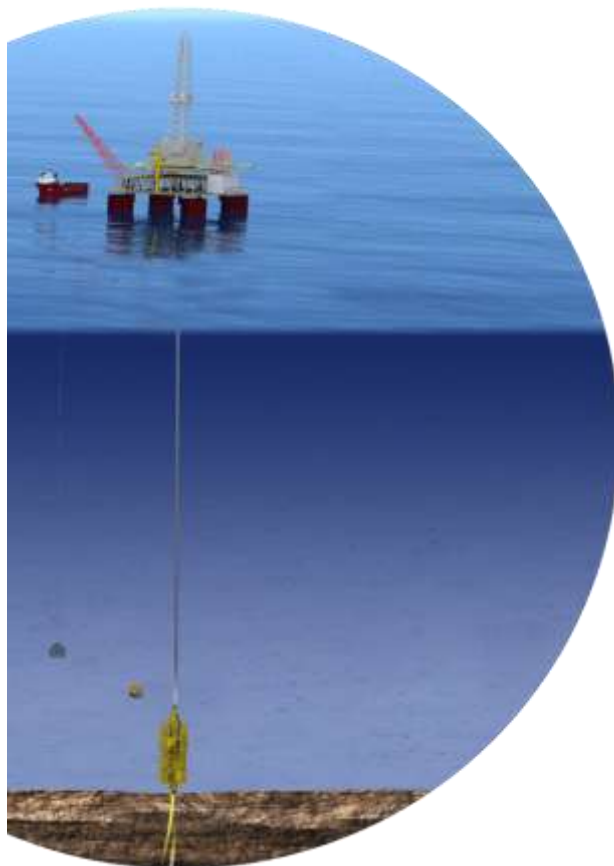
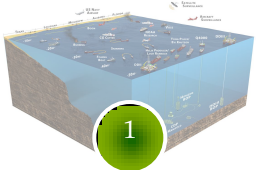


BP acquired unique knowledge and experience across five key areas



Prevention / Drilling Safety

The Highest Priority

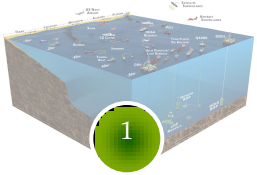


Equipment and Procedures

- Enhancing global standards for BOPs, cementing, well integrity testing, and rig audits
- Establishing rigorous well checks
- Reviewing contractor oversight relating to safety

Top to Bottom Focus on Safety and Risk Management

- Additions to BP's board
- Empowering centralized Safety and Operational Risk group
- Creating centralized Global Wells Organization to drive standardization and consistent implementation
- Reviewing employee compensation to ensure safety-first behavior is appropriately incentivized



Prevention / Drilling Safety

Embedding Critical Recommendations



Critical Capabilities

Advance and Deploy



Procedures and Technical Practices

- Refreshing drilling and well operating engineering technical practices
- Ensuring conformance to these practices



BOP Management

- Third party verification of BOP maintenance and testing now required
- ROVs capability tested subsea to confirm BOP activation in emergency situations

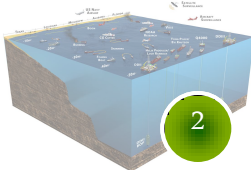


Cementing Services Oversight

- New standards and technical review process developed for critical cementing operations
- More stringent contractor laboratory quality audits

Containment

Advancing Solutions for the Industry



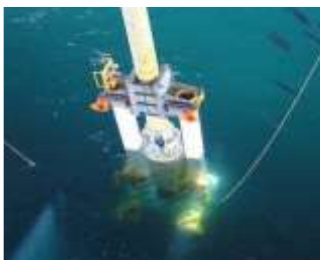
Critical Capabilities

Advance and Deploy



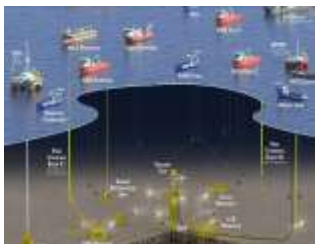
Immediate access to capping equipment for multiple scenarios

- Developing and making next generation solutions ready for deployment
- Optimizing global equipment positioning



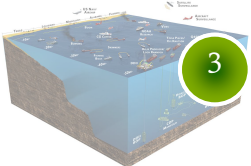
Rapidly-deployable collection system

- Working with industry organizations to provide access to permanent free standing riser system for global deepwater basins



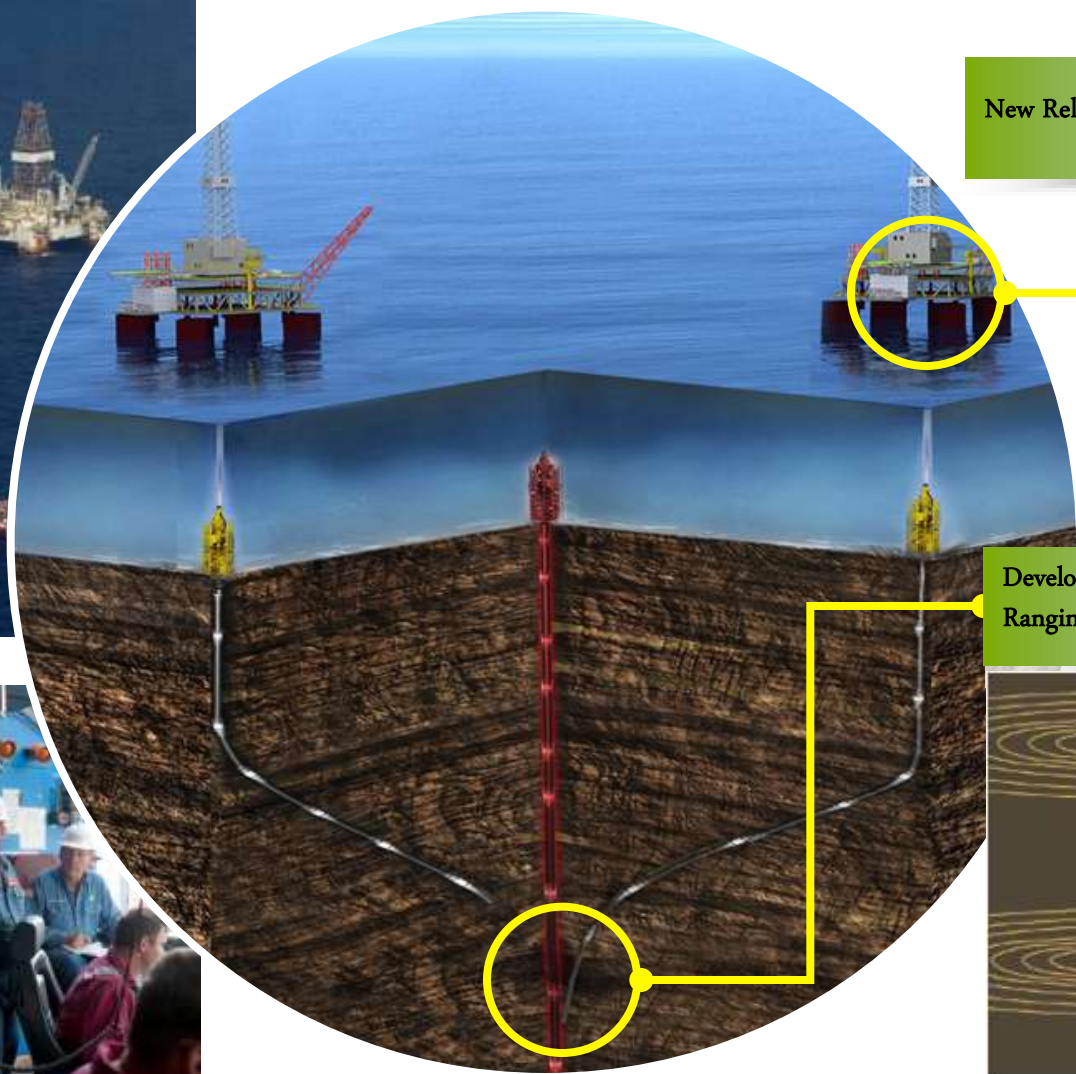
Large scale **simultaneous operations management**

- Codifying protocols to manage subsea ops within small area
- Extending 4D capability for day-to-day operations to plan and monitor surface and sub-sea activity



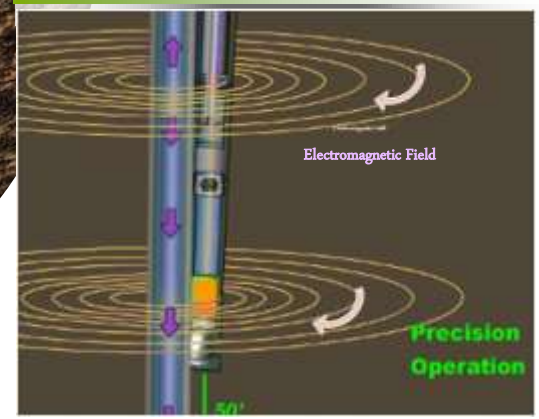
Relief Wells

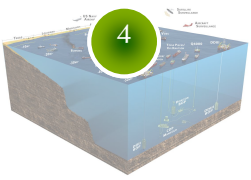
Preplanning and Technology to Accelerate Bottom Well Kill



New Relief Well Planning Standards

Developed Early Technology for Active Ranging While Drilling





Spill Response

Developed Technology in Dispersants, Burning and Skimming



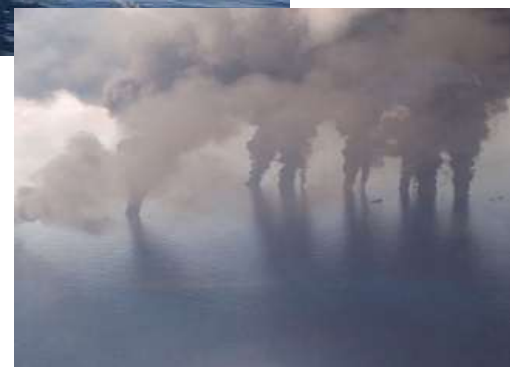
Subsea Dispersants



In-situ Burning



Booming and Skimming



BP's Oil Spill Crisis plan. by Perry Officer, Jill Chen, John Young

Crisis Management

Extending Proven Structure and Deploying Technology



- Co-ordination / Planning
- Unified Command Structure and Community Outreach
- Common Operating Picture and plan
- Simultaneous Operations



Committed to Enhancing Deepwater Safety



Continuing to develop capabilities across the 5 critical areas. Focus on

- **Technology innovation**
- **Further enhanced standards** in drilling safety
- Ensuring **inventory of response equipment** and consumables in global BP deepwater basins
- **Sharing our lessons learned** around the world