

Mississippi Canyon Block 252

Deepwater Horizon

Setting the Scene

Paul Riches

Longdown Consultants Ltd



Background

- BP paid USD34m for 10-year lease of Mississippi Canyon Block 252 (MC252), GoM in MMS sale 206 – March 2008.
- BP subsequently concluded contracts and Joint Operating Agreements (JOAs) with Anadarko Petroleum Corporation and MOEX Offshore 2007 LLC.
- At material time MC252 lease owners were Operator BP (65%), Anadarko (25%) & MOEX (10%).
- MC252 contained the Macondo prospect.
- BP planned first MC252 well – AFE USD96.1m.

Background

JOA Obligations on BP

These included:

- BP to perform the drilling of the well in a good and workmanlike manner.
- BP to comply with all laws and regulations.
- BP responsible to co-venturers for damages caused by BP's gross negligence or willful misconduct.

Background

- BP contracted with World's largest offshore drilling contractor Transocean.
- Mobile Offshore Drilling Unit (MODU) *Deepwater Horizon* on contract to BP had drilled 30 wells in GoM over 9 years.
- MMS approved MC252 exploration plan – April 2009.
- Earl & Wright Sedco 700 design semi-submersible MODU *Transocean Marianas* to drill exploratory well.
- Well designed to be capable of completion as producer if adequate hydrocarbons discovered.

Background

Well Plan

Planned

- Estimated Total Depth (TD) 19,650 ft
- 8 casing strings
- Rig – *Transocean Marianas*

Actual

- TD 13,360 ft
- 9 casing strings including 9 7/8 x 7 in production casing
- Rig – *Deepwater Horizon*

Drilling Unit



Deepwater Horizon

- Reading & Bates Falcon RBS8D design, dynamically positioned, semi-submersible drilling unit.
- Capable of operating in harsh environments and water depths up to 8,000ft (2,438m).
- Using 18¾in 15,000 psi BOP and 21in OD marine riser.
- Accommodation: 130 berths.
- Built 2001 - HHI Shipyard, Ulsan, South Korea. ABS class.
- Max drill depth 30,000ft / 9,144m.
- Length 396ft (121m), breadth 256ft (78m), depth 136ft (41m), operating draft 76ft (23m).

Macondo well, MC252

At 47.6 statute miles off coast, in 4,992 ft water depth, drilling resumes 6th February 2010



Well progress

- Difficulties inc. circulation, kick & stuck drill stem (bypassed).
- Revised casing design.
- Logging - adequate reservoir so production casing to be set.
- 2nd April - final hole section commenced.
- 4th April - circulation lost at 18,260ft.
- 7th April - full circulation regained.
- 9th April - drilled to final depth of 18,360ft.
- 11th-/15th April – logging, followed by cleanout trip.
- 18th-/19th April - production casing run to 18,304ft.
- 20th April - at 0040hrs primary cement job concluded.

Well progress - Abandonment

- 16th April – MMS approves modified procedure for temporary abandonment of well.
- Cement plug to be set in well bore at 8,367ft.

20th April

- First step in procedure is to test well integrity which commenced at noon and concluded at 20:00hrs.
- Shortly after 20:00hrs crew commence displacement of mud in riser with seawater.
- Between 21;40 & 21:43hrs mud spews from rotary to rig floor.
- 21:49hrs - first explosion.



Post Explosion

- 21:53hrs – Mayday call from *Deepwater Horizon*.
- 23:52hrs 20th April arrival of USCG helicopter, by which time 115 people (17 injured) transferred to *Damon Bankston* and 11 crew known to be missing, Search and Rescue operations begun.
- 21st April morning – Rig listing & at 23:53hrs list worsen.





Gerald Herbert/Associated Press

Post Explosion

- 21st April – c. 18:00hrs attempt begin to close BOP by ROVs.
- 22nd April morning further explosion causing rig to settle below surface and at 10:22hrs *Deepwater Horizon* sinks.



Post Explosion

- 23rd April – at 17:00hrs USCG suspend search for missing crew (6 Transocean and 2 M-I Swaco employees).
- USCG searched for 3 days – 28 air and surface sorties covering 5,375 square miles.
- Hydrocarbons flow for 87 days (total approx. 4.9m barrels).

NASA Aqua satellite image 25th April 2010





Photographs © BP p.l.c.

Concluding Remarks

“The well blew out because a number of separate risk factors, oversights, and outright mistakes combined to overwhelm the safeguards meant to prevent just such an event from happening.”

Report of The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (established by President Obama to investigate the root causes of the spill and provide recommendations on how to prevent and mitigate the impact of any future spills that result from offshore drilling).

Thank you for your attention

