



Transocean Ltd. Announces Release of Internal Investigation Report on Causes of Macondo Well Incident

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Transocean Ltd. (NYSE: RIG) (SIX: RIGN) today announced the release of an internal investigation report on the causes of the April 20, 2010, Macondo well incident in the Gulf of Mexico.

Following the incident, Transocean commissioned an internal investigation team comprised of experts from relevant technical fields and specialists in accident investigation to gather, review, and analyze the facts and information surrounding the incident to determine its causes.

The report concludes that the Macondo incident was the result of a succession of interrelated well design, construction, and temporary abandonment decisions that compromised the integrity of the well and compounded the likelihood of its failure. The decisions, many made by the operator, BP, in the two weeks leading up to the incident, were driven by BP's knowledge that the geological window for safe drilling was becoming increasingly narrow. Specifically, BP was concerned that downhole pressure -- whether exerted by heavy drilling mud used to maintain well control or by pumping cement to seal the well -- would exceed the fracture gradient and result in fluid losses to the formation, thus costing money and jeopardizing future production of oil.

The Transocean investigation team traced the causes of the Macondo incident to four overarching issues:

- **Risk Management and Communication:** Evidence indicates that BP failed to properly assess, manage and communicate risk to its contractors. For example, it did not properly communicate to the drill crew the absence of adequate testing on the cement or the uncertainty surrounding critical tests and procedures used to confirm the integrity of the barriers intended to inhibit the flow of hydrocarbons into the well. It is the view of the investigation team that the actions of the drill crew on April 20, 2010, reflected the crew's understanding that the well had been properly cemented and successfully tested.
- **Well Design and Construction:** The precipitating cause of the Macondo incident was the failure of the downhole cement to isolate the reservoir, which allowed hydrocarbons to enter the wellbore. Without the failure of the cement barrier, hydrocarbons would not have entered the well or reached the rig. While drilling the Macondo well, BP experienced both lost circulation events and kicks and stopped short of the well's planned total depth because of an increasingly narrow window for safe drilling, specifically a limited margin between the pore pressure and fracture gradients. In the context of these delicate conditions, cementing a long-string casing would increase the risk of exceeding the margin for safe drilling. But rather than adjusting the production casing design to avoid this risk, BP adopted a technically complex nitrogen foam cement program that allowed it to retain its original casing design. The resulting cement program was of minimal quantity, left little margin for error, and was not tested adequately before or after the cementing operation. Further, the integrity of the cement may have been compromised by contamination, instability and an inadequate number of devices used to center the casing in the wellbore.
- **Risk Assessment and Process Safety:** Based on the evidence, the investigation team determined that BP failed to properly require or confirm critical cement tests or conduct adequate risk assessments during various operations at Macondo. Halliburton and BP did not adequately test the cement slurry program, despite the inherent complexity, difficulties and risks associated with the design and implementation of the program and some test data showing that the cement would not be stable. BP also failed to assess the risk of the

temporary abandonment procedure used at Macondo, generating at least five different temporary abandonment plans for the Macondo well between April 12, 2010 and April 20, 2010. After this series of last-minute alterations, BP proceeded with a temporary abandonment plan that created unnecessary risk and did not have the required approval by the MMS. Most significantly, the final plan called for underbalancing the well before conducting a negative pressure test to verify the integrity of the downhole cement or setting a cement plug to act as an additional barrier to flow. It does not appear that BP used risk assessment procedures or prepared Management of Change documents for these decisions or otherwise addressed these risks and the potential adverse effects on personnel and process safety.

-- Operations:

- Negative Pressure Test: The results of the critical negative pressure test were misinterpreted. Post-incident investigation determined that the negative test was inadequately set up because of displacement calculation errors, a lack of adequate fluid volume monitoring, and a lack of management of change discipline when the well monitoring arrangements were switched during the test. It is now apparent that the negative pressure test results should not have been approved, but no one involved in the negative pressure test recognized the errors. BP approved the negative pressure test results and decided to move forward with temporary abandonment. The well became underbalanced during the final displacement, and hydrocarbons began entering the wellbore through the faulty cement barrier and a float collar that likely failed to convert. None of the individuals monitoring the well, including the Transocean drill crew, initially detected the influx.
- Well Control: With the benefit of hindsight and a thorough analysis of the data available to the investigation team, several indications of an influx during final displacement operations can be identified. Given the death of the members of the drill crew and the loss of the rig and its monitoring systems, it is not known which information the drill crew was monitoring or why the drill crew did not detect a pressure anomaly until approximately 9:30 p.m. on April 20, 2010. At 9:30 p.m., the drill crew acted to evaluate an anomaly. Upon detecting an influx of hydrocarbon by use of the trip tank, the drill crew undertook well-control activities that were consistent with their training including the activation of various components of the BOP. By the time actions were taken, hydrocarbons had risen above the blowout preventer and into the riser, resulting in a massive release of gas and other fluids that overwhelmed the mud gas separator system and released high volumes of gas onto the aft deck of the rig. The resulting ignition of this gas cloud was inevitable.
- Blowout Preventer (BOP): Forensic evidence from independent post-incident testing by Det Norske Veritas (DNV) and evaluation by the Transocean investigation team confirm that the Deepwater Horizon BOP was properly maintained and operated. However, it was overcome by the extreme dynamic flow, the force of which pushed the drill pipe upward, washed or eroded the drill pipe and other rubber and metal elements, and forced the drill pipe to bow within the BOP. This prevented the BOP from completely shearing the drill pipe and sealing the well.
- Alarms, Muster, and Evacuation: In the explosions and fire, the

general alarm was activated, and appropriate emergency actions were taken by the Deepwater Horizon marine crew. The 115 personnel who survived the initial blast mustered and evacuated the rig to the offshore supply vessel Damon B. Bankston.

The Transocean internal investigation team began its work in the days immediately following the incident. Through an extensive investigation, the team interviewed witnesses, reviewed available information regarding well design and execution, examined well monitoring data that had been transmitted real-time from the rig to BP, consulted industry and technical experts, and evaluated available physical evidence and third-party testing reports.

The loss of evidence with the rig and the unavailability of certain witnesses limited the investigation and analysis in some areas. The team used its cumulative years of experience but did not speculate in the absence of evidence. The report of the team does not represent the legal position of Transocean, nor does it attempt to assign legal responsibility or fault.

The investigation report and supporting documents are available on the homepage of the Company's website at www.deepwater.com.

About Transocean

Transocean is the world's largest offshore drilling contractor and the leading provider of drilling management services worldwide. With a fleet of 138 mobile offshore drilling units as well as three high-specification jackups under construction, Transocean's fleet is considered one of the most modern and versatile in the world due to its emphasis on technically demanding segments of the offshore drilling business. Transocean owns or operates a contract drilling fleet of 47 High-Specification Floaters (Ultra-Deepwater, Deepwater and Harsh-Environment semisubmersibles and drillships), 25 Midwater Floaters, nine High-Specification Jackups, 53 Standard Jackups and other assets utilized in the support of offshore drilling activities worldwide.

For more information about Transocean, please visit our website at www.deepwater.com.

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