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For further information call:  
1 (713) 627-8282

# ZIFF ENERGY COMMENCES 1<sup>ST</sup> INTERNATIONAL FPSO OPERATIONS BENCHMARKING STUDY TO ASSIST OPERATORS ENHANCE EFFICIENCY

HOUSTON, November 30, 2009 – Ziff Energy Group, the leading upstream operations benchmarking firm, announces the commencement of its first **International FPSO Operations Efficiency** study, evaluating operating costs and uptime reliability for FPSOs in various regions of the world. FPSOs (which stands for ‘Floating, Producing, Storage, Offloading’) are a principal method for International oil production in areas where no pipeline is located (in contrast to Offshore Platforms for Shelf-depth offshore waters around the world, and floating Deepwater Structures that connect to fixed pipelines, such as in the US Gulf of Mexico and Brazil). The world ‘nameplate’ capacity for FPSOs is an impressive 15 million Bbl/d, and will grow significantly in the coming years.

Moored offshore, the **FPSO** vessel gathers oil production from Platforms or Sub-Sea well for fields in either Shelf or Deepwater water depth, and then stores the crude oil for loading onto tankers for delivery to refineries for processing. Some FPSOs are ‘purpose-built’ (especially in the harsh North Sea environment, or Petrobras’s recent large orders for the Tupe sub-salt play), while traditionally many FPSOs are converted oil tankers. The first FPSO was Shell’s Castellon, dating back to 1977, over 3 decades ago. Like other production systems, there is a wide variety of FPSOs. Some of the major variances are:

- capacity:
  - from as small as 15-40 MBbl/d
  - to as large as 200+ MBbl/d)
- vintage (several decades old to new)
- complexity of processing (amount of water handling, degree of liquids stripping, natural gas re-injection)
- mooring system (internal or external turret, some disconnectable, or spread mooring).

As usual, Ziff Energy will be benchmarking the FPSOs within groups of ‘like kind’ of comparable (peer) assets.

Ziff Energy has assessed FPSO's operating in a number of countries in Asia and South America during the last couple of years. The new Ziff Energy multi-client study will include:

- **2 dozen vessels**
- operated by **9 operators, a diverse mix** (Super-Majors; leading Independents; Contract Operators)
- located **offshore 11 countries** in a variety of regions globally including the Atlantic Margin (Brazil & West Africa) as well as the North Sea and Asia.

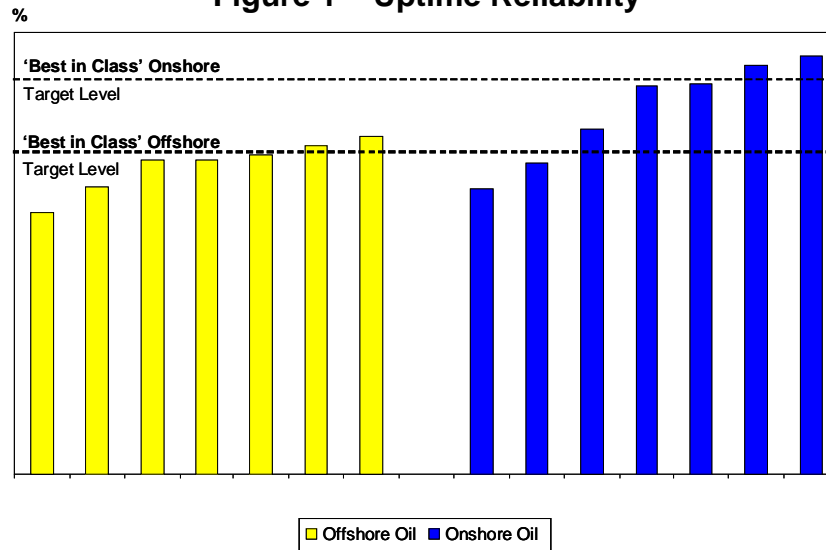
The 'water' breaking Ziff Energy study will assist the study participating operators enhance efficiency and counter the effects of **rapid production decline**, which has a big impact on unit operating costs.

This will be Ziff Energy's **182<sup>nd</sup>** Upstream benchmarking study, which together have examined Operations Performance for over 3,750 oil and gas assets in **29 countries**. Since the early 1990's, Ziff Energy has delivered a series of offshore operations benchmarking studies, including:

- a dozen multi-client Gulf of Mexico studies
  - 7 Deepwater
  - 5 Shelf
- a major multi-client study in Asia Pacific, completed in 2008, covering 7 countries (Australia, China, India Indonesia, Malaysia, Thailand and Vietnam)
- plus custom offshore projects for operators in Brazil, India, and Trinidad & Tobago.

The FPSO study will focus on both **Operating Costs** and Production **Uptime Reliability and Operating Efficiency in 2009**. The **reliability metrics** were first developed as part of Ziff Energy's Offshore Deepwater study, and enhanced with input from our Super-Major clients. These new metrics include the value of lost oil production, the Mean Time Between Incidents (MTBI), and the Mean Time To Recover (MTTR). Uptime is a prime driver of upstream 'value add'. In the Deepwater study, the value of the unplanned deferment far exceeded the total OpEx of the participants. Study participants will obtain "**best in class**" **production uptime targets** that could help validate the value associated with specific investments for improved reliability. In the graph below, from an earlier Ziff Energy benchmarking study, it is apparent that the Uptime Reliability 'Best in Class' target for one type of asset (in this case, Onshore Oil) differs from the target for another type of asset (Offshore Oil).

**Figure 1 – Uptime Reliability**



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The Technical Project team includes veteran offshore operators based in Scotland and Houston, with backgrounds with Major producers, together with Ziff Energy’s Upstream “Center for Benchmarking Excellence” (CBE), based in Calgary. Key members of Ziff Energy’s Offshore team include:

- David Richmond, former Offshore Installation Manager for a Major, with an extensive background knowledge in all aspects of FPSO Operations, from wells to market
- Tom Gray, an Offshore Operations specialist, who joined Ziff after a long and impressive career at a Major where he served last as Director, Gulf of Mexico Deepwater Operations.
- Joe Kilchrist, Ziff Energy’s Director, Offshore Operations, who is an accomplished E&P Management professional with hands-on oil and gas field operations experience encompassing all phases of drilling and production operations.

Study participants receive confidential, blinded, asset-level comparisons versus comparable assets. There will be a detailed *diagnostic report on each asset*, compared on a ‘like kind’ basis with peer assets and identifying potential savings in each cost category, as well as detailed *cost driver analysis*. Historically, Ziff Energy’s studies have helped Operators pinpoint areas to achieve significant savings on operating costs. After the study is completed, Ziff Energy will meet privately with each FPSO client regarding areas for future action plans to assist them achieve the identified efficiency savings, as well as to enhance reliability and gain production.

There is still time, if an operator acts quickly, to have their FPSOs benchmarked as part of the study. For more information or to discuss participation, please contact or e-mail Richard M. Tucker, VP Marketing & Client Relations, Houston Office: (713) 985-5183; [richard.tucker@ziffenergy.com](mailto:richard.tucker@ziffenergy.com).

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Ziff Energy is a **leading global benchmarking firm**, focused on assessing and improving **upstream operating costs and reliability** in more than 2 dozen countries. Our offshore operations database includes 600 Shelf fields worldwide and 50+ Deepwater assets. Two years ago, Ziff Energy established a **Center for Benchmarking Excellence** in Calgary, staffed with full-time experienced engineers, to ensure the highest quality and efficiency in conducting benchmarking analysis.

