Risk - A Drilling Contractor’s Perspectives
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The “Cliff Notes”

- The next barrels of oil are more challenging:
  - More complex wells (deeper, HPHT, highly deviated, managed pressure)
  - In more challenging locations (harsh environment, remote / frontier area)
  - Under increased regulatory oversight (politically challenging areas, local content issues)

- After Macondo, everything has changed...or has it?
  - Changed perceptions/ attitudes towards risk
  - Challenges to knock-for-knock indemnities
  - Reactions and responses

- Managing risk
  - QHSE focus
  - Client base, geographic diversification, contract timing
  - Asset integrity, personnel competence, management systems
The bigger finds are in deeper water

**Discovered reserves in 2010, by water depth**

- **< 4,500’**
- **4,500-6,999’**
- **=> 7,000’**

**Deepwater Discoveries**
Deepwater brings technical challenges

Challenges

- More remote locations
- Extreme pressures and temperatures
- Bigger wells, heavier loads
- Extended reach, highly deviated, longer horizontals
- More challenging reservoirs, more complexity
Major deepwater regions all have challenges

Trend towards more complex and challenging resource plays

Source: DnB NOR Markets
Selected deepwater finds 2011

Significant finds in frontier plays
Arctic Drilling: Great Promise / Great Challenge

- Arctic developments to date have been in the least severe ice regimes
- Industry is moving to basins where water is deeper and ice environments are more severe
- Limited open water season creates challenges.
  - Example Canadian Beaufort Sea
    - Shelf (20-50m WD): 85 day season
    - Shelf Edge (50-70m WD): 70 day season
    - Slope (70-1200m WD): 50 day season
- Same season relief well (SSRW) capability (required in Canada, USA, Norway and Greenland)
  - Alternatives to traditional relief wells will have to be found

Ice flow severity by location

<table>
<thead>
<tr>
<th>Location</th>
<th>Severity</th>
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<tbody>
<tr>
<td>Grand Banks</td>
<td>Low</td>
</tr>
<tr>
<td>Sakhalin</td>
<td>Low</td>
</tr>
<tr>
<td>SW Greenland</td>
<td>Medium</td>
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<tr>
<td>Barents Sea</td>
<td>Medium</td>
</tr>
<tr>
<td>Kara Sea</td>
<td>Medium</td>
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<tr>
<td>Chukchi Sea</td>
<td>Medium</td>
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<tr>
<td>Laptev Sea</td>
<td>Medium</td>
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<tr>
<td>Labrador</td>
<td>Medium</td>
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<tr>
<td>Beaufort Sea</td>
<td>Medium</td>
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<tr>
<td>NW Greenland</td>
<td>High</td>
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<tr>
<td>NE Greenland</td>
<td>High</td>
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</tbody>
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Access challenges
Infrastructure challenges
Political Instability Challenges

- Security concerns
  - Protection of crews and assets
- Stunted development of local support, infrastructure, competence
- Tend to be areas of:
  - High corruption: bureaucracy often implemented to compensate
  - High cost: unattractive economics
- Contract issues
  - War Risk, Force Majuere
Regulatory Challenges

- Access to emerging markets
  - 75% of world known conventional resources are closed to international oil companies (Andy Gould, SLB)
- Restricted access from citizens groups and lobbyists
  - Oil companies move further offshore, more remote, harsher environments
- Local Content
  - Often high on the political agenda, regardless of practicality.
    - Brazil: Crew, assets, pace
    - Angola: Crew, local partners
    - Nigeria: Asset ownership, currency
    - Indonesia: Assets ownership
    - China / Vietnam: NOC rig ownership
- Other Regulatory Issues
  - Nigeria: Petroleum Industry Bill
  - UK: Tax increases
  - US GoM: Permitting process
Operators perception on risk

Source: DnB NOR Markets
**Post Macondo: Big picture**

- Public perception of risks has changed

- Regulatory environment has changed
  - *If risk management has failed yet again, are there grounds for challenging the fundamental approach to risk and risk management?*
  - *If management has failed yet again, are there grounds for challenging the fundamental approach being taken to management and control?*
    - Magne Ognedal, Director General PSA

- Operators expectations have changed
  - Increased focus on higher specification assets
  - Increased technical acceptance / inspection
  - Focus on training and personnel competency
  - Re-examination of contractual risk allocation
What are the operators saying?

**Question:** How will oil services companies be exposed to risk from contracts (going forward)?

![Bar chart showing percentage of responses](chart.png)

Source: DnB NOR Markets

Nothing has changed?
What are the operators doing?

- There has been a long standing agreement on allocation of risks between contractors and operators
  - Risk goes with reward...contractor is responsible its rig & crew, operator responsible for its well.
- BP / Transocean challenges this split
  - Significant implications if indemnity provisions are negated by court
- Attitudes of some operators appear to already have changed
  - Changed perception of risk?
  - Opportunism?
  - Regular business cycle “give and take” ?
- Prudent / established contractors will just walk away
  - Some contractor may take on liabilities they can’t cover
  - In the long run operators will end up bearing the risk anyway.
Post Macondo: Creating positives from tragedy

- The blow-out was ultimately stopped
- Any complacency that may have existed is gone
- Proactive responses from operators and contractors
  - Increased focus / cooperation on blow-out response and capping systems
    - US GoM: Marine Well Containment Company
    - North Sea / Worldwide: Subsea Well Response Project
How are drilling contractors reacting?

- Numerous joint industry task forces (API, OGP)
- Revised IADC Guidelines (HSE Case for MODU’s, DW Well Control)
- Redundancy (7 ram stacks, Dual BOP’s)
Evolving where we focus our QHSE efforts

Source: Peter Sharpe EVP Shell, Shell Global Solutions International
Worldwide operations diversifies risk
## Floating Rig Availability

**Staggered contract rollover dates spreads risk**
Customer base

Prime client base reduces risk

- Petrobras: 30%
- Statoil: 16%
- Total: 15%
- Shell: 9%
- Exxon: 7%
- BP: 7%
- Chevron: 6%
- Others: 10%

Additions in 2010 – (New contracts/Scorpion orderbacklog)
Reducing risk by Setting the Standard

- Asset Integrity
  - Focus on modern high specification assets
  - Asset management to maintain competitive cost structure with sustainable integrity
- Consistent worldwide management systems / performance
  - Minimum operational standards
    - Verification of operational change / deviations from agreed standards
  - Technical specification and maintenance philosophies
  - Experience and best practice transfer
- Personnel training and competence
  - Attract top class talent
  - Position specific training and competence assurance
  - Demonstration of training, competence, and reporting
Setting the Standard in Drilling

Being our customers' most important partner in making oil and gas available through combination of:

- Competence
- High integrity assets
- Consistent and effective performance

Delivering wells safely, efficiently and cost-effectively