The Offshore Oil and Gas Industry Report in Insurance – Part One

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Disclaimer

INTRODUCTION

Booz Allen was tasked to research the following questions pertaining to how operators and drillers (i.e. those engaged in exploration and production ("E&P") activities) insure their assets, equipment, workers, and potential business losses as a result of a disaster, such as an oil spill.

The following two questions are addressed below:

a) How do insurance companies insure firms engaged in E&P operations?
b) What are the different kinds of insurance policies available to operators and drillers?

The remaining questions, identified below, will be addressed in a subsequent report:

c) Is there an actuarial component to insuring E&P operations?
d) Where and how do insurers get their data?
e) What role does Lloyd's Registry play?
f) Are audits performed on firms engaged in E&P activity? If so, are they conducted by an independent third-party?
g) Does the operator or the drilling company have final say over safety procedures on the drilling rig?
h) What do insurers consider to be the largest risks associated with firms engaged in E&P operations?
i) How does insuring in this industry compare to insuring in other industries (e.g. the nuclear industry)?
j) How do the factors insurance companies use to evaluate risk differ from factors regulators use to evaluate risk?

k) Will companies make changes on their own to reduce risk and secure lower premiums?
l) How does the cost of regulation differ for companies that self-insure versus companies that purchase insurance from a third-party?
m) Do insurance companies penalize firms engaged in "state-of-the-art" exploratory drilling with higher premiums?

KEY FINDINGS

- Insurers have raised their premiums to firms engaged in E&P activities by as much as 50 percent since the oil spill. [E&P firms' ability to meet the increased cost of insurance is being evaluated and will be addressed in a later report.]

- Insurers currently offer a variety of policies to firms engaged in offshore drilling. These policies include: offshore physical damage cover, coverage for hull and machinery, Operator's Extra Expense coverage, and Environmental/pollution liability. The terms, conditions, and types of policies offered are likely to change in the coming months.

- Insurers are currently re-evaluating how they assess and take on risk of projects and firms engaged in E&P activity.

- Insurance and reinsurance companies see rising premiums as a financial opportunity. This will likely draw capital into the E&P insurance market, increasing the amount of insurance available to meet E&P firms' rising demand for coverage.

- E&P firms manage and mitigate their risks in a variety of ways, one of which is obtaining third-party insurance.

- To assess the cost and likelihood of an event occurring, underwriters assess risk at the project level, at the company level, as well as consider current and future market conditions.

- Current global insurance capacity available to meet the Oil Spill Financial Responsibility requirements of the 1990 Oil Pollution Act is approximately $1.5 billion.

- Direct insurance firms purchase reinsurance policies in order to diversify financial risk. This also reduces the barrier to entry for smaller insurance firms who may not have the capital available to pay out should a catastrophic event occur.

- The availability, price, terms and conditions of insurance policies purchased by firms engaged in offshore drilling are likely to change in the coming months as a result of the oil spill. Firms involved in drilling operations are already demanding greater levels of insurance coverage in reaction to the spill.

Q: HOW DO INSURANCE COMPANIES INSURE FIRMS ENGAGED IN ENERGY EXPLORATION AND PRODUCTION?

Energy companies engaged in exploration and production ("E&P") activities face an extraordinary amount of risk on multiple levels that are unique to the industry. Offshore operations include a wide variety of assets such as fixed or floating platforms, mobile offshore drilling units (MODUs), sub-sea facilities, offshore pipelines, storage facilities, offshore construction and installation projects, vessels, and even some onshore property engaged in E&P operations.[1] In addition to the significant capital investment associated with these assets, offshore operations entail operational, environmental, and personnel risk. E&P firms manage and mitigate these risks in a variety of ways, which may include obtaining insurance coverage from a third-party insurer.[2]

The energy insurance market is comprised of a number of stakeholders, including the insured, the broker, the direct insurer, the reinsurer, and capital investors. After conducting a series of internal analyses to determine the maximum loss level the firm is able to sustain, the firm will approach an insurance broker, who is charged with matching the firm's desired coverage level with the insurer offering the most favorable terms and conditions. The insurance broker enters negotiations with underwriters, who evaluate the risk and exposure associated with the potential client. The underwriters are tasked with determining the coverage the insured should receive and the premium the insured should pay. To make this determination, underwriters asses risk on multiple levels:

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[1] Munich Re. Offshore Energy: A Reinsurance Actuary's View. 2010.

[2] This contrasts with a captive insurance company, which is a company established by a parent company to insure the parent and its subsidiaries. BP established a "captive" insurance company, Jupiter Insurance Ltd., which funds the company's property damage and business interruption losses.

- ***The Project***. Underwriters will investigate the specific project for which the E&P firm is seeking coverage. This investigation typically includes a review of the unit design, construction materials, operating model, liquids and materials being handled, safety practices and procedures, equipment, the complexity of the drilling and construction activities, the location and environment in which the project is taking place, and the number of personnel working and residing on the unit.[3] Underwriters may contact outside consultants to conduct an independent report to determine, for example, that the drill was installed properly.[4]

- ***The Company***. Underwriters will also investigate the company or companies wishing to secure coverage.[5] Underwriters will evaluate the firm's historical accident records and past losses. Underwriters also factor in the firm's aversion to risk, the company's culture of mitigating risk, and its current and future risk exposure.

- ***The Market***. Other driving factors of insurance premiums include the "capacity," or supply, of insurance available on the global market, the price of oil, and the demand for insurance coverage. Industry experts have stated that the current global commercial insurance capacity for third-party liability insurance that is available to meet the Oil Spill Financial Responsibility ("OSFR") requirements under the 1990 Oil Pollution Act is approximately $1.5 billion.[6] This short-term constraint on capacity could prove problematic should Congress increase the limits of the oil liability

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[3] American Bureau of Shipping. Risk Assessment: Applications for the Marine and Offshore Oil and Gas Industries. Houston, Texas, 2000.
[4] Limited, AAA Insurance & Reinsurance Brokers. AAAIRB - Operator's Extra Expense Coverage. 23 9 2010 <http://www.aaairb.co.uk/html/print_operators_ee.htm>.
[5] Often times, offshore projects are joint ventures with multiple owners.
[6] King, Rawle O. Liability and Financial Responsibility Issues Related to Offshore Oil Production Senate Committee on Energy and Natural Resources. Senate Committee on Energy and Natural Resources, 5 May 2010.

cap originally established in the 1990 Oil Pollution Act. Another driving factor is the price of oil. In recent years, complex and costly drilling operations became financially feasible as the price of oil rose.[7] Insurance industry experts expect energy firms to demand a greater amount of coverage as a result of the Deepwater Horizon incident.[8]

Each underwriting company has its own strategies for determining which risks it can acquire and which ones it should leave behind; however, there are common practices that underwriters use to asses risk. Underwriters use both qualitative and quantitative approaches to evaluate risk, combining sophisticated analytical tools with knowledge and experience. Examples include actuarial analyses,[9] sophisticated computer-based modeling such as catastrophe ("CAT" modeling)[10], surveying, and simulating disaster scenarios.[11]

Once the underwriters have evaluated the risks, the policy is matched with investors, who can provide the capital necessary to guarantee the risk. Investors may include institutions, insurance companies, as well as individuals.

The direct insurer may also purchase reinsurance. Reinsurance between a direct insurer and the reinsurer acts in much the same way as between the policy holder and direct insurer. The direct insurer purchases a policy from a reinsurer which it can make a claim on under certain terms and conditions as specified in the policy. Reinsurance is beneficial to direct insurers for a number of reasons. First, it allows direct insurers to diversify their risks. For example, one environmental disaster will not adversely impact a single insurer, but rather a number of insurers who are able to endure smaller financial losses. Second, it

[7] Munich Re Develops New Insurance Solution for Oil Catastrophies. <http://www.munichre.com/en/media_relations/press_releases/2010/2010_09_12_press_release.aspx>
[8] Denton, Stephanie. "Deepwater Horizon Impact – In Deep Water?" Post Magazine. 3 June 2010.
[9] This will be addressed in greater detail in future installments of this report.
[10] Catastrophe modeling is the process of using computer-based calculations to estimate the losses that could be sustained by a portfolio of properties due to a catastrophic event.
[11] Such as "Lloyd's Realistic Disaster Scenarios."

allows insurance institutions that may not have access to a significant amount of capital to enter the insurance market. By taking out a policy for a certain, fixed amount, it can afford to insure operations of greater risk. In the event that a disastrous event does occur, the direct insurer will obtain funds from the reinsurers such that it can pay out its claim to the original policy holder. This allows a greater number of insurers to participate in the marketplace, making it more competitive than it otherwise would be.

The offshore energy exploration and production market is different from most markets because it's marked by complex capital undertakings, with possible, but infrequent, large-scale losses. Historically, insurers have viewed offshore operations as more complex and riskier than onshore operations because of the remote locations, complexity of drilling and construction activities, use of large marine vessels, falling and drowning hazards, and higher initial capital investment. Deep and ultra-deep (>1,500 meters) water developments are traditionally perceived by underwriters as "considerable risk" since they push the technological boundaries and the capabilities of the industry.[12] Asset values tend to be much greater than on-shore developments, which result in significantly higher premium for underwriters.[13] Due to the significant up-front investment and risk associated with offshore drilling operations, underwriters currently are using more sophisticated analyses more than in prior years to evaluate the probability of potential losses.

Generally, financial risks associated with E&P activities are assumed by the individual companies involved.[14] Currently, each drilling operation is placed on a co-insurance basis at current market conditions.[15] Limits are chosen based upon

[12] AON Energy Insurance Market Update
[13] AON Energy Insurance Market Update
[14] Munich Re Develops New Insurance Solution for Oil Catastrophies. <o http://www.munichre.com/en/media_relations/press_releases/2010/2010_09_12_press_release.aspx
[15] Munich Re Develops New Insurance Solution for Oil Catastrophies. <o http://www.munichre.com/en/media_relations/press_releases/2010/2010_09_12_press_release.aspx>

the estimated worst case cost of controlling a wild well, the cost of drilling the well, and the cost of residual pollution liability. Policies are generally renewed annually, typically around June and July for assets located in the Gulf of Mexico.[16] Deductibles tend to be based on minimums for the type of operation and type of well -- exploratory and development wells attract higher deductibles than producing wells.[17]

In reaction to the Deepwater Horizon accident, major insurance and reinsurance firms such as W.R. Berkley and Lancashire have increased premiums charged to firms engaged in E&P activities by as much as 50 percent.[18] Moody's estimates that property insurance coverage is "15-25 percent higher for rigs operating in shallow water and up to 50 percent higher for deepwater rigs."[19]This is a result of a number of factors, including increased demand for coverage by E&P firms[20] in conjunction with insurance companies re-evaluating the financial risks associated with offshore drilling. Insurance and reinsurance firms, including Munich Reinsurance, see the rising premiums as a business opportunity, since rates in other industries remain relatively flat.[21] This will likely draw capital into the E&P insurance market, increasing the amount of insurance funds available to meet E&P firms' rising demand for coverage.

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[16] Denton, Stephanie. "Deepwater Horizon Impact – In Deep Water?" Post Magazine. 3 June 2010. *See Also* AAA Insurance & Reinsurnce Brokers LTD. 23 9 2010 <http://www.aaairb.co.uk/>.

[17] Limited, AAA Insurance & Reinsurance Brokers. AAAIRB - Operator's Extra Expense Coverage. 23 9 2010 <http://www.aaairb.co.uk/html/print_operators_ee.htm>.

[18] *See* the testimony of Robert P. Hartwig before the House Transportation and Infrastructure Committee, 9 June 2010. *See also*, "Oil Industry Set for Surge in Insurance Premiums after Deepwater Disaster." Guardian Unlimited. 20 September 2010.

[19] "Deepwater Horizon Losses Hit Insurers and Reinsurers." Moody's Investors Service. 3 June 2010.

[20] Willis EMR Newsletter. Upstream Market Conditions Destabilize in Wake of Recent Rig Losses. May-June 2010.

[21] Chapman, Peter and Phillip Sanders. "Munich Re to Boost Oil-Rig Insurance Sales After Gulf Spill." The Chronicle with Bloomberg. 11 September 2010. < http://www.sfgate.com/cgi-bin/article.cgi?f=/g/a/2010/09/11/bloomberg1376-L8MV4507SXKX01-40ISK00FVFJNEEM256QUCEHJJG.DTL>

Q: WHAT ARE THE DIFFERENT KINDS OF INSURANCE?

Insurers have been offering insurance coverage to companies engaged in offshore drilling as early as the 1940s.[22] Throughout the 1970s and to the present, insurance companies have supplied more specialized, tailored, and more comprehensive policies as the industry grew more technologically advanced, pushed farther into the ocean, and drilled deeper than in prior years. Though disastrous events such as oil spills are considered to be infrequent, the economic, financial, and environmental implications are significant and far-reaching when they do occur, as experienced recently. It was not until Congress passed the Oil Pollution Act of 1990 that firms engaged in offshore energy exploration and production were required by law to prove that they had the financial wherewithal to deal with the effects of oil spills, including clean-up, property damage, and restoration of the environment. One way an exploration and production ("E&P") firm may prove financial responsibility is to purchase insurance coverage from a third-party insurer.[23]

THE OIL POLLUTION ACT OF 1990 AND PROVING "FINANCIAL RESPONSIBILITY" – A BRIEF OVERVIEW

In response to the Exxon Valdez spill in 1989, Congress passed the Oil Pollution Act ("OPA") of 1990.[24] The OPA addressed a wide range of problems associated with preventing, responding to, and paying for oil pollution incidents in navigable U.S. waters. The OPA greatly increased federal oversight of maritime oil transportation, while providing greater environmental safeguards by, for example,

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[22] Stuart, Claude L. Offshore Energy Insurance Coverage: Physical Damage and Business Interruption/Contingent Business Interruption. 17th Annual Admiralty and Maritime Law Conference. 24 October 2008.

[23] According to the 1990 Oil Pollution Act, a firm can demonstrate financial responsibility by showing evidence of insurance, surety bond, guarantee, letter of credit, or qualification as a self-insurer.

[24] *See* The Oil Pollution Act of 1990, 33 U.S.C. 2701-2761 **[CONFIRM]**

mandating contingency planning, enhancing federal response capability, broadening enforcement authority, increasing penalties, and significantly broadening financial responsibility requirements.[25]

Passage of the OPA led to more clearly defined guidelines for assigning liability in the offshore energy industry. Specifically, it stated that "…each responsible party for a vessel or a facility from which oil is discharged, or which poses the substantial threat of discharge of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages…" [26] The OPA clearly articulated that the responsible party would be charged with incurring costs associated with oil removal, damages for injury to or destruction of natural resources, property, subsistence use, lost revenue to state and/or federal government, lost profits, and the provision of public services.[27] Title 1 of the OPA also authorized the Oil Spill Liability Trust Fund (OSLTF of Fund).[28] The purpose of the Fund was "to reimburse or pay costs incurred by the [Federal, State, Indian, or foreign] trustee… with respect to the damaged natural resources." Specifically, the Fund would cover costs associated with assessing natural resource damages, costs associated with developing and implementing plans for restoration, rehabilitation, replacement, or acquisition of the equivalent of damaged resources, and the payment of claims for uncompensated removal costs. In addition, the Fund could cover costs associated with the payment of Federal administrative, operational, and personnel costs and expenses reasonably necessary for and incidental to the implementation of the Act.

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[25] *See* The Oil Pollution Act of 1990 , 33 U.S. Code 2701-2761. *See also* The Oil Pollution Act of 1990 – An Overview. United States Coast Guard. < http://www.uscg.mil/npfc/About_NPFC/opa.asp>

[26] *See* The Oil Pollution Act of 1990, §1002(a) < http://epw.senate.gov/opa90.pdf>

[27] Booz Allen does not intent to provide a legal opinion of The Oil Pollution Act of 1990. Should the client seek a legal opinion, Booz Allen recommends contacting outside counsel.

[28] The Fund was originally established in Section 9509 of the Internal Revenue Code of 1986. *See* "History of the Fund," United States Coast Guard. < http://www.uscg.mil/npfc/About_NPFC/osltf.asp> The OPA stated that the trust fund would equal $1 billion. Subsequently in 2005, Congress increased the fund to $2.7 billion under the Energy Policy Act of 2005. The Delaware River Protection Act of 2006, title Vi of the Coast Guard and Maritime Transportation Act of 2006 increased the limits of the liability.

In addition to establishing a scheme for assigning liability, Section 1016 of the OPA set forth requirements for firms engaged in offshore energy exploration and production to demonstrate they were financially sound enough to take on this newly assigned potential liability. Section 1016 states that the responsible party "must establish and maintain… evidence of financial responsibility sufficient to meet the maximum amount of liability to which the responsible party could be subjected under section 1004(a) or (d) of this Act, in a case where the responsible party would be entitled to limit liability under that section." As a result, offshore drilling facilities were required to produce evidence that they could cover their liability under a worst-case oil spill discharge with the potential of more than 1,000 barrels of oil. To demonstrate financial responsibility, the party can show evidence of insurance, surety bond, guarantee, letter of credit, or qualification as a self-insurer.

Consequently, firms, contractors, and subcontractors engaged in offshore energy production are required to show proof of financial responsibility. In an effort to reduce the cost of insurance operators, drillers, and other contractors engage in contract negotiations to assign liability to a party *prior* to the beginning of drilling operations.[29] Typically, the drilling contractor bears the risks associated with personal injury or death of its own personnel and generally assumes liability for the rig and associated contractor equipment loss or damage. The operator normally accepts liability for its own personnel and property and, generally assumes responsibility for well-related risks (including pollution, well control, and well damage or loss).[30] With respect to employees of subcontractor or service companies, the operator and contractor generally indemnify each other from

[29] Cary A. Moonjian Jr.. Contractural Insurance and Risk Allocation in the Offshore Drilling Industry. Januray/February 1999. 30 9 2010 <http://www.iadc.org/dcpi/dc-janfeb99/j-cary.pdf>.
[30] Cary A. Moonjian Jr.. Contractural Insurance and Risk Allocation in the Offshore Drilling Industry. Januray/February 1999. 30 9 2010 <http://www.iadc.org/dcpi/dc-janfeb99/j-cary.pdf>. Thjis is typically dound in a "daywork" contract, which is the most common contract type between drillers and operators.

injury or death of employees of their respective subcontractors and other contractors.[31]

INSURANCE POLICIES AVAILABLE TO E&P FIRMS

Booz Allen identified and researched policies offered by major insurance and reinsurance companies to firms engaged in offshore energy exploration and production. These insurers include but are not limited to Munich Reinsurance Co., Swiss Reinsurance Co. Ltd., Hannover Rueckversicherung AG, Chartis (a subsidiary of American International Group Inc), and W.R. Berkley Corporation. Based on our research, we have found the following policies to be currently available to operators, drillers, and other contractors:

- ***Offshore Physical Damage Coverage***: indemnifies the insured for all risks associated with physical loss or damage to fixed offshore drilling, production and accommodation facilities, including: fixed offshore drilling, production and accommodation facilities, pipelines, subsea equipment, and offshore loading.

- ***Hull, Machinery, etc***.: Covers damage to Mobile Offshore Drilling Units ("MODUs") such as jack-ups, semi-submersibles, and drill ships.

- ***Operators' Extra Expense***: A policy offered to oil and gas companies that provides coverage for expenses associated to regaining control of a well. This policy typically covers the cost to control operations (both materials used and cost of hiring firms to help control), redrill the well to a depth it

[31] Also known as a "Knock-for-knock" clause. See Cary A. Moonjian Jr.. Contractural Insurance and Risk Allocation in the Offshore Drilling Industry. Januray/February 1999. 30 9 2010. For example, the drilling company and subcontractors can also enter a "mutual hold harmless" agreement, which requires each signatory to assume liability and hold harmless the other signatories for their respective personnel and property<http://www.iadc.org/dcpi/dc-janfeb99/j-cary.pdf>.

was previously, and the cost associated with removing or cleaning seepage/pollution. The policy can also be extended to cover expenses associated with the property of others in the insured's care, underground blowout, evacuation expenses, removal of wreck, and legal expenses emanating from the incident.

- ***Land Rigs and Miscellaneous Property***: Coverage encompasses land rigs and miscellaneous property used in the exploration and development of hydrocarbons. Examples include contractor's equipment, scientific and sampling instruments, diving equipment and remotely operated vehicles.

- ***Oil Spill Financial Responsibility***: Coverage to party as a designated applicant of covered offshore facilities for liability under the various sections of the Oil Pollution Act of 1990. Includes protection for removal costs and damages caused by oil and gas discharges from exploration and production facilities.

- ***Environmental/Pollution Liability***: Provides coverage for bodily injury, property damage, and clean-up costs as a result of a pollution incident.

- ***Business Interruption/Loss of Production Income***: Provides coverage for energy businesses against loss due to temporary interruption in oil/gas supply from an offshore facility.[32]

- ***Comprehensive General Liability***: Provides coverage for claims an energy business is legally obligated to pay as a result of bodily injury or property damage to a third party.[33]

[32] "Insurance, Reinsurance Markets To Play Key Role in Covering Oil Spill Related Claims in Gulf." States News Service. 5 May 2010.

- **Workers Compensation/Employers Liability**: Provides coverage for claims arising out of employee injuries or deaths incurred while the employee is in the line of duty.

The availability, price, terms and conditions of these aforementioned policies have changed and are likely to continue changing in the coming months. Firms involved in drilling operations are already demanding greater levels of insurance coverage.[34] The increased demand for coverage has led to increased premiums but will also likely lead a greater number of available policy offerings, especially where the insureds perceive a potential gap in coverage.

[33] "Insurance, Reinsurance Markets To Play Key Role in Covering Oil Spill Related Claims in Gulf." States News Service. 5 May 2010.
[34] Willis EMR Newsletter. Upstream Market Conditions Destabilize in Wake of Recent Rig Losses. May-June 2010.