

# PETROLEUM PRODUCTION MASTERCLASSES

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## Offshore Safety & Risk Management for the Oil Industry

21st and 22nd of February 2011, New Plymouth

### Key Learning Objectives:

- Gain an understanding of health and safety requirements for offshore operations
- Identify offshore hazards and risks
- Link reliability to safety in an offshore environment
- Recognise the role of management in good safety regimes
- Apply human factors principles to offshore health and safety
- Benchmark against an analysis of past safety incidents

## Marine Drilling for Oil & Gas Industry

23rd, 24th & 25th February 2011, New Plymouth

### Key Learning Objectives:

- Learn the different types and functions of drilling rigs
- Understand how drilling rigs operate
- Learn how wells are drilled from platforms and Subsea
- Get up to date with the latest advances in deepwater drilling
- Understand deepwater floating production systems
- Understand the requirements of the full deepwater field Development
- Apply safety and environmental issues to practice

## International Expert Trainer:



Dr John  
Preedy(UK)

Media Partner

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Management Training

# Offshore Safety & Risk Management for the Oil Industry



21st and 22nd  
of February 2011,  
New Plymouth

## DAY ONE

### Introduction to offshore production facilities and safety requirements

- Offshore production systems
- Shallow water platforms
- Floating production systems
- Offshore safety requirements
- Examples of offshore accidents

### Basis of offshore safety – Piper Alpha accident

- Review of piper alpha accident
- Management of safety
- Management's role and responsibility for safety

### Safety case approach

- Basis of safety case
- Identification of risks
- Quantative risk assessment
- ALARP principle
- Safety critical elements
- Verification and audit

### Hazard identification including HAZOP

- Hazard identification
- HAZID
- HAZOP - methodologies
- FMECA

### Offshore risk management

- Risk and risk analysis
- Basis of risk management
- Risk management tools and techniques
- Accident / incident prevention
- Limitation of accident consequence

### Other safety regimes

- Rule bases regulations
- Company regulations
- National and international regulations
- Requirements for floating production hosts
- Environmental issues
- Security issues

### Human factors in safety

- Theories of human factors
- System induced error models
- Relationship between policy failures and errors
- Methods to reduce the potential for human error
- Examples

### Question and answers

## DAY TWO

### The role of the offshore installation's manager (OIM) and other key positions

- Facilities organisation
- Mission and key activities for the OIM
- Other key positions
- Life offshore
- Emergency situations
- Facilities documentation and reference system

### Safety in drilling

- Review of major drilling disasters
- Daily drilling safety issues
- Drilling safety awareness programmes
- National government safety actions

### Reliability engineering

- Definition of reliability
- Reliability in safety
- Failure and causes of failure
- Reliability index and analysis of supplied systems and components
- Reliability, availability and maintainability (ram) analysis
- Examples

### Offshore risks

- Examples of offshore risk
- Classification of risk
- Objectives in risk management
- Meaning of the term risk
- Risk equation and analysis
- Risk mitigation

### Offshore preparation and work in safety

- Classification of operations
- Principles and processes for preparing operations
- Procedures and processes for executing operations
- Principles for safe execution of work
- Permit to work system

### Offshore emergency response planning and execution

- Presentation of the emergence response plan (ERP)
- Description of the process
- Organisation and role of each team
- Actions during an emergency

### Case studies of offshore incidents

- Review of past major offshore incidents
- Sinking of P36 semi
- Damage to platforms
- Helicopter incidents

### Questions and answers



## DAY ONE

### Introduction

#### Introduction to offshore drilling rigs and marine drilling activities

- Introduction and background
- General arrangement
- Operational capability and drilling equipment facilities on typical fixed platforms
- Jackups
- Barges
- Drillships and semi-submersibles
- Operating and standby or survival condition for mobile platforms
- Mooring procedure and station keeping for semisubmersible and drill ships

#### Global energy review

- World oil reserves and production
- World gas reserves and production
- What oil price?
- World energy consumption
- The important future for gas and lng
- Alternative energy approaches

### Offshore drilling rigs

#### Jack-up rigs

- Background
- Jacking mechanism
- Spud cans
- Moveable cantilever
- Drill derrick and several examples of jackup drilling rigs including general layout and storage capacity and rig regulations

#### Semi-submersible drilling rigs

- Background
- Vessel details and semisubmersible examples
- Layout for equipment and storages
- Vessel motions and motion compensation devices
- Rig regulations

#### Drill ships / drilling barges

- Background
- Vessel details and drill ship examples
- Layout for equipment and storages
- Vessel motions and motion compensation devices
- Rig regulations
- Drillship barge examples

### Drilling rig components & operation

#### Drilling rig components

- Drilling power system
- Hoisting systems
- Rotating systems
- Pipe handling system

#### Drillstring design and requirements

- Drill pipes
- Collars and stabilisers
- Bottomhole assembly

#### Drilling muds systems

- Background and requirements
- Mud formulations
- Circulation equipment
- Mud cleaning equipment

### Questions and answers

## DAY TWO

### Drilling offshore wells

#### Drilling requirements for platforms & production hosts (spars & tlps)

- General requirements
- Drilling guides and templates
- Well control
- Well completion

#### Drilling a subsea well

- Sequence of drilling a subsea well.

### Drill vessel operations

#### Offshore drilling components

- Drilling template
- Temporary and permanent guide bases
- Guide wire and guide line less systems
- Subsea wellheads including subsea bops
- Marine riser
- Lrp
- Motion compensation and drilling control system

#### Surface & subsea bops; hook-up & testing operations

- Integral components and operating principles of different subsea bop equipment and choke line manifolds
- Hook up and testing of bop equipment

#### Position and station keeping for floating drilling rigs

##### Part A - Mooring:

- Mooring requirements
- Mooring regulations for drilling vessels
- Mooring system design
- Setting and moving the mooring pattern

##### Part B - Dynamic positioning:

- Background
- Dynamic position concept
- Basic feed back and control
- Position measurement
- Thrusters and dynamic position rig design

#### Wells as part of a producing field

- Field wells layout
- Geology concerns
- Heavy oil requirements
- Dominating weather patterns
- Well intervention requirements

### Advanced drilling rigs

#### Drilling rigs with dual drilling activity:

- Design of twin drilling derricks for semis and drillships
- Working principles – main and auxiliary rotaries
- Operational capabilities in relation to drilling and equipment and casings
- Stack up and operational advantages.

#### Automated tubular handling systems

- Tubular stacking and handling
- Joint make-up systems
- Loading systems

### Examples of drilling activities

#### Drilling example - Drill thru xmas tree Dalia Field, Angola.

- Drill thru xmas trees
- Drilling process
- Jetting the conductor
- Drilling the surface hole
- Running and cementing the casing
- Running the tree
- Running the bop
- Completing the well

### Questions and answers

## DAY THREE

#### Drilling example - Batch drilling with dual activity rig

- Greater Plutonio Field, Angola.
- Details of dual activity rig
- Batch setting process
- Complete sequence of drilling activities

### Safety and environmental issues

#### Subsea wells related safety requirements

- Requirements for subsea drilling
- Typical subsea drilling and casing programme
- Problems associated with rig movements
- Safety requirements and review of past incidents involving loss of life

#### Environmental issues related to offshore drilling

- Environmental requirements offshore drilling
- Environmental impact assessments
- Use and discharge of drilling muds and fluids and cleaning and disposal of drill cuttings

#### Review & discussions of the Deepwater Horizon incident in the Gulf of Mexico

- Background
- The blowout
- The sinking of the rig
- The oil leak and BPs' various attempts to stop the leak
- The oil spill and cleanup
- The implications for future deepwater activities

### New drilling vessels concepts

#### New marine drilling vessel concepts

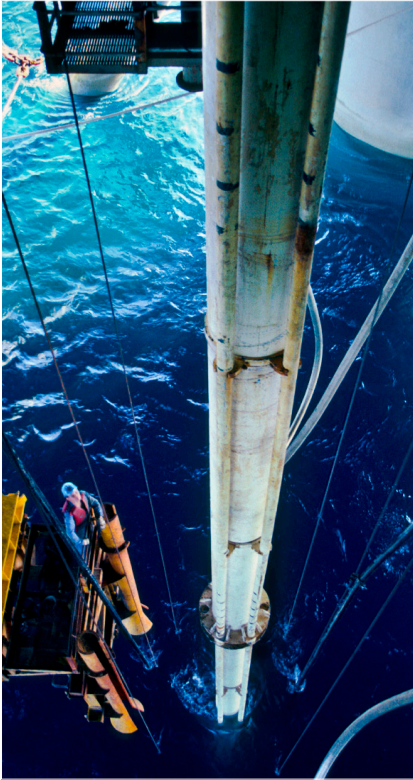
- 6th generation rigs
- Sevan cylindrical drilling vessel
- Huisman itrec drilling tower.

### Drilling contracts and costs

#### Preparation of contracts (drilling rigs), negotiation and implementation

- Classification, analysis and evaluation of drilling contracts
- Detailed development of the drilling job
- Selecting drilling rig equipment capability
- Development of the contract and the presentation and adjustment of each party's own position
- Management system of supervising and implementation of drilling contracts
- Dispute case resolution by international law
- Drill rig costs – capital cost examples and rental rates

# YOUR INSTRUCTOR PROFILE



## Dr John Preedy (UK)



Dr Preedy worked for BP for 28 years as a Research Associate and Team Leader, working on feasibility studies and acting as a “trouble shooter” covering all aspects of BP’s businesses.

These covered field development projects in the North Sea and several novel resource recovery techniques, which were taken from concept to field pilot trials in Canada.

His specific work in the offshore area covered subsea robotics/automation, seabed production concepts, seabed excavation methods, underwater repair techniques, flexible riser studies and maintenance cost reductions.

After leaving BP in 1992, he has continued working in the offshore oil industry through Azur Offshore Ltd, including activities in the assessment of emerging and novel technologies, technical and economic audits, deepwater studies, production sharing agreement evaluations, safety and environmental issues. Clients have included Chevron UK, BP Exploration, British Gas, Technomare, Trident Consultants, Fina UK and Cameron France.

In addition, John is responsible for co-ordinating and is the Course Director and Principal Lecturer for the oil industry training courses that Azur Offshore Ltd provides to professional engineers in Europe, USA, SE Asia, Australia and Africa.

Past projects have included Chevron North Sea – safety reviews, Nigeria – production sharing contract reviews, Total’s Otter Field – Subsea Team with FPSO and Tie-Back options, Ivory Coast FPSO – technical reviews, BP Greater Plutonio, Angola – training and operations instruction



### OTHER COURSES YOU MAY ALSO BE INTERESTED IN:

**Maritime Risk & Safety - March 2010**

**Enex - New Zealand’s Oil & Gas Event - June 2010**

To see full details of these events plus the 2011 training calendar visit [www.conferenz.co.nz](http://www.conferenz.co.nz) and click on the training menu



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# ABOUT THESE COURSES:

## Offshore Safety & Risk Management for the Oil Industry

Safety and Risk Management are key issues affecting all staff on offshore production facilities due to the highly volatile nature of the product during production, processing and storage.

**Offshore Safety & Risk Management for the Oil Industry** is a two day, executive level training course giving you an insight into practical issues facing managers on offshore facilities, including different approaches used worldwide ensuring not only do you meet basic regulatory requirements, but that your team is safe and productive.

### Key Learning Objectives:

- Gain an understanding of health and safety requirements for offshore operations
- Identify offshore hazards and risks
- Link reliability to safety in an offshore environment
- Recognise the role of management in good safety regimes
- Apply human factors principles to offshore health and safety
- Benchmark against an analysis of past safety incidents

### Who Should Attend?

- All managers working on offshore environments
- Non-safety executives
- Policy Makers in the Petroleum Sector
- Operations Managers
- Installation personnel
- Process engineers
- Recent graduates in the oil industry
- Facilities Manager
- Consultants to the Oil industry

### Training Methodology:

The course reviews Hazard, Risk Analysis Techniques and Best Practice Approaches and uses past safety incidents to illustrate the issues. Safety incidents often involve human factors; the role of people must therefore be understood.

## Marine Drilling for Oil & Gas Industry

New Zealand is set to see an increase in exploration and production of oil and gas over the next decade, and with exploration comes the need to drill!

**Marine Drilling for the Oil Industry** is a brand new, 3-Day in depth executive overview for managers in the Oil/Petroleum exploration & extraction industry. Attendees will gain an understanding of drilling activities, how floating production works, along with technical, and commercial implications of various approaches and equipment.

### Key Learning Objectives:

- Learn the different types and functions of drilling rigs
- Understand how drilling rigs operate
- Learn how wells are drilled from platforms and Subsea
- Get up to date with the latest advances in deepwater drilling
- Understand deepwater floating production systems
- Understand the requirements of the full deepwater field Development
- Apply safety and environmental issues to practice

This course is a must attend for all in the sector who require an in depth knowledge about rigs, wells, drilling practises and environmental issues facing those in the exploration and production sectors of the industry.

### Who Should Attend?

- All managers working on offshore environments
- Operations Managers
- Recent graduates in the oil industry
- Consultants to the Oil industry

### Training Methodology:

This intensive three-day master class will combine tutorial sessions and case studies with interactive learning exercises. All attendees will be provided with a workbook and a certificate of completion.

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# PETROLEUM PRODUCTION MASTERCLASSES

## Offshore Safety & Risk Management for the Oil Industry

## Marine Drilling for Oil & Gas Industry

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First name Last name

Position \_\_\_\_\_ Email \_\_\_\_\_

Offshore Safety & Risk Management  
for the Oil Industry

Marine Drilling for Oil  
& Gas Industry

### 2nd Delegate

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Marine Drilling for Oil  
& Gas Industry

### 3rd Delegate

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Approving Manager \_\_\_\_\_

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### Course Details

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