



Maui A, photo courtesy of Shell Todd Oil Services Limited

"Very interesting course with a lot of information relative to parts of our industry and client base. Steve obviously knows his field."

"Very knowledgeable presenter with a good presentation style. Learnt a lot and filled the numerous gaps in my knowledge."

Anonymous quotes from evaluation forms from previous courses.



Maui production station, photo courtesy of Shell Todd Oil Services Limited

Oil and Gas Industry

Fundamentals of Petroleum Exploration, Appraisal, development and Production

This full two day course

will cover all aspects of the upstream petroleum business, including data acquisition and interpretation, prospect generation and risk analysis, drilling the well, interpreting the results, and developing and producing a field.

Principles of coal seam and unconventional gas projects will also be covered. At the end of the course, staff will be able to understand the issues involved and terminology used, which will result in improved communication within, and across businesses and agencies.



Expert Course Trainer

Steven O'Connor, BSc (Hons), CGeol., FGS is a Chartered Geologist and Fellow of the Geological Society, London (NZ Scrutineer for Chartered Status applicants). He is also a Certified Petroleum Geologist with the American Association of Petroleum Geologists. He holds a B.Sc. Honours in Geology (University of Leicester, 1974)

Steven has 35 years international experience (Libya, United Arab Emirates, Oman, North Sea, USA, Brunei and New Zealand) in geo-scientific, operational, technical and managerial roles with Conoco, Dubai Petroleum Company, Amoco, Petrocorp/Fletcher Challenge Energy, Mighty River Power and L&M Energy.

For more information see final page.

Key areas covered:

- Introduction to Petroleum Systems
- Health and safety issues
- Acquiring the Acreage
- Prospect generation
- Prospect economic evaluation
- Drilling the well
- Interpreting the well
- Completing and testing the well
- Appraising and Developing the field
- Risk analysis and management
- Revenue and expenditure
- Producing the field
- Managing the decline
- Coal Seam Gas
- Unconventional Gas
- CO2 sequestration
- Decommissioning
- Taranaki Oil and Gas Field Review

DATE:

7—8 February 2011
8.30am—5.00pm

VENUE:

One Burgess Hill
1A Burgess Hill Road, RD 1,
New Plymouth 4371

DAY ONE:

Introduction to Petroleum Systems

- Oil and gas composition
- Source rocks and migration
- The reservoir
- Sealing rocks
- Types of hydrocarbon traps

Health and Safety Issues

- Seismic
- Drilling
- Other Operations

Acquiring the Acreage

- Direct Applications
- Licensing Rounds
- Farm-ins
- Buy-outs

Prospect generation

- Types of seismic and geological data
- Seismic time mapping of structure or stratigraphic trap
- Depth conversion of time map
- Construction of cross-sections,
- Thickness and rock property maps
- Determination reservoir thickness and porosity
- Determination of fluid properties for the depth and temperature of the reservoir
- Estimate shrinkage and expansion of oil and gas at the surface
- Estimation of the recovery factor
- Calculation of oil and gas in the place and potential recoverable hydrocarbons

Practical exercise: Prospect analysis problem

Prospect economic evaluation

The prospect has now been fully worked up to the stage where it is now drillable. The big question is, of course, is it likely to be economic? Several processes must be gone through in order to answer the question.

- Utilising peer reviews of the supporting geological and geophysical information
- Using a probability-based methodology for reserves estimates
- Assessing the geological risking process based on the petroleum system concept
- "Monte Carlo" analysis
- Decision trees (the D-Tree) and ENPV calculation

Practical exercise: Probability of geological success and prospect ENPV

Drilling the well

DAY TWO:

- An analysis of offshore and onshore requirements
- Main components of a rig and rig personnel
- Drilling, casing and cementing
- Analysis of the types of directional drilling

Interpreting the well

Although the drilling of a well is a technological achievement in itself, the end game is to produce oil and gas. In order to determine the potential of any prospect, the borehole must be carefully evaluated while drilling.

- Continuous monitoring of cuttings and mud
- Periodic surveys
- Well site logging
- Coring

Completing and testing the well

- Exploration well testing processes
- Drill stem test (DST)
- Perforating the well

Appraising and Developing the field

Once a discovery has been made, the size and commercial potential must be assessed through an appraisal programme.

- Appraisal wells
- Undertaking a development study
- Using reservoir simulation programmes
- Reservoir drive mechanisms

Risk analysis and management

- Impact of geological and political risk factor areas
- Decision tree analysis in exploration and development
- Tools for quantifying risk
- Equity issues and re-determinations

Revenue and expenditure

- Types of production contracts
- Production profiles
- Capital and Operational expenditures.
- Understanding the components of the cash flow curve
- Sources of potential revenue from petroleum assets
- Oil and gas reserves reporting
- Basic volumetric analysis

Producing the field

- Differences between oil and gas developments
- Production well issues
- Comparison of oil field and gas field production profiles
- Land-based facilities
- Offshore facilities

Strategies for managing the decline.

Coal Seam Gas

- Coal seam gas principles and prospectivity
- Commercialisation

Unconventional Gas

- Biogenic gas
- Shale gas
- Gas Storage

CO2 sequestration

Taranaki Oil and Gas Field Review

- A review of Taranaki's major oil and gas discoveries

Decommissioning

- Onshore and offshore requirements

DELEGATE PROFILE

- New employees in petroleum companies who need a to learn about all areas of exploration and production.
- Employees and managers at companies providing services to the petroleum industry.
- Corporate service companies such as bankers, lawyers, accountants and financial professionals dealing with industry documents 'language'.
- Those that just want to learn more about the workings of the oil and gas industry.



Photo courtesy of AWE Taranaki Ltd.

HOW TO REGISTER (Limited Numbers Available)

For bookings or further information email or telephone:

Sheree Long
Manager

Petroleum Skills Association New Zealand.

E-mail: slongpepanz@gmail.com
telephone: +64 6 757 3708

Address: Genesis House, Level 8, 33 Gill Street
PO Box 8156, New Plymouth

An invoice will be sent for payment prior to course.

Website: www.petroskills.co.nz

ABOUT THE TRAINER

Steven O'Connor, BSc (Hons), CGeol., FGS is a Chartered Geologist and Fellow of the Geological Society, London (NZ Scrutineer for Chartered Status applicants). He is also a Certified Petroleum Geologist with the American Association of Petroleum Geologists. He holds a B.Sc. Honours in Geology (University of Leicester, 1974)

He has 35 years international experience (Libya, United Arab Emirates, Oman, North Sea, USA, Brunei and New Zealand) in geoscientific, operational, technical and managerial roles with Conoco, Dubai Petroleum Company, Amoco, Petrocorp/Fletcher Challenge Energy, Mighty River Power and L&M Energy.

After graduating, Steve started at the bottom, mud logging in Libya, followed by a period as a well site and development geologist in the UAE.

In 1983 he transferred to Houston as the supervisor for Amoco's Arabian Gulf team that drilled two new field discoveries from four exploration wells in Sharjah and Oman. During his time in the North Sea, eight exploratory wells recommended by the team led to five new gas field discoveries. He also represented Amoco (UK) on various industry/academic steering committees for research and development proposals.

During the early 1990's he became Pressure Analysis Consultant for Amoco's Exploration, Production and Drilling departments, where pore pressure modelling averted a potentially serious high-pressure drilling situation. After a period as head of Basin Modelling at Amoco's Tulsa Research Centre, Steve relocated to NZ in 1994 as Exploration Manager for Petrocorp, where was responsible for a group of 14 geoscientists and technical assistants involved in Taranaki exploration and production activities, including the recommendation to drill the Pohokura prospect.

He has published over 15 papers on subjects as diverse as biostratigraphy, regional geology, pore pressure analysis, reservoir geology and, more recently, on exploration risk evaluation.

COURSE FEES

**Petroleum Skills Association or PEPANZ Members:
NZD \$990 (plus gst)**

**Non-members:
NZD \$1,190 (plus gst)**

Cost includes all training resources, morning tea, lunch and afternoon tea.



Photo courtesy of AWE Taranaki Ltd.