



# An Introduction to Petroleum Exploration & Drilling

## One-day fundamentals short course

### COURSE CONTENT

- presents an overview of the exploration industry in a straightforward and non-technical manner
- with hands-on displays and videos
- provides information about how companies select and acquire their acreage, basic geological concepts and how prospects are found, the role of seismic in exploration and how an oil well is drilled and evaluated
- provides an excellent introduction for newcomers to the industry
- fills in a lot of gaps for those who work in the industry but do not have much of a technical background

*“Demonstrations were fantastic and illustrated the points very well”– Accountant, Origin Energy*

*“Excellent presenter. Friendly, approachable and a good demonstrator”– Exploration Secretary, Brunei Shell Petroleum Co Sdn Bhd*

*“Really good – interesting, moved quickly, lots of knowledge but managed to keep it non-technical” A. Aschman, Director, IPA*

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Adrian Williams is an Exploration Consultant with more than 30 years experience in the oil and gas exploration industry, working for a variety of companies, large and small, local and international, including Shell Australia, Bond Energy, Delhi Petroleum, Apache Energy, Petroleum GeoServices, various E&P subsidiaries of Mitsubishi Corporation, Kufpec Australia and Woodside Energy. He has extensive experience gained through a variety of career functions ranging from wellsite geologist to seismic interpreter, and Chief Geophysicist to Exploration Supervisor, he has worked on virtually all of the basins in Australia, as well as parts of New Zealand, Indonesia, Malaysia, India, Cambodia, Philippines, China, Vietnam and the Gulf of Mexico. Prior to that, Adrian spent a number of years in research and teaching at the University of Newcastle (New South Wales, Australia) and in an underground nickel mining operation. He was also an honorary member of staff at the Department of Geology & Geophysics, Curtin University (Western Australia) where he spent a number of years part-time teaching post-graduate students. Over the past 16 years, through his private company PetroSearch, he now presents a range of oil and gas training courses and consulting services throughout Australia and Southeast Asia.

Adrian has an Honours degree in geology (BSc(Hons)), a Masters degree in Business Administration (MBA), and a Diploma of Education (Dip Ed). He has published a number of technical papers in Australian and international journals and is the founding editor of the Petroleum Exploration Society of Australia's (PESA's) national newsletter.

## WHO SHOULD ATTEND?

- This course is specifically designed for people who work in the oil & gas industry but have little or no technical background
- It is ideal for those who want to understand the terminology and jargon used and would like to gain an appreciation of how the processes of petroleum exploration and drilling are carried out
- Managers and employees in areas other than G&G – such as finance, law, engineering, OH&S, environment, IT etc
- Supply chain and support personnel who need to understand the jargon and terminology in their documentation
- Accountants who would like a better appreciation of the cost elements in exploration and drilling programs
- Secretaries, personal assistants, librarians who would benefit from being able to speak the same language as the people they are supporting
- Brokers, analysts, investors who want to better interpret press releases and other public information released by oil companies

### **Acreage acquisition and exploration work programs**

- How companies acquire and manage exploration acreage (permits, open acreage, work programs, farm-ins, joint ventures)

### **Basics of petroleum geology**

- Why companies explore where they do (rock types and properties, geological models, prospectivity)
- Where oil and gas come from (source, seal, reservoir, generation, migration, trapping mechanisms)
- How oil and gas fields are found (basin analysis, regional studies, play concepts, prospect generation)

### **Basics of petroleum geophysics**

- How explorers determine what it looks like below the surface of the earth (remote sensing)
- How seismic works (acquisition, processing, 2D and 3D surveys)
- What seismic tells us (interpretation, mapping, DHIs, limitations)

### **Introduction to oil and gas drilling**

- Types of drilling rigs (land rigs, jackups, drill ships, semi-submersibles)
- How rotary wells are drilled (hoisting, rotating, circulation, control)
- Information obtained from wells (cuttings, cores, logs, well seismic)
- What happens after the well is drilled (abandon, suspend, test)

### **Economics, risk and reserves**

- Why do we drill so many dry holes (outcomes, prospect risking and ranking)
- Different types of “success”: technical versus commercial
- How do we handle the risks involved
- Reserves estimation and definition (1P, 2P, 3P; P90, P50, P10)