

# RESERVOIR ENGINEERING FOR PETROLEUM GEOLOGISTS

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Richard Green

(2 days)

## Who Should Attend

The course is designed for personnel who wish to acquire a broad understanding of the factors that influence the production of oil and gas from reservoirs. The course presents information that can be applied to geologists, geophysicists, petrophysicists, land management specialists, and managers with no previous training in reservoir engineering. It can also serve as an introductory course for engineers who have not had previous training in reservoir engineering.

## Objectives and Content

The basic purpose of every individual in a producing company is the same: to find and produce oil and gas in an efficient manner to the economic benefit of the company. A reservoir engineer cannot predict the production performance of an oil reservoir with any degree of certainty without a knowledge of the physical characteristics - the geology - of that reservoir.

Neither can the geologist describe the physical characteristics of a reservoir and be sure of his work without considering the producing characteristics as evidenced by production and pressure data. This course is an attempt to bridge that particular chasm, being an introductory description of the field and techniques of petroleum reservoir engineering.

The course will cover:

- Reservoir Rock Properties; as porosity, fluid saturations, and permeability
- Reservoir Fluid Properties; as fluid types, reservoir oil, reservoir gas
- Reservoir Fluid Flow; as Darcy's law, reservoir drive mechanisms
- Reservoir Production Evaluation Techniques; as volumetric calculations, material balance, decline curves and deliverability
- Well Testing and Sampling; as well stabilization and conditioning, pressure measurements, well completion techniques
- Reservoir Exploitation and Recovery Enhancement; as secondary and tertiary recovery, reservoir simulation
- Economics; as reserve classification, product pricing, economic components

Reservoir engineering can be defined as the design and evaluation of field development and exploitation processes and programs. As such, it can overlap the fields of geology, drilling and completion, production engineering, and reserves and evaluation. Therefore, some of each of these fields are included, but the major emphasis is on the techniques and methods utilized to characterize and predict the flow of fluids within petroleum reservoirs under natural depletion and various secondary and tertiary recovery operations.

## Instructor

**Green, Richard**, began his career in New Orleans, Louisiana with Shell Oil Company in 1973 after graduating from Kansas State University with a BS degree in geology. After working as a production engineer and development geologist in a number of Gulf Coast onshore and offshore fields, he accepted a position with DeGolyer and MacNaughton Consultants in Dallas Texas in 1978. At D&M he prepared volumetric reserve estimates on numerous Gulf Coast oil and gas

fields prior to leaving the firm in 1980. He then joined Netherland Sewell Consultants in 1994 as a Vice-President and geologic manager and gained extensive international experience in West Africa, Russia and South America as well as multiple domestic basins. He co-founded LaRoche Petroleum Consultants in 1998 and has performed numerous studies both domestically and internationally since that date.