



Gas Reservoir Engineering for Geoscientists

Instructor: Kamal Malick, P.Eng, TAQA North

Pre-Meeting Course– 1 Day: Friday May 1, 2020

Course Outline:

This course will provide an introduction to Geoscientists and other disciplines to the various gas well and play reservoir engineering methodologies applied from discovery to depletion. It will go through the life-cycle of a gas reservoir to determine Original Gas-In-Place, recoverable resource and commercial considerations.

The course will start with a detailed discussion on gas PVT properties, their liquids-rich nature and how to maximize liquids recovery. This will be followed by the volumetric OGIP calculation and the inter-disciplinary nature of determining volumetric OGIP will be highlighted. Gas reservoir drive mechanisms and OGIP calculation through production data will be discussed followed by the calculation of drainage areas and depletion risk in both conventional and unconventional plays. Towards the end, gas contracting terms and definitions will be introduced and the economic considerations of a gas field development planning will be discussed. Exercises and relevant examples from the major liquids-rich gas producing formations in Western Canada will be shown throughout the course to make the learning interactive and interesting.

Course Topics:

- Natural Gas & The Global LNG Trade
- Types of Gas Reservoirs - What Makes Them Dry or Liquids-Rich
- Gas Properties - z-factor, Bg and Ei
- Volumetric OGIP Calculation
- Drive Mechanisms and Material Balance OGIP Calculation
- Calculation of Drainage Areas and Recovery Factor
- Gas Field / Plays Development Economics

Who Should Attend:

Geologists, Geophysicists, Petrophysicists, Technologists, Completions, Production and Operations Engineers

*Meeting registration is **NOT** required to sign-up for this course*

Registration Rates: (rates do not include GST)

- Early-bird CSPG member rate: \$575
- Early-bird non-member rate: \$775

Early Bird Ends: **April 10, 2020**

- CSPG Member rate: \$775
- Non-member rate: \$975

Registration Close: **April 24, 2020**

CPD: 7.5

Registration includes: Coffee breaks, lunch and printed course manual.

Time: 8:30am-4:00pm

Location: geoLOGIC systems Classroom, +15 level Aquitaine Tower, 540-5 avenue, Calgary



About the Instructor



Kamal Malick has been working in the energy industry for more than 20 years in a variety of technical and leadership roles. He has worked globally in Canada, USA, North Sea and Asia-Pacific regions on various complex oil and gas fields under natural depletion and EOR schemes such as waterflooding and gas-injection.

Kamal is currently working for Abu Dhabi based TAQA North in Calgary. He works closely with Geoscientists in multi-disciplinary teams to develop appraisal and exploitation plans for various conventional, tight and unconventional oil and gas plays in West Central Alberta such as the Belly River, Upper and Lower Mannville formations. Previously, he was working the Grande Prairie area performing integrated reservoir characterization for the Doe Creek, Dunvegan, Falher and Montney formations. Prior to these roles, Kamal was the Subsurface Manager for one of the largest onshore gas fields in Indonesia consisting of multiple naturally-fractured stacked intervals. He was responsible for managing its subsurface development and depletion planning in addition to optimizing the commercial aspects of various gas contracts on behalf of the PSC partners in South Sumatra. He has also worked on volatile oil and retrograde-condensate gas fields in the Berkine Basin in Algeria and on a number of oil fields in the UK North Sea with a Subsurface consultancy. Kamal started his career from Pakistan where he worked on field development and exploitation planning of oil and gas fields in various stages of their development and commerciality.

Kamal's areas of expertise are reservoir engineering, field development planning, resource evaluation and economic analysis. He has been involved with teaching and mentoring throughout his career including teaching courses through the CSPG. He has given talks at universities and mentors junior professionals from around the world through the SPE e-Mentoring program. Kamal holds a Bachelor's degree in Mechanical Engineering from Karachi, Pakistan and a Master's degree in Petroleum Engineering from Stanford University in USA. He holds a Professional Engineer designation with APEGA and is a member of its Registration Committee.