



Congreso Mexicano del Petróleo

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# 1. PRACTICAL QI: A COMPREHENSIVE OVERVIEW FOR INTERPRETERS

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PRESIDENT OF SOUND QI SOLUTIONS LTD.

*“Compartir ideas para afrontar nuevos retos”*

This course will encompass all elements of quantitative seismic interpretation, including key data inputs (such as well information and pre-stack seismic data), aspects of AVO, inversion and mathematical attributes, and, most importantly, how to combine all the elements into a coherent interpretation of geology. Participants will gain an understanding of why, how, when and to what extent QI should be used to add value in an exploration or development environment.

**Intended Audience:** Interpreters, Geologists, Petrophysicists, Engineers

**Prerequisites:** Some previous interpretation experience and basic seismic knowledge.

### Day One

#### Introduction

- Uses and usefulness of QI
- Overview and examples

#### Rock Physics

- Inputs
- How to build a good model
- Templates

#### Well Data

- Quality Assessment and Conditioning
- Elastic property computation
- Crossplotting
  - Cluster and trend identification
- Templates

#### Seismic Data

- Well Ties
- Quality Assessment and Conditioning
- AVO
  - Classification
  - Velocities
  - Angle gathers and useful ranges
  - Reflectivity computation
  - Approximations and assumptions
  - Parameter sensitivity

### Day Two

#### Seismic Data

- Inversion
  - Types of inversion
  - Wavelet estimation
  - Low-frequency model-building
  - Background constraints
  - Parameter sensitivity
- Multi-attribute Analysis
  - Inputs, parameters and pitfalls
  - Assessing results
  - Errors and uncertainty

#### Classification

- Inputs
- Methods
- Pitfalls
- Integration
- Hands-on interpretation with QI-Pro software

#### Advanced Topics

- Multi-component
- Time-lapse
- Other seismic sources
  - Microseismic
  - VSP

## Biography



Laurie Weston Bellman is the President of Sound QI Solutions Ltd., a Calgary-based QI consulting and software company she founded in 2007. Originally a physics/astronomy graduate from the University of Victoria, B. C., Canada, Laurie started her oil and gas career with Shell Canada doing seismic processing and interpretation in the central plains area of Alberta. Seeking adventure and travel, she took a position with LASMO plc in London, to work on various European, North African and Middle East projects. She later returned to Canada and began her consulting career, initially with short term interpretation contracts for a variety of companies. As her interest in the early days of QI grew, she started her own company to explore and contribute to this fascinating field.

Since then, Laurie has been 'practicing' QI for over 15 years - the latter half of her career as a geophysicist in the oil and gas business. Through her interpretation experience in many basins around the world, she is well aware of the combination of hard data, imagination, creativity and collaboration that is necessary to be an effective and successful member of an exploration or development team, regardless of background. Laurie's education in physics and astronomy, and her early career as a seismic processor have given her a respect (and healthy scepticism) of data and data analysis. The integration of all these aspects is her objective in the application of QI workflows.

Laurie has received numerous awards and honors for her work and presentations, including being selected as the 2017 CSEG Distinguished Lecturer. She is an SEG, EAGE and AAPG member, and an honorary member of the CSEG.