



Reservoir Material Balance

MODULE

About the Skill Module

This skill module covers the basics of material balance. The topics included are drive mechanisms, principles of material balance, how to develop equations, and application of the material balance equation.

[See demo online learning module](#)

Target Audience

Engineers or geoscientists who will occupy the position of reservoir engineer, and any other technically trained individual who desires a more in-depth foundation in reservoir engineering.

You Will Learn

Participants will learn how to:

- Describe the purpose of the material balance technique to estimate the initial hydrocarbons in place
- Differentiate between volumetric analysis and material balance technique
- State the basic principle of material balance analysis
- Describe the principles behind material balance equation
- Identify the data that is needed to apply the material balance equation and the uncertainties associated with collecting such data
- Identify the purpose of the modified black oil model in material balance equation
- State the assumptions involved in applying the material balance equation
- Identify the limitations of material balance technique
- Develop the material balance equations from the first principle
- Identify and explain the different mechanisms influencing the production of hydrocarbons and how they are incorporated in the material balance equation
- Understand the necessary equations to be used depending on the type of reservoir from which hydrocarbons produce
- Develop appropriate equations for dry gas, wet gas, condensate, volatile oil, and black oil reservoirs
- Describe modifications of material balance equations to estimate the initial oil and gas in place
- Explain the Havlena and Odeh method and the appropriate way to linearize the material balance equations
- Express the importance of water influx and how to detect the presence of aquifer based on production data

- Recognize the uncertainties associated with predicting the water influx as a function of time

Product Details

Categories: Upstream

Disciplines: Reservoir Engineering

Levels: Basic

Product Type: Individual Skill Module

Format: On-Demand

Duration: 4 hours (approx.)

\$395.00