Training - Hydrocarbons Accumulations, Reserves Estimation, Risk Analysis and Uncertainties

OOIP-EN-P | Face-to-face only | 5 days

This course provides a practical understanding of hydrocarbon accumulations estimation and the methods to assess related uncertainties

Level

Skilled

Public

Geoscientists, petroleum and reservoir engineers interested or involved in hydrocarbon accumulations estimation

Objectives

Attendees will be able to implement the following skills:

- Define and discuss the difference between hydrocarbon accumulations and reserves
- Estimate hydrocarbon accumulations using the volumetric method
- Define the main concepts of risks and uncertainties and related main assessment techniques
- Apply both deterministic and probabilistic methods for estimating volumes in place and gain a thorough understanding of various uncertainties levels

Pedagogical & technical resources

- Interactive presentations and practical exercises
- Real case study using a complete data set and a spread sheet for uncertainties assessment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HYDROCARBON ACCUMULATIONS & RESERVES — 0.25 day

Definitions of accumulations and reserves.
Resources and reserves classification - PRMS.
Review of methods for estimating reserves: volumetrics, material balance, decline curves analysis, simulation

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models.

ESTIMATING HYDROCARBON ACCUMULATIONS - VOLUMETRIC METHOD 0.75 day

Overview of volumetric method.
Gross Rock Volume estimation from isobaths and/or geological models; contacts determination from logs and formation testing (RFT/MDT).
Porosity and Net-to-Gross estimation from logs; notion of cut off.
Saturation estimation from logs and cores.
Formation volume factor.
Exercises.

RISKS & UNCERTAINTIES 0.5 day

Definitions of risk and uncertainty.
Notion of probability and probability distribution.
Statistical description of data:

- Histograms and quantiles.
- Theoretical models: population, samples, probability density functions.
- Common statistical distributions.

REAL CASE STUDY - WORKSHOP 3.5 days

Correlation of reservoir layers in order to visualize the reservoir units.
Qualitative log interpretation of several wells.
Evaluation of Ht, Hu, ϕ and Swi on each well for each sub-reservoir unit.
Review of the available PVT studies (reports) and selection of the most reliable one to give the main characteristics of the reservoir fluids.
Calculation of the probable (P50) hydrocarbon volumes in place (calculation of rock volumes by using isobath maps).
Evaluation of the range of hydrocarbons in place (min & max) taking uncertainties into account with both deterministic and probabilistic methods (Monte-Carlo).
Synthesis and wrap-up.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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