

Checking the consistency of PVT-properties in a laboratory report (CC)

COURSE LEVEL: intermediate, basic knowledge about lab experiments required.

COURSE DURATION: 2 days, in-house with companies.

DESIGNED FOR: Reservoir- and facility engineers who use PVT properties for engineering studies, reservoir simulation, facility design and fluid modeling via Equation of State (EOS).

YOU WILL LEARN HOW TO

- Check whether the best sample has been chosen for the lab experiments.
- Assess whether the composition has been determined properly.
- Understand in which sequence the experiments are carried out in the laboratory.
- Determine what was measured and what is calculated in the report.
- Assess the accuracy of the data, sources of experimental errors.
- Detecting outliers in the data sets.
- Cross check Constant Composition Expansion and Differential Liberation Experiment.
- Cross check Constant Composition Expansion and Constant Volume Depletion.

ABOUT THE COURSE

In this course we take a closer look at laboratory data which is often taken at face value. Since good laboratory work starts with good samples, we firstly identify a method to select the most representative sample for further analysis. Next, we examine the complete experimental procedure of a PVT experiment, which mimics the physical changes the reservoir fluid (black oil or gas-condensate) undergoes on its way from the formation to the surface facilities. The detailed discussion of experimental procedures and their underlying physical principles form the basis for a vigorous quality control and cross-check of external reports. The instructor provides examples, but participants are highly encouraged to bring their own PVT-reports for discussion.

COURSE CONTENT

- Types of reservoir fluids.
- Importance of fluid sampling, check of compositions.
- Sample transportation.
- Selection of the most representative sample.
- Laboratory processes emulating the fluid behavior in the reservoir.
- Black oil: Constant Composition Expansion.
- Black oil: Differential Liberation Experiment.
- Black oil: cross check of experiments.
- Black oil: influence of solution gas on the fluid properties.
- Gas-condensate: Constant Composition Expansion.
- Gas-condensate: Constant Volume Depletion.
- Gas-condensate: cross check of experiments.