Adequate formulation of the Equation of State (EOS) is necessary for the representative characterization of the reservoir fluid which is fundamental to describe the PVT behaviour of the hydrocarbon in a dynamic reservoir simulation model. High quality and relevant PVT data reduce the uncertainty in reservoir fluid properties and future production behaviour on which investment decision are made.

In order to obtain reliable PVT data for reliable reservoir modeling proper examination and supervision of all field and laboratory experiments to ensure accuracy, consistency and validity of the resulting PVT analysis. Results from the PVT experiments are imported into PVT software for characterization in order to obtain a good match between the simulated and experimental data. This process generates the EOS model required for material balance and simulation studies for oil and gas reservoir modeling.

InSite Oil Consultants will perform a series of experiments to assess on the validity of the PVT measurements. The Mass Balance Test is one of the methods that can be used to validate laboratory PVT data. It is a rigorous test for the evaluation of compositional consistency between feed composition, separator vapour and liquid compositions. Other laboratory PVT data validations our consultants perform include the Mass Balance plot, Hoffman plot and the CVD/CCE comparison plots and the Campbell diagrams. These plots serve as data quality assessment methods prior to their use for EOS characterization. PVT validation checks help to confirm the real composition of the reservoir fluid which can be then characterized as black oil, volatile oil, condensate (retrograde gas), wet gas, or dry gas and also confirms initial parameters like Gas-Oil Ratio, formation volume factor, gravity of the stock-tank liquid and the separator gas.

Inaccurate PVT modeling can lead to misleading information that could cause a wrong evaluation of the hydrocarbon in place. However, when these methods are properly applied PVT modelling could lead to huge savings for the company as accurate results are obtained from reservoir simulation models which could aid optimization efforts and achieve incremental recovery.

InSite Oil Consulting also provides their clients with guidelines and procedures to conduct future representative PVT acquisition among other advising.