Title: Water saturation estimation in tight shaly gas sandstones by application of Progressive Quasi-Static (PQS) algorithm - A case study

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Abstract: Prediction of formation water saturation can be achieved through capillary pressure data in saturation-height modeling. The LSMPQS (Level Set Method Progressive Quasi Static) method is the newest numerical simulation which is basically utilized for determining critical curvatures for drainage and imbibitions curves; consequently it can be used for studies on saturation history. Thus, the amounts of water saturations were obtained by drainage simulation in saturation-height modeling.The saturation results from Indonesian model that is the best traditional log-derived saturation model in tight shaly sandstones were compared with this simulation results. It is concluded that there is a good match between log derived and simulation results. The simulation results show that it can be used as a tool for prediction of water saturation only with knowing the geometry of sedimentary environment in pore scale.