

SHF Cuddy @model

One of the [SHF models](#):

$$(1) \quad s_{wi}(h) = \frac{b}{\phi} (h - h_{FWL} - c)^a$$

where model parameters $\{a, b, c\}$ are calibrated on water saturation from OH logs for each [lithofacies](#) or [petrotype](#) individually.

The coefficient c is related to [FWL](#) correction but usually set the same for all [lithofacies](#) / [petrotypes](#) of a given reservoir unit.

If core data is abundant then one can build a reasonable correlation of model parameters on porosity ϕ and/or permeability k_a :

$$(2) \quad a = a(\phi, k_a), \quad b = b(\phi, k_a), \quad c = c(\phi, k_a)$$

See also

[Physics](#) / [Fluid Dynamics](#) / [Percolation](#)

[Petroleum Industry](#) / [Upstream](#) / [Subsurface E&P Disciplines](#) / [Field Study & Modelling](#) / [Petrophysics](#) / [Saturation Height Function \(SHF\)](#) / [SHF mathematical models](#)

[[Basic reservoir properties](#)]

References

1	Cuddy, S., Allinson, G. and Steele, R.: "A simple, convincing model for calculating water saturations in Southern North Sea gas fields", Paper H, SPWLA 34th Annual Logging Symposium, June 13th – 16th (1993).
2	SPE 71326, B. Harrison (Enterprise Oil), X.D. Jing (Imperial College, London), Saturation Height Methods and Their Impact on Volumetric Hydrocarbon in Place Estimates, 2001