

## Reservoir evaluation

## FORMATION EVALUATION

## GasSat™(3D) model

## Cased hole formation evaluation – pulsed neutron logging

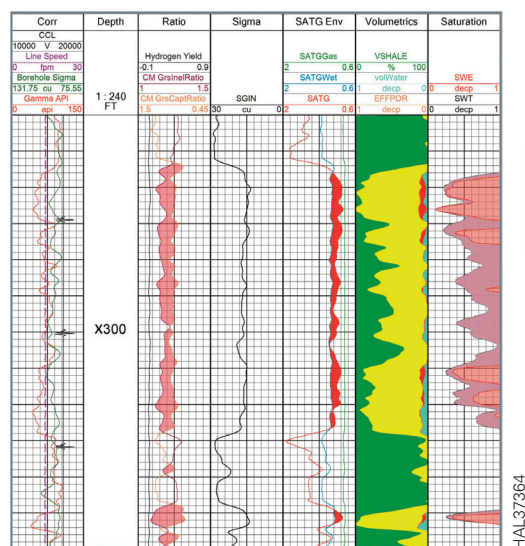
## APPLICATIONS

- Provides gas saturation interpretation using TMD3D data
- Cased hole pulsed neutron porosity
- Analysis based on total or effective porosity
- Pinpoints changing fluid contacts through timelapse monitoring

## ASSOCIATED ANSWER PRODUCTS AND PREPROCESSING SOFTWARE

- Formation and Reservoir Solutions-Apps software modules; Pulsed Neutron VShale, Pulsed Neutron Porosity, TMD3DRC Environmental Corrections for SATG (Saturation Gate—a proprietary gas-detection measurement)

Using the Halliburton TMD3D™ Pulsed Neutron tool, the GasSat™(3D) cased hole interpretation model is designed for gas (or light hydrocarbon) saturation analysis of a single well. With proprietary technology and methodology, the model works even in low-porosity and low- or unknown-salinity environments associated with tight gas.



## SPECIFICATIONS

## Inputs

TMD3D data, total porosity or effective porosity, clay volume, and hydrocarbon density

## Outputs

Gas saturations, total or effective water volumes. Cased hole neutron pulsed porosity

An interpretation example using cased hole TMD3D log data

Track 1—Correlation and quality indicators

Track 2—Porosity indicators and ratio overlay indicating gas or hydrocarbon crossover

Track 2 to 3—Sigma indicating changes in lithology, gas in the formation, and fluids in the borehole

Track 4—An envelope of wet and gas with SATG (a proprietary Halliburton gas-measurement method) in between, indicating gas (or light hydrocarbon)

Track 5—Shale, sand, cased hole porosity, liquids and gas volumetrics

Track 6—Various presentations, including total and effective saturations can be selected

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