William S. Donovan[1]: (1) Automated Mudlogging Systems

Evaluating Tight Gas, Shale Gas and Coal Bed Methane Wells using Mudlogging Methods

Mudlog gas data typically is presented in Units. Mudlog gas Units must be related to the amount of gas in formations for reservoirs to be properly evaluated. Establishing this relationship has been difficult due to the multiple definitions of a Unit, drilling parameters affecting the amount of gas in the drilling mud and gas data collection variations.

With the advent of computerized mudlogging units, spreadsheets and log evaluation software mudlogging gas data can be incorporated and presented in a format that is better suited to formation evaluation. Now the effect of hole size, drilling rate, mud circulation rate and gas trap efficiency can be normalized. Mudlogging data can then, with a few simple calculations, be presented as gas in thousand cubic feet per acre foot for shale and tight gas reservoirs or gas content for coal bed natural gas. Mudlogging data can also be easily presented as a gas bulk volume (BV_{mlg}) curve on computer processed logs.

This paper will present: 1) methods of normalizing and correcting mudlog gas data for drilling parameters and gas data collection variations; 2) the formulas and methods of calculating gas per acre foot, gas content and mudlog bulk volume gas and 3) present examples of mudlog gas data for shale gas and coal bed methane reservoirs.