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(54) **ASSESSING DOWNHOLE WBM-CONTAMINATED CONNATE WATER**

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Related U.S. Application Data

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(51) **Int. Cl.**

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(52) **U.S. Cl.** **166/250.12; 166/264; 250/255; 250/259**

(58) **Field of Classification Search** **166/250.01, 166/250, 250.12, 66, 264, 250.02; 250/259, 250/255**

See application file for complete search history.

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(57) **ABSTRACT**

Water-based mud filtrate concentration in a downhole fluid sample drawn from the borehole of an oil well is assessed. To measure water-based mud filtrate concentration, a water-based mud having a water-soluble fluorescent dye tracer is pumped into the borehole; sample fluid from a selected downhole location is pumped through a downhole flow line having a window; sample fluid flowing in an excitation region of the downhole flow line is illuminated through the window with fluorescence excitation light; and fluorescence emission from the excitation region is measured to produce a measured value. The measured value represents the fraction of water-based mud filtrate in the sample fluid. A calibration value is determined representing 100% water-based mud filtrate. A method for validating a sample of connate water as having an acceptably low WBM filtrate contamination tests for validation downhole, in real time. Each measured value of the series of measured values is compared with a predetermined fraction of a calibration value. Samples that are validated may be captured and brought to the surface for analysis. A method using the time series data and a predetermined fraction of the calibration value calculates a predicted flushing time to completion.

11 Claims, 10 Drawing Sheets

