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论文

小井径双源距碳氧比C/O测井的影响因素及处理

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摘要: 研究各种地层和井眼环境因素对碳氧比C/O测井长、短源距探测器的影响规律, 可以为C/O测井仪器的刻度方法提供指导, 为解释模型的建立和数据处理提供依据. 本文用Monte Carlo方法, 计算了C/O值随井眼直径、水泥环厚度、套管直径、孔隙度、含油饱和度、地层岩性和油密度的变化规律. 从中看出, 当井内流体为油时, 井径或套管直径增大, C/O值增大, 井眼影响增大; 当井内流体为水时, 井径或套管直径的增大, C/O值减小; 水泥环厚度增加时C/O值减小; 当井眼条件不变时, 地层孔隙度越大, 含油饱和度越大, C/O值越大, 对测井越有利; 反之, 地层孔隙度越小, 含油饱和度越小, C/O值越小, 对测井不利; 地层岩性对C/O值的影响显著, 相同条件下, 碳酸盐岩比砂岩的C/O值高; 油密度越大, C/O值越大. 文中还提出了一种消除这些因素影响的数据处理方法

关键词: 小井径 碳氧比测井 Monte Carlo方法

Study of influence factor for dual detector C/O logging in slim holes

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Abstract: It helps to design scale schemes

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and interpretation model to study the influence of borehole and formation environments in C/O logging on two detectors. The paper investigates the rules of C/O values changing with borehole diameter, cement thickness, case size, formation porosity, oil saturation, formation lithology and oil density. The results indicate that when a borehole is full of oil, C/O values increase with increasing borehole diameter or case size, and the influence of borehole increases. When a borehole is full of water, C/O values decrease with increasing borehole diameter or case size. C/O values decrease with increasing cement thickness. The higher porosity and water saturation, the higher C/O values when borehole condition is invariable, which is useful for C/O logging. Contrarily, the less porosity and water saturation, the less C/O values, and which is bad for C/O logging. Formation lithology influences seriously C/O values, limestone has higher C/O value than that of