
煤层气储层特征及损害机理

摘要

煤层气充当一种新型的非常规天然气资源,得到世界上的国家和各地的普遍注意。煤层气一系列的商业发展科研开发是大势所趋。煤层气储层具备低孔、低渗性、缝隙发育但分布不匀称的差异性,煤层气的开采过程中有时会给储层带来难以恢复的伤害,这样会使煤层气的产量减少,生产成本提高,施工进度出现滞后现象,最后直接影响煤层气的开发结果。于是,随着煤层气开发的与日俱增重要如何选择合适的钻井液成为首要问题。目前,钻井液体系常见的分成水基钻井液体系和油基钻井液体系还有其它体系钻井液。水基钻井液价格便宜,时效好,使用宽泛,原材料容易得到,在技术上它已经是十分成熟,也是十分容易对储层造成污染,也是十分容易被自身污染。油基钻井液也会对储层造成污染,但是抵抗自身污染能力比水基钻井液强,可以构成块状岩屑,抵抗高温能力比较强,可广泛应用地质构造条件十分复杂的环境,但是也会污染周围环境,成本高,很难配备。因此本文研究就是以沁端区块煤层气储层为基础,对煤层气钻井液体系性能指标要求进行研究,最终确定适宜沁端区块煤层气钻井液体系。

关键词: 煤层气; 损害机理; 水基钻井液; 油基钻井液

Abstract

CBM acts as a new type of unconventional natural gas resource and has received widespread attention from countries and regions around the world. A series of commercial development, scientific research and development of coalbed methane is the general trend. Coalbed methane reservoirs have the difference of low porosity, low permeability, gap development but uneven distribution. The mining process of coalbed methane may sometimes bring irreparable damage to the reservoir, which will reduce the production of coalbed methane and produce increased costs and lags in construction schedules, which ultimately directly affect the results of CBM development. Therefore, with the growing importance of coalbed methane development, how to choose a reasonable drilling fluid has become the primary issue. At present, drilling fluid systems are commonly divided into water-based drilling fluid systems and oil-based drilling fluid systems, as well as other drilling fluid systems. Water-based drilling fluids are cheap, have good aging, are widely used, and raw materials are easily available. They are technically very mature, are also very prone to pollute the reservoir, and are also easily contaminated by themselves. Oil-based drilling fluids can also cause pollution to the reservoir, but their ability to resist their own pollution is stronger than water-based drilling fluids, which can form massive cuttings, and their ability to withstand high temperatures is relatively high. It will pollute the surrounding environment, the cost is high, and it is difficult to equip. Therefore, the research in this paper is based on the coalbed methane reservoir in the Qinduan block, and the performance index requirements of the coalbed methane drilling fluid system are studied, and finally the suitable coalbed methane drilling fluid system in the Qinduan block is determined.

Key words: Coalbed methane ; Damage mechanism; Water based drilling fluid;
Oil based drilling fluid

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