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### 论文

## 煤层气井排采动态典型指标分析方法体系

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摘要:

挖掘和揭示煤层气井排采动态资料背后蕴含的丰富的地质和工程信息, 为井位部署和排采工作制度优化服务, 是煤层气井排采动态分析的目的。以鄂尔多斯盆地某煤层气田35口井的实际排采动态资料为基础, 提出从众多复杂排采动态曲线中挖掘初始见气时间、初始累计产水量、初始降液幅度、初始排水速度、典型日产水量、典型日产气量、典型米产水指数和典型米产气指数共8个排采动态典型指标, 通过典型指标之间及其与地质因素和工程因素之间的关系分析, 认为地解压差是影响初期排采动态的主要因素; 在气水同产阶段, 原始压力水头是影响产水量的主要因素, 而煤层厚度、含气量和渗透率是影响产气量的主要因素; 从排采动态曲线反映的排采效果看, 研究区初始排水速度应控制在0.9 m/d。

关键词: 煤层气; 动态典型指标; 地质因素; 工程因素

## Typical dynamic index analysis method system for drainage and production dynamic curves of CBM wells

Abstract:

The purpose of analysis on drainage and production dynamic curves of CBM well is to excavate and reveal the intrinsic abundant geological and engineering information for optimizing well deployment, and drainage and production. Based on the drainage and production data from 35 wells at a CBM field in Erdos Basin, authors proposed from the complex drainage and production dynamic curves to extract eight typical dynamic indexes including initial gas breakthrough time, initial cumulative water production, initial water level descending amplitude, initial water drainage speed, typical water production rate, typical gas production rate, typical water and gas production indexes. Through the analysis of relationships between these typical dynamic indexes, geological and engineering factors, it is found out that the main influencing factor during initial water drainage stage is the difference between the original formation pressure and the critical desorption pressure. At gas and water two phases producing stage, the original pressure head is the main factor influencing the typical water production rate, while the coal seam thickness, gas content and permeability are the main factors influencing the typical gas production rate. The study also demonstrates that it is suitable to control the initial water drainage speed at 0.9 m/d in the study area in terms of the drainage effect demonstrated by the later production dynamic curves.

Keywords: coal bed methane; typical dynamic indexes; geological factor; engineering factor

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