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基于模糊多属性决策的射孔方案选择模型研究

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摘要 射孔是油气井的主要完井方式之一，不同的射孔参数对井的产能有不同的影响。射孔方案涉及产能比、相位角、孔密、穿深、孔径、套管强度降低系数等因素，各因素之间互相影响，互相制约，射孔方案的选择中存在一定的模糊性。探讨将模糊多属性决策方法应用于油气井射孔作业，建立射孔方案模糊多属性决策模型，讨论了无偏好及有偏好情况下的射孔决策模型。仿真实例验证了模型的有效性，为射孔作业提供了一种决策依据。

关键词 射孔参数 射孔方案 无偏好模糊多属性决策 有偏好模糊多属性决策

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Research on selection of perforation plan based on fuzzy multiple attribute decision making

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Abstract

Perforation is one of major oil and gas well completion methods.Different perforation parameters have different influences on oil-well productivity.Perforation involves productivity ratio，perforation phase angle，perforation diameter，penetration and etc，which conflict with each other.Fuzzy factors of perforation are inevitable.Fuzzy multi-attributes decision making method is applied and perforation scheme fuzzy multi-attribute decision-making model is created.The FMADM model with preference information and FMADM model without preference information are discussed in detail.The simulation experimental results show that models are effective，which offer one kind of science decision-making foundation of petroleum perforation.

Key words perforating parameter perforating scheme fuzzy multi-attribute decision-making without preference information fuzzy multi-attribute decision-making with preference information

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