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基于层次分析模糊分类器的油气输送管道TPD信号诊断

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摘要: 基于油气管道第三方破坏(TPD)信号小样本特征、融合层次分析和模糊分类构建层次分析模糊分类器, 采用相关分析方法建立油气输送管道TPD定位模型, 并利用所建立的油气输送管道TPD诊断系统实现油气输送管道TPD信号诊断。研究表明: 层次分析模糊分类器的油气输送管道TPD分类准确率高于91%; 层次分析模糊分类器和油气输送管道TPD定位模型可实现对油气输送管道TPD信号的准确诊断。

关键字: 层次分析方法; 油气管道; 第三方破坏(TPD); 模糊分类

Diagnosis on TPD signals from oil and gas transmission pipeline based on analytic hierarchy process fuzzy classifier

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Abstract: Based on little sample feature of third-party damage (TPD) signals from oil and gas transmission pipeline, an analytic hierarchy process fuzzy classifier was established and analytic hierarchy process, fuzzy classifying and fixed position model of TPD signals from oil and gas transmission pipeline was given using cross-correlation analysis method. Moreover, diagnosis on TPD signals from oil and gas transmission pipeline was carried out to establish diagnosis system of TPD signals from oil and gas transmission pipeline. The results show that classifying accuracy of TPD signals from oil and gas transmission pipeline based on analytic hierarchy process fuzzy classifier is larger than 91%. Analytic hierarchy process fuzzy classifier and fixed position model of TPD signals from oil and gas transmission are useful for accurate diagnosis on TPD signals from oil and gas transmission pipeline.

Key words: analytic hierarchy process; oil and gas transmission pipeline; third-party damage; fuzzy classifying

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