

Diagnosing of various kinds of complications in pipelines on the basis of artificial neural networks

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Operation practice of oil and gas pipelines shows, that application of a traditional quality monitoring of a regime not always effectively for duly revealing various kinds of complications. In a number of cases (at operation of underwater and underground pipelines, etc.) for detections and liquidations of emergency outflow of oil and gas long time and significant material and labour expenses are required. Besides, for system of sea underwater oil pipelines, by virtue of some reasons (influence of sea, climatic and relief conditions, etc.) application of known methods do not give desirable results.

In the given work on the basis of information technology principles the new self-trained artificial neural network is developed, which allows to diagnose various kinds of complications in sea underwater and underground pipelines. It is the self-learning system of information technology and in process of receipt of new pipeline supervision regime data allows anew to repeat process of a choice and training of a network models and by that to reflect all changes, including outflow of petroleum occurring in the examined pipeline.

The developed artificial neural network does not demand carrying out of special researches and additional labour and material inputs in application on practice.