METHOD FOR EVALUATING THE REMAINING LIFE OF PIPELINE COATINGS

Background
The determination of the remaining life of pipeline coatings is important to make arrangements for capital repairs of pipelines with coating replacement. The knowledge of variation in properties of pipeline coating over the time and under the certain factors allows to carry out an optimum selection of coatings, their thickness and quantity of layers during the design of the particular pipeline. A method for prediction of the remaining life of pipeline coatings is described in the paper to make arrangements for capital repairs of pipelines. The method is based on the researches of current cathodic protection (CP) during the operation of the pipeline.

Aims and Objectives
To evaluate the remaining life of underground pipeline coatings by parameters of cathodic protection.

Methods
A methodology to assess the durability of pipeline protective coatings, which is based on the analysis of cathodic protection current changes.

Results
Deterioration of the coating (as indicated by a reduction in the effective electrical contact resistance of the coating) causes the necessity to increase the amount of CP current or to replace the coating in this section of the pipeline. The amount of CP current required is directly proportional to the resistance and integrity of the coating, while maintaining a specified potential on the pipeline from minus 0.85 to minus 1.15 V. The essence of this method is that, while the contact resistance of pipeline coating decreases over time, the current of cathodic protection increases according to the same law.

The paper is devoted to the relationship, describing the variation of CP current over the time of the pipeline operation, as well as its application on a different pipeline coatings. Thus, in the presence of data on CP current the durability of pipeline coatings can be predicted using the above method.

Key words: main pipeline, residual life of pipeline coating, contact resistance, cathodic protection

References


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