TO ESTIMATION OF THE RESIDUAL LIFE OF MAIN GAS PIPELINES DETERIORATED BY STRESS CORROSION

Background
The basis of the approach is the criterion characteristic – residual metal plasticity that allows a reliable assessment of the technical condition of main gas pipelines, with account for the main factors determining the level of pipeline serviceability.
In accordance with this approach, the information about accumulated local deterioration of pipe metal or welded joints in the most loaded area (near stress concentrators, as a rule) and reduced reserve plasticity of the metal is needed to assess residual safe life.

Aims and Objectives
The aim is to develop methods for estimating the residual life of the main gas pipelines on the basis of the metal residual plasticity being assessed by certificate data, and the results of technical diagnostics.
Objectives:
1) assessment of local damage to metal of gas pipeline in the area most loaded during operation;
2) determination of residual plasticity reserve of the metal gas line in operation.

Methods
Author of the paper used the points of mechanics of destruction, and of the theory of strength and elasticity theory.

Results
The study resulted in developed methods of forecasting the residual safe life of gas pipelines that prevent the occurrence of accidents and are based on assessing metal plasticity reserve by the certification data and the data of technical diagnostics. The methods take into account the effect of the metal aging, the degree of wall damage (corrosion, stress corrosion, and others), loading characters and the assumed destruction.

Key words: reserve, gas pipeline, stress corrosion

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