

The Studies of the Possibility to Monitor and Locate Leakage Using Acoustic Emission Recording via a Sensor Introduced Inside the Pipelines

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Abstract

The aim of the studies was to create a base of information and guidelines to develop a system making it possible to monitor and locate defects of the underground transmission pipelines.

The tests carried out within this project enable designing a system using acoustic emission to inspect pipelines from inside. This method is superior to the traditional acoustic emission studies as it does not require uncovering the pipeline measuring sites. What is more, the use of the methodology proposed could facilitate measurements at the sites where the pipeline crosses water reservoirs.

The research revealed that the signals recorded via the sensor inside the pipeline are comparable to the results of measurements made via sensors on the pipeline external surface. The study also revealed lower vulnerability to acoustic interference of the sensor placed inside the pipeline. The results helped to design transport module for the sensor equipped with a video camera for visual studies and a module for remote wireless monitoring and sending alarms.

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