RESEARCH ON WATER LOSSES AT BRANCHES IN THE MAINS OF WATER SUPPLY SYSTEMS

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Abstract

Losses from the pipeline network constitute one of the main problems in their operation. The amount of losses in a water supply system varies from 8-10% to 60-74% of the volume of water taken from the source depending on the technical condition of the system. A large water loss is recorded at the consumer's connections. Water losses at the branches are caused by the breakdown of the branching installation, the absence of metering and by the theft of water. The paper presents the modern technologies for detecting water losses at branches in the urban pipe network. The case study carried out used modern acoustic detection equipment for hidden water leaks. By mounting 20 noise loggers on a distribution pipe with Dn 100 mm and in the branch housing, several losses were detected, among them an important one at a branch. The analysis of the data showed that the noise-to-signal logger correlation ratio had a 90% ratio in case of loss at the connection. Thus, the rate of water loss at the connection was about 0.5 m³/h (12m³/day or 360 m³/month). After fixing the connection, the appearance of new losses was verified with the help of noise loggers through the captured acoustic signal. The applied rehabilitation works determined the reduction of water losses by about 85% at the branch.

Key words: breakdowns, detection, measurement, pipe connection,