



AGE-DEPENDENT GAS TRANSMISSION NETWORK RELIABILITY ASSESSMENT WITH TIME VARYING INCIDENT CRITERIONS

T. Iešmantas, R. Alzbutas

Lithuanian Energy Institute

Breslaujos g. 3, LT-44403 Kaunas – Lithuania

ABSTRACT

In order to quantify the risks posed by gas transmission networks, several international pipeline incident databases have been established. However, criterions of incidents reporting differ and even changes of those criterions occur over time as a result of modifications in regulatory documents. This makes issues for practitioners seeking to decrease the uncertainty and apply as much data as possible. Due to this practitioners avoid joint usage of those databases or even someone has to discard from analysis a quite relevant part of a sample. Such issues may highly affect reliability and safety assessment results. In order to resolve these issues a new method will be presented.

Through the Bayesian framework the theoretical model will be applied to real gas transmission pipeline network incidents sample, which itself is non homogeneous because is affected by various criterions at different time. Finally, the new method effectiveness and its possible extensions will be demonstrated and discussed.

Keywords: Reliability, pipelines, networks, gas, Bayesian framework