



Quantitative Risk Assessment of Natural Gas Distribution Pipeline Networks in Urban Areas

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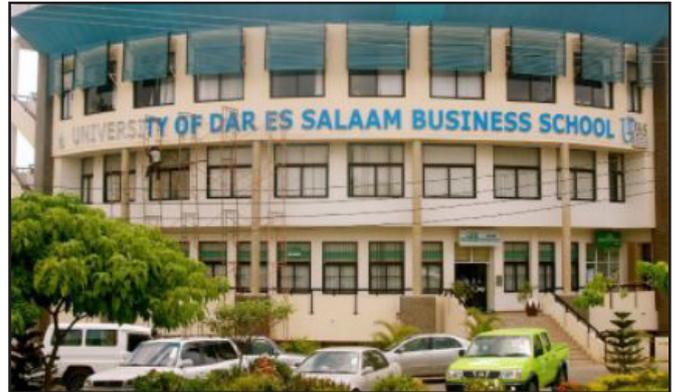
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Abstract:

Natural gas is considered as clean and efficient fossil energy and its consumption is increasing worldwide. Pipelines are widely used as the most economical means of transporting and distributing natural gas over short distances. The distribution pipelines are usually pressurized, and they may become disastrous when gas is accidentally released to the atmosphere. Also, natural gas is volatile and highly flammable, unintentional gas release in urban areas can lead to severe consequences and losses in society. Therefore, it is important to assess the risk of natural gas pipeline in urban areas. In this paper analysis of risks in different parts of the Dar es salaam Natural gas distribution network is conducted. Newton's nodal method was used to analyze the network and an integrated quantitative risk analysis method used to estimate incident losses. The results obtained are useful in understanding the risks, decisions making and taking measures towards ensuring the safety of Dar es salaam natural gas distribution pipeline.

Biography:

Fulgence V. Makonelah is a PhD candidate at University of Dar es salaam conducting research on Natural gas pipeline and transients' effects mitigation in Natural gas distribution networks. He holds Masters of Energy engineering and BSc in Production Engineering from University of Dar es salaam. He is working as Assistant lecturer at the department of mechanical and Industrial Engineering, University of Dar es Salaam, Tanzania.



Recent Publications:

- [1] Guo YB, Meng XL, Meng T, Wang DG, Liu SH. A novel method of risk assessment based on cloud inference for natural gas pipelines. *J Nat Gas Sci Eng.* 2016;30:421-9.
- [2] Huang Z, Li J. Assessment of fire risk of gas pipeline leakage in cities and towns. *Procedia engineering.* 2012;45:77-82.
- [3] Jamshidi A, Yazdani-Chamzini A, Yakhchali SH, Khaleghi S. Developing a new fuzzy inference system for pipeline risk assessment. *J Loss Prevent Proc.* 2013;26:197-208.
- [4] Han Z, Weng W. Comparison study on qualitative and quantitative risk assessment methods for urban natural gas pipeline network. *J Hazard Mater.* 2011;189:509-18.
- [5] Zarei E, Azadeh A, Khakzad N, Aliabadi MM, Mohammadfam I. Dynamic safety assessment of natural gas stations using Bayesian network. *J Hazard Mater.* 2017;321:830-40.

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