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Applying Indexing Method to Gas Pipeline Risk Assessment by Using GIS: A Case Study in Savadkooh, North of Iran

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ABSTRACT

Gas pipelines are environmentally sensitive because they cross varied fields, rivers, forests, populated areas, desert, hills and offshore and also different parameters in gas transmission progresses are effective. Underground gas transmission pipelines have been grown as one of the low risk methods with low cost in the world specially in middle east and Europe. Physical and chemical properties of liquid gas, pipeline properties and also its environmental condition are the main factors of increasing the technical and environmental risk. In this article the quantitative risk assessment has been done by using GIS and overlaying the information layers. For this purpose, all effective risk factors were identified and projected. In order to achieve the same and comparable results, the entire pipeline route was divided into 500 meter intervals and the risk was calculated in each interval, finally the scores of these intervals such as each criterion risk was calculated. The case study of the article is Savadkooh to PoleSefid pipeline in Mazandaran.

KEYWORDS

Risk Assessment, Pipeline, GIS, Environment

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References

- [1] N. S. Arunraj and J. Maiti, " Development of Environmental Consequence Index (ECI) Using Fuzzy Composite Programming," *Journal of Hazardous Materials*, Vol. 162, No. 1, 2009, pp. 29-43. doi: 10.1016/j.jhazmat.2008.05.067
- [2] " BP Statistical Review of World Energy," BP, London. <http://www.bp.com/centres/energy>.
- [3] M. N. Demers, " Fundamental of Geographic Information Systems," 3rd Edition, Wiley, New York, 2005.
- [4] K. D. Prasanta, " An Integrated Assessment Model for Cross-Country Pipelines," *Environmental Impact Assessment Review*, Vol. 22, No. 6, 2002, pp. 703-721. doi: 10.1016/S0195-9255(02)00020-3
- [5] M. Jabbari, H. Asilian, S. B. Mortazavi, A. Z. Mogaddam, E. Hajizadeh and A. Khavanin, " Comprehensive Risk Assessment and Management of Petrochemical Feed and Product Transportation Pipelines," *Journal of Loss Prevention in the Process Industries*, Vol. 22, No. 4, 2009, pp. 533-539. doi: 10.1016/j.jlp.2009.03.008
- [6] H. Jafari and S. Karimi, " Site Selection for the Establishment of Industrial Sites in Qom Province Using GIS," *Journal of Environmental Studies*, Vol. 31, No. 37, 2005, pp. 6-17.
- [7] S. N. Jonkman, et al., " An Overview of Quantitative Risk Measures for Loss of Life and Economic Damage," *Journal of Hazardous Materials*, Vol. 99, No. 1, 2003, pp. 1-30.
- [8] W. K. Muhlbaer, " Pipeline Risk Management Manual," 2nd Edition, Gulg Professional Publishing,

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- [9] K. S. Park, J. H. Lee and Y. D. Jo, " An Approach to Risk Management of City Gas Pipeline," *Process Safety and Environmental Protection*, Vol. 82, No. 6, 2004, pp. 446-452.
- [10] N. Paralikas and A. I. Lygeros, " A Multi-Criteria and Fuzzy Logic Based Methodology for the Relative Ranking of the Fire Hazard of Chemical Substances and Installations," *Process Safety and Environmental Protection*, Vol. 83, No. 2, 2005, pp. 122-134. doi:10.1205/psep.04236
- [11] M. Salehi Moayed and S. Karimi, " Performance of EIA study of gas transfer pipeline from Hamedan to Bijar with focus on using RS and GIS," *Journal of Environmental Studies*, Vol. 33, 2007, pp. 33-44.