

Risk-Based Maintenance Planning of Cross-Country Pipelines

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The oil and gas industry represents a significant source of income for many countries in the world. The industry considers cross-country pipelines, which transport petrochemical products, to be one of their major investments. Hence, there is a need to sustain, preserve, and prolong the life of this investment through good management practices. This paper presents a rational and systematic method for maintenance management of these pipelines. It is a risk-based approach that uses an analytical hierarchy process model to determine the probability of pipeline failure and the expected value approach to determine the expected costs of failure. The method was applied on nine operating cross-country pipelines transporting different petrochemical products. The method is helpful in prioritizing pipelines for annual maintenance planning and in ranking causes of failure by severity of impact.