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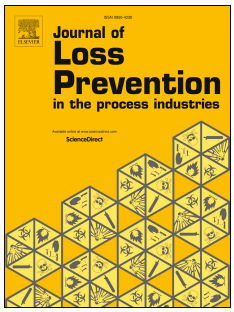

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STAMP-based causal analysis of China-Donghuang oil transportation pipeline leakage and explosion accident

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Abstract

The methods used by researchers and accident investigators to analyze or investigate accidents are critical for understanding the underlying causes and for proposing improvement measures. As a systematic analysis model, Systems-Theoretic Accident Model and Processes (STAMP) is used in the aviation, maritime, and railway transportation industries, among others. To the best of the author's knowledge, no systematic analysis approach has been applied in the long-distance pipeline transportation industry. However, the pipeline transportation system is increasingly being considered a complex socio-technical system that requires the exploration of accident causes from a systematic viewpoint. The aims of this paper are to identify the causal factors of the China-Donghuang oil transportation pipeline leakage and explosion accident through a systematic method and illustrate the appropriateness of applying STAMP to the analysis of incidents in the long- distance pipeline transportation industry. To achieve this, a systematic analysis based on STAMP is conducted on the China-Donghuang oil transportation pipeline leakage and explosion accident. The analysis results expand the causal analysis beyond immediate failures, to causes from a systematic