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## COMPARATIVE ANALYSIS OF TECHNOLOGICAL AND NATECH RISK FOR TWO PETROLEUM PRODUCT TANKS LOCATED IN SEISMIC AREA

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### Abstract

The failure of process equipment due to the impact of natural hazards, the so-called Natech events, have generated several industrial accidents, such as Fukushima, Japan - 2011, Ichihara, Japan - 2011, Tupras, Turkey - 1999, Northridge, US - 1994 etc., causing the release of large quantities of hazardous materials in the environment. Earthquakes occupy a leading position in the list of natural hazards with Natech potential, causing serious damage and the loss of containment in process equipment. The present study reveals the importance of Natech risk analyses for industrial sites. The aim of the study is to compare the Individual Risk (IR) and Societal Risk (SR) results between conventional technological risk and Natech risk, related to a possible Natech event triggered by an earthquake for two petroleum products storage tanks, located in an urban area in the South-Eastern part of Romania. The results show an increase of approximately one order of magnitude in the Natech risk compared to technological risk for the selected study area. Results highlight the fact that Natech scenarios should be included in the risk analysis process for technological sites located in natural hazard prone areas and applied for land-use planning purposes as well.

*Key words:* earthquake, individual risk, land-use planning, Natech, risk assessment

*Received: February, 2014; Revised final: August, 2014; Accepted: August, 2014*

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