

# Quantitative risk assessment & leak detection criteria for a subsea oil export pipeline(PDF)

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Title: Quantitative risk assessment & leak detection criteria for a subsea oil export pipeline

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关键词: [QRA \(quantitative risk assessment\)](#); [risk](#); [LDC \(leak detection criteria\)](#); [PARLOC database](#); [pipeline](#)

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摘要:

A quantitative risk assessment (QRA) based on leak detection criteria (LDC) for the design of a proposed subsea oil export pipeline is presented in this paper. The objective of this QRA/LDC study was to determine if current leak detection methodologies were sufficient, based on QRA results, while excluding the use of statistical leak detection; if not, an appropriate LDC for the leak detection system would need to be established. The famous UK PARLOC database was used for the calculation of pipeline failure rates, and the software POSVCM from MMS was used for oil spill simulations. QRA results revealed that the installation of a statistically based leak detection system (LDS) can significantly reduce time to leak detection, thereby mitigating the consequences of leakage. A sound LDC has been defined based on QRA study results and comments from various LDS vendors to assist the emergency response team (ERT) to quickly identify and locate leakage and employ the most effective measures to contain damage.

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