



Crack detection and quantification in oil well cement sheaths for leak estimation

Pagola, Pablo Alberdi-; Fischer, Gregor

Publication date:
2022

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Pagola, P. A., & Fischer, G. (2022). *Crack detection and quantification in oil well cement sheaths for leak estimation*. Abstract from Danish Offshore Technology Conference 2022, Kolding, Denmark.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Danish Offshore Technology Centre Technology Conference 2022

Crack detection and quantification in oil well cement sheaths for leak estimation

Pablo Alberdi-Pagola, Gregor Fischer

The formation of cracks and interfacial damage at the primary cement sheath compromises the overall structural stability, imperviousness, and durability of the system. These cracks also provide a flow path for fluids through the cement sheath, leading to leaks of hydrocarbons to the environment. Therefore, it is necessary to investigate the possible flow paths due to crack formation in the i) interface between the cement and casing, ii) interface between cement and rock formation, and iii) in the radial direction of the cement sheath. The mechanisms that may provoke cracking have been investigated, and the cracks developed due to the restrained shrinkage of the cement and the expansion of the steel casing have been measured using digital image correlation (DIC). Hydrocarbon leaks in cracked cement sheaths have been estimate by replicating the cracks detected in previous tests and measuring the flow of water through them using a newly developed test setup.