

Prevention and Remediation of Methane Leakage from Abandoned Wells

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This presentation highlights common themes that contribute to methane leakage from decommissioned wells and options for remediation.

Information on leakage from offshore wells is limited. Onshore data has however been collected in several countries and may be used as analogue as the techniques used are similar. Onshore data reveals that few abandoned wells are leaking, and if they do, measured leak rates are typically small. (Old wells pre-1975 may be an exception but these are less representative for the offshore wells in the North Sea).

The common themes for leakage often relate back to prescriptive regulations in the past as the mining companies that manage the programs for well closure will primarily comply with these. The common themes include lack of source identification and ignoring basic physics on cement placement.

In case leakage is observed, typical steps for remediation are described for an onshore situation due to lack of published offshore cases. Remediation for offshore wells and associated complications are discussed. The presence of a wellhead is of decisive importance for the approach and the decision making around remediation.

Wells are decommissioned with no intention to be re-entered. Consequently, little consideration is given to facilitate a possible re-entry in case of leakage. Moreover, certain P&A actions can make a re-entry difficult or even impossible. Suggestions are made to facilitate remediation.

Because of the difficulty of remediation offshore, it is imperative for the industry at large to ensure that well closure is first time right.