



Fugitive emissions of methane from abandoned, decommissioned oil and gas wells

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The aim of this study was to consider the potential legacy of increased onshore, unconventional gas production by examining the integrity of decommissioned, onshore, oil and gas wells in the UK. In the absence of a history of unconventional hydrocarbon exploitation in the UK, conventional onshore sites were considered and an examination of pollution incidents records had suggested that only a small fraction of onshore wells could show integrity failures. In this study the fugitive emissions of methane from former oil and gas production wells onshore in the UK were considered as a measure of well integrity. The survey considered 49 decommissioned (abandoned) wells from 4 different basins that were between 8 and 78 years old; all but one of these wells would be considered as having been decommissioned properly, i.e. wells cut, sealed and buried by soil cover to the extent that the well sites were being used for agriculture. For each well site the soil gas methane was analysed multiple times and assessed relative to a nearby control site of similar land-use and soil type. The results will be expressed in terms of the proportion and extent of well integrity failure, or success, over time since decommissioning and relative to local control sites. The probability of failure and the emissions factor for decommissioned wells will be presented.