# Appendix B

Table B. Categorization of the collected and reviewed work in the study

| **Study** | **Underground gas release** | **Related topic** | **Fundamental/theoretical** | **Experimental/Empirical** | **Computational** | **Journal/conference name** | **J/C** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Massimilla *et al.* (1963) |  | ✓ |  | ✓ |  | Industrial & Engineering Chemistry Fundamentals | J |
| Hoff (1983) | ✓ |  |  | ✓ |  | Combustion and Flame | J |
| Shi *et al.* (1984) |  | ✓ | ✓ | ✓ |  | Industrial & Engineering Chemistry Fundamentals | J |
| Schram (1991) | ✓ |  |  | ✓ |  | Report | - |
| Wakoh and Hirano (1991) | ✓ |  | ✓ | ✓ |  | Journal of Loss Prevention in the Process Industries | J |
| Sleep and Sykes (1993) | ✓ |  | ✓ |  |  | Water resources research | J |
| Abu‐El‐Sha'r and Abriola (1997) | ✓ |  | ✓ | ✓ |  | Water resources research | J |
| Peng and Fan (1997) |  | ✓ | ✓ | ✓ |  | Chemical Engineering Science | J |
| Catlin *et al.* (1998) | ✓ |  |  |  | ✓ | Pipes & Pipelines International | J |
| Sleep (1998) | ✓ |  | ✓ |  |  | Advances in Water Resources | J |
| [Acton *et al.*, 1998](#_ENREF_4) | ✓ |  |  | ✓ | ✓ | International Pipeline Conference | C |
| Niven and Khalili (1998) |  | ✓ |  | ✓ |  | Journal of Hydraulic Research | J |
| Acton *et al.* (2000) | ✓ |  |  | ✓ |  | International Pipeline Conference | C |
| Cleaver *et al.* (2001) | ✓ |  | ✓ |  |  | Process Safety and Environmental Protection | J |
| Leis *et al.* (2002) | ✓ |  |  | ✓ |  | Pipeline Research Council International | C |
| Niven (2002) |  | ✓ | ✓ |  |  | Chemical Engineering Science | J |
| Webb and Pruess (2003) | ✓ |  | ✓ |  |  | Transport in porous media | J |
| Link *et al.* (2004) |  | ✓ |  | ✓ | ✓ | The Canadian Journal of Chemical Engineering | J |
| Link *et al.* (2005) |  | ✓ |  | ✓ | ✓ | Chemical Engineering Science | J |
| Zhong *et al.* (2006) |  | ✓ |  | ✓ |  | Chemical Engineering Journal | J |
| Link *et al.* (2007) |  | ✓ |  |  | ✓ | Chemical Engineering Science | J |
| Zhong *et al.* (2007) |  | ✓ |  |  | ✓ | Powder technology | J |
| Botros *et al.* (2008) |  | ✓ | ✓ |  |  | International Pipeline Conference | C |
| Link *et al.* (2008) |  | ✓ |  | ✓ | ✓ | AIChE journal | J |
| Acton and Baldwin (2008) | ✓ |  |  | ✓[[1]](#footnote-1) |  | International Pipeline Conference | C |
| Kim and Lee (2009) |  | ✓ | ✓ | ✓ | ✓ | Journal of Loss Prevention in the Process Industries | J |
| Jiao *et al.* (2009) |  | ✓ |  | ✓ |  | International Conference on Wavelet Analysis and Pattern Recognition | C |
| Link *et al.* (2009) |  | ✓ |  | ✓ | ✓ | Powder technology | J |
| Li and Li (2009) |  | ✓ |  | ✓ | ✓ | International Conference on Pipelines and Trenchless Technology | C |
| Hibi *et al.* (2009) | ✓ |  | ✓ | ✓ |  | Soils and Foundations | J |
| Epstein and Grace (2010) |  | ✓ | BOOK | | | Book | NA |
| Acton *et al.* (2010a) | ✓ |  |  | ✓ |  | International Pipeline Conference | C |
| Acton *et al.* (2010b) | ✓ |  |  | ✓ | ✓ | International Pipeline Conference | C |
| Ren *et al.* (2011) |  | ✓ |  |  | ✓ | Chemical Engineering & Technology | J |
| Hibi and Taguchi (2011) | ✓ |  | ✓ | ✓ |  | Journal of Japan Society of Civil Engineers | J |
| Okamoto and Gomi (2011) | ✓ |  | ✓ | ✓ |  | Journal of Loss Prevention in the Process Industries | J |
| Nagashima *et al.* (2011) |  | ✓ |  | ✓ |  | The Canadian Journal of Chemical Engineering | J |
| Ozevin and Harding (2012) |  | ✓ |  | ✓ |  | International Journal of Pressure Vessels and Piping | J |
| Hibi *et al.* (2012) | ✓ |  | ✓ | ✓ |  | Journal of Contaminant Hydrology | J |
| Lowesmith and Hankinson (2012) | ✓ |  |  | ✓ |  | Process Safety and Environmental Protection | J |
| Inaudi *et al.* (2012) |  | ✓ |  | ✓ |  | Rio Pipeline Conference & Exposition | C |
| van Zyl *et al.* (2013) |  | ✓ |  | ✓ |  | Proceedings of the Institution of Civil Engineers-Water Management. | J |
| Lowesmith and Hankinson (2013) | ✓ |  |  | ✓ |  | Process Safety and Environmental Protection | J |
| Luo *et al.* (2013) | ✓ |  | ✓ | ✓ |  | International Conference on Pipelines and Trenchless Technology | C |
| Sutkar *et al.* (2013) |  | ✓ | Review paper | | | Chemical Engineering Science | J |
| Shao *et al.* (2013) |  | ✓ | Review paper | | | International Journal of Chemical Reactor Engineering | J |
| Lutostansky *et al.* (2013) | ✓ |  |  | ✓ | ✓ | Process Safety Progress | J |
| Farrag and Wiley (2013) | ✓ |  |  | ✓ |  | Symposium on Continuous Soil Gas Measurements: Worst Case Risk Parameters | C |
| Foissac *et al.* (2014) | ✓ |  |  | ✓ | ✓ | International Gas Union Research Conference | C |
| Eparu *et al.* (2014) | ✓ |  | ✓ |  |  | Revista De Chimie | J |
| Cheng (2014) | ✓ |  | ✓ |  |  | Applied Mechanics and Materials Conference | C |
| Yang *et al.* (2014) |  | ✓ |  |  | ✓ | Chemical Engineering Journal | J |
| Okamoto *et al.* (2014) | ✓ |  | ✓ | ✓ |  | Journal of Civil Engineering and Science | J |
| Alsaydalani and Clayton (2014) |  | ✓ |  | ✓ |  | Journal of Geotechnical and Geoenvironmental Engineering | J |
| Cui *et al.* (2014) | ✓ |  |  |  | ✓ | Applied Mechanics and Materials | J |
| Cleaver and Halford (2015) | ✓ |  | ✓ |  |  | Process Safety and Environmental Protection | J |
| Yan *et al.* (2015) | ✓ |  |  | ✓ |  | Journal of Natural Gas Science and Engineering | J |
| Parvini and Gharagouzlou (2015) | ✓ |  | ✓ |  |  | Journal of Loss Prevention in the Process Industries | J |
| Xu *et al.* (2016) |  | ✓ |  | ✓ |  | Journal of Loss Prevention in the Process Industries | J |
| Silva *et al.* (2016) | ✓ |  |  | ✓1 |  | Journal of Loss Prevention in the Process Industries | J |
| Deepagoda *et al.* (2016) | ✓ |  |  | ✓ | ✓ | International Journal of Greenhouse Gas Control | J |
| Ebrahimi-Moghadam *et al.* (2016) | ✓ |  |  |  | ✓ | Journal of Natural Gas Science and Engineering | J |
| Acton *et al.* (2016) | ✓ |  |  | ✓1 |  | Hazards Conference | C |
| Silva *et al.* (2017a) | ✓ |  |  |  | ✓ | Rio Pipeline Conference & Exhibition | C |
| Silva *et al.* (2017b) | ✓ |  |  |  | ✓ | Rio Pipeline Conference & Exhibition | C |
| Deepagoda TKK *et al.* (2018) | ✓ |  |  | ✓ | ✓ | Greenhouse Gases: Science and Technology | J |
| Ebrahimi-Moghadam *et al.* (2018) | ✓ |  |  |  | ✓ | Journal of Cleaner Production | J |
| Deng *et al.* (2018) | ✓ |  |  |  | ✓ | Heat Transfer Engineering | J |
| Houssin-Agbomson *et al.* (2018) | ✓ |  |  | ✓ |  | Journal of Loss Prevention in the Process Industries | J |
| Bonnaud *et al.* (2018) | ✓ |  |  | ✓ |  | Journal of Loss Prevention in the Process Industries | J |
| Guo *et al.* (2018) | ✓ |  | ✓ |  | ✓ | International Journal of Pressure Vessels and Piping | J |
| Acton *et al.* (2018) | ✓ |  |  | ✓1 |  | Hazards Conference | C |
| Amaya-Gomez *et al.* (2018) | ✓ |  |  | ✓1 |  | Journal of Natural Gas Science and Engineering | J |
| Ulrich *et al.* (2019) | ✓ |  |  | ✓ |  | Environmental Science & Technology Letters | J |
| Lopezlena and Sadovnychiy (2019) |  | ✓ | ✓ | ✓ |  | Journal of Pipeline Systems Engineering and Practice | J |
| Zhou *et al.* (2019) |  | ✓ |  | ✓ | ✓ | Optical Fiber Technology | J |
| Ramírez-Camacho *et al.* (2019) | ✓ |  |  | ✓1 |  | Journal of Loss Prevention in the Process Industries | J |
| Epstein (2020) |  | ✓ | Book | | | Book | NA |
| Ndalila *et al.* (2020) | ✓ |  |  |  | ✓ | European Journal of Engineering and Technology Research | J |
| Zhang *et al.* (2020) |  | ✓ | ✓ |  |  | Tunnelling and Underground Space Technology | J |
| Zhou *et al.* (2020b) |  | ✓ |  | ✓ | ✓ | Measurement | J |
| Zhou *et al.* (2020a) |  | ✓ |  | ✓ | ✓ | Numerical Heat Transfer, Part A: Applications | J |
| Muggleton *et al.* (2020) |  | ✓ |  | ✓ |  | Journal of Natural Gas Science and Engineering | J |
| Bezaatpour *et al.* (2020) | ✓ |  |  |  | ✓ | Journal of Cleaner Production | J |
| Cho *et al.* (2020) | ✓ |  |  | ✓ | ✓ | Environmental Pollution | J |
| Wang *et al.* (2020) | ✓ |  |  |  | ✓ | International Journal of Numerical Methods for Heat & Fluid Flow | J |
| Zhuohua *et al.* (2020) | ✓ |  |  |  | ✓ | Advances in Civil Engineering | J |
| Shanujah *et al.* (2021) | ✓ |  |  |  | ✓ | Vadose Zone Journal | J |
| Xiao *et al.* (2021) |  | ✓ |  | ✓ |  | Measurement Science and Technology | J |
| Sun *et al.* (2021) |  | ✓ |  | ✓ | ✓ | IOP Conference Series: Earth and Environmental Science | C |
| Bu *et al.* (2021b) | ✓ | ✓ |  |  | ✓ | Journal of Natural Gas Science and Engineering | J |
| Bu *et al.* (2021a) | ✓ | ✓ |  |  | ✓ | ACS omega | J |
| Wang *et al.* (2021a) |  | ✓ |  |  | ✓ | E3S Web of Conferences | C |
| Wang *et al.* (2021b) | ✓ | ✓ |  |  | ✓ | Journal of Natural Gas Science and Engineering | J |
| Zhang *et al.* (2021a) |  | ✓ |  | ✓ | ✓ | Measurement Science and Technology | J |
| Zhang *et al.* (2021b) | ✓ |  |  |  | ✓ | IOP Conference Series: Earth and Environmental Science | C |
| Liu *et al.* (2021) | ✓ |  |  | ✓ | ✓ | Process Safety and Environmental Protection | J |
| Hu *et al.* (2021) | ✓ |  |  |  | ✓ | Journal of Physics: Conference Series | C |
| Gao *et al.* (2021) | ✓ |  |  | ✓ | ✓ | Elementa: Science of the Anthropocene | J |
| Zhao *et al.* (2021a) |  | ✓ |  | ✓ |  | Journal of Pipeline Systems Engineering and Practice | J |
| Zhao *et al.* (2021b) |  | ✓ |  |  | ✓ | Industrial & Engineering Chemistry Research | J |
| Zhang *et al.* (2022) |  | ✓ |  | ✓ |  | Tunnelling and Underground Space Technology | J |
| Srour *et al.* (2022) | ✓ |  |  |  | ✓ | Journal of Natural Gas Science and Engineering | J |
| Bagheri and Sari (2022) | ✓ |  |  |  | ✓ | Journal of Natural Gas Science and Engineering | J |
| Wang *et al.* (2022) | ✓ |  |  |  | ✓ | Energies | J |
| Ren *et al.* (2022) | ✓ |  |  | ✓ | ✓ | ACS Omega | J |
| Bu *et al.* (2022) | ✓ |  |  |  | ✓ | International Journal of Pressure Vessels and Piping | J |
| Zhou *et al.* (2022) | ✓ |  |  | ✓ |  | Process Safety and Environmental Protection | J |
| Tian *et al.* (2022) | ✓ |  |  | ✓ | ✓ | Elementa: Science of the Anthropocene | J |
| Su *et al.* (2023) | ✓ |  |  |  | ✓ | Computer Modeling in Engineering & Sciences | J |
| Tan *et al.* (2023) |  | ✓ |  | ✓ | ✓ | Journal of Loss Prevention in the Process Industries | J |
| Esgandari *et al.* (2023) |  | ✓ |  |  | ✓ | Chemical Engineering Science | J |
| Wang *et al.* (2023b) | ✓ |  | ✓ |  | ✓ | International Journal of Hydrogen Energy | J |
| Wang *et al.* (2023a) | ✓ |  |  |  | ✓ | KSCE Journal of Civil Engineering | J |
| Xia *et al.* (2023) | ✓ |  |  |  | ✓ | Process Safety and Environmental Protection | J |
| Zhang and Zhao (2023) | ✓ |  |  |  | ✓ | Petroleum | J |
| Jayarathne *et al.* (2023) | ✓ |  |  | ✓ | ✓ | Journal of Hydrology | J |
| Zeng *et al.* (2023) | ✓ |  |  | ✓ | ✓ | Process Safety and Environmental Protection | J |
| Mbua *et al.* (2023) | ✓ |  |  | ✓ |  | Gas Science and Engineering | J |
| Zhu *et al.* (2023) | ✓ |  |  | ✓ |  | International Journal of Hydrogen Energy | J |
| Jiang *et al.* (2023) | ✓ |  |  | ✓ | ✓ | Energy Sources, Part A: Recovery, Utilization, and  Environmental Effects | J |
| Hoorijani *et al.* (2024) |  | ✓ |  |  | ✓ | Particuology | J |

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1. Only empirical [↑](#footnote-ref-1)