CO₂ leakage quantification methods: advantages and limitations

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Outline

- Objectives of the study
- Tasks and responsibilities
- Individual methods review: examples from the report
  - Groundwater hydrochemistry and flux
  - Long open path (IP diode lasers) sensing
- Regulatory requirements for CO₂ leakage quantification accuracy
- What a portfolio can offer
- Conclusions
Objectives of the study

Identify and review the potential methods for quantifying CO₂ leakages from a geological storage site from the ground or seabed surface and discuss the level of accuracy that is currently required for site permitting and accounting purposes.
Specific tasks

- Identify current and emerging techniques that can measure CO₂ leakage on shore and off-shore from potential point as well as diffuse sources

- Provide a detailed review of the quantification performance of each method individually including operational/technical details as well as cost implications

- Evaluate the improvements in quantifying CO₂ leakage through the implementation of a monitoring portfolio tailored for on-shore and off-shore environments
Specific tasks

- Review current and proposed regulations and evaluate the required CO₂ leakage quantification accuracy against the performance of individual leakage monitoring methods and monitoring portfolios.

- Provide recommendations for best practice in using existing CO₂ leakage monitoring techniques for quantification purposes and provide recommendations for future research and development to address stakeholder and regulatory requirements.