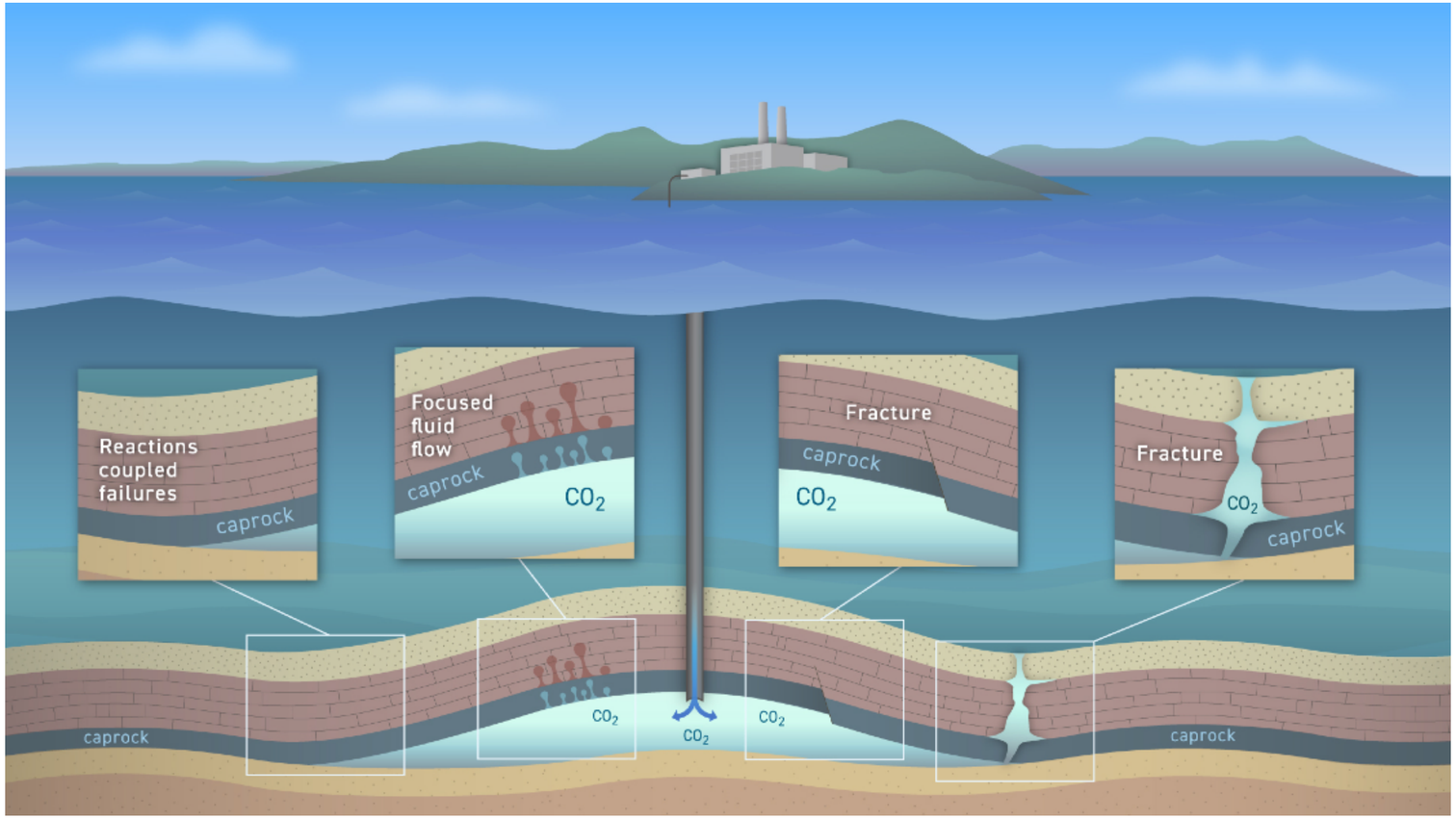
Leakage Scenarios



https://netl.doe.gov/carbon-management/carbon-storage/offshore

Wood et. al, Locked away – geological carbon storage, The Royal Society, October 2022
Ringrose, Philip. How to store CO2 underground: Insights from early-mover CCS Projects, 2020.

Challenges

monitoring Geological CO_2 Storage in Saline Aquifers

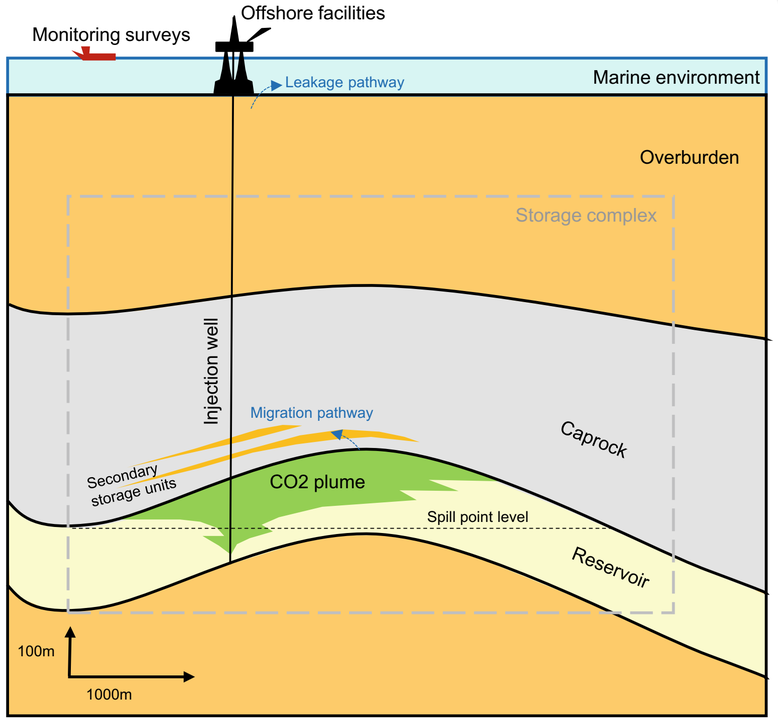
Regulators & general public require transparency & assurances that *supercritical* CO_2 stays put in the *storage complex*

- *reservoir* simulations alone are *uncertain* due to large *variability* permeability
- risk profile storage & containment highest at start & at end
- there is a need for *reproducibility* for *transparency*

Develop low-cost monitoring & control system for CO_2 plumes

- that is uncertainty aware
- maximally captures information collected over many decades
- attains accuracy needed to detect early onset leakage
- capable of risk mitigation via control

Systematic assessment of risks using techniques from uncertainty quantification.



from Ringrose