



Legacy Well Considerations in CCS Developments

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Presentation Outline

Legacy Well Considerations in CCS Developments

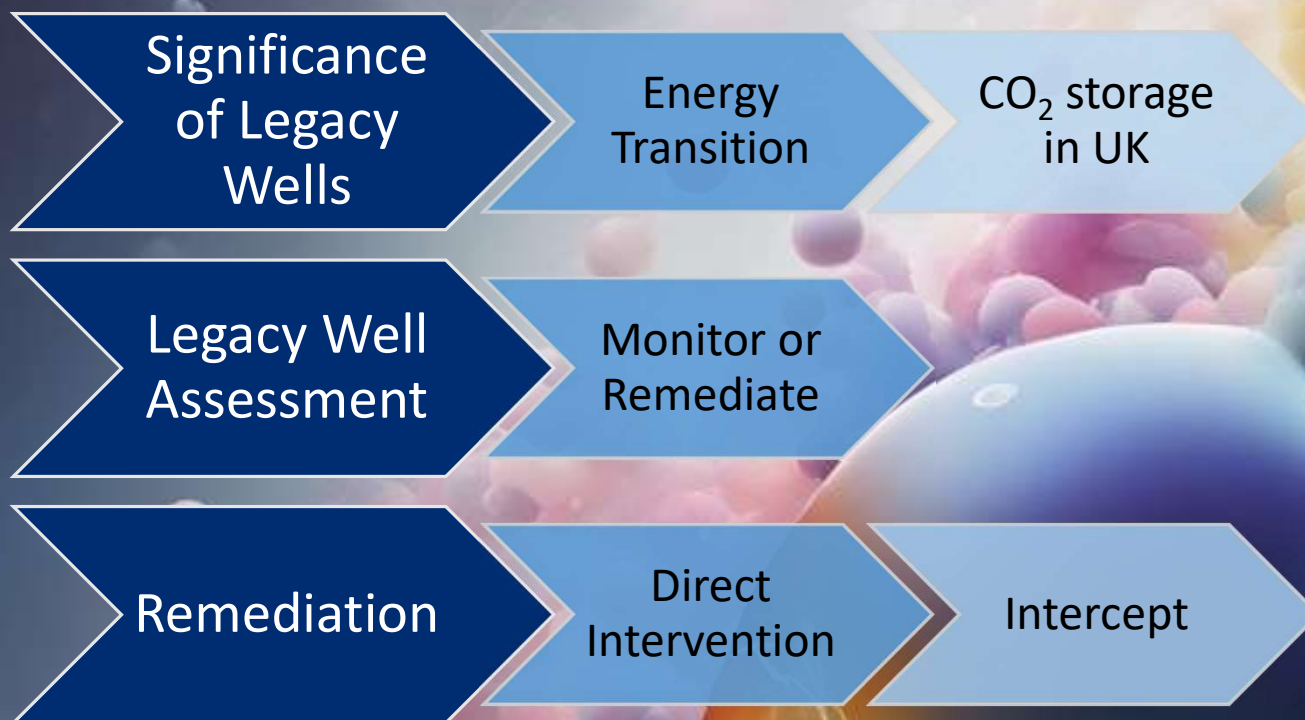
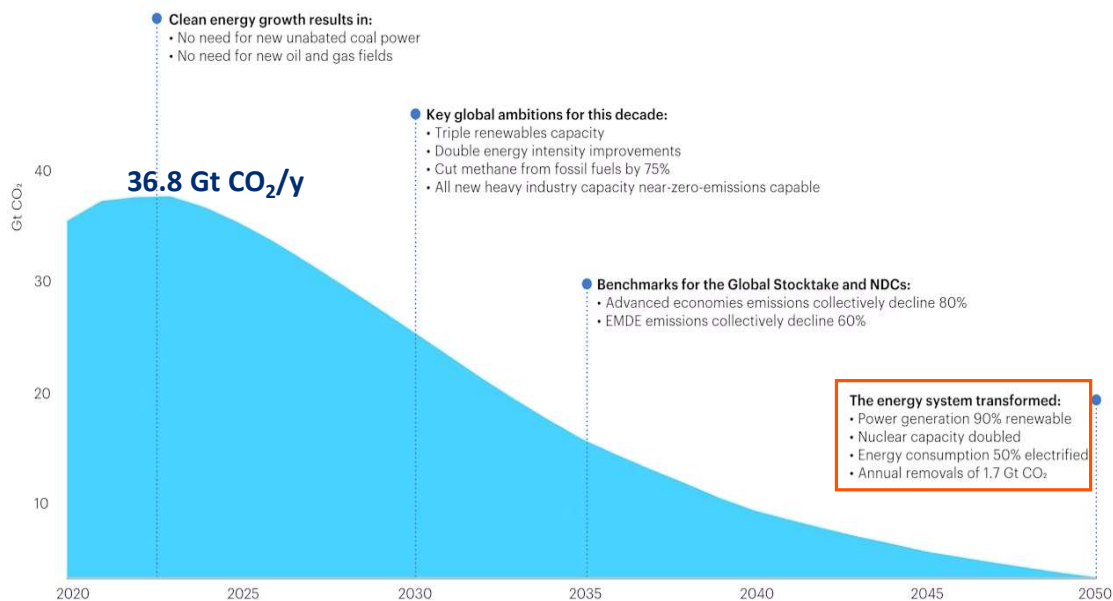


Image Chat GBT

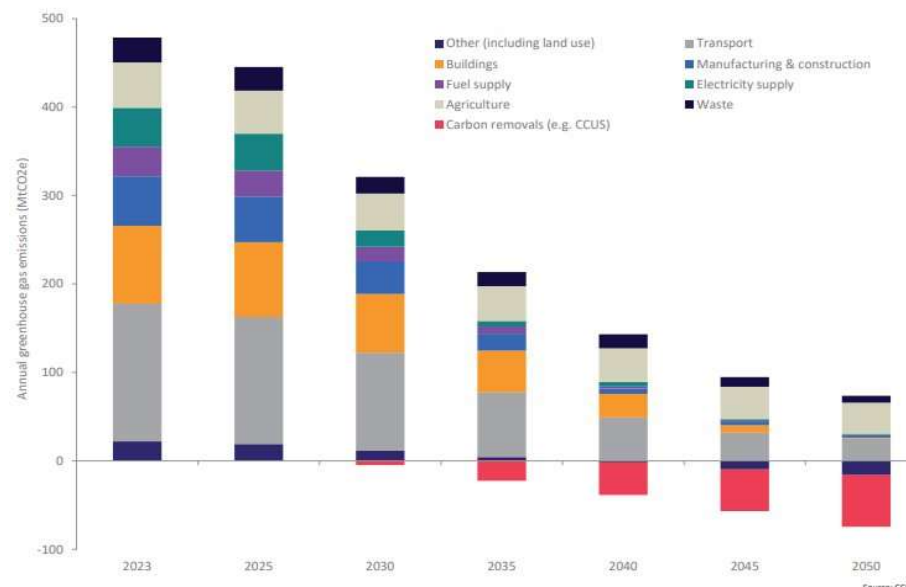
Energy Transition Vision

International Energy Agency Global Net Zero Scenario



IEA, Net Zero Road Map 2023: A roadmap to net zero by 2050

UK Climate Change Committee's Emissions Reduction Profile



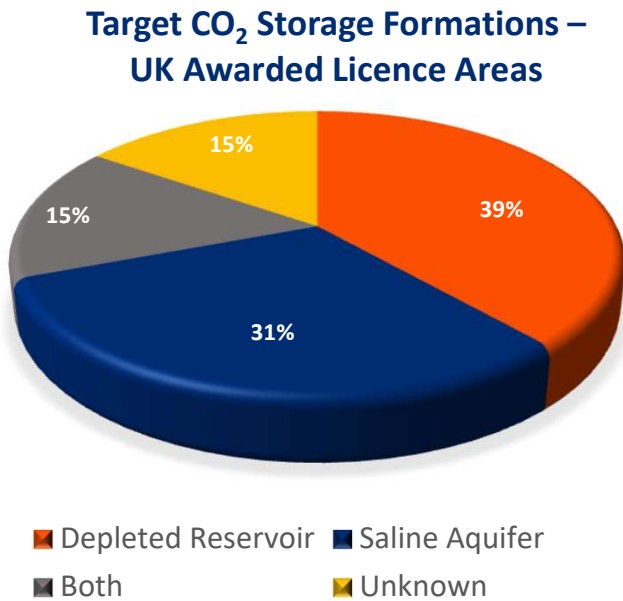
OEUK Economic Report 2023: CCC Balanced Pathway UK Emissions Reduction Profile

- Global Target 2050: 1.7 billion tonnes CO₂ captured and stored annually
- Estimated global storage capacity of between 8,000 and 55,000 billion tonnes (2,000 to 13,000 Gt offshore)

- UK target 2030: 20-30 million tonnes of CO₂ captured and stored annually
- UKCS has 78 billion tonnes of CO₂ storage capacity

Planned CO₂ Storage Trends - UK

89% of NSTA Awarded CCS Licence Areas Contain Depleted O&G Fields



Brownfield Storage Locations:

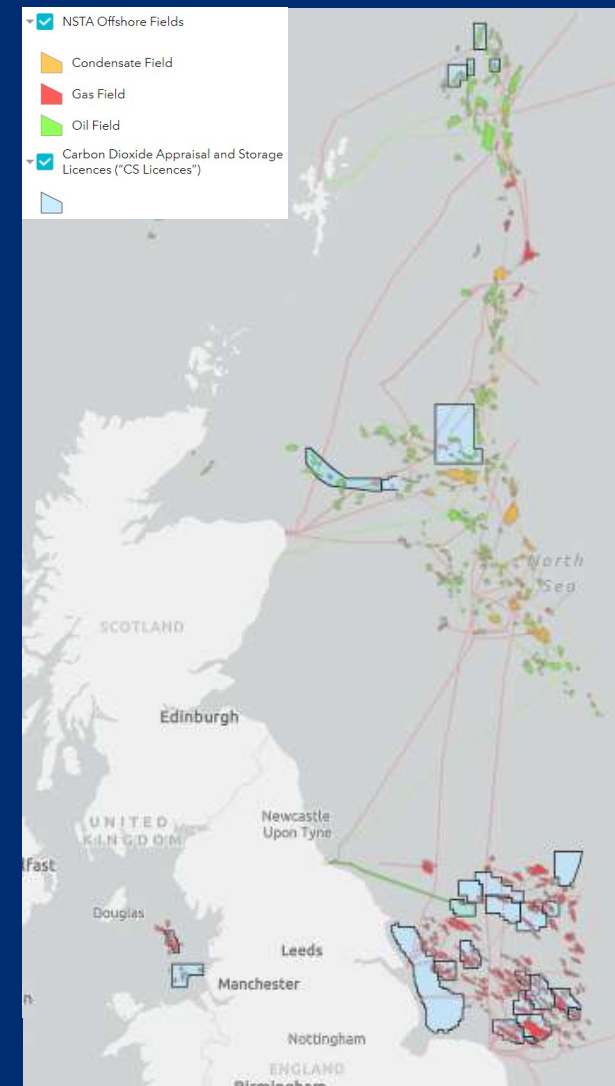
Infrastructure re-use

Subsurface characterisation

Leverage extensive experience

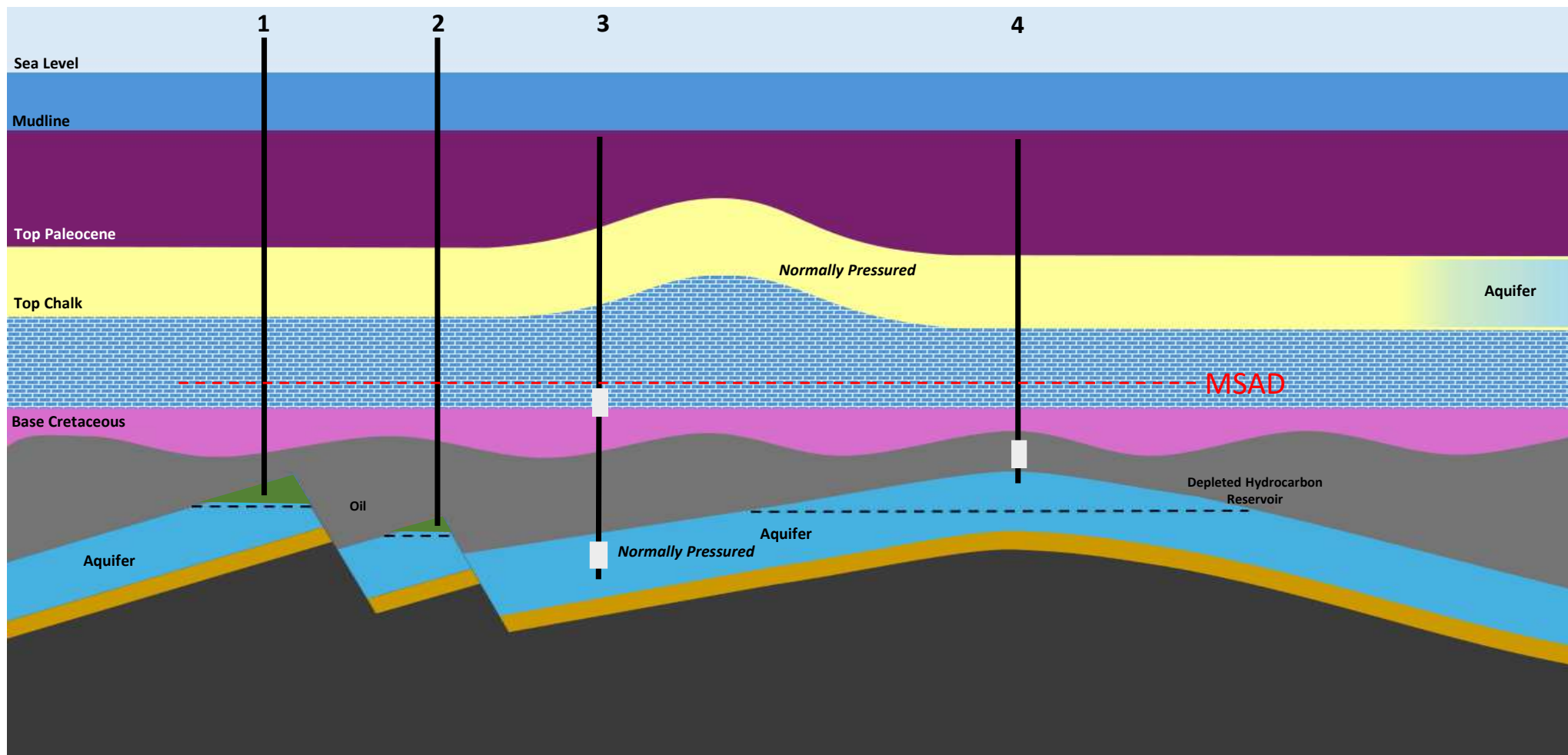
Legacy wells leakage risk

NSTA map of CCS Licences and O&G fields

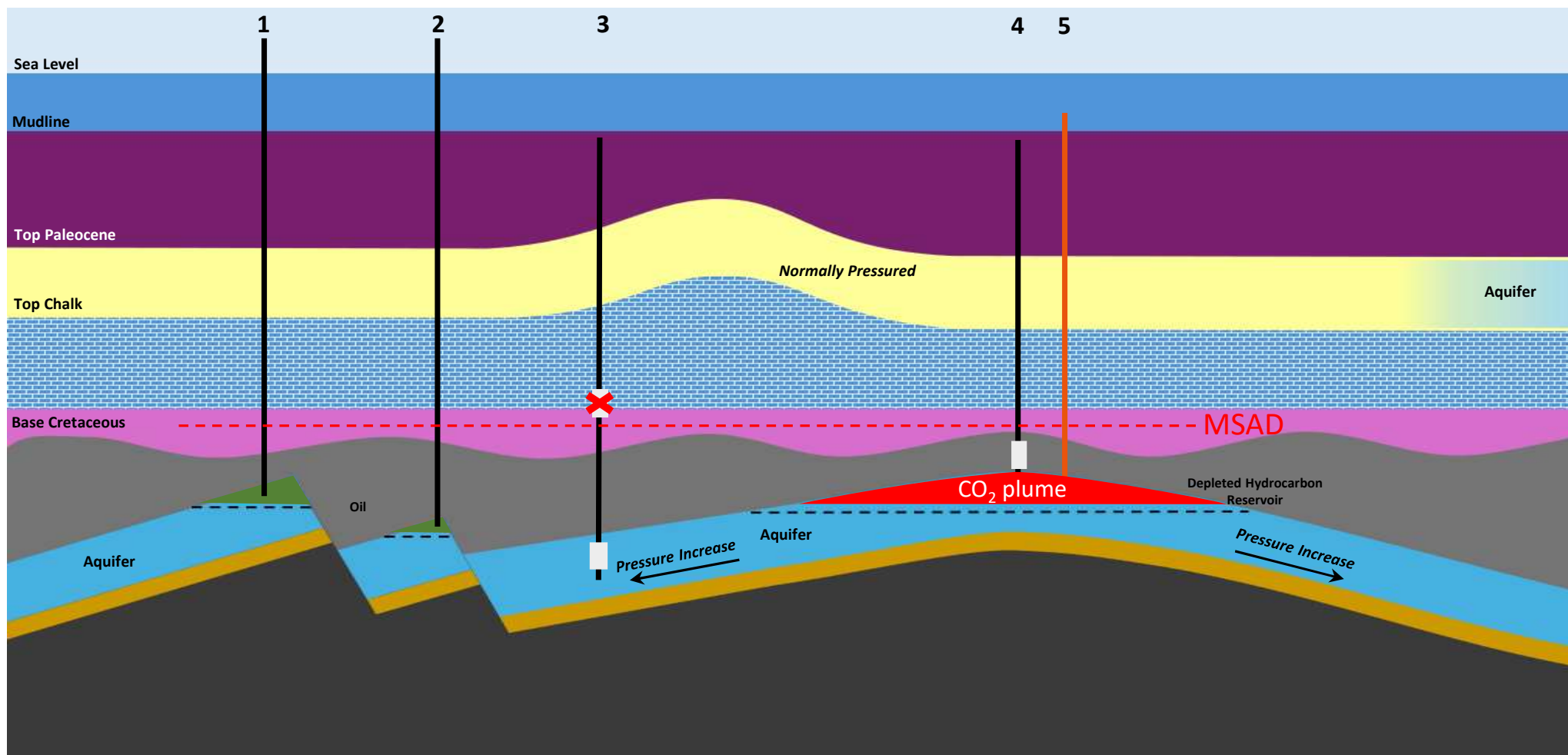


Legacy Wells = Greatest Containment Risk in Brownfield CO₂ Storage Sites

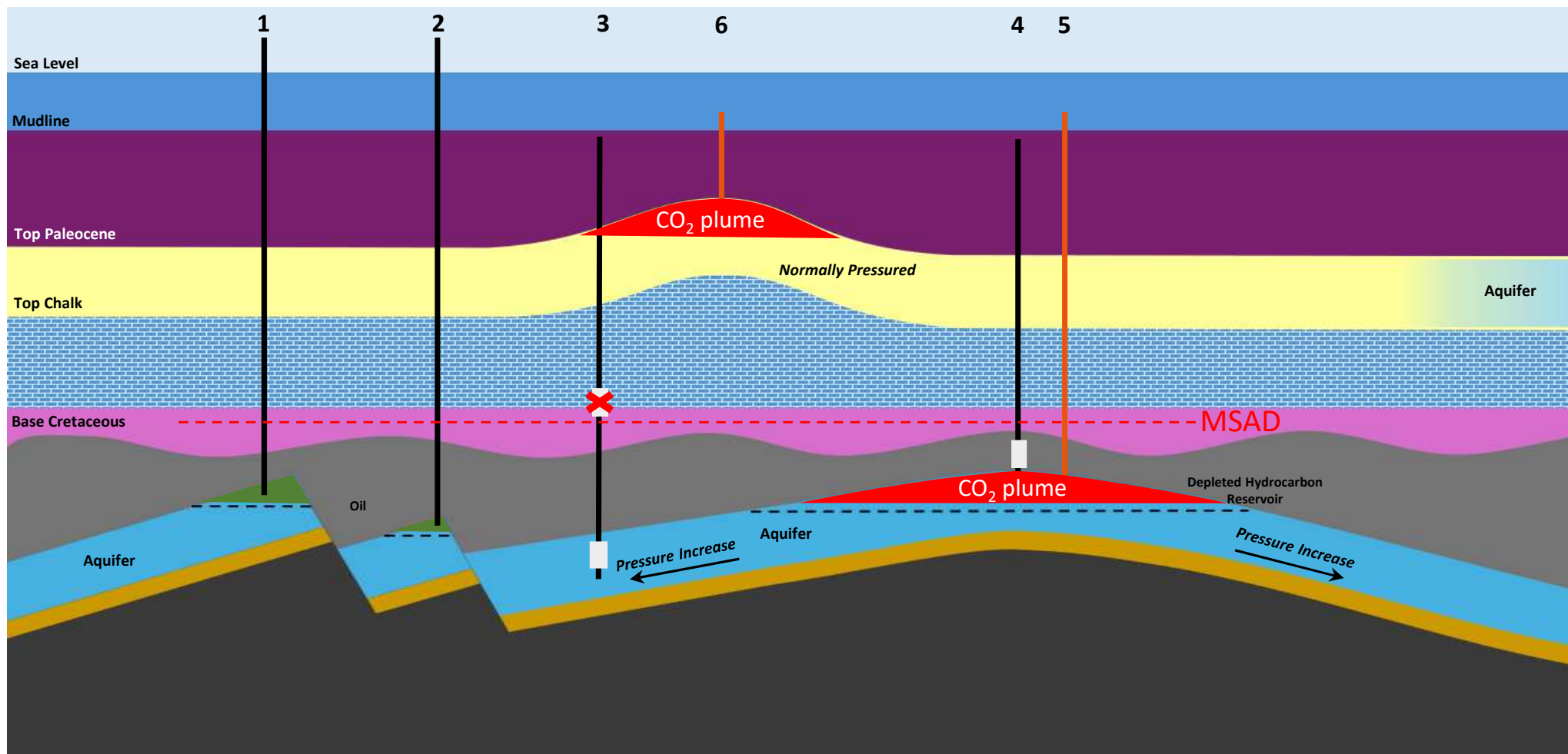
Legacy Well Considerations – CO₂ Storage



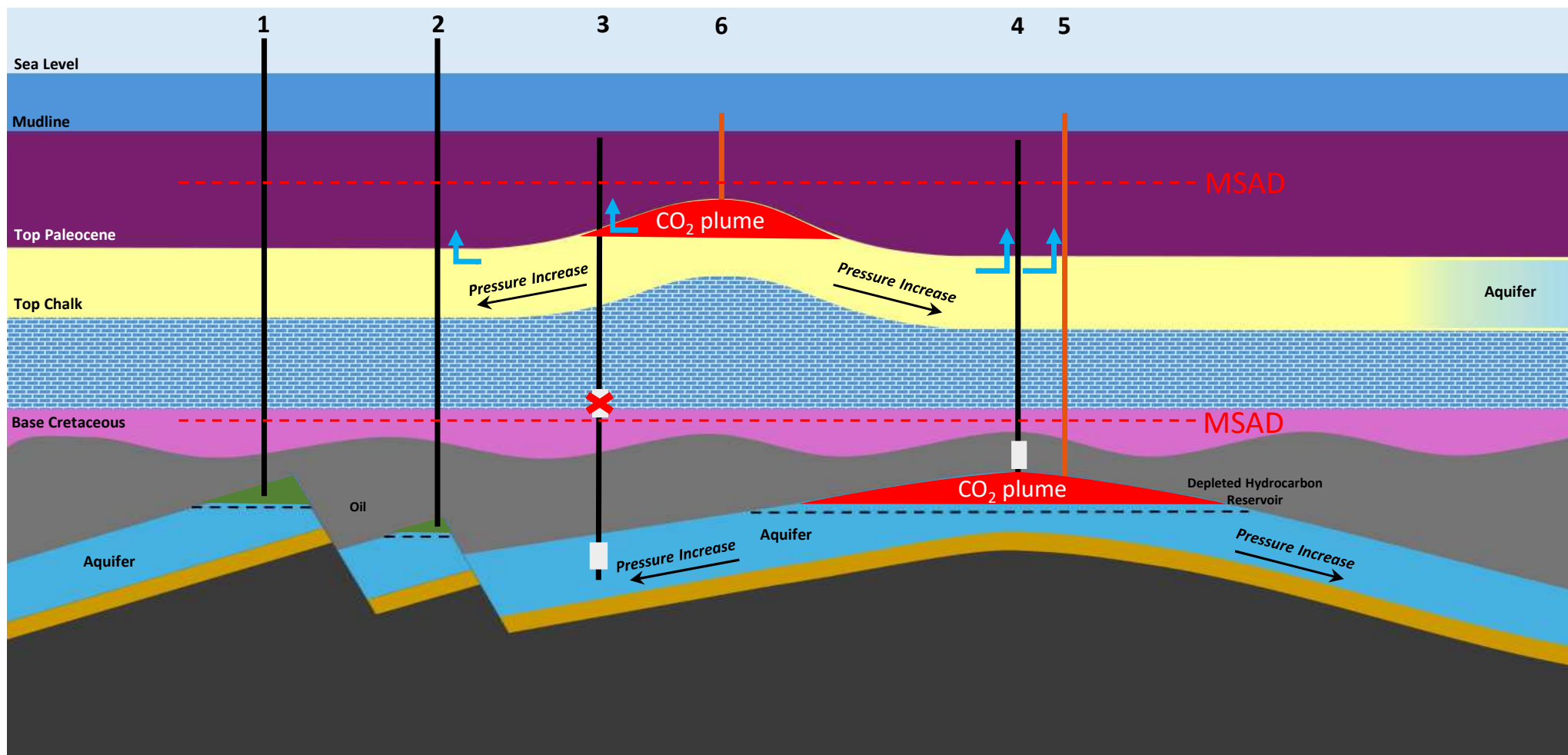
Legacy Well Considerations – CO₂ Storage



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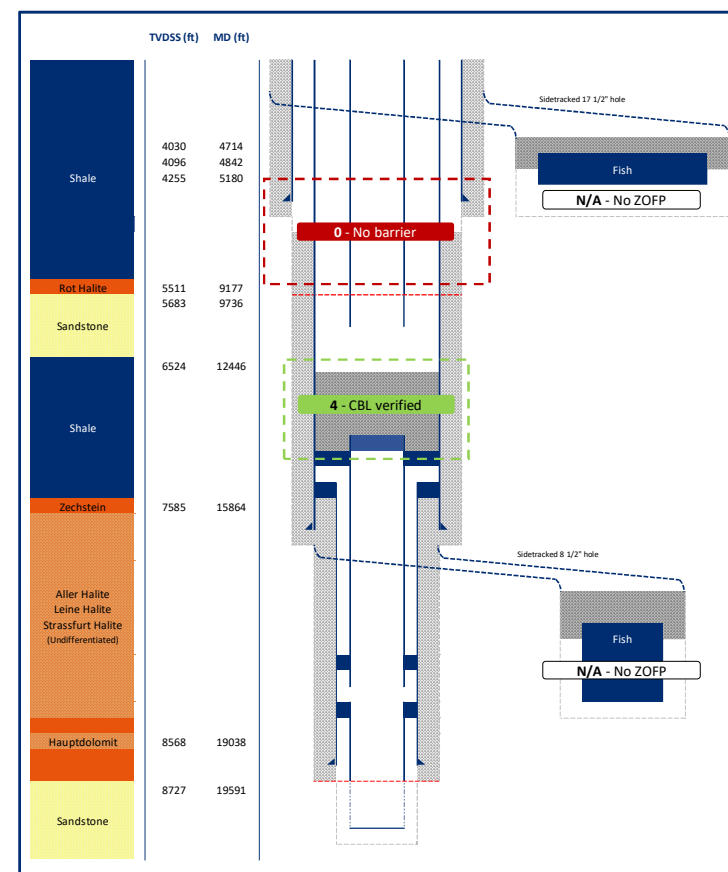
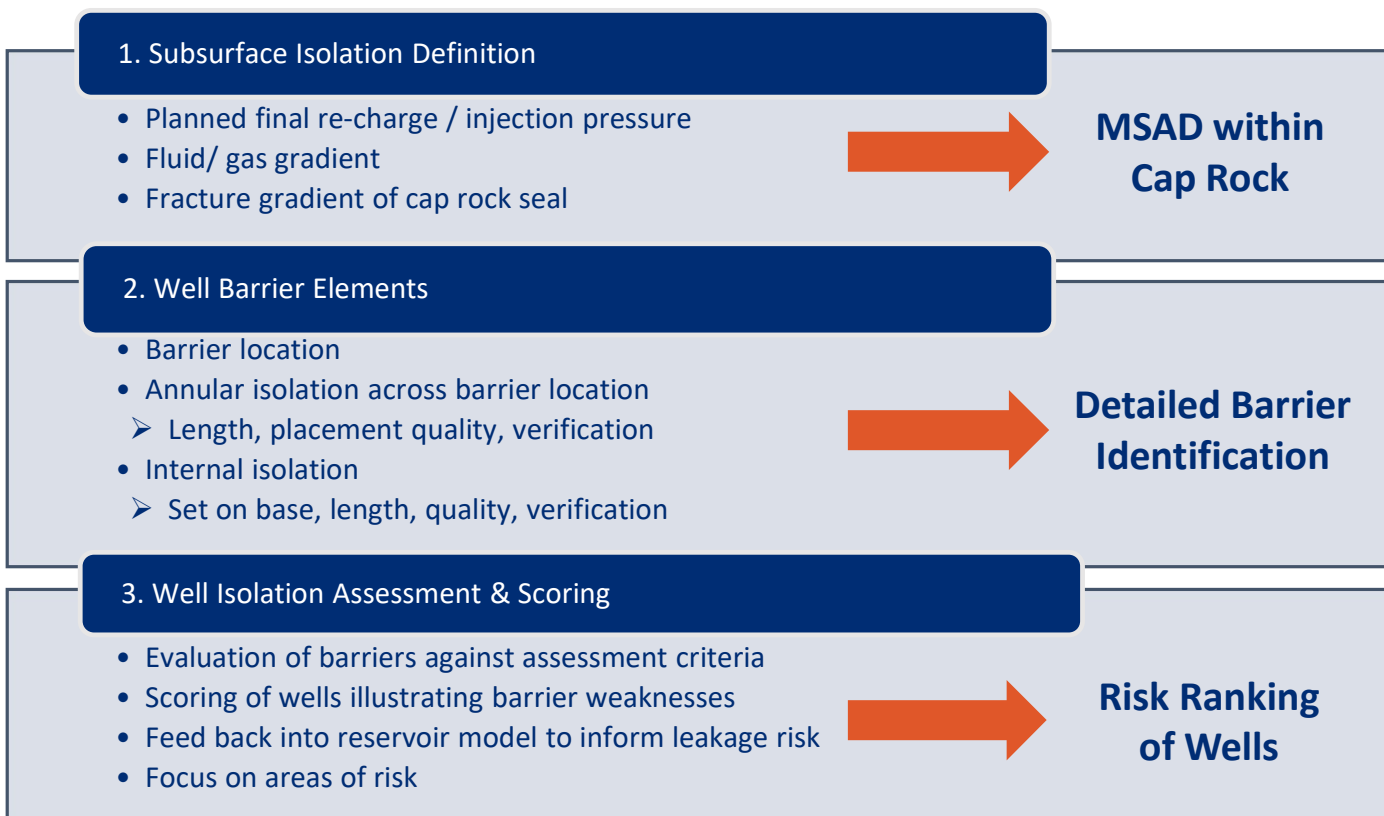


Legacy Well Considerations – CO₂ Storage

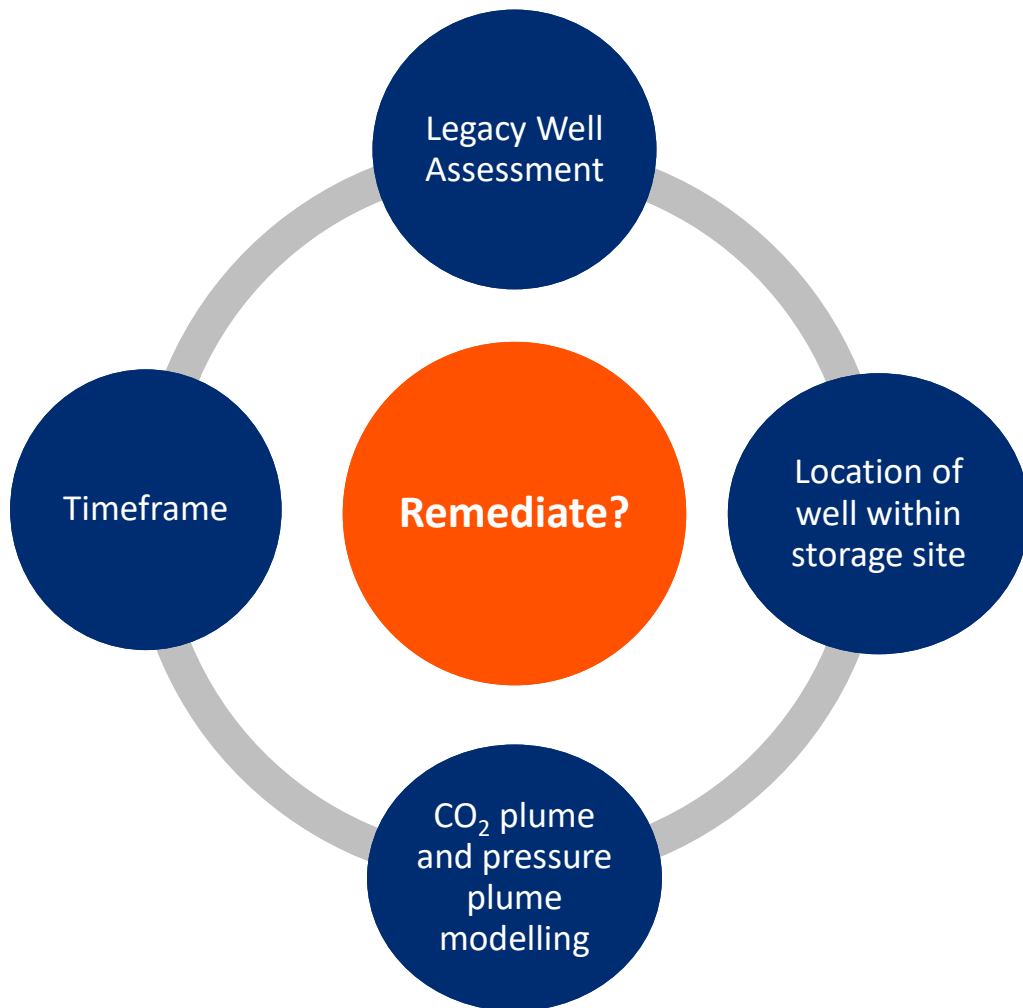


Legacy Well Assessment for CO₂ Storage

Which wells represent a risk ? . . . Which wells need remediation ? . . . Which wells require close monitoring? . . .

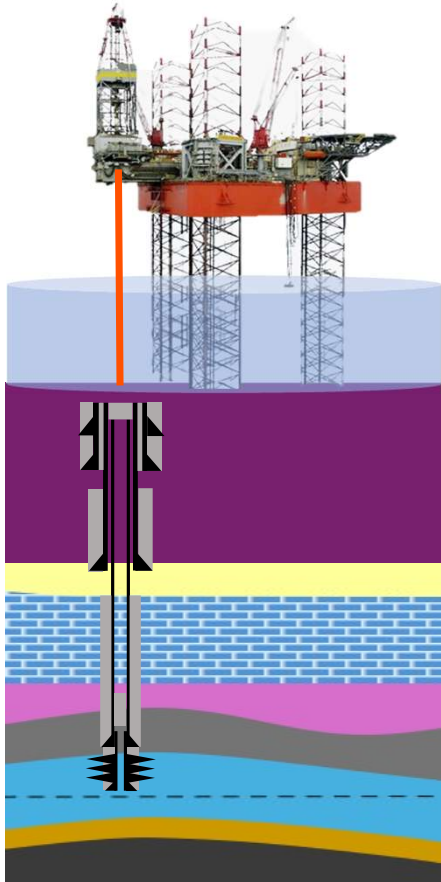


Monitor or Remediate?



Remediation | Direct Intervention

No or Low Leak Rate Solution



1. Locating

Well Stump 10ft below M/L
Outdated survey technology

2. Access

Soil type
Wellhead severance method



3. Tie-back

Pressure envelope
Sufficient ID

4. Remediation

Install required barriers for
CO₂ containment

Remediation | Well Intercept

Significant Leak Rate Solution



1. Locating

Well Stump 10ft below M/L
Outdated survey technology



2. Intercept

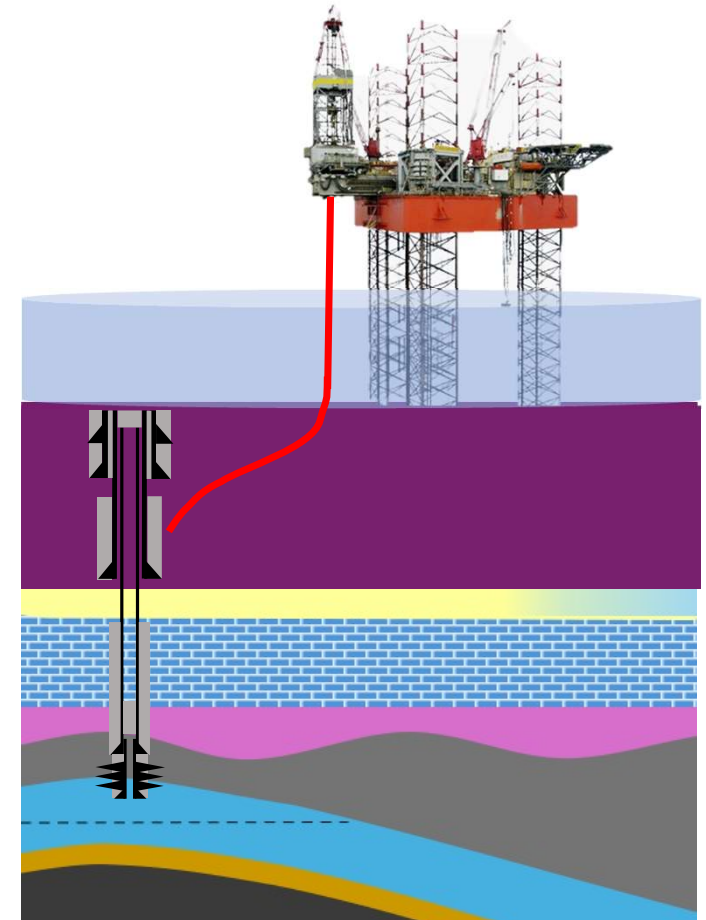
Ranging
Salts challenge

3. Remediation

Install required barriers
for CO₂ containment

4. P&A of Intercept Well

Intercept well
introduces leakage risk

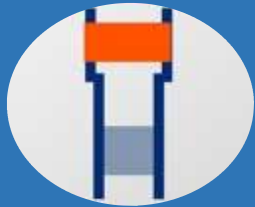


Key Takeaways



High Quality Legacy Well Reviews

This is a new industry; we cannot afford to get it wrong



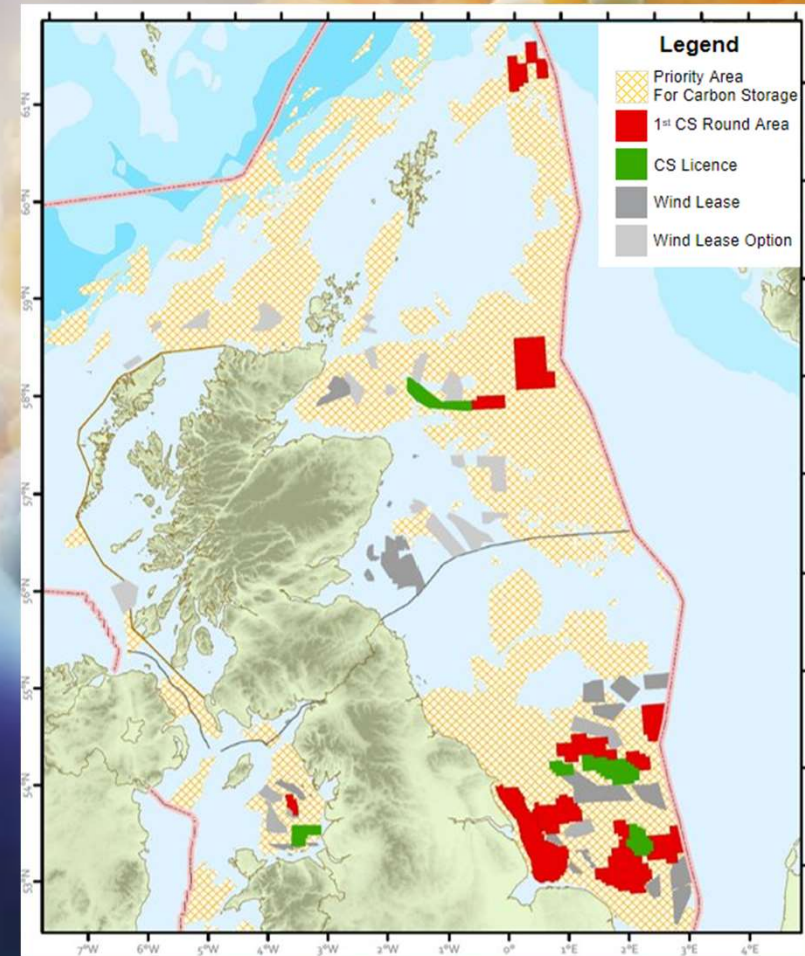
Legacy Well Remediation

Options exist before injection, limited & more challenging after



P&A for Future Use

Do it once and do it right!
Potential CO₂ storage acreage is vast



Map courtesy of the NSTA: Potential UK CS acreage



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Thank you