



Breakout Session 3

Post Closure Group

- Define closure,
- Define post closure – at what point does activity move into this stage?
 - Plume stabilisation?
 - Reduced or diminished risks?
 - No further monitoring needed?
 - Transfer of liability to government body?
 - Occasional surface or USDW surveys needed, but no more?
 - 1Mt storage = minimal risks anyway!



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- Post closure probably area we know least about,
- Transfer of liability to governmental body, and fund for remediation / mitigation if required,
- When post closure phase is reached, models are in existence to cover monitoring requirements, plume migration and risk assessment, and these models will have been validated / moderated to some degree,
- Possible two time scenarios—short and long



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- Legacy monitoring – learn from models and monitor those areas identified as higher risk,
- Likely that all wells would be plugged at this point, with no access, making re-entry difficult and costly if needed,
- Possible that risk increases post closure if migrating plume begins to interact with more abandoned wells, but depending on classification of post closure phase, stabilisation = no further plume migration,



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- Different scenarios:
- Larger volumes of CO₂
 - Larger plume,
 - Increased leakage risk,
 - Associated with more wells,
 - Issues associated with scale,
 - Stability takes longer to occur,
 - Increased chance of future human activity (residential development etc. taking place in the vicinity,



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- Offshore storage:
 - Intervention is much harder,
 - Monitoring more difficult,
 - Species affected altered,
 - Migration / leakage may not be vertical – increased area for monitoring,
 - Access to wells more difficult – and more expensive,
 - Use of ROV to monitor sea bed (Sleipner experience),
 - Fewer wells,



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- Saline Aquifer storage:
 - Fewer wells,
 - Lack of structural trapping,
 - Less predictable lateral migration,
 - Aquifer flow leading to monitoring over wider area,
 - Increased timescale involved due to trapping mechanisms prolonging plume migration activity, necessitating monitoring during post closure or delay of post closure phase,
 - Higher risk of leak due to over-pressure of reservoir,



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- EOR Activity:
 - Potentially looking at an increased number of wells,
 - Little difference to post closure phase,
- Heavily populated area:
 - Regular water testing,
 - Basement monitors for CO₂,



IEA Greenhouse Gas R&D Programme



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