7th Monitoring Network Workshop

Potsdam 7 – 9 June 2011

Three points of the Directive: Windup comments
EU Storage Directive: Minimum conditions for closure:

- Actual behaviour of the injected CO$_2$ conforms with the modelled behaviour
- No detectable leakage
- Storage site is evolving towards a situation of long-term stability
Conforms with modelled behaviour

Near wellbore to far-field – wellbore temperatures to brine displacement

Seismic detection limits (Otway, Ketzin, Nagaoka)
Repeatability is the key

Gravity for dissolution

Careful how you define monitoring and performance indicators

- pressure results from Cranfield
- breakthrough at Ketzin
- unexpected but not negative
Conforms with modelled behaviour

In Salah InSAR shows how even excellent datasets can have non-unique explanations

Tools combinations can reduce overall uncertainty
  InSAR / seismic / gravity / electrical

Pilot sites

- key for understanding processes (and demonstrating this!)
- testing monitoring tool capabilities
Conforms with modelled behaviour

How ‘significant’ is an irregularities?

Images courtesy of Peter Frykman and Stefan Luth
EU Storage Directive: Minimum conditions for closure….

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- No detectable leakage
- Storage site is evolving towards a situation of long-term stability
No detectable leakage

Traditional approach – soil gas, flux etc

Baselines – capture the full natural variation. Good for everyone.

Sampling issues.

Areal methods to detect

Point methods to measure.

Forensic approach

Process-based methodology to identify non-natural CO$_2$
No detectable leakage

Real or weather effects?
Conclusion

Just because we are uncertain doesn’t mean things are going wrong!