Site Characterisation

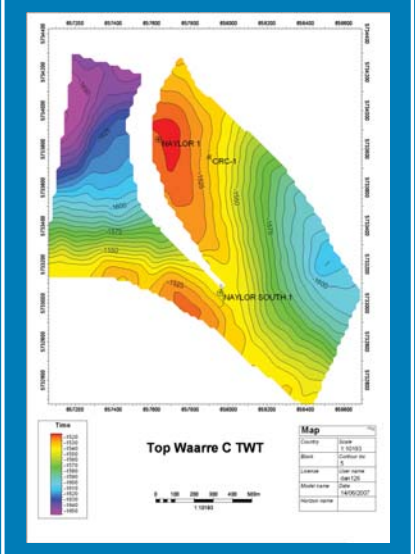
Collection, analysis and interpretation of subsurface, surface and atmospheric data in order to assess whether or not an identified site is suitable to store a specific quantity of CO_2 for a defined period of time and meet all required health, safety, environmental and regulatory standards.

Reservoir modelling
— to understand the geological characteristics that will influence the behaviour of the migrating CO_2 plume

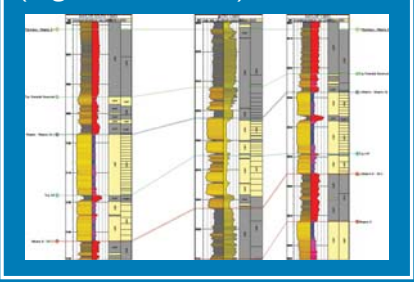
Evaluation of existing data (geological, seismic and engineering)

Acquisition of new data (well logs, cores, seismic)

Initial reservoir modelling and simulation

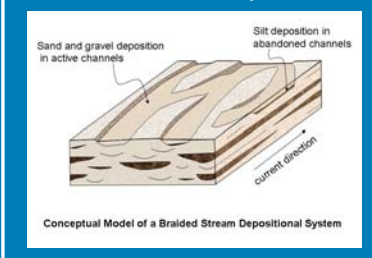


Stratigraphic correlation (logs and seismic)

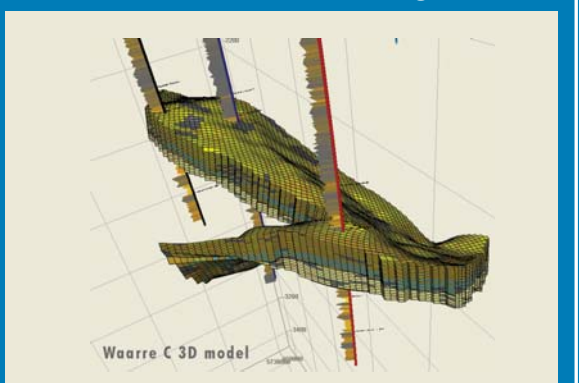


Reservoir characteristics (porosity, permeability, pore pressure, rock strength)

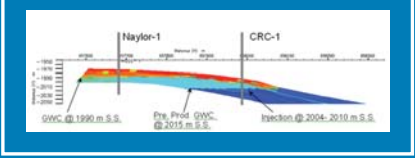
Assessment of depositional environment and natural analogues



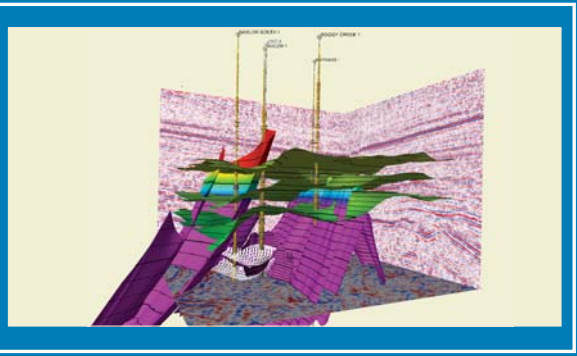
Modern day braided stream analogue, Fairbanks, Alaska



Select injection site

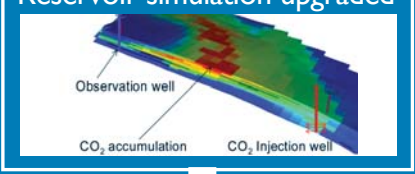


Reservoir modelling updated



Reservoir simulation
— to understand the reservoir and fluid dynamics

Reservoir simulation upgraded



Accurately simulate the behaviour of CO_2

Testing

Model and plan

— perforation (sand based interval: 2039 – 2055 mRT)

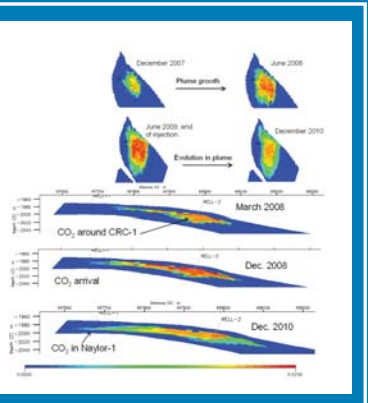
— rate of injection (3mmscf/day ~ 120 tonnes/day)

— volume (up to 100,000 tonnes)

— gas composition (80% CO2, 20% methane)

— maximum pressure (20MPa)

— breakthrough estimate (6-9 months)



Risk assessment
— to assess risks of CO_2 leakage beyond the containment

A detailed quantitative Risk Assessment was carried out at the time the site was initially evaluated. The assessment concluded that the project is low risk.

Possible risk events considered were leakage through cap rock, leakage through faults, well integrity, overpressuration at local and regional scales, overflow of the reservoir, equipment failure.

Risks are constantly re-evaluated throughout the main phase of the project as new data are collected.

CO2CRC