

Uthmانيyah CO₂-EOR Demonstration Project



AMAR J. ALSHEHRI
SAUDI ARAMCO

A close-up photograph of a person's hand holding a clear, spherical glass globe. The globe is held in the palm, with the fingers visible at the bottom. The globe shows the outlines of the continents of Africa, Europe, and Asia. The background is a bright, out-of-focus green, suggesting a natural, outdoor setting like a park or forest.

Because we care

Saudi Aramco environmental stewardship

Energy efficiency



Reduce gas flaring



Zero discharge mandate



Renewables



Carbon management



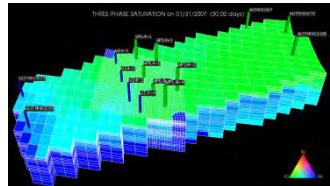
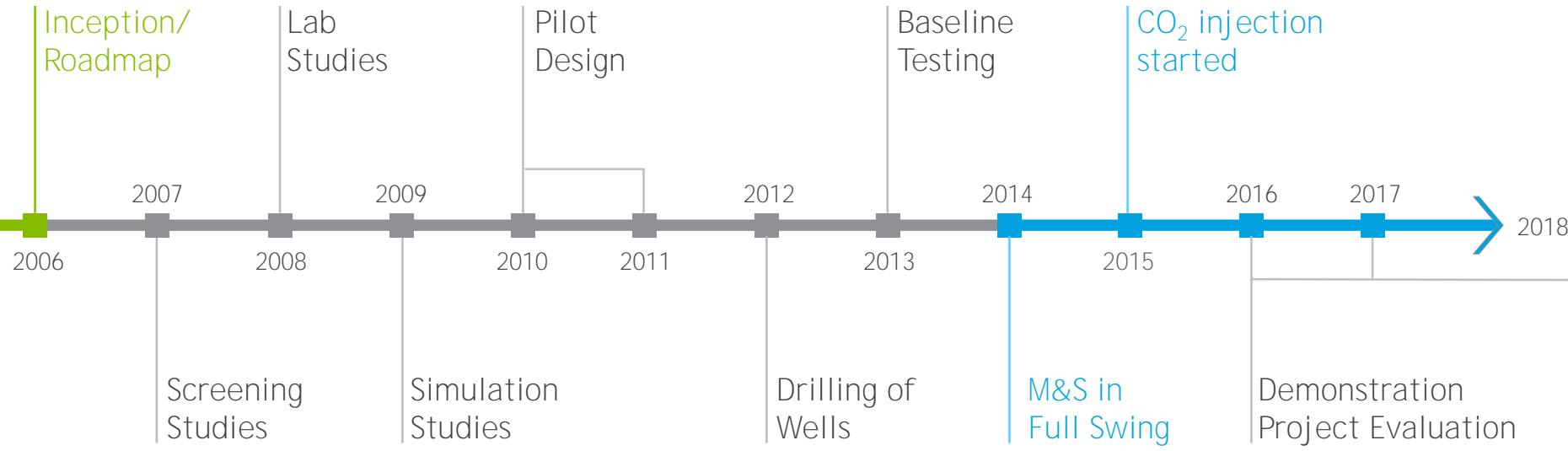
Carbon management

Uthmaniayah CO₂-EOR demonstration project

- The 1st in the Kingdom
- One of the largest of its kind in the Middle East
- Capture ~800,000 tonnes of CO₂ per year
- CSLF recognized project
- Awarded “EOR Project of the Year” by Oil & Gas Middle East

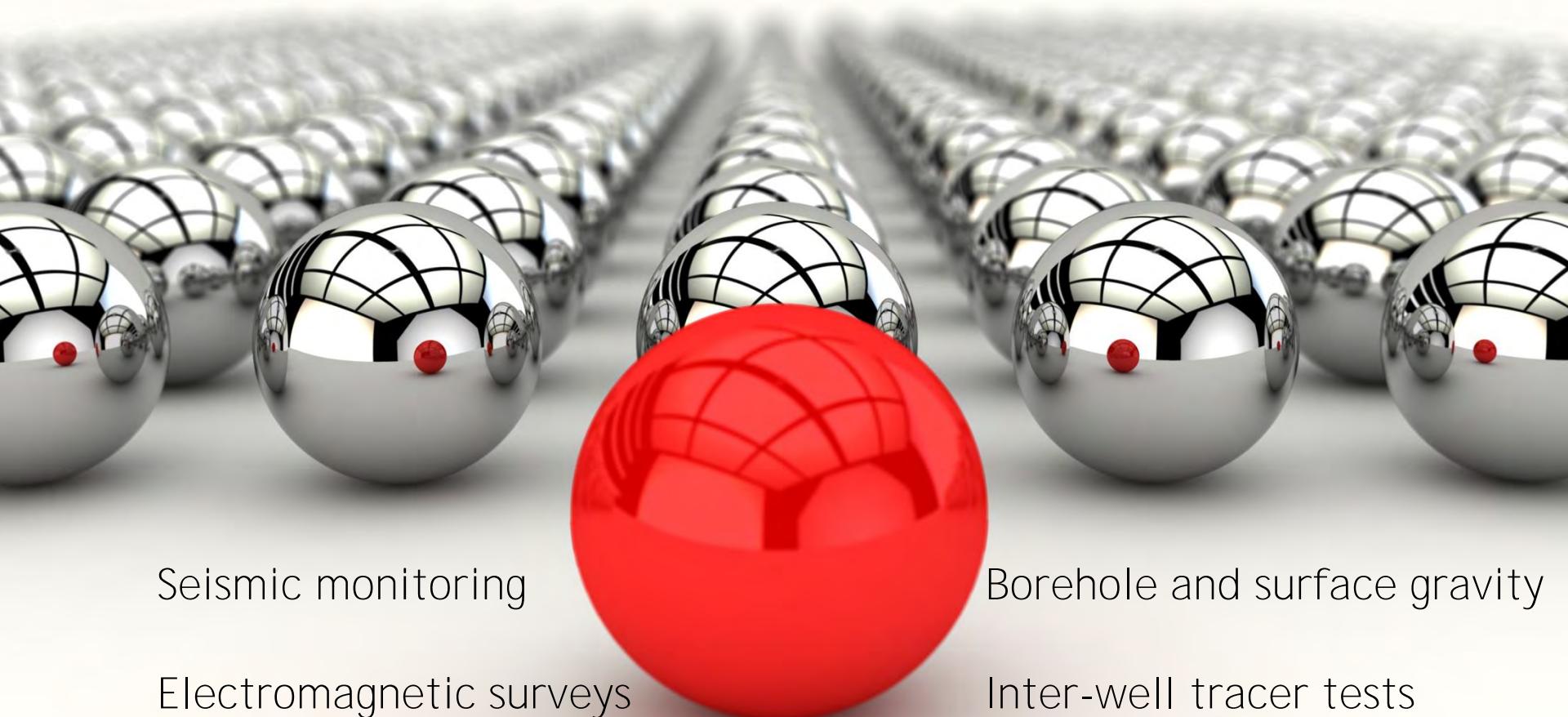


Milestones



Our unique approach

Monitoring & Surveillance



Seismic monitoring

Electromagnetic surveys

Borehole and surface gravity

Inter-well tracer tests

Monitoring & Surveillance

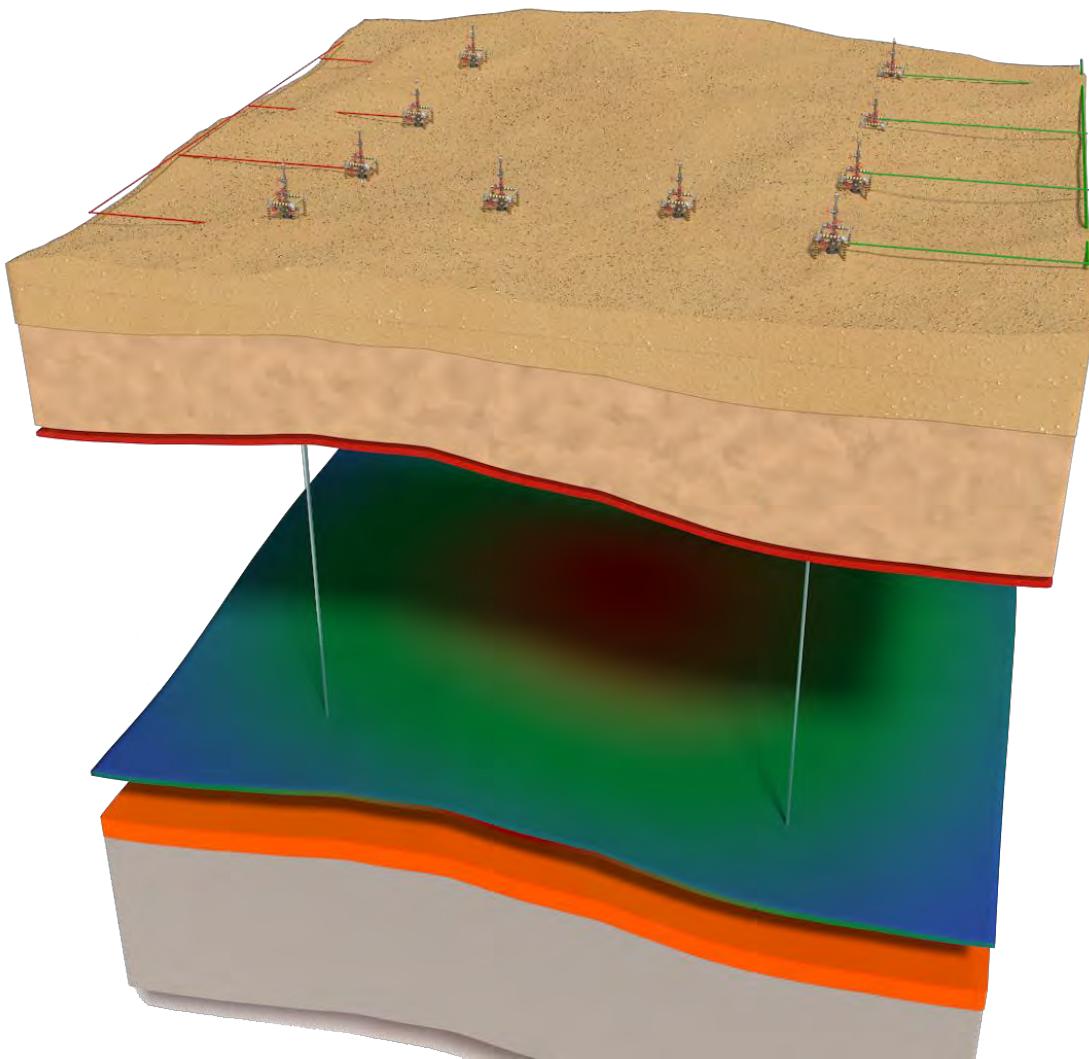
Monitoring Parameters:

Sequestered CO₂

Plume evolution

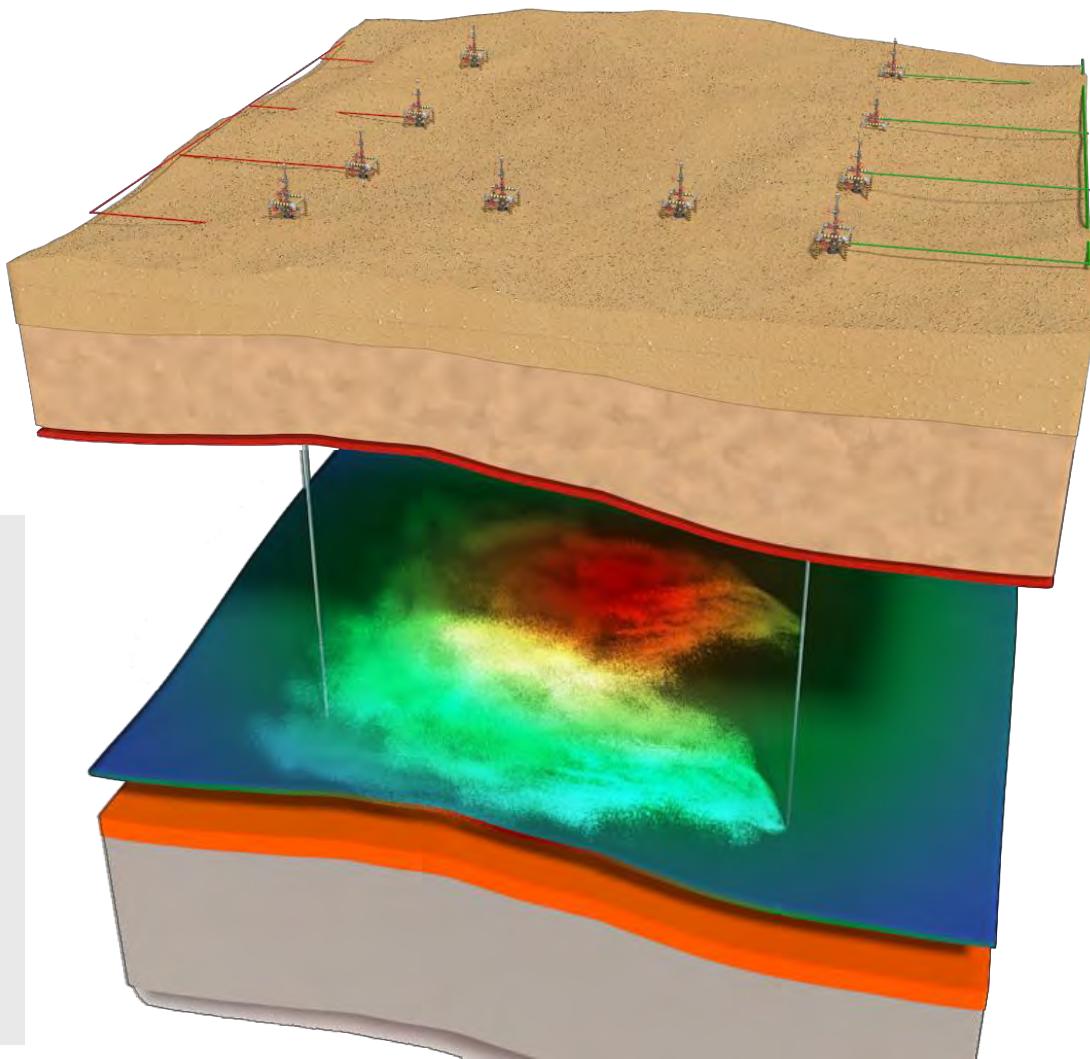
CO₂ Migration

Oil saturation monitoring



Monitoring & Surveillance

- Seismic sensors



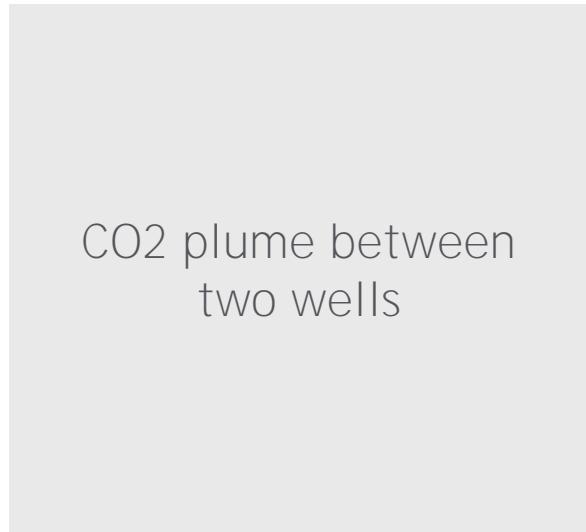
1st continuous seismic monitoring

1000 seismic sensors

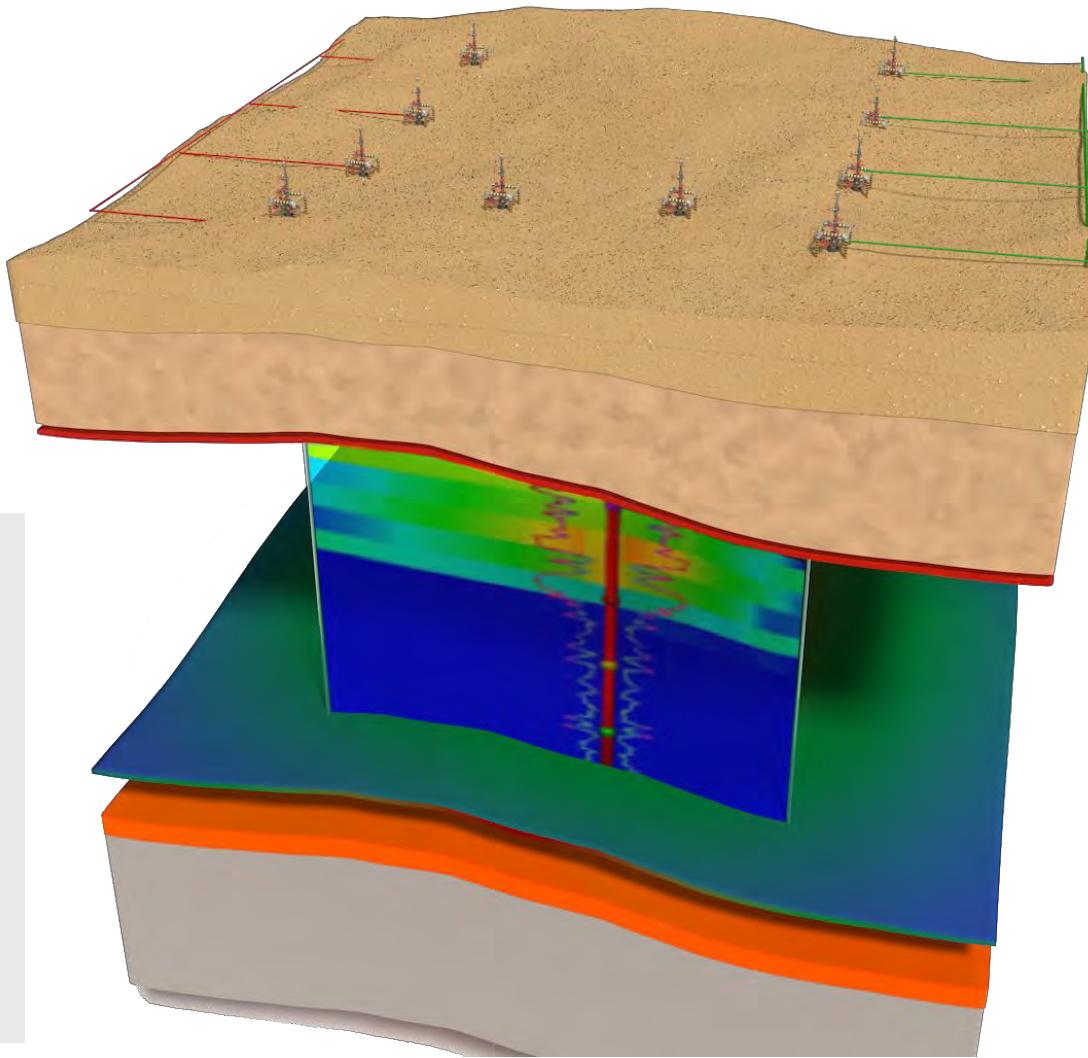
Tracks plume propagation

Monitoring & Surveillance

- Seismic sensors
- Cross-well
Electromagnetic



CO₂ plume between
two wells

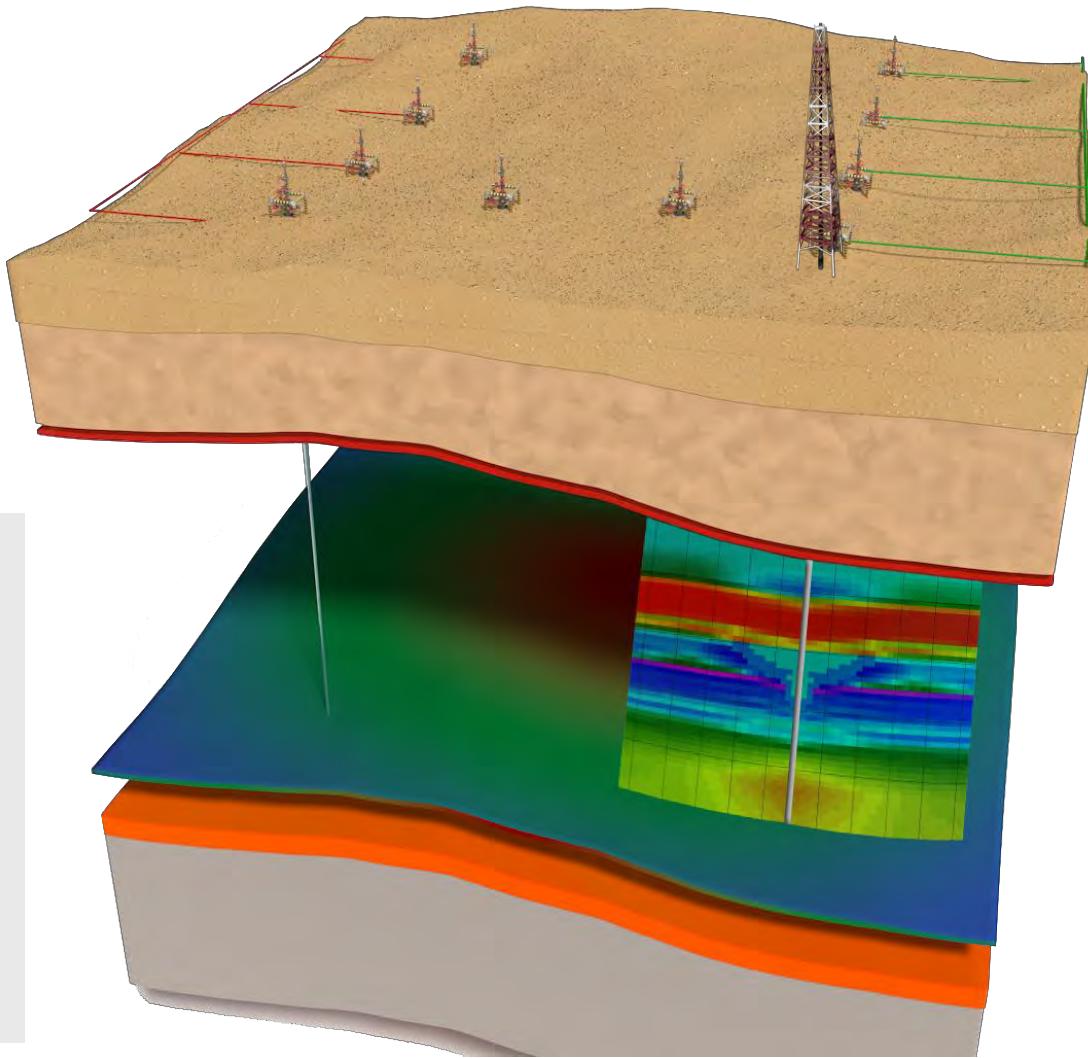


Monitoring & Surveillance

- Seismic sensors
- Cross-well
- Electromagnetic
- Borehole and surface gravity

track CO₂ plume in the reservoir

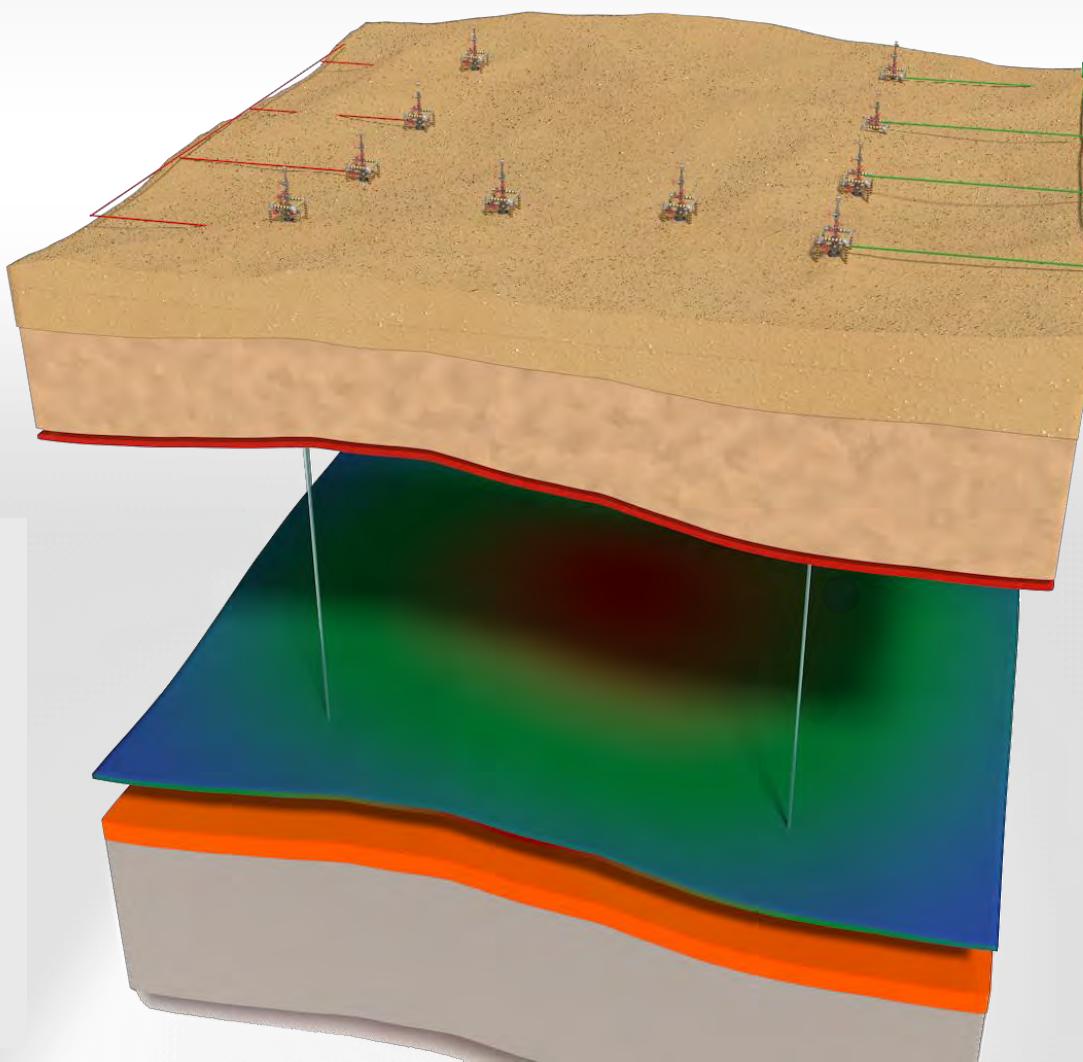
detect inadvertent CO₂ leakage into shallow aquifers



Monitoring & Surveillance

- Seismic sensors
- Cross-well
- Electromagnetic
- Borehole and surface gravity
- Tracers

CO₂ flow path and breakthrough speed



Intelligent Project



Carbon management
Uthmaniyah CO₂-EOR demonstration project

Out of the box innovation

Disruptive Technology



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