Uthmaniyah CO$_2$-EOR demonstration project

KHALED AL BURAIK
SAUDI ARAMCO

where energy is opportunity°
Because we care
Saudi Aramco environmental stewardship

- Energy efficiency
- Reduce gas flaring
- Zero discharge mandate
- Renewables
- Carbon management
Carbon management
Uthmaniyah CO2-EOR demonstration project

• The 1st in the Kingdom

• 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
Hawiyah NGL Plant (CO2 Capture Plant)
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

$\text{CO}_2$ flow path and breakthrough speed
Intelligent Project

24/7 Real-Time Monitoring by highly qualified Experts

Wells are Intelligent Field compliant

Data routed to GOSP

Monitor and Control Intelligent Field Center
Carbon management
Uthmaniyah CO2-EOR demonstration project

Out of the box
innovation
Disruptive Technology
“I believe there is enough technology to sequester CO$_2$ and to take CO$_2$ out of the atmosphere.”

H.E. Ali Al-Naimi