Closed Loop Gas Capture

IOGCC Annual Conference 2021
Orpheus Leading Eurydice from the Underworld, Jean-Baptiste-Camille Cordot, 1861
*Photo Credit: emuseum.mfah.org
How did the idea for CLGC come about? Some helpful context.
What do you mean “3rd Party Downtime?”

EOG Gas Gathering

Prod. Fac.

Prod. Fac.

3rd Party Sales Meter

Compressor Station

3rd Party Interruption
Injection During 3rd Party Downtime

Keep the gas within our system and send it back to a well for temporary injection.
Once interruption is done, the stored gas is produced from the well back into our system, “closing the loop”
Normal Gas Lift Operation
Closed Loop Gas Capture Operation

Gas Injection

Gas Into Fracture Matrix
We have the concept. Now what?

CLGC vs
Storage Well

1. CLGC: low volume (5-15 mmscf)
2. CLGC: low injection pressure (1,100-1,300 psi)
3. CLGC: Not recovery focused

CLGC vs
EOR, Pressure Maintenance, etc.

1. CLGC: low volume (5-15 mmscf)
2. CLGC: low injection pressure (1,100-1,300 psi)
3. CLGC: No attempt to affect reservoir/increase production
From Concept to Permit: Getting it across the finish line

- Project conception
- BLM sundry for pilot
- Pilot Test approval
- Caballo Pilot testing
- Proposal to NMOCD/BLM/SLO
- NMOCD Hearing
- Caballo Pilot extension approval
- Regulatory approval of 5 new CLGC wells
- NMOCHEaring for 5 additional CLGC wells
**Pilot Test Results**

**Caballo 23 Fed #2H Pilot**

- **Cumulative Injection Volume**
  - Test 1
  - Test 2
  - Test 3
  - Test 4

- **Injection Recovery – First Month**
  - Test 1
  - Test 2
  - Test 3
  - Test 4

**Test Summary**

- Successful injection of rates and pressures needed to prevent most flaring events
  - 5-15 MMSCFD injection rate
  - Up to 21 MMSCF injection volume
  - Injection pressure ~1,200 psig
- High recovery profile (~100% in < 1 month)
- No negative effect on offset well production during CLGC cycle
- Successful automation and remote monitoring from Control Room
- Successful implementation of production allocation methodology

**Fantastic Results!**
Impact to industry

• Another tool to achieve 100% gas capture
  • Targets unpredictable flaring out of operator’s control

• Industry wide application
  • Scalable based on operator infrastructure and geology

• Other operators permitting
  • 6 non EOG project permitted or currently pending
Public response to CLCG – EOG is leading the way in industry

**June 17, 2020:** “EMNRD’s Oil Conservation Division Partners with EOG Resources on Flaring Reduction Pilot Test”

**June 22, 2020:** “EOG reports successful efforts to stem flaring in New Mexico”

**January 6, 2021:** “EOG’s ESG efforts”

**January 6, 2021:** “EOG engineers in Midland, Texas were pleased but not satisfied with the company’s 99.5% gas capture rate...the question, relentlessly was how to do it better. In this case, capture emissions.”
Questions?