# Closed Loop Gas Capture

## Ophelia 27 #1H

Q2 2022 Report

# 1. Introduction

NMOCD Order R-21747, Paragraph 16, requires quarterly project status updates from EOG Resources on the Ophelia 27 #1H (30-025-41114) Closed Loop Gas Capture (CLGC) well. The following document outlines the activities that have taken place since the previous update submitted March 10, 2022.

# 2. Project Activity Summary

EOG continued to utilize the Ophelia 27 #1H CLGC system on approximately a monthly basis since the previous report. Injection occurred on ten (10) days, with material cumulative volumes recorded on all but three (3) days. Volume data (Table 1) and representative charts (Figures 1 & 2) are included in Section 3 of this report. EOG continued to refine operational protocols through the reporting period. The Midland Control Room displayed excellent integration, utilizing the CLGC system as needed and within their workflow.

During the period covered by this report, EOG performed a 24-hour test to confirm previous rate test results that delineated the “CLGC capacity” of the Ophelia 27 #1H at 4-5 MMSCFD. This test confirmed the ceiling, barring any future introduction of booster compression. Recovery profiles continued to fall in-line with the previous Caballo 23 Fed #2H pilot project results.

# 3. Injection & Recovery Data

Table 1 summarizes the daily injection totals for the dates that injection took place during the period covered by this report. The low volumes reported in March were a consequence of pipeline limitations that prevented any significant rate from making it to the well location. These issues were resolved in April.

4-5 MMSCFD is the rate ceiling for the Ophelia 27 #1H, dependent on compressor station line pressure. As evidenced in Figure 1,. there is no issue reaching this rate and maintaining it for 5+ hours if the compressor station discharge pressure can be maintained. Balancing CLGC requirements, market pressures, and the station recycle setpoint is an area of focus going forward so that CLGC capacity can be maximized.

| Date | Injection Volume [MSCF] | Injection Time [hours] |
|---|---|---|
| 03/05/2022 | 0.4 | 0.01 |
| 03/29/2022 | 2.2 | 0.07 |
| 03/30/2022 | 11.3 | 0.16 |
| 04/25/2022 | 72.4 | 2.15 |
| 04/28/2022 | 1,824.7 | 14.52 |
| 04/29/2022 | 1,037.8 | 11.00 |
| 05/27/2022 | 63.2 | 1.53 |
| 05/28/2022 | 651.6 | 4.31 |
| 06/05/2022 | 793.0 | 4.60 |
| 06/06/2022 | 379.1 | 1.88 |
| **Total** | **3,646.3** | **31.82** |

***Table 1:*** *Injection Volume Data for Report Period*

Figure 1 shows the injection rate, casing pressure, tubing pressure, and pipeline pressure for the 24-hour test. Injection took place within the production casing/tubing annulus. The casing pressure buildup was erratic at times due to pressure fluctuations at the compressor station, but the behavior matched expectations for the conditions. The casing and tubing pressures equalized after approximately four (4) hours. Stabilization occurred approximately two (2) hours after that. Just under seven (7) hours after starting the test, pressure began to fall at the compressor station. This left rates at 2-3 MMSCFD for roughly nine (9) hours, followed by ups and downs with pressure for the remainder of the test.

This rate behavior is beneficial in an infrastructure configuration similar to the Ophelia 27 #1H where only one station tied to the injection well is experiencing a disruption. In that case, EOG wants to maximize what volume is still able to flow to the markets and minimize the injection volume. However, better control of the rate behavior is still needed for situations where EOG is shifting disrupted volumes from a different compressor station and needs to maximize CLGC rates regardless of market pressures.

Figure 2 shows the gas rate and type curve for the Ophelia 27 #1H between the 24-hour test and the drafting of this report. The well recovered approximately 43% of the injected gas prior to the next use of the system just under a month later. The well continues to produce above type curve and recover additional gas, but the recovery profile for the larger volumes covered in this report appears to be more protracted than the Caballo 23

Fed #2H pilot project. EOG will continue to evaluate and will update the NMOCD in the next report.

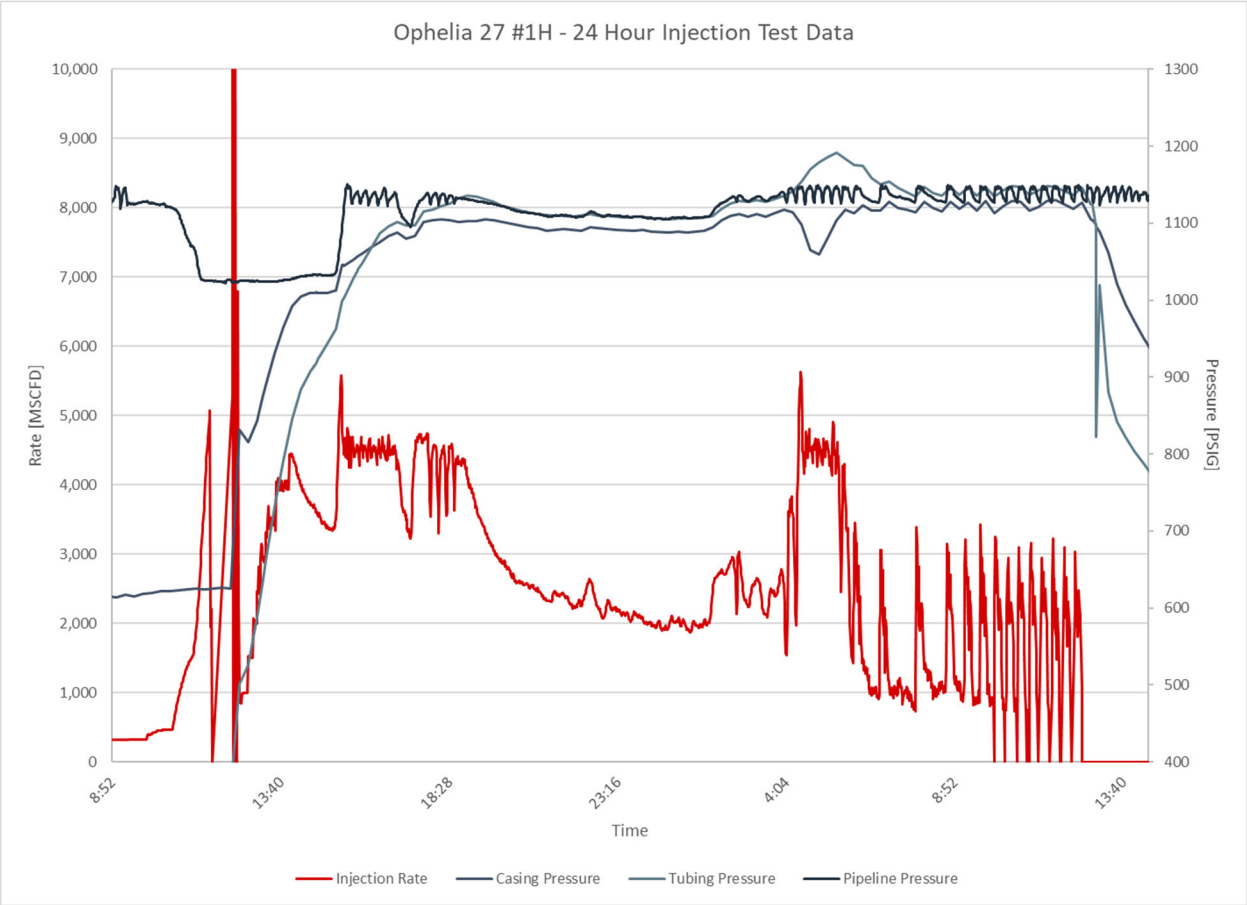


***Figure 1:*** *Injection Rate & Pressure Data from April 28-29, 2022 24-Hour Test*

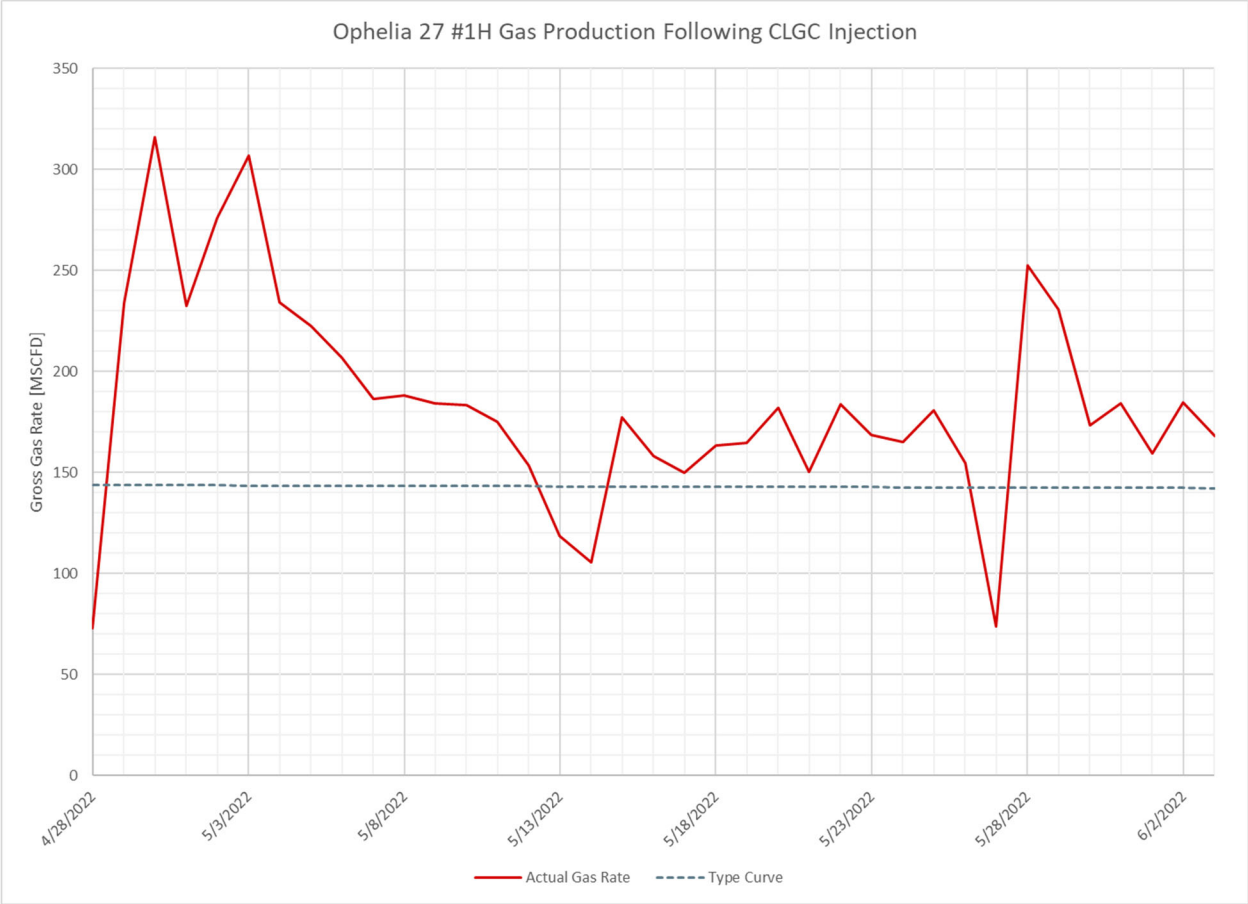


***Figure 2:*** *Gas Production/Recovery Profile Following April 28-29, 2022 Test*

# 4. Conclusion

Since the previous report submitted March 10, 2022, EOG utilized the Ophelia 27 #1H for CLGC injection on ten (10) occasions. The CLGC system saw regular use and continued refinement. A 24-hour test assisted in confirming the 4-5 MMSCFD rate ceiling for the well. The injection profile continues to meet expectations, but continued evaluation of the recovery profile is needed because current data is showing a more protracted response than the Caballo 23 Fed #2H pilot project. EOG will monitor this and will also work on improvements for managing compressor station pressure during CLGC injection.

For the next report period, EOG will continue to utilize Ophelia 27 #1H as a CLGC injection well with ongoing data capture.

# 5. Contacts

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